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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
Items 9(c) and (d) of the provisional agenda[1]

UNDP's WORK PROGRAMME AMENDMENTS FOR 2023

[1] UNEP/OzL.Pro/ExCom/93/1

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNDP is requesting approval from the Executive Committee of US $5,117,814, plus agency support costs of US $358,247 for its 2023 work programme amendments listed in table 1. The submission is attached to the present document.

Table 1: UNDP's work programme amendments for 2023

Country	Activity/Project	Amount requested (US $)	Amount recommended (US $)
SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL			
A1: Renewal of institutional strengthening projects			
Colombia	Renewal of institutional strengthening project (phase XIV)	730,230	730,230
Costa Rica	Renewal of institutional strengthening project (phase XV)	372,304	372,304
India	Renewal of institutional strengthening project (phase XIV)	988,909	988,909
Malaysia	Renewal of institutional strengthening project (phase XV)	740,563	740,563
Pakistan	Renewal of institutional strengthening project (phase XII)	594,748	594,748
Uruguay	Renewal of institutional strengthening project (phase XV)	399,560	399,560
	Subtotal for A1	3,826,314	3,826,314
	Agency support costs	267,842	267,842
	Total for A1	4,094,156	4,094,156
A2: Project preparation for HCFC phase-out management plans (HPMPs)			
Peru	Preparation of an HPMP (stage III)	40,000	40,000
South Sudan [a]	Preparation of an HPMP (stage II)	10,000	10,000
	Subtotal for A2	50,000	50,000
	Agency support costs	3,500	3,500
	Total for A2	53,500	53,500
A3: Project preparation for Kigali HFC implementation plans (KIPs)			
Brazil [b]	Preparation of a KIP (stage I)	126,500	126,500
Colombia	Preparation of a KIP investment project in the air-conditioning (AC) manufacturing sector	50,000	50,000
Colombia	Preparation of a KIP investment project in the refrigeration manufacturing sector	150,000	150,000
Egypt [c]	Preparation of a KIP (stage I)	40,000	40,000
Lebanon	Preparation of a KIP investment project in the refrigeration manufacturing sector	70,000	70,000
Mali [a]	Preparation of a KIP (stage I)	35,000	35,000
Sri Lanka	Preparation of a KIP investment project in the refrigeration manufacturing sector	80,000	80,000
	Subtotal for A3	551,500	551,500
	Agency support costs	38,605	38,605
	Total for A3	590,105	590,105
A4: Preparation of a national inventories of banks of used or unwanted controlled substances and plans for the collection, transport, and disposal of such substances[2]			
Cuba	Preparation of a national inventory of banks of used or unwanted controlled substances and a plan	90,000	90,000
Egypt	Preparation of a national inventory of banks of used or unwanted controlled substances and plan	100,000	100,000
Jamaica	Preparation of a national inventory of banks of used or unwanted controlled substances and plan	90,000	90,000
Peru	Preparation of a national inventory of banks of used or unwanted controlled substances and plan	90,000	90,000

[2] Herein referred to as preparation of a national inventory of banks of used or unwanted controlled substances and plan

Country	Activity/Project	Amount requested (US $)	Amount recommended (US $)
Trinidad and Tobago	Preparation of a national inventory of banks of used or unwanted controlled substances and plan	90,000	90,000
Uruguay	Preparation of a national inventory of banks of used or unwanted controlled substances and plan	90,000	90,000
	Subtotal for A4	550,000	550,000
	Agency support costs	38,500	38,500
	Total for A4	588,500	588,500
A5: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down[3]			
Chile	Preparation of a pilot project to maintain and/or enhance energy efficiency in industrial refrigeration	30,000	30,000
	Subtotal for A5	30,000	30,000
	Agency support costs	2,100	2,100
	Total for A5	32,100	32,100
SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION			
B1: Project preparation for Kigali HFC implementation plans (KIPs)			
India	Preparation of a demonstration project in the manufacture of compressors for mobile air-conditioning (MAC) manufacturing sector	30,000	*
	Subtotal for B1	30,000	*
	Agency support costs B1	2,100	*
	Total for B1	32,100	*
B2: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down			
Global	Preparation for a pilot project to demonstrate the use of digital monitoring and management tools to enhance energy efficiency and reduce emission of greenhouse gases in the space cooling and cold chain sectors in Colombia, Lebanon, Panama, Sri Lanka, and Trinidad and Tobago	80,000	*
		80,000	*
		5,600	*
		85,600	*
	Total for A1, A2, A3, A4, A5, B1, B2	5,117,814	5,007,814
	Agency support costs for A1, A2, A3, A4, A5, B1, B2	358,247	350,547
	Grand total	5,476,061	5,358,361

[a] UNEP as lead implementing agency
[b] Government of Germany and UNIDO as cooperating agencies
[c] UNIDO as lead implementing agency
* Recommended for individual consideration

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1: Renewal of institutional strengthening projects

Project description

2. UNDP submitted requests for the renewal of the institutional strengthening projects for the countries listed in section A1 of table 1. The description for these projects is presented in annex I to the present document.

[3] Herein referred to as preparation for a pilot project to maintain and/or enhance energy efficiency

Secretariat's comments

3. The Secretariat reviewed the requests for the renewal of the six institutional strengthening projects on behalf of the Governments concerned against the guidelines[4] and relevant decisions regarding eligibility and funding levels. The requests were cross-checked against the original work plans for the previous phase, country programme (CP) and Article 7 data, the latest report on implementation of their HCFC phase-out management plans (HPMPs), the agency's progress report, and any relevant decisions of the Meetings of the Parties. It was noted that all six countries have submitted their 2022 CP data and are in compliance with the control targets under the Montreal Protocol and have reported annual HCFC consumption that does not exceed the annual maximum allowable consumption indicated in their HPMP Agreements with the Executive Committee. Furthermore, all the requests submitted included an assessment of performance indicators, project risk and sustainability and achievement of the institutional strengthening objectives, in accordance with decision 91/63(b).

Secretariat's recommendation

4. The Secretariat recommends blanket approval of the institutional strengthening renewal requests for Colombia, Costa Rica, India, Malaysia, Pakistan, and Uruguay at the levels of funding indicated in section A1 of table 1 of the present document. The Executive Committee may wish to express to the aforementioned Governments the comments presented in annex II to the present document.

A2: Project preparation for HCFC phase-out management plans

Project description

5. UNDP submitted requests for the preparation of new stages of the HPMP for two Article 5 countries, for one country as the designated implementing agency, and for the other country, as cooperating agency with UNEP as the lead implementing agency, as shown in section A2 of table 1.

6. UNEP as the lead implementing agency for South Sudan has requested US $20,000, plus agency support costs of US $2,600 and provided a description of the activities required for the preparation of stage II of the HPMP and the corresponding costs of each activity in its work programme amendments for 2023;[5] the Secretariat's comments are also included therein.

7. UNDP provided a description of the activities to support the request for project preparation for stage III of the HPMP for Peru, which included: justification for the requested project preparation funding; a progress report on the implementation of stage II of the HPMP; the list of activities to be undertaken during project preparation, and the corresponding budgets, using the format for requests for project preparation for HPMPs.

Secretariat's comments

8. In reviewing this request, the Secretariat took into account the guidelines for funding the preparation of HPMPs for Article 5 countries contained in decision 71/42, the progress on stage II of the HPMP including the status of implementation of the tranches as at the preparation of the present document; and decision 84/46(e).[6] The Secretariat noted that the funding requested is in line with decision 71/42 and

[4] Decision 91/63: (b) to approve the revised format for terminal reports and requests for the extension of IS funding and the corresponding performance indicators; and (c) to request Article 5 countries, through the bilateral and implementing agencies, to use the revised format referred to in subparagraph (b) above for all requests for IS renewal as of the first meeting of the Executive Committee in 2023.

[5] UNEP/OzL.Pro/ExCom/93/36

[6] Inclusion of stage III of HPMPs in the business plan is allowed only for those countries with an approved stage II of HPMPs with reduction targets below the 2025 compliance targets.

that the request is in accordance with decision 82/45 allowing submission of requests for project preparation for stage III two years before the end date of stage II of the HPMP.[7]

9. UNDP confirmed that stage III of the HPMP for Peru will phase out 100 per cent of the HCFC baseline by 1 January 2030.

Secretariat's recommendation

10. The Secretariat recommends blanket approval for project preparation for stage III of the HCFC phase-out management plan (HPMP) for Peru and for stage II of the HPMP for South Sudan at the level of funding shown in section A2 of table 1.

A3: Project preparation for Kigali HFC implementation plans

Project description

11. UNDP submitted requests for the preparation of stage I of a KIP for three Article 5 countries, for one country as the lead implementing agency with the Government of Germany and UNIDO as cooperating agencies; and for two countries as the cooperating agency with UNIDO as the lead implementing agency for Egypt, and UNEP as the lead implementing agency for Mali. UNDP also submitted four requests for the preparation of stage I KIP investment projects in three countries as designated implementing agency, one request for the AC manufacturing sector and three requests for the refrigeration manufacturing sector. These requests are shown in section A3 of table 1.

12. UNIDO as the lead implementing agency for Egypt and the cooperating agency for Brazil has requested US $243,500, plus agency support costs of US $17,045 in its work programme amendments for 2023,[8] and has provided a description of the activities required for the preparation of the KIP for Egypt and the corresponding costs of each activity; the Secretariat's comments are also included therein. The Government of Germany as the cooperating agency for Brazil has requested US $40,000, plus agency support costs of US $5,200 under bilateral cooperation.[9] UNEP as the lead implementing agency for Mali has requested US $135,000, plus agency support costs of US $17,550 and provided a description of the activities required for the preparation of the KIP for the country and the corresponding costs of each activity in its work programme amendments for 2023;[10] the Secretariat's comments are also included therein.

Secretariat's comments

13. In reviewing the requests, the Secretariat took into account the guidelines for the preparation of KIPs as contained in decision 87/50, the activities proposed for project preparation and their connection with enabling activities and other HFC-related projects in the relevant countries.

14. UNDP, as the lead implementing agency described the activities required for the preparation of the overarching strategy for the KIP for Brazil using the format for requests for project preparation for a KIP. The submission included data on the consumption of HFCs and HFC blends for 2020 to 2022. Project preparation activities included a nationwide survey, data collection and consultation on HFC consumption; sectoral analysis of the use of HFCs and alternatives; a national survey on refrigeration and air-conditioning (RAC) equipment by type of refrigerant and energy efficiency class; a review of technical standards, the technician certification scheme, and minimum energy efficiency performance standards; the development of an overarching HFC phase-down strategy, stakeholder consultation and validation; and the development

[7] The last year for which a maximum allowable total consumption level has been specified in Appendix 2-A of the Agreement between the Government of Peru and the Executive Committee for stage II of the HPMP is 2025.
[8] UNEP/OzL.Pro/ExCom/93/37
[9] UNEP/OzL.Pro/ExCom/93/32
[10] Ibid.

of a communication and outreach plan. The Secretariat noted that the Government of Brazil had ratified the Kigali Amendment[11] and provided an endorsement letter indicating its intention to take action on HFC phase-down. The Secretariat further noted that the funding requested is in accordance with decision 87/50(c).

15. UNDP provided descriptions of the activities required for the preparation of the KIP investment projects for three countries. All four requests for project preparation included activities related to data collection on the consumption of HFCs and alternatives of the potential beneficiary enterprises, supply chain assessments, consultation with the enterprises and site visits, finalization of the KIP investment project proposals, and stakeholder validation. The Secretariat noted that all requesting countries had ratified the Kigali Amendment, provided endorsement letters supporting the project preparation requests, and that all three countries had received funding for the preparation of the overarching strategy for a KIP approved at previous meetings. The Secretariat further observed that:

(a) The two requests for project preparation for KIP investment projects in Colombia were for the AC manufacturing and refrigeration manufacturing sectors. For the refrigeration manufacturing sector, the project would cover potentially seven large enterprises and 20 small and-medium-sized enterprises (SMEs) using HFC-134a, R-404A, and R-507A; and for the AC manufacturing sector, four enterprises had been identified manufacturing AC equipment using R-410A. UNDP indicated that stage I of the KIP is planned for submission in 2024. The maximum funding limit for the preparation of investment projects in the manufacturing sector for stage I of the KIP for Colombia in line with decision 87/50(f)(v) is US $200,000. With the approval of this request, the country will have no more funding eligibility for the preparation of investment projects for stage I of the KIP.

(b) The request for project preparation for the KIP investment project in the commercial refrigeration manufacturing sector in Lebanon identified potential 40 manufacturing enterprises using HCF-134a and R-404A; these appear to be mostly SMEs. Funding for the project preparation for the overarching strategy of stage I of the KIP for Lebanon was approved at the 87th meeting at the amount of US $190,000, plus agency support costs for UNDP; and funding for preparation of a stage I KIP investment project in the residential AC sector was approved at the 88th meeting at the amount of US $30,000, plus agency support costs. The Secretariat advised UNDP that the maximum funding limit for the preparation of investment projects under stage I of the KIP according to decision 87/50(f)(v) for Lebanon, is US $100,000 and UNDP adjusted its request accordingly from US $150,000 to US $70,000. With the approval of this request, the country will have no more funding eligibility for the preparation of investment projects for stage I of the KIP.

(c) The project preparation request for the KIP investment project in the refrigeration manufacturing sector in Sri Lanka identified potential 10 to 15 refrigeration manufacturing enterprises using HFC-134a and R-404. Funding for the overarching project preparation for the KIP for Sri Lanka was approved at the 87th meeting at the amount of US $170,000, plus agency support costs;[12] and the limit for the preparation of stage I KIP investment projects for Sri Lanka is US $100,000 according to decision 87/50(f)(v). Stage I of the KIP is planned to be submitted in 2024. With the approval of this request, the country will have no more than US $20,000 for preparation of additional investment projects for stage I of the KIP.

[11] Date of ratification of the Kigali Amendment: 19 October 2022

[12] US 135,000 for UNDP and US $35,000 for UNEP

Secretariat's recommendation

16. The Secretariat recommends blanket approval of project preparation for stage I of the Kigali HFC implementation plans (KIPs) for Brazil, Egypt, and Mali and of the preparation of investment projects in the refrigeration manufacturing and the air-conditioning manufacturing sectors in Colombia and in the refrigeration manufacturing sectors in Lebanon and Sri Lanka as part of stage I of the KIPs for these countries, at the level of funding shown in section A3 of table 1.

A4: The preparation of a national inventory of banks of used or unwanted controlled substances and plan for the collection, transport, and disposal of such substances

Project description

17. UNDP submitted requests for the preparation of a national inventory of banks of used or unwanted controlled substances and plan for six countries as the designated implementing agency, as shown in section A4 of table 1.

Secretariat's comments

18. In reviewing these requests, the Secretariat took into account the criteria for the preparation of a national plan and inventory of banks of used or unwanted controlled contained in decision 91/66; the activities proposed for project preparation and their connection with national phase-out/phase-down plans (i.e., HPMPs or KIPs) in the country. The Secretariat noted that each funding request is in line with decision 91/66.

19. UNDP as designated implementing agency provided a description of the activities required for the preparation of a national inventory of banks of used or unwanted controlled and plan for Cuba, Egypt, Jamaica, Peru, Trinidad and Tobago and Uruguay and the corresponding costs for each activity, using the relevant submission forms for project proposals.

20. The activities in the funding requests for the six countries included the preparation of the national inventory, action plan and final report; consultations with relevant stakeholders, workshops and awareness raising; data collection and analysis on quantities of unused or unwanted refrigerants from the identified types and sources of equipment and verification; technical and economic assessment of options for handling and disposal of waste-controlled substances; and gender mainstreaming considerations. In addition to those activities aforementioned, preparation activities for some of the countries included the review of current regulations to identify additional policy needs to support the environmentally sound management of unwanted ODS and HFC banks.

21. UNDP also indicated that the resulting national inventory of banks for Cuba will assist in identifying the potential waste stream in the country that will contribute to the continued operation of the cement kiln established as a destruction facility from the previously approved pilot ODS disposal project in the country. One additional activity that the country will do during the preparation of the national inventory and plan would be to test the emissions of the cement kiln during destruction to ensure that these meet current emission standards.

Secretariat's recommendation

22. The Secretariat recommends blanket approval for the preparation of a national inventory of banks of used or unwanted controlled substances and a plan for the collection, transport, and disposal of such substances for Cuba, Egypt, Jamaica, Peru, Trinidad and Tobago and Uruguay at the level of funding shown in section A4 of table 1.

A5: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down

Project description

23. UNDP submitted one request for the preparation of a pilot project to maintain and/or enhance energy efficiency for Chile as designated implementing agency as shown in section A5 of table 1. The submission was made in line with decision 91/65.

24. The request is for the project preparation of a pilot project for the use of R-744 (carbon dioxide (CO_2)) and R-717 (ammonia (NH_3)) as alternative refrigerants in an integrated heat pump system for industrial refrigeration in the dairy processing industry in Chile, which will be implemented as part of stage I of the KIP. The objective of this project is to design, install and operate two different applications with different heat and cooling capacities in two independent but integrated pilot projects, one with R-744 and other with R-717 in the dairy industry in Chile which currently uses of high-GWP HFC refrigerants.

25. The project aims to contribute to the country's obligation to reduce the HFC consumption by converting the current R-404A/R-507A to CO_2 and NH_3 in industrial refrigeration in dairy and animal protein processing through the implementation of these integrated heat pump systems. Since integrated heat pump systems are energy-efficient, the pilot project will also contribute to the enhancement of energy efficiency in the industrial refrigeration sector in the country.

26. The project preparation activities included an analysis of the HFC consumption in the industrial refrigeration sector that would be reduced due to the use of heat pumps, consultation with a technical expert for the design of the pilot project, meetings with potential beneficiaries and stakeholders and finalization of the project proposal; the funding requested would cover the recruitment of international and national consultants and meeting costs (US $22,000) as well as travel and other expenses (US $8,000). The pilot project proposal is expected to be submitted to the 94th meeting and will be integrated into stage I of the KIP submitted at the present meeting.

Secretariat's comments

27. The Secretariat has reviewed the project proposal according to the criteria set out in decision 91/65 and noted that the request would fall under paragraph (b)(i)c. for assembly and installation activities of large commercial and industrial refrigeration, air-conditioning, and heat-pump equipment.[13]

28. The Secretariat noted that while heat pump systems are already being introduced in different sectors worldwide, its use has not been prevalent in the industrial refrigeration sectors in Article 5 countries especially in combination with the use of CO_2 or NH_3 to demonstrate the energy efficiency of these systems. As such the pilot project could result in possible replication where successfully implemented.

29. In discussing the request for project preparation, UNDP indicated that the Government of Chile would ensure the integration of this technology into stage I of the KIP noting that the use of high-GWP HFCs in the industrial refrigeration sector is 34 per cent in terms of CO_2-equivalent tonnes, of the total HFC consumption in the country. UNDP also noted that the country, when submitting the full proposal for funding at the 94th meeting will ensure that the requirements of decision 91/65(b)(iv) are met.

[13] Assembly and installation activities of large commercial and industrial refrigeration, air-conditioning and heat-pump equipment c. Projects involving technical assistance for the assembly and installation of equipment that would result in the adoption of technologies to maintain and/or enhance energy efficiency while converting from HFCs and demonstrate replicability and scalability in the country or region would be considered in priority.

30. The Secretariat noted that the present request for project preparation as submitted was in line with decision 91/65 and that as the resulting project would be integrated with the KIP, it is within the context of the HFC phase-down in the country.

Secretariat's recommendation

31. The Secretariat recommends blanket approval for the preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down in Chile at the level of funding shown in section A5 of table 1.

SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

B1: Project preparation for Kigali HFC implementation plans

Project description

32. UNDP submitted one request for the preparation of a demonstration project for the use of R-290 in automotive thermal systems with double loop secondary cooling system in the mobile air-conditioning (MAC) manufacturing sector as part of stage I of the KIP for India, as shown in section B1 of table 1.

33. The preparation request is for one enterprise, Subros Ltd. (Subros), which is the largest producer of automotive condensers in India. The resulting project will demonstrate how smart microprocessor-based systems using a secondary coolant loop can maintain passenger cabin temperature, with the use of a battery pack for electric vehicles, allowing the safe use of natural refrigerant (R-290) in MAC units. It is expected that the results of the project will also influence national market conditions and lead the way for a future reduction by 50 per cent of HFC-134a in new MAC systems (considering Subros is the supplier for roughly 50 per cent of the national MAC assembling/manufacturing sector), allowing this sector to adopt a natural refrigerant alternatives.

34. Project preparation activities would include data collection, consultation with stakeholders and experts and a feasibility study on the use of R-290 and dual secondary loop thermal systems for reducing the environmental impact of mobile air-conditioning.

Secretariat's comments

35. In reviewing the request, the Secretariat took into account the guidelines for the preparation of KIPs as contained in decision 87/50, the activities proposed for project preparation and their connection with the enabling activities, overarching KIP, and other HFC-related projects in the country.

36. The Secretariat noted that the country had ratified the Kigali Amendment[14] and had provided an endorsement letter for the project. The Government of India has not requested funding for the preparation of an overarching strategy for stage I of the KIP but received funding at the 92nd meeting for the preparation of stage I KIP investment projects including two in the refrigeration manufacturing sector and one in the AC manufacturing sector amounting to US $90,000, plus agency support costs; the limit for the preparation of stage I KIP investment projects for India is US $400,000.[15] UNDP confirmed that this request is being made as part of the preparation funding for investment projects under stage I of the KIP in line with decision 87/50(f).

37. The Secretariat further noted that while the Government of India may, using the country-driven approach, use project preparation funds for the KIP investment projects in sectors that are priority for stage I, there is yet no guidance from the Executive Committee in preparing demonstration projects as part

[14] Date of ratification of the Kigali Amendment: 27 September 2021
[15] Decision 87/50(f)

of the KIP except for those that fall within decision 92/36 for end-users. Further, the Secretariat also observed that while Subros is the largest manufacturer of compressors for MAC systems and supplies most auto manufacturers in India, the enterprise does not directly use HFCs except for testing.

38. In response, UNDP explained that the automotive industry in India is the fourth largest in the world in terms of production as per 2022 statistics, and that this will continue to grow both for domestic and export demand. In India, the MAC sector is one of the highest HFC using sectors and the use of HFC-134a as a refrigerant for MAC is expected to continue to be in high demand. Implementing this project will demonstrate the potential for the use of R-290 in MAC, with due consideration for its flammability and safety. With Subros leading, this project, if successful, could lead to manufacturing MAC compressors that are HFC-free and facilitate the transition of the car industry to non-HFC alternatives.

39. The Secretariat also noted that as a group 2 country, India's initial reduction obligations will be the freeze in HFC consumption by 2028.

Secretariat's recommendation

40. The Executive Committee may wish to consider approving the preparation of a demonstration project in the mobile air-conditioning sector as part of stage I of the Kigali HFC implementation plan for India at the amount of US $30,000, plus agency support costs of US $2,100 for UNDP.

B2: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down

Project description

41. UNDP submitted one request for the preparation of a global pilot project for a support programme for five countries to pilot digital tools for monitoring and managing AC and cold chain systems to reduce emission of greenhouse gases (GHG), reduce energy consumption and associated electricity costs, and proactively improve overall maintenance of cooling systems as the designated implementing agency, as shown in section B2 of table 1. The submission is made in line with decision 91/65.

42. The project preparation request described the overall objective and how it fits within the criteria in decision 91/65 stating that digital tools provide valuable insight and control capabilities that can significantly enhance the energy efficiency of cooling systems, reduce GHG emission, and identify energy saving opportunities at the unit, facility, community, and city levels. It was further noted that digitalization is an innovative approach that can contribute to the implementation of the Kigali Amendment by monitoring the energy performance of existing and new cooling equipment and systems, identifying HFC refrigerant leakage (and consequently reducing HFC consumption), and optimizing system settings for enhanced energy efficiency. The resulting project aims to leverage UNDP's Digital Strategy,[16] which has a vision to support digitalization in 100 countries by 2030, and experience in successfully using digital tools to address the challenges in the distribution of vaccines during the COVID-19 pandemic. UNDP also indicated that digital tools provide a solution for countries that do not have robust monitoring, testing, and reporting systems for energy efficiency.

43. The project preparation activities include the assessment of three priority project types for potential implementation in the beneficiary countries, taking into account their specific characteristics and priorities in AC and cooling systems in the cold chain (i.e., the fisheries sector in Small Island Developing States, and the retail/supermarket sector in some countries). The requested funding would cover the recruitment of international consultants on AC and cold chain technology and digital experts (US $46,000) as well as travel expenses (US $34,000). The pilot project proposal is expected to be submitted to the 94th meeting.

[16] https://digitalstrategy.undp.org

Secretariat's comments

44. The Secretariat has reviewed the project proposal in light of the project criteria set out in decision 91/65 and noted that the request could fall under paragraph (b)(i)c.[17] for assembly and installation activities of large commercial and industrial refrigeration, air-conditioning, and heat-pump equipment.

45. Following review of the project preparation request, the Secretariat noted that this proposal was unique and innovative and represented new and prospective approaches for considering energy efficiency in the context of the Montreal Protocol. In discussing this with UNDP, clarification was sought on the immediate and tangible outputs that would result from the project, how it would benefit the five countries that would participate, and how this could be replicated in other Article 5 countries. UNDP explained that the immediate outputs would be reports that would summarize the results of the assessment of the monitoring and management tools, Internet of Things (IoT) sensor networks and data collection systems used in the countries; reports from the pilot activities in each country would contain data on energy savings and emission reductions, the cost of digital tools in the different applications piloted, training materials for local technicians and operators, and policy briefs on supporting energy-efficient practices and incentives for the digitalization of AC and cooling systems in the cold chain sector.

46. With regard to the potential for replication, UNDP emphasized that during project implementation, there will be comprehensive documentation of the activities, including lessons learned and best practices which would serve as a resource for replication in other regions. The project would also build capacity of national experts to enable easy replication in different locations and use open-source tools that are readily available to encourage wider adoption and replication.

Secretariat's recommendation

47. The Executive Committee may wish to consider the request for the preparation of a global pilot project for a support programme for five countries to pilot digital tools for monitoring and managing AC and cold chain systems to reduce emission of greenhouse gases, reduce energy consumption and associated electricity costs, and proactively improve overall maintenance of cooling systems, at the amount of US $80,000, plus agency support costs of US $5,600 for UNDP.

[17] Assembly and installation activities of large commercial and industrial refrigeration, air-conditioning and heat-pump equipment (c) Projects involving technical assistance for the assembly and installation of equipment that would result in the adoption of technologies to maintain and/or enhance energy efficiency while converting from HFCs and demonstrate replicability and scalability in the country or region would be considered in priority.

Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS[1]

Colombia: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNDP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar-94	317,790
	Phase II:	Mar-98	212,000
	Phase III:	Mar-00	212,000
	Phase IV:	Nov-02	275,596
	Phase V:	Apr-05	275,586
	Phase VI:	Jul-07	275,283
	Phase VII:	Jul-09	275,587
	Phase VIII:	Jul-11	275,600
	Phase IX:	Jul-13	275,444
	Phase X:	May-15	275,592
	Phase XI:	Jul-17	352,768
	Phase XII:	May-19	352,768
	Phase XIII:	Nov-21	352,768
		Total:	3,728,782
Amount requested for renewal (phase XIV) (US $):			730,230
Amount recommended for approval for phase XIV (US $):			730,230
Agency support costs (US $):			51,116
Total cost of institutional strengthening phase XIV to the Multilateral Fund (US $):			781,346
Date of approval of country programme:			1994
Date of approval of HCFC phase-out management plan:			2010
Baseline consumption of controlled substances (ODP tonnes for ODS/CO_2-eq tonnes for HFCs):			
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.6
(b) Annex C, Group I (HCFCs) (average 2009-2010)			225.6
(c) Annex E, (methyl bromide) (average 1995-1998)			110.1
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)			8,652,982
Latest reported ODS consumption (2022) (ODP tonnes) as per Article 7:			
(a) Annex B, Group III (methyl chloroform)			0.00
(b) Annex C, Group I (HCFCs)			17.88
(c) Annex E, (methyl bromide)			0.00
		Total:	17.88
Latest reported Annex F (HFCs) consumption (2022) (CO_2-eq tonnes) as per Article 7			9,242,759
Year of reported country programme implementation data:			2022
Amount approved for projects (as at June 2023) (US $):			37,853,771
Amount disbursed (as at December 2022) (US $):			36,040,743
ODS to be phased out (as at June 2023) (ODP tonnes):			2,063.2
ODS phased out (as at December 2022) (ODP tonnes):			2,018.1

1. Summary of activities and funds approved by the Executive Committee:

Summary of activities	Funds approved (US $)
(a) Investment projects:	25,982,853
(b) Institutional strengthening:	3,728,782
(c) Project preparation, technical assistance, training, and other non-investment projects:	8,142,137
Total:	37,853,771

[1] Data as at December 2022 are based on document UNEP/OzL.Pro/ExCom/93/16.

(d) HFC activities funded from additional voluntary contributions	250,000

Progress report

2. During phase XIII of its institutional strengthening project, Colombia continued implementation of the Montreal Protocol and ODS phase-out activities; reported consumption data to both the Fund and Ozone Secretariats; continued implementation of its HCFC phase-out management plan (HPMP) and coordinated with stakeholders; and raised awareness of issues relating to ozone-depleting substances. Colombia also continued participation in regional and global Montreal Protocol meetings. The country fully achieved six performance indicators and partially achieved one during the current phase.

Plan of action

3. In the upcoming phase, Colombia will work towards achieving and maintaining the 87 per cent reduction of HCFC consumption from the year 2025 and achieving first measures of stage I of its KIP. Colombia will reinforce inter-institutional coordination with the customs authority; monitor trade, coordinate the collection, analysis, verification, and submission of progress reports on the implementation of country programmes; and strengthen the legal framework to control and monitor HCFC consumption through import/export licensing and quota systems and new regulations. The national ozone unit (NOU) will continue active participation in the regional and global meetings of the Montreal Protocol.

Sustainability and risk assessment

4. The results achieved by the institutional strengthening project, including those achieved in the previous phases, have been sustainable due to regulatory measures and national coordination with related national policies and strategies. The risks will be evaluated, and their management plan will be proposed according to UNDP procedures. However, according to lessons learned from previous phases, high and medium probability risks are not expected.

Costa Rica: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNDP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Oct-92	213,160
	Phase II:	Feb-97	108,087
	Phase III:	Mar-99	105,568
	Phase IV:	Dec-01	104,224
	Phase V:	Dec-03	139,737
	Phase VI:	Nov-05	138,068
	Phase VII:	Nov-07	127,917
	Phase VIII:	Nov-09	140,502
	Phase IX:	Nov-11	140,513
	Phase X:	Dec-13	140,513
	Phase XI:	Nov-15	179,659
	Phase XII:	Nov-17	174,459
	Phase XIII:	Dec-19	179,857
	Phase XIV:	Nov-21	179,857
		Total:	2,072,121
Amount requested for renewal (phase XV) (US $):			372,304
Amount recommended for approval for phase XV (US $):			372,304
Agency support costs (US $):			26,061
Total cost of institutional strengthening phase XV to the Multilateral Fund (US $):			398,365
Date of approval of country programme:			1992

Date of approval of HCFC phase-out management plan:	2011
Baseline consumption of controlled substances (ODP tonnes for ODS/CO_2-eq tonnes for HFCs):	
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)	0.0
(b) Annex C, Group I (HCFCs) (average 2009-2010)	14.1
(c) Annex E (methyl bromide) (average 1995-1998)	342.5
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)	1,450,799
Latest reported ODS consumption (2022) (ODP tonnes) as per Article 7:	
(a) Annex B, Group III (methyl chloroform)	0.0
(b) Annex C, Group I (HCFCs)	3.83
(c) Annex E (methyl bromide)	0.0
Total:	3.83
Latest reported Annex F (HFCs) consumption (2022) (CO_2-eq tonnes) as per Article 7	1,578,209
Year of reported country programme implementation data:	2022
Amount approved for projects (as at June 2023) (US $):	13,259,754
Amount disbursed (as at December 2022) (US $):	12,540,004
ODS to be phased out (as at June 2023) (ODP tonnes):	810.1
ODS phased out (as at December 2022) (ODP tonnes):	799.4

5. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	8,150,076
(b) Institutional strengthening:	2,072,121
(c) Project preparation, technical assistance, training, and other non-investment projects:	3,037,556
Total:	13,259,754
(d) HFC activities funded from additional voluntary contributions	150,000

Progress report

6. Under phase XIV of the institutional strengthening project for Costa Rica achievements included: the reduction of HCFC imports by 74 per cent in 2022 compared to the 2013 baseline; control of illicit trafficking of ODS; reporting of the country programme and Article 7 data to the Fund and Ozone Secretariats, respectively; development of a proposal for a "Regulation to implement an import quota mechanism for the gradual reduction of the use of Hydrofluorocarbons (HFCs), or controlled substances of Annex F of the Montreal Protocol"; and the celebration of World Ozone Day, where specific issues were addressed to support the sector. The NOU also implemented online training courses, encouraged the acquisition of eco-efficient equipment and raised awareness among customs agencies about the importance of carrying out rigorous control of imports. The NOU also developed campaigns for the recovery of refrigerant gases for destruction, which has contributed to the recovery of about 1,117.45 kg of refrigerants, preventing their release into the atmosphere; and the creation of an online awareness module on human rights, with an emphasis on gender equity. In general, Costa Rica fully achieved five and partially achieved two institutional strengthening objectives during phase XIV.

Plan of action

7. During phase XV, Costa Rica commits to implement all the actions proposed in the seven goals, giving special emphasis to the implementation of the Kigali Amendment, the freezing of the HFC baseline, the implementation of the quota system and the promotion of the energy efficiency of equipment. In addition, the country will continue implementing its HPMP activities relating to efficient and sustainable refrigeration and air-conditioning (RAC), including the formation of a technical decision-making team, also for the implementation of the Kigali Amendment. Coordination will continue to strengthen other technical training centres, providing tools and training on the safe handling of new technologies with natural refrigerants, as well as the development of new campaigns for the recovery of gases for destruction.

Activities relating to the integration of the Multilateral Fund's gender policy in all Montreal Protocol projects will be a focus during this phase. The commemoration of World Ozone Day will be a key activity to continue raising public awareness on the protection of the ozone layer and climate over the next three years.

Sustainability and risk assessment

8. Sustainability and risk assessment is an exercise that has been practiced in previous phases and will continue to be carried out within the framework of the project on a permanent basis, to foresee any situation that may affect its execution. There is strong institutional support to the work under the Montreal Protocol in Costa Rica, which is exemplified by the number of government-paid staff that are involved with the implementation of the Montreal Protocol in DIGECA / MINAE. The Director of DIGECA has good access to the decision-making level of the Ministry, and there is a strong political support for the implementation of the Montreal Protocol in Costa Rica. The main risk is the relatively low baseline for HFCs because of a depressed economy in 2020 and 2021. The high imports in 2022 (and 2023) indicate that the country has now an HFC consumption that is above the freeze level, which could potentially increase the risk of illegal trade in the coming years. There is a strong collaboration between the NOU, the Foreign Trade Promoter, the General Directorate of Customs and importers of RAC equipment and refrigerants, which helps to mitigate such risks. The newly established HFC quota system is crucial for this.

India: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNDP
Amounts previously approved for institutional strengthening (US $):		
	Phase I: Oct-92	428,929
	Phase II: Oct-96	287,100
	Phase III: Mar-99	287,100
	Phase IV: Jul-01	285,796
	Phase V: Dec-03	370,310
	Phase VI: Nov-05	373,230
	Phase VII Apr-08	373,230
	Phase VIII: Apr-10 & Nov-11	373,230
	Phase IX: Apr-12	373,230
	Phase X: May-14	236,392
	Phase XI: May-16	477,682
	Phase XII: Dec-19	477,734
	Phase XIII: Nov-21	477,734
	Total:	4,821,697
Amount requested for renewal (phase XIV) (US $):		988,909
Amount recommended for approval for phase XIV (US $):		988,909
Agency support costs (US $):		69,224
Total cost of institutional strengthening phase XIV to the Multilateral Fund (US $):		1,058,133
Date of approval of country programme:		1993
Date of approval of HCFC phase-out management plan:		2012
Baseline consumption of controlled substances (ODP tonnes for ODS/CO_2-eq tonnes for HFCs):		
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)		122.2
(b) Annex C, Group I (HCFCs) (average 2009-2010)		1,608.2
(c) Annex E (methyl bromide) (average 1995-1998)		0.0
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)		Not available
Latest reported ODS consumption (2022) (ODP tonnes) as per Article 7:		
Annex B, Group III (methyl chloroform)		0.0
Annex C, Group I (HCFCs)		342.5
Annex E (methyl bromide)		0.0
	Total:	342.5

Summary of the project and country profile	
Latest reported Annex F (HFCs) consumption (2022) (CO2-eq tonnes) as per Article 7	57,219,531
Year of reported country programme implementation data:	2022
Amount approved for projects (as at June 2023) (US $):	305,490,805
Amount disbursed (as at December 2022) (US $):	289,905,660
ODS to be phased out (as at June 2023) (ODP tonnes):	24,719.5
ODS phased out (as at December 2022) (ODP tonnes):	29,036.5

9. Summary of activities and funds approved by the Executive Committee:

Summary of activities		**Funds approved (US $)**
(a)	Investment projects:	285,115,182
(b)	Institutional strengthening:	4,821,697
(c)	Project preparation, technical assistance, training, and other non-investment projects:	15,553,926
	Total:	305,490,805
(d)	HFC activities funded from additional voluntary contributions	0

Progress report

10. Under phase XIII, India continued its efforts in the implementation of the Montreal Protocol and ODS phase-out activities to meet the Montreal Protocol obligations. The Ozone Cell successfully achieved the 2021 and 2022 compliance obligations of the accelerated phase-out schedule of the Montreal Protocol and in line with the Government's Agreement with the Executive Committee. During the phase, India enforced the complete phase-out of HCFC-141b, and the institutional strengthening project provided competency enhancement to support the national compliance targets and national policies. The Ozone Cell also carried out a comprehensive awareness campaign at national and state levels; competency enhancement of customs and enforcement agencies; developed knowledge products, including "The Montreal Protocol - India's Success Story"; participated in Montreal Protocol meetings and contributed significantly during the meetings on key policy issues. Fiscal measures covering customs and excise duty exemptions on capital goods for establishment of industry with non-ODS technology also continued. India achieved all seven of the institutional strengthening objectives.

Plan of action

11. Phase XIV will continue effective implementation of ODS phase-out activities, sustaining the ODS phase-out and coordinating actions to facilitate the completion of stage II of the HPMP and the smooth transition towards implementation of stage III, including supporting the institutional matters required to enact and enforce the ban on HCFC-22 in manufacturing of new RAC equipment. The Ozone Cell will assist, coordinate, consult and engage with stakeholders for implementation of the Montreal Protocol and national regulations; allow for planning and implementation of information outreach activities through active involvement of all stakeholders and coordinate actions for the design of a national strategy for phase-down of HFCs in close coordination with all concerned stakeholders.

Sustainability and risk assessment

12. The upcoming phase will be implemented following UNDP's National Implementation Modality which provides the Government of India total ownership of project results. The UNDP country office provides support to the Government of India by providing ERP and IT tools required for project execution tasks, as well as applying UNDP Financial and Procurement Rules and Regulations which are expected to address any risks related to delays in project execution. UNDP will co-chair the Project Board (Project Steering Committee – PSC). The Government of India, through its Ozone Cell set up under the MoEF&CC,

will continue to be the project Implementing Partner (IP), co-chairing the PSC and having full accountability over the project intended results and outputs.

Malaysia: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNDP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar-93	306,817
	Phase II:	Oct-96	209,477
	Phase III:	Nov-98	178,116
	Phase IV:	Dec-00	204,006
	Phase V:	Nov-02	262,367
	Phase VI:	Dec-04	279,500
	Phase VII:	Nov-07	277,499
	Phase VIII:	Jul-09	279,268
	Phase IX:	Jul-11	279,500
	Phase X:	Jul-13	279,500
	Phase XI:	Nov-15	357,760
	Phase XII:	Nov-17	357,760
	Phase XIII:	Dec-19	357,760
	Phase XIV:	Nov-21	357,760
		Total:	3,987,090
Amount requested for renewal (phase XV) (US $):			740,563
Amount recommended for approval for phase XV (US $):			740,563
Agency support costs (US $):			51,839
Total cost of institutional strengthening phase XV to the Multilateral Fund (US $):			792,402
Date of approval of country programme:			1992
Date of approval of HCFC phase-out management plan:			2011
Baseline consumption of controlled substances (ODP tonnes for ODS/CO_2-eq tonnes for HFCs):			
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)			49.5
(b) Annex C, Group I (HCFCs) (average 2009-2010)			515.8
(c) Annex E (methyl bromide) (average 1995-1998)			14.6
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)			26,703,074
Latest reported ODS consumption (2022) (ODP tonnes) as per Article 7:			
(a) Annex B, Group III (methyl chloroform)			0.00
(b) Annex C, Group I (HCFCs)			187.07
(c) Annex E (methyl bromide)			0.00
		Total:	187.07
Latest reported Annex F (HFCs) consumption (2022) (CO_2-eq tonnes) as per Article 7			27,487,984
Year of reported country programme implementation data:			2022
Amount approved for projects (as at June 2023) (US $):			64,871,259
Amount disbursed (as at December 2022) (US $):			62,792,678
ODS to be phased out (as at June 2023) (ODP tonnes):			7,046.1
ODS phased out (as at December 2022) (ODP tonnes):			6,915.6

13. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	51,493,044
(b) Institutional strengthening:	3,987,090
(c) Project preparation, technical assistance, training, and other non-investment projects:	9,391,124
Total:	64,871,259
(d) HFC activities funded from additional voluntary contributions	250,000

Progress report

14. Malaysia has steadfastly upheld its commitments to the Montreal Protocol during phase XIV of its institutional strengthening project, successfully meeting the 2021 and 2022 compliance obligations. The institutional strengthening project played a crucial role, providing tools for coordinated efforts and complementary actions in implementation of Montreal Protocol activities including reporting and monitoring for compliance. The NOU participated and contributed to various Montreal Protocol meetings; worked closely with the RAC and foam sectors ensuring phase-out of HCFCs as committed; ensured proactive measures were taken to phase out HCFC-141b; developed a robust online import/export control system to ensure compliance; and comprehensive awareness campaigns were carried out at both national and state levels to sensitize stakeholders regarding ODS phase-out across various sectors, as well as national regulations and policies. The successful organization of World Ozone Day celebrations in 2022 and 2023 highlighted Malaysia's commitment to ozone layer protection and environmental sustainability. All seven institutional strengthening objectives were fully achieved.

Plan of action

15. Phase XV of the institutional strengthening project for Malaysia aims to achieve the following objectives: continue the effective implementation of ODS phase-out and HFC phase-down activities; facilitate coordinated actions to enable the successful completion of stage II of the HPMP and the implementation of stage III of the HPMP and stage I of the KIP; actively assist, coordinate, consult, and engage with relevant line ministries, organizations, bodies, industry associations, and other stakeholders to facilitate the implementation of the Montreal Protocol and national regulations; and plan and execute information outreach activities involving all stakeholders, and coordinate efforts to design a national strategy for the gradual reduction of HFCs, closely collaborating with all relevant parties.

Sustainability and risk assessment

16. Phase XV will continue implementation with the NOU within the Department of Environment as the implementing partner under UNDP's National Implementation Modality. As required, UNDP will support the Government of Malaysia during the implementation. The institutional strengthening project is administered by a PSC (Project Steering Committee) headed by the Deputy DG of the Ministry. The project document will include identified risks and its mitigation measures. The learning from previous institutional strengthening phases will be incorporated while assessing risks. Project risks can be amended during implementation by the implementing partner and can be updated through the PSC mechanism at any point in time.

Pakistan: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNDP
Amounts previously approved for institutional strengthening (US $):		
Phase I:	Sept-94	254,958
Phase II:	Dec-01	172,564
Phase III:	Dec-03	221,991
Phase IV:	Mar-07and Nov-07	112,233
Phase V:	Apr-09	94,663
Phase VI:	Dec-10	224,467
Phase VII:	Dec-12	224,467
Phase VIII:	Nov-14	224,467
Phase IX:	Dec-16	224,467
Phase X:	Dec-18	286,749
Phase XI:	Jul-21	287,318
	Total:	2,615,662

Amount requested for renewal (phase XII) (US $):	594,748
Amount recommended for approval for phase XII (US $):	594,748
Agency support costs (US $):	41,632
Total cost of institutional strengthening phase XII to the Multilateral Fund (US $):	636,380
Date of approval of country programme:	1996
Date of approval of HCFC phase-out management plan:	2010
Baseline consumption of controlled substances (ODP tonnes for ODS/CO_2-eq tonnes for HFCs):	
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)	2.30
(b) Annex C, Group I (HCFCs) (average 2009-2010)	248.11
(c) Annex E, (methyl bromide) (average 1995-1998)	14.00
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)	Not available
Latest reported ODS consumption (2022) (ODP tonnes) as per Article 7:	
(a) Annex B, Group III (methyl chloroform)	0.00
(b) Annex C, Group I (HCFCs)	119.09
(c) Annex E, (methyl bromide)	0.00
Total:	119.09
Latest reported Annex F (HFCs) consumption (2022) (CO_2-eq tonnes) as per Article 7	Not available
Year of reported country programme implementation data:	2022
Amount approved for projects (as at June 2023) (US $):	34,901,112
Amount disbursed (as at December 2022) (US $):	30,739,978
ODS to be phased out (as at June 2023) (ODP tonnes):	2,632.3
ODS phased out (as at December 2022) (ODP tonnes):	2,610.3

17. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	27,350,844
(b) Institutional strengthening:	2,615,662
(c) Project preparation, technical assistance, training, and other non-investment projects:	4,934,606
Total:	34,901,112
(d) HFC activities funded from additional voluntary contributions	0

Progress report

18. Pakistan, under phase XI of its institutional strengthening project, has successfully sustained the ODS phase-out through effective enforcement of regulations, monitoring, and collaboration with key stakeholders. The NOU also worked closely with other national agencies and stakeholders to ensure the monitoring of ODS phase-out. Pakistan successfully implemented activities under stage II of the HPMP. The institutional strengthening project was instrumental in providing administrative and policy level support to Montreal Protocol activities such as the HCFC phase-out strategy in Pakistan and helped the government to meet its international commitments relating to the Montreal Protocol.

Plan of action

19. Phase XII of the institutional strengthening project will continue supporting the activities for stages II and III of the HPMP in order to sustain the HCFC reduction as agreed under the Montreal Protocol. Awareness raising and technology-driven campaigns for industries, importers, public sector, and the general public will be held regularly to keep stakeholders updated regarding the harmful effects of ozone-depleting substances, progress done by the global community to address related issues, efforts being made by the Montreal Protocol under the guidance of Scientific Assessment and Technical Panels as well as the positive linkage to climate change. Close coordination will be maintained with academia (focusing on environmental sciences/engineering and climate change) and all relevant stakeholders for awareness raising

amongst the public, especially youth. The next phase will enable Pakistan to continue the process of preparing for the HFC phase-down, as well as ratification of the Kigali Amendment.

Sustainability and risk assessment

20. As part of UNDP requirement, capacity assessment is carried out for investment projects, risks are assessed, and mitigation measures are developed. To mitigate risks, the implementing agency established regular monitoring mechanisms in coordination with the NOU. The key lessons learned include that risk assessment and continuous monitoring are essential to project success. Also, building partnerships with key stakeholders is vital in addressing compliance obligations and fostering project sustainability.

Uruguay: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNDP
Amounts previously approved for institutional strengthening (US $):		
Phase I:	Jun-93 & May-96	202,800
Phase II:	Oct-96	116,000
Phase III:	Jul-98	115,981
Phase IV:	Jul-00	115,804
Phase V:	Jul-02	150,800
Phase VI:	Jul-04	150,800
Phase VII:	Jul-06	150,800
Phase VIII:	Nov-08	150,800
Phase IX:	Nov-11	150,797
Phase X:	Dec-13	150,800
Phase XI:	Nov-15	193,024
Phase XII:	Nov-17	192,729
Phase XIII:	Dec-19	193,024
Phase XIV:	Nov-21	193,024
Total:		2,227,183
Amount requested for renewal (phase XV) (US $):		399,560
Amount recommended for approval for phase XV (US $):		399,560
Agency support costs (US $):		27,969
Total cost of institutional strengthening phase XV to the Multilateral Fund (US $):		427,529
Date of approval of country programme:		1993
Date of approval of HCFC phase-out management plan:		2011
Baseline consumption of controlled substances (ODP tonnes for ODS/CO_2-eq tonnes for HFCs):		
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)		0.0
(b) Annex C, Group I (HCFCs) (average 2009-2010)		23.4
(c) Annex E (methyl bromide) (average 1995-1998)		11.2
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)		1,012,431
Latest reported ODS consumption (2022) (ODP tonnes) as per Article 7:		
(a) Annex B, Group III (methyl chloroform)		0.00
(b) Annex C, Group I (HCFCs)		12.82
(c) Annex E (methyl bromide)		0.00
Total:		12.82
Latest reported Annex F (HFCs) consumption (2022) (CO_2-eq tonnes) as per Article 7		571,556
Year of reported country programme implementation data:		2022
Amount approved for projects (as at June 2023) (US $):		10,096,282
Amount disbursed (as at December 2022) (US $):		8,615,260
ODS to be phased out (as at June 2023) (ODP tonnes):		545
ODS phased out (as at December 2022) (ODP tonnes):		453.8

21. Summary of activities and funds approved by the Executive Committee:

Summary of activities	Funds approved (US $)
(a) Investment projects:	4,754,381
(b) Institutional strengthening:	2,227,183
(c) Project preparation, technical assistance, training, and other non-investment projects:	3,114,718
Total:	10,096,282
(d) HFC activities funded from additional voluntary contributions	150,000

Progress report

22. Phase XIV of the institutional strengthening project for Uruguay was successfully implemented. Uruguay is completing stage II of its HPMP and implementing stage III, in close collaboration with local authorities and stakeholders, including training of RAC technicians on low-GWP alternatives and application of good refrigeration practices. The preparation of the Kigali HFC implementation plan (KIP) is underway; HCFC import, export and transit controls are fully operational; advancement is progressing in the design of the HFC quota system and the licensing system has been fully implemented. The NOU also actively participated in regional and global meetings relevant to the implementation of the Montreal Protocol.

Plan of action

23. During phase XV of the institutional strengthening project, the Government of Uruguay will maintain the ban on CFCs and halons and the reductions made in HCFC consumption. In this phase, the government will establish its HFC quota system and will guide importers in the application of their quota. In addition, the NOU will work with public and private entities to enforce the control measures on HCFC and HFC consumption. The NOU will also oversee the implementation of stage III of the HPMP which will include a training programme on good refrigeration practices and continued public awareness activities. The Government of Uruguay will complete the process for the preparation of the KIP and start the implementation of its first tranche. The Government of Uruguay will also continue to actively participate in the regional and global network meetings of the Montreal Protocol, to exchange information and experiences that favour the implementation of national policies and strategies for the protection of the ozone layer.

Sustainability and risk assessment

24. The NOU is located within the Ministry of Environment, which ensures that the policies and activities implemented by the NOU have the institutional support and consider the national priorities and strategies. The NOU works with different stakeholders from the public and private sector, which facilitates the long-term effects of its interventions. Although there will be general elections in October 2024, Uruguay has strong institutions and is politically stable, so it is expected that the transition will not impact the project implementation. On the risks associated with the availability of alternatives to HCFC and HFC, the NOU works with importers and technology suppliers to monitor the market and promote the availability of alternatives.

Annex II

DRAFT VIEWS EXPRESSED BY THE EXECUTIVE COMMITTEE ON RENEWAL OF INSTITUTIONAL STRENGTHENING PROJECTS SUBMITTED TO THE 93rd MEETING

Colombia

1. The Executive Committee reviewed the report submitted with the request for the renewal of the institutional strengthening project for Colombia (phase XIV) and noted with appreciation the fact that the Government reported 2021 and 2022 Article 7 data to the Ozone Secretariat and country programme data to the Fund Secretariat indicating that the country is in compliance with the Montreal Protocol. The Committee noted that Colombia has taken steps to phase out ODS consumption; in particular, implementation of HCFC import controls through the licensing and quota system, and training of customs officers and refrigeration technicians. The Committee also noted with appreciation the activities initiated to facilitate the implementation of the Kigali Amendment. The Committee acknowledged the efforts of the Government of Colombia and is therefore hopeful that, within the next three years, the country will continue implementation of the HCFC phase-out management plan, preparation of stage I of the Kigali implementation plan and implementation of institutional strengthening project activities with success in order to achieve and sustain the 65 per cent reduction in HCFC consumption required since 1 January 2021 and the upcoming control targets in 2024 and 2025.

Costa Rica

2. The Executive Committee reviewed the report submitted with the request for the renewal of the institutional strengthening project for Costa Rica (phase XV) and noted with appreciation that the Government of Costa Rica is complying with its reduction targets and reported 2021 and 2022 Article 7 data to the Ozone Secretariat and country programme data to the Fund Secretariat. The Committee further noted that the Government has taken steps to phase out ODS consumption; in particular, implementation of HCFC imports controls through the licensing and quota system, and training of customs officers and refrigeration technicians. The Committee also noted with appreciation the activities initiated for the implementation of the Kigali Amendment. The Committee acknowledged Costa Rica's efforts and is therefore hopeful that, within the next three years, Costa Rica will continue implementation of the HCFC phase-out management plan, preparation of the Kigali HFC implementation plan and implementation of the institutional strengthening project activities with success to sustain the 65 per cent reduction in HCFC consumption required since 1 January 2021 and establishing the foundation for the implementation of the Kigali Amendment.

India

3. The Executive Committee reviewed the report presented with the request for the renewal of the institutional strengthening project for India (phase XIV). The Committee noted with appreciation India's ratification of the Kigali Amendment and its continued and diligent efforts in sustaining the phase-out of ODS, encompassing various policy, regulatory, technology transfer, and awareness initiatives. The Executive Committee acknowledged the efforts of the Government of India in demonstrating the country's compliance with the Montreal Protocol and is therefore hopeful that, within the next three years, the country will complete stage II of its HCFC phase-out management plan and begin implementation of stage III, as well as develop stage I of the Kigali HFC implementation plan, and successfully implement the institutional strengthening project activities.

Malaysia

4. The Executive Committee reviewed the report presented with the request for the renewal of the institutional strengthening project for Malaysia (phase XV) and expressed appreciation for the Government of Malaysia's diligent efforts in monitoring and regulating the phase-out of ODS and preparations for HFC

phase-down, including policy, regulatory, technology transfer, and awareness-raising initiatives. The Committee also noted Malaysia's timely submission of Article 7 and country programme data for 2021 and 2022 to the Ozone and Fund Secretariats, respectively, indicating that the country is in compliance with the Montreal Protocol. The Committee further noted that despite the challenges posed by COVID-19 pandemic, Malaysia remained committed to executing its ODS phase-out plan, ratified the Kigali Amendment, and initiated actions for the phase-down of HFCs. The Executive Committee looks forward to the country's continued engagement in Montreal Protocol activities over the next three years, including the completion of stage II of the HCFC phase-out management plan, development and implementation of stage III, and implementation of stage I of the Kigali HFC implementation plan, along with the successful implementation of institutional strengthening project activities.

Pakistan

5. The Executive Committee reviewed the report presented with the request for the renewal of the institutional strengthening project for Pakistan (phase XII) and noted with appreciation the efforts of the Government to monitor and control ODS phase-out through various policy and regulatory activities along with awareness-raising activities. The Committee further noted that the Government of Pakistan ensured compliance with the Montreal Protocol and submitted Article 7 and country programme data in a timely manner; implemented stage II of the HCFC phase-out management plan (HPMP), submitted and received approval for stage III of the HPMP and prepared for the Kigali Amendment ratification and HFC phase-down. The Committee acknowledged the efforts of the Government of Pakistan and is therefore hopeful that, within the next three years, the country will continue coordination with other national agencies and stakeholders in implementing policies and regulations to sustain ODS phase-out and continue Montreal Protocol activities including implementation of stage III of the HPMP, preparation of the Kigali HFC implementation plan and implementation of institutional strengthening project with success.

Uruguay

6. The Executive Committee reviewed the report submitted with the request for the renewal of the institutional strengthening project for Uruguay (phase XV) and noted with appreciation that the Government of Uruguay reported 2021 and 2022 Article 7 data to the Ozone Secretariat and country programme data to the Fund Secretariat indicating that the country is in compliance with the Montreal Protocol. The Committee further noted that the Government of Uruguay has taken steps to phase out ODS consumption, in particular, implementation of HCFC imports controls through the licensing and quota system, and training of customs officers and refrigeration technicians. The Committee also noted with appreciation the activities initiated to facilitate the implementation of the Kigali Amendment through the preparation of the Kigali HFC implementation plan (KIP). The Committee acknowledged the efforts of the Government of Uruguay in the implementation of the Montreal Protocol and is hopeful that, within the next three years, the country will continue implementation of the HCFC phase-out management plan, preparation of the KIP and implementation of institutional strengthening project activities with success in order to comply with the reduction targets of the Montreal Protocol.

United Nations Development Programme
Chemicals and Waste Hub

93rd Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

(15 – 19 December 2023)

UNDP
2023 WORK PROGRAMME AMENDMENT

20 November 2023

2023 WORK PROGRAMME AMENDMENT

I. EXECUTIVE SUMMARY

The present document constitutes UNDP's 2023 Work Programme Amendment and is being submitted for consideration of the Executive Committee (ExCom) at its 93rd Meeting. The list of submissions for all funding requests (including investment projects) that will be submitted by UNDP to the 93rd ExCom meeting in Annex 1 to this document is provided for information. Project documentation such as tranche requests under multi-year agreements (MYA), investment and demonstration project proposals and other individual proposals are not included in this document and are submitted separately as per normal practice. Only the following (non-investment) submissions are part of this document.

II. FUNDING REQUESTS PART OF THE WORK PROGRAMME

Institutional Strengthening Extensions

UNDP is submitting the requests for funding the extension of institutional strengthening projects to the 93rd ExCom Meeting as tabulated below. Relevant terminal reports and requests for extension of funding are being submitted separately.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Colombia	INS	Institutional Strengthening Renewal (Phase XIV)	36	730,230	51,116	781,346
Costa Rica	INS	Institutional Strengthening Renewal (Phase XV)	36	372,304	26,061	398,365
India	INS	Institutional Strengthening Renewal (Phase XIV)	36	988,909	69,224	1,058,133
Malaysia	INS	Institutional Strengthening Renewal (Phase XV)	36	740,563	51,839	792,402
Pakistan	INS	Institutional Strengthening Renewal (Phase XII)	36	594,748	41,632	636,380
Uruguay	INS	Institutional Strengthening Renewal (Phase XV)	36	399,560	27,969	427,529
Total (6 requests)				**3,826,314**	**267,842**	**4,094,156**

Preparation funding request for HPMP stage II

UNDP is submitting the following funding requests for the preparation of stage II and stage III of HPMP to the 93rd ExCom meeting. Annex 2 contains the submission for Peru. The request for South Sudan will be submitted by UNEP as a Lead Agency.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Peru	PRP	Stage III HPMP Preparation	18	40,000	2,800	42,800
South Sudan	PRP	Stage II HPMP Preparation	12	10,000	700	10,700
Total (2 requests)				**50,000**	**3,500**	**53,500**

Preparation funding requests for HFCs phase down and control of HFC-23 emissions

UNDP is submitting the following funding requests for the preparation of Kigali Implementation Plans and an investment project to control HFC-23 by-product emissions to the

93rd ExCom meeting. Annex 3 contains the submissions. The KIP PRP request for Egypt will be submitted by UNIDO as a Lead Agency and the KIP request for Mali will be submitted by UNEP as a Lead Agency.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Brazil	PRP	Preparation of Stage I of the Kigali HFC implementation plan	12	126,500	8,855	135,355
Colombia	PRP	Preparation of stage I of the Kigali HFC implementation plan in the air-conditioning manufacturing sector	12	50,000	3,500	53,500
Colombia	PRP	Preparation of stage I of the Kigali HFC implementation plan in the refrigeration manufacturing sector	12	150,000	10,500	160,500
Egypt	PRP	Preparation of Stage I of the Kigali HFC implementation plan	12	40,000	2,800	42,800
India	PRP	Preparation of the demonstration project with use of R290 in automotive thermal Systems with double loop secondary cooling system	24	30,000	2,100	32,100
Lebanon	PRP	Preparation of stage I of the Kigali HFC implementation plan in the manufacturing sector	18	70,000	4,900	74,900
Mali	PRP	Preparation of Stage I of the Kigali HFC implementation plan	12	35,000	2,450	37,450
Sri Lanka	PRP	Preparation of stage I of the Kigali HFC implementation plan in the manufacturing sector	18	80,000	5,600	85,600
Total (8 requests)				**581,500**	**27,755**	**424,255**

Project preparation (PRP) requests for national inventories of banks for used and/or unwanted controlled substances and a plan for the collection, transport and disposal of such substances

Pursuant to the ExCom decision 91/66, UNDP is submitting the following requests for the preparation of national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction. Annex 4 contains the submissions.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Cuba	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300
Egypt	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	100,000	7,000	107,000
Jamaica	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300
Peru	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300
Trinidad and Tobago	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Uruguay	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300
Total (6 requests)				**550,000**	**38,500**	**588,500**

Project preparation (PRP) requests for pilot projects to maintain and/or enhance energy efficiency of replacement technologies and equipment in the context of HFC phase-down

Pursuant to the ExCom decision 91/65, UNDP is submitting the following requests for the preparation of pilot projects to maintain and/or enhance energy efficiency of replacement technologies and equipment in the context of HFC phase-down. Annex 5 contains the submissions.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Chile	PRP	Preparation of a pilot project for the use of R-744 (carbon dioxide) as an alternative refrigerant in heat pumps in industrial refrigeration	12	30,000	2,100	32,100
Global	PRP	Demonstrating digital monitoring and management tools to enhance energy efficiency and reduce emission of green-house gases in the space cooling and cold chain sectors in Colombia, Lebanon, Panama, Sri Lanka, and Trinidad and Tobago	12	80,000	5,600	85,600
Total (2 requests)				**110,000**	**7,700**	**117,700**

III. SUMMARY OF FUNDING REQUESTS (WORK PROGRAMME)

The table below summarizes the funding requests for non-investment activities and proposals being submitted to the 93rd ExCom Meeting as part of UNDP's Work Programme Amendment for 2023:

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Brazil	PRP	Preparation of Stage I of the Kigali HFC implementation plan	12	126,500	8,855	135,355
Chile	PRP	Preparation of a pilot project for the use of R-744 (carbon dioxide) as an alternative refrigerant in heat pumps in industrial refrigeration	12	30,000	2,100	32,100
Colombia	INS	Institutional Strengthening Renewal (Phase XIV)	36	730,230	51,116	781,346
Colombia	PRP	Preparation of stage I of the Kigali HFC implementation plan in the air-conditioning manufacturing sector	12	50,000	3,500	53,500
Colombia	PRP	Preparation of stage I of the Kigali HFC implementation plan in the refrigeration manufacturing sector	12	150,000	10,500	160,500
Costa Rica	INS	Institutional Strengthening Renewal (Phase XV)	36	372,304	26,061	398,365

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Cuba	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300
Egypt	PRP	Preparation of Stage I of the Kigali HFC implementation plan	12	40,000	2,800	42,800
Egypt	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	12	100,000	7,000	107,000
Global	PRP	Demonstrating digital monitoring and management tools to enhance energy efficiency and reduce emission of green-house gases in the space cooling and cold chain sectors in Colombia, Lebanon, Panama, Sri Lanka, and Trinidad and Tobago	12	80,000	5,600	85,600
India	INS	Institutional Strengthening Renewal (Phase XIV)	36	988,909	69,224	1,058,133
India	PRP	Preparation of the demonstration project with use of R290 in automotive thermal Systems with double loop secondary cooling system	24	30,000	2,100	32,100
Jamaica	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	12	90,000	6,300	96,300
Lebanon	PRP	Preparation of stage I of the Kigali HFC implementation plan in the manufacturing sector	18	70,000	4,900	74,900
Malaysia	INS	Institutional Strengthening Renewal (Phase XV)	36	740,563	51,839	792,402
Mali	PRP	Preparation of Stage I of the Kigali HFC implementation plan	12	35,000	2,450	37,450
Pakistan	INS	Institutional Strengthening Renewal (Phase XII)	36	594,748	41,632	636,380
Peru	PRP	Stage III HPMP Preparation	18	40,000	2,800	42,800
Peru	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	24	90,000	6,300	96,300
South Sudan	PRP	Stage II HPMP Preparation	12	10,000	700	10,700
Sri Lanka	PRP	Preparation of stage I of the Kigali HFC implementation plan in the manufacturing sector	18	80,000	5,600	85,600
Trinidad and Tobago	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	12	90,000	6,300	96,300
Uruguay	INS	Institutional Strengthening Renewal (Phase XV)	36	399,560	27,969	427,529
Uruguay	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	12	90,000	6,300	96,300
Total (24 requests)				**5,117,814**	**358,247**	**5,476,061**

ANNEX 1

List of all UNDP submissions for funding to the 93rd ExCom Meeting

No	Country	Type	Description	Funding Request to the 93rd ExCom (US$)		
				Amount	Agency Fee	Total
1	Brazil	PRP	Preparation of Stage I of the Kigali HFC implementation plan	126,500	8,855	135,355
2	Cambodia	KIP	Stage I KIP - 1st tranche	123,810	11,143	134,953
3	Chile	KIP	Stage I KIP - 1st tranche	752,607	52,682	805,289
4	Chile	PRP	Preparation of a pilot project for the use of R-744 (carbon dioxide) as an alternative refrigerant in heat pumps in industrial refrigeration	30,000	2,100	32,100
5	China	PHA	Stage II Industrial and Commercial Refrigeration (ICR) Sector Plan - 5th tranche	8,000,000	560,000	8,560,000
6	China	PHA	Stage II Solvents Sector Plan - 6th tranche	2,000,000	140,000	2,140,000
7	Colombia	PRP	Preparation of stage I of the Kigali HFC implementation plan in the air-conditioning manufacturing sector	50,000	3,500	53,500
8	Colombia	PRP	Preparation of stage I of the Kigali HFC implementation plan in the refrigeration manufacturing sector	150,000	10,500	160,500
9	Colombia	PHA	Stage III HPMP - 2nd tranche	479,688	33,578	513,266
10	Colombia	INS	Institutional Strengthening Renewal (Phase XIV)	730,230	51,116	781,346
11	Costa Rica	INS	Institutional Strengthening Renewal (Phase XV)	372,304	26,061	398,365
12	Cuba	KIP	Stage I KIP - 1st tranche	180,000	12,600	192,600
13	Cuba	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	90,000	6,300	96,300
14	Dominican Republic	KIP	Stage I KIP - 1st tranche	272,774	19,094	291,868
15	Egypt	PRP	Preparation of Stage I of the Kigali HFC implementation plan	40,000	2,800	42,800
16	Egypt	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	100,000	7,000	107,000
17	Ghana	KIP	Stage I KIP - 1st tranche	158,500	11,095	169,595
18	Global	TAS	Core Unit Support	2,157,835	0	2,157,835
19	Global	PRP	Demonstrating digital monitoring and management tools to enhance energy efficiency and reduce emission of green-house gases in the space cooling and cold chain sectors in Colombia, Lebanon, Panama, Sri Lanka, and Trinidad and Tobago	80,000	5,600	85,600
20	Grenada	KIP	Stage I KIP - 1st tranche	19,670	1,770	21,440
21	Guyana	PHA	Analysis of EE gains on the Commercial RAC Sector in Guyana	100,000	9,000	109,000
22	India	INV	Demonstration-cum conversion of R-404A and R-407C by CO2 trans critical heat pump technology in the Food Processing and Cold Storage Refrigeration Equipment Manufacturing Sector at Mech Air Industries, Vadodara	322,452	22,572	345,024

No	Country	Type	Description	Funding Request to the 93rd ExCom (US$)		
				Amount	Agency Fee	Total
23	India	INV	Conversion of the manufacturing of commercial refrigeration appliances at Rockwell Industries Limited, Hyderabad to replace HFC-134a for Propane (R-290) as a refrigerant	1,385,201	96,964	1,482,165
24	India	INV	Conversion from the use of refrigerants R-407C and R-410A to the use of refrigerant HFC-32 in the manufacturing line of light commercial air conditioning−packaged and ducted air conditioning units at Voltas Limited, Vadodara	933,537	65,348	998,885
25	India	INS	Institutional Strengthening Renewal (Phase XIV)	988,909	69,224	1,058,133
26	India	PRP	Preparation of the demonstration project with use of R290 in automotive thermal Systems with double loop secondary cooling system	30,000	2,100	32,100
27	Jamaica	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	90,000	6,300	96,300
28	Kyrgyzstan	KIP	Stage I KIP - 1st tranche	51,000	4,590	55,590
29	Lebanon	PHA	Stage III HPMP - 1st tranche	605,129	42,359	647,488
30	Lebanon	PRP	Preparation of stage I of the Kigali HFC implementation plan in the manufacturing sector	70,000	4,900	74,900
31	Malaysia	INS	Institutional Strengthening Renewal (Phase XV)	740,563	51,839	792,402
32	Mali	PRP	Preparation of Stage I of the Kigali HFC implementation plan	35,000	2,450	37,450
32	Mexico	KIP	Stage I KIP - 1st tranche	3,454,500	241,815	3,696,315
33	Mozambique	PHA	Stage II HPMP - 1st tranche	80,000	7,200	87,200
34	Nigeria	PHA	Stage II HPMP - 3rd tranche	2,600,000	182,000	2,782,000
35	Pakistan	INS	Institutional Strengthening Renewal (Phase XII)	594,748	41,632	636,380
36	Panama	KIP	Stage I KIP - 1st tranche	247,500	17,325	264,825
37	Peru	KIP	Stage I KIP - 1st tranche	250,250	17,518	267,768
38	Peru	PRP	Stage III HPMP Preparation	40,000	2,800	42,800
39	Peru	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	90,000	6,300	96,300
40	South Sudan	PRP	Stage II HPMP Preparation	10,000	700	10,700
41	Sri Lanka	PRP	Preparation of stage I of the Kigali HFC implementation plan in the manufacturing sector	80,000	5,600	85,600
42	Trinidad and Tobago	KIP	Stage I KIP - 1st tranche	545,107	38,157	583,264
43	Trinidad and Tobago	PHA	Stage II HPMP - 2nd tranche	665,008	46,551	711,559
44	Trinidad and Tobago	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	90,000	6,300	96,300
45	Uruguay	INS	Institutional Strengthening Renewal (Phase XV)	399,560	27,969	427,529

No	Country	Type	Description	Funding Request to the 93rd ExCom (US$)		
				Amount	Agency Fee	Total
46	Uruguay	PRP	Preparation for an inventory of banks of used or unwanted controlled substances and a plan for their collection, transport, and disposal	90,000	6,300	96,300
Total (47 requests)				**30,502,382**	**1,991,608**	**32,493,990**

Notes:

a. All amounts in are in US dollars.
b. Special reports due (delays, balances, status reports, etc.) as well as other projects not part of the WPA will be submitted separately.

ANNEX 2

Preparation funding request for stage III HPMP

1. Peru

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
HPMP PROJECT PREPARATION REQUEST FORM
HCFC PHASE-OUT MANAGEMENT PLAN (OVERARCHING STRATEGY)

Part I: Project Information

Project title:	Request for Project Preparation Proposal for the Third Stage of the HPMP of Peru	
Country:	Peru	
Lead implementing agency:	UNDP	
Implementation period:	2025-2030	
Funding requested:		
Agency	**Sector**	**Funding requested (US $)***
UNDP	Overarching	40,000

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
1. Official endorsement letter from Government specifying roles of respective agencies (where more than one IA is involved)	☒	☐
2. Written confirmation – balances from previous PRP funding approved for stage I HPMP had been returned / will be returned (**Decision 71/42(i)**)	☒	☐
• Specify meeting at which PRP funding balance had been returned/will be returned	Click or tap here to enter text.	

A. Information required to support PRP funding (Overarching strategy)

1. Montreal Protocol compliance target to be met in ☐ stage II / ☒ stage III of the HPMP

Phase-out commitment (%)	**100%**	**Year of commitment**	**2030**
☒ **Servicing only**		☐ **Manufacturing only**	☐ **Servicing and manufacturing**

2. Brief background on previous stage of the HPMP

- Please provide a brief background on the previous stage of the HPMP-I, when it was approved, a brief description of the progress in implementation of the previous stage of the HPMP to demonstrate that substantial progress had been made.

The Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, at its 68th Meeting, approved the stage I of the HCFC Phase-out Management Plan (HPMP) for Peru, for the period from 2012 to 2015 to reduce HCFC consumption by 10 per cent of the baseline, with total funding of USD 310,110 (including support costs) divided as:

(a) USD 232,671 plus USD 20,940 of support costs for UNDP implementation; and
(b) USD 50,000 plus USD 6,500 of support costs for UNEP implementation.

The Government of Peru committed to the following control measures with the support of funding and technical assistance from the Multilateral Fund and implementing agency:

(a) Freeze the consumption of HCFCs, in 2013, as per agreed baseline; and
(b) Reduce 10% of baseline consumption of HCFCs, in 2015.

HCFC consumption as the baseline of 26.88 ODP tonnes, calculated using actual consumption of 27.30 ODP tonnes and 26.45 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol.

The main activities developed are describing in the next Table:

Component/Activity	Progress	Agency
Legal framework for reduction of imports of HCFC	The Government of Peru has established a quota zero (0) for the import of HCFC-141b effective from January, 1st 2017 (Resolution 545-2016) As per reported under the Article 7, Peru is in compliance with its obligations in front of the Montreal Protocol.	UN Environment
Training programme for customs officers to facilitate monitoring and enforcement import controls	In January 2016, a Harmonized Manual on ODSs and ODSs-based equipment import procedures was developed, which allowed the operationalization of the Licensing and Quota System. This manual become the basis for the subsequent Customs Officers sensitization meetings undertaken by the NOU among Customs Representatives from: Moquegua, Callao, Lima, and Arequipa districts. Furthermore, two additional training took place in September 2016 and May 2017, in with 56 Customs Officers were trained in several aspects of the HCFCs control and Quota System, as well as methodologies for the ODSs control. Furthermore, 25 Customs Brokers updated on the revised ODSs controls and banning as well as on HCFC Customs Codes. From 22 to 25 of August 2017, two Customs Officers from the laboratory are trained in a regional workshop carried out in Mexico. The main objectives of the workshop were showing analysis technical for detecting HCF-141b in pre-blended polyols, refrigerants sampling from iso-tanks and proper final disposal of seized ODSs and ODSs-based equipment. Further training on ODSs illegal trade prevention is to be delivered in the third quarter of 2017 by an international expert already recruited. A set of modules for implementing the train the trainer's modules are to be jointly developed among NOO, Customs and the international expert. Three (3) sets of multi-refrigerant identifiers were procured and are expected to be delivered by the second half of 2017.	UN Environment
Technical Assistance and Training for the Refrigeration and Air Conditioning sector	After review and reception of equipment listed under TPMP, activities have been developed as follows: - Purchase and distribution of equipment for National Training Centers in good practices on RAC (Institutes GAMOR, SENATI, Universidad Nacional Mayor de San Marcos)). - Definition and purchase of equipment for education institutions (to be purchased in 2017) - Continued strengthening of strategic partnership with private sector through a collaboration with *Asociación Peruana de Refrigeración, aire acondicionado y ventilación* (APRAC) for the development of flushing equipment for technicians. - Two international consultants conducted 5 missions for training in good practices. - Hiring of a National Refrigeration Expert. - 14 awareness-raising workshops with technicians and stakeholders. 1000 technicians and 70 trainers trained.	UNDP

	- 12 workshops in new technologies for flushing and best practices on RAC for technicians and trainers. Total of 77 technicians and 41 trainers trained. - Since January 2017, technical monthly trainings for HCFC 141b replacement and use of alternatives. - Creation and awareness of training videos (to be published on PRODUCE's website) and brochures for the introduction of alternatives to HCFCs on flushing. - Development of All-women training sessions with international experts on RAC and flushing alternatives with an international consultant. 30 technicians.	
Implementation, Monitoring and Reporting	Reporting: The General Directorate of Environmental Affairs, is currently responsible for monitoring and reporting. Information is collected from importers, technicians, technology institutes and Customs department for comparison and compilation on refrigerant importation and use. Implementation & Monitoring: the implementation includes the delivery of all operational support to the NOU and field consultants in order to achieve the results expected, such as facilitation of contacts with stakeholders, preparation of meetings, hiring process, organization of seminars, workshops and trainings, organization of meeting and etc. The Programme Management Unit also has consolidated all information generated and reported to the NOU and UNDP Senior staff, in order to maintain a proper oversight and accountability of actions.	UNDP

3. Current progress in implementation of previous stage of the HPMP-II

The Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, at its 80th Meeting, has approved the stage II of the HCFC Phase-out Management Plan (HPMP) for Peru, for the period from 2017 to 2025 to reduce HCFC consumption by 35 per cent of the baseline, with total funding of USD 1,483,730 (including support costs) divided as:

- USD$1,167,000 plus USD$81,690 of support costs for UNDP implementation; and
- USD$208,000 plus USD$27,040 of support costs for UNEP implementation.

The Stage 2 of the HPMP in Peru has developed the next main activities:

Activity	Description	Implementing agency
Legal/regulatory framework	Review of the national legislation and risk analysis of the illegal trade of controlled substances (Training of 70 custom officials directly involved in import procedures for HCFCs and HCFC-based equipment); Continued Monitoring for the application of an updated quota and license system for HCFC imports and exports; HFCs were included in the licensing system; Workshop for improved application of the harmonized customs code system conducted;	UNEP

Program for the Strengthening of the Legal and Institutional Sectors Responsible for the Regulations Related to Montreal Protocol Implementation	✓ Update and reinforce the legal framework to strengthen regulatory procedures of the compliance HCFC strategy ✓ Continued Monitoring for the application of an updated quota and license system for HCFC imports and exports ✓ Continued monitoring for enhanced effectiveness of a harmonized customs code system	UNEP
Refrigeration servicing sector	✓ Monitoring of the 5 RRR Centers (3 in Lima-Callao, 1 in Piura and 1 in Arequipa). Virtual and in person assistance from an international consultant. Training of 150 technicians on R&R Purchase of equipment: • Rechargeable cylinders of different sizes to store and transport refrigerant gases. • Refrigerant Reclaim Machine • Refrigerant identifier for refrigerant blends • Electronic load scales • Weigh Scales • Vacuum Pumps • Set of two-way gauges ✓ Procurement process and distribution of equipment and tools for safe HC handling ✓ Training of 100 technicians through 4 workshops on Good Practices for the safe handling of HC refrigerants. ✓ Promote low-GWP alternatives for the Cold Chain: Conduct training seminars for end users, Development of a brochure with information about good RAC servicing practices for Supermarkets, Agroindustry, and Warehouses (including a selection of case studies), develop a cost-benefit analysis in order to determine the best option in each case, and promote volunteer agreements with end users for conservation, conversion, and appropriate disposal of HCFC-based selected equipment ✓ Ten (10) training workshops (6 in Lima and 4 in the province) based on the Training Program designed for instructors and technicians in RAC (including 1 workshop for women, 1 workshop for instructors, 150 technicians and 10 trained instructors) ✓ Design and print material related to good refrigeration practices and procedures in the use of hydrocarbon refrigerants. ✓ 5 Train the trainers seminars ✓ 5 Technical seminars ✓ Procurement of equipment and tools for selected institutions ✓ Training for formal education technical institutes.	UNDP
Programme for Public Awareness to promote the Phase-out of HCFC	✓ Awareness -raising campaigns on HCFC phaseout	UNDP

Project for coordination and management	✓ One (1) verification report presented ✓ Annual implementation reports performed	UNDP

4. Overview of current HCFC consumption in metric tonnes by substance (last three years)

Substance	Sector	2019	2020	2021
HCFC-22	RAC servicing	292.76	223.75	169.39
HCFC-123	RAC servicing	0.0	0.84	0.79
HCFC-124	RAC servicing	0.0	0.0	0.00
HCFC-141b	RAC servicing	0.0	0.0	0.0
HCFC-142b	RAC servicing	2.41	0.0	0.93
HCFC-141b in imported pre-blended polyols	Manufacturing-Foam PU	132.9	43.7	26.5

5. Based on the consumption data given above, please provide a description of the sector/sub-sector that use HCFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing)

HCFC consumption in Peru has experienced a progressive decrease in the consumption of HCFC-22, which has allowed the country to easily remain in compliance with its Montreal Protocol obligations with respect to HCFCs. Consumption in the foam sector is related to the use of HCFC-141b in fully formulated polyols. The decrease in this sector of HCFC-141b could be related to the COVID pandemic, but also to the gradual replacement of polyols by HFCs.

6. Description of information that needs to be gathered and updated. Explain why this has not been undertaken during preparation for the previous stage of the HPMP.

Information needed	Description	Agency
Updated data on HCFC consumption in manufacturing/servicing sector	Peru will only have HCFC consumption in its servicing sector after the Stage 2, and HCFC-22 is the main HCFC consumed. The national survey for Stage 3 will thus focus on further analyzing the consumption and trends in the servicing sector and the main actors involved.	UNDP
New information on ODS regulations	It will review the status of ODS regulations and the need to adapt them.	UNDP
Others, specify.	An analysis of the specific phase-out targets by substance and/or subsector will be conducted, in order to meet upcoming obligations.	UNDP
Others, specify.	Assessment of the HPMP strategy and amend it based on the outcome of Stage 2.	UNDP

7. Activities to be undertaken for project preparation and funding

Activity	Indicative funding (US $)	Agency
Assessment of current situation and needs of stakeholders (Survey update, Data analysis, Institutional coordination, etc.)	15,000	UNDP
Technical support and updating of overall strategy for Stage 2, as well as specific strategy for the Servicing sector (International Consultant).	15,000	UNDP
Stakeholders' meetings (2)	2,000	UNDP
Reporting and monitoring	8,000	UNDP
TOTAL	**40,000**	

8. How will activities related to implementation of the Kigali Amendment to phase down HFCs be considered during project preparation for stage III of the HPMP?

The surveys will strive to collect the information on HFC when possible. The stage III preparation will also take into account how imports of HFC-based equipment will impact the strategy for the servicing sector for the HPMP, being cognizance of similar activities for the servicing sector whether equipment uses HFC or HCFC.

In addition, it's important to note that Peru is preparing the KIP and the country may decide to develop a strategy to phase out the use of HFCs and HCFC-141b as pre-blended polyols. Data collection on this matter will be undertaken during the preparatory phase.

ANNEX 3

Preparation funding requests for HFCs phase down and control of HFC-23 emissions

2. **Brazil**
3. **Colombia**
4. **India**
5. **Lebanon**
6. **Sri Lanka**

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
KIGALI-HFC IMPLEMENTATION PLAN (KIP) PROJECT PREPARATION (PRP)
KIGALI HFC PHASE DOWN PLAN (OVERARCHING STRATEGY)

PLEASE ADJUST THE TEXT IN THE ANNEX IN LINE WITH THE TEXT IN THE GUIDE

Part I: Project information

Project title:	Kigali Implementation Plan Preparation	
Country:	Brazil	
Lead implementing agency:	UNDP	
Cooperating agency (1):	UNDP	Click or tap here to enter text.
Cooperating agency (2):	UNIDO	Click or tap here to enter text.
Cooperating agency (3):	Other (Bilateral), specify.	GIZ
Implementation period for stage I of the KIP:	from January 2026 to December 2030	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the KIP (please specify):		
Funding requested:		

Agency	Sector	Funding requested (US $)*
UNDP	Overarching	126,500.00
UNIDO	Overarching	63,500.00
Other (Bilateral)	Overarching	40,000.00
(select)	(select)	Click or tap here to enter text.

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating the specifying roles of respective agencies (where more than one IA is involved)	☒	☐

B. Information required for PRP funding request for the overarching strategy of the KIP

9. Montreal Protocol compliance target to be met in ☒ stage I of the KIP			
Phase-out commitment (%)	**10%**	**Year of commitment**	**2029**
☐ **Servicing only**		☐ **Manufacturing only**	☒ **Servicing and manufacturing**

10. Brief background/description/information on approved relevant projects and multi-year agreements as follows:

- **The current progress in implementation of any funded HFC-related project (enabling activities or stand-alone HFC investment projects)**
- **The current progress in ongoing HCFC phase-out management plan (HPMPs)**
- **Consideration of integrating HFC phase-down activities with HPMP activities taking into account previously approved HFC-related projects, if this information is available.**

The Brazilian HCFC Phase-out Management Plan (Brazilian HPMP) established that the actions to phase out the HCFCs in the country should be implemented in stages. Stage I, approved at the 64th meeting of the Executive Committee (ExCom) of the Multilateral Fund (MLF), held in July 2011, established guidelines, objectives, and specific targets for reducing the consumption of 220.3 tonnes (t) of Ozone Depletion Potential (ODP) of HCFCs by 2015, through industrial conversion activities, technical assistance, training and regulatory actions in the PU (polyurethane) foam manufacturing and refrigeration and air conditioning (RAC) servicing sectors. With the implementation of Stage I of the HPMP, Brazil reduced 16.6% of its consumption

of HCFCs, in relation to the baseline, in 2015. The resources granted enabled the support to the conversion of 249 enterprises in the PU foam sector to technologies free of substances that deplete the ozone layer and low global warming potential, including 226 small and medium-sized enterprises, and the training of 4,800 refrigeration technicians in best practices in the area of commercial refrigeration in supermarkets and 100 refrigeration technicians in best practices in split-type air conditioning systems.
Stage II of the HPMP, approved at the 75th ExCom Meeting in November 2015, with implementation deadline of 2025, provides for actions aimed at the progressive elimination of 464.06 ODP tonnes of HCFCs through industrial conversion activities, technical assistance, training and regulatory actions in the PU Foams manufacturing and RAC manufacturing and servicing sectors. In 2020, the country achieved the target of reducing HCFC consumption by 39.3% compared to the baseline by banning the import of HCFC-141b for the PU foam manufacturing sector and, in 2021, achieved a reduction of 51.6%. The progress achieved in the above-mentioned sectors is presented below:

Project for the polyurethane foam sector: 138 final beneficiaries converted: 16 individual investment project enterprises (Ananda Metais, Ártico, Cold Air, Gelopar, IBF, Furgão Ibiporã, Isar, Niju, Refrimate, São Rafael, Thermjet/Thermotelha, Isosister, Klimaquip, Rocktec, PMI), 8 systems houses (Amino, Ariston, Eco Blaster, Flexível, M. Cassab, PolyUrethane, Purcom and U-Tech) and 117 end users. 92.37 ODP tonnes of HCFC-141b were eliminated. Currently, one individual enterprise is in the process of conversion: Bulltrade and 7 contracts under the Long Term Agreement between UNDP and the running systems houses (Amino, Ariston, Flexível, Poly Urethane, Purcom, Shimtek and Univar) and five contracts are in negotiation phase: Eletrofrio, Tecpur, M.Cassab, Comfibras and Polisystem. Additionally, the project for the foam sector invests heavily in disseminating information about the importance of the sector's technological conversion to options that do not destroy the ozone layer and have a low potential for global warming. All enterprises that join the project, upon completing their industrial conversion process, receive a “Commemorative Board” of the project recognizing and thanking the effort made. Videos and other promotional materials are also produced, such as electronic folders, among others. In 2022, a series of videos were produced with testimonials from representatives of the beneficiary enterprises supported by the project, with the aim of recognizing the effort made, as well as motivating other enterprises to join the project. The videos were sent electronically to enterprises in the foam sector, also being available on the UNDP website (Série de vídeos apresenta resultados do Programa Brasileiro de Eliminação do HCFCs para setor de espumas/United Nations Development Programme (undp.org)) and on the website dedicated to the Brazilian HCFC Phase-out Management Plan (www.protocolodemontreal.org.br). Under the service contracts in effect, UNDP works closely with the System Houses, carrying out technical training with the sales team to support the dissemination of the project. In 2023, it was planned to hold virtual seminars with the system houses and their customers, to strengthen the dissemination of information about the project and the impacts of the end of production of HFC365/227 for the polyurethane foam sector in Brazil.

Project for the refrigeration manufacturing sector: Two manufacturers of large refrigeration systems for the supermarket sector were converted (Eletrofrio and Plotter Racks), for the production of modular chillers with R-290 refrigerant fluid. The chillers developed have been successfully tested in two supermarkets. The projects generated performance information, two illustrative videos and a technical bulletin. This project has already provided that the technology with the use of the refrigerant R-290 in indirect expansion systems in commercial refrigeration is in operation in more than ten supermarkets in Brazil. Two companies producing beverage refrigerators were converted (Chopeiras Memo and Aquagel), and started the production of equipment with the refrigerant R-290. By the end of 2022, 500 equipment had been sold and 20 were installed at strategic points for monitoring. The expectation for 2023 is the insertion in the market of at least 1200 new converted equipment from both companies. Twelve commercial refrigeration SMEs have started the conversion, three of which (JJ, Refrimate and Kitfrigor) have already completed their projects. The other nine companies (Klima, CCITTI, Mecalor, Refriac, Fricalor, Fricon, Sulfrio, Zero Grau and Peracchi) are in the process of conversion. Six of these companies are expected to complete their projects in 2023, and three in 2024. Technical videos were produced, some of them in Portuguese and English, about the projects executed and the workshops carried out. To date, eight workshops have been held, reaching approximately 500 technicians in the refrigeration sector and three technical bulletins have been published for technicians in the refrigeration sector, with information on the alternative fluids R-290, CO_2 and HFOs and which have been publicized online. A total of 16.13 ODP tonnes of HCFC-22 were eliminated.

Project for the air conditioning manufacturing sector: Two workshops were held on alternative fluids for the residential air conditioning sector. A summary of the UNEP/TEAP report on alternatives to high-GWP HCFCs and HFCs was published. A market study on alternative fluids was conducted, focusing on R-290 and

R-32. The three eligible companies, included in Brazil HPMP Stage II, converted their production lines to R-410A using their own resources. A total of 45.31 ODP tonnes of HCFC-22 were eliminated.

Project for the RAC servicing sector: Training and Capacity Building for better HCFC-22 Containment: Educational material (presentations and handbooks on best practices) for training of refrigeration technicians updated and published; Tools and components for demonstrations and practical training purposes (educational kits) were purchased and delivered to the selected regional training institutions; Twelve "Train the Trainer" workshops were conducted and 135 trainers trained; 7.516 technicians trained in best practices for split and window type air conditioning systems; 1.419 technicians trained in best practices for commercial refrigeration; monitoring of training courses; monitoring of courses. Training and Capacity Building for Safe Use of low GWP alternatives: Training handbooks and presentations on the safe use of CO_2 and propane under development; Two technical training institutions for the training project for the safe use of CO_2 and propane in commercial refrigeration systems selected and contracted; Tender for the acquisition of two mini-supermarkets, which will be installed in the two training institutions selected for the training of refrigeration technicians and mechanics on the safe design, installation, operation and maintenance of commercial refrigeration systems operating with the natural refrigerants CO_2 and propane carried out and supplier contracted; Acquisition of tools and additional equipment for the two mini-supermarkets, which will be installed in the two selected training institutions for the training of refrigeration technicians and mechanics on the safe design, installation, operation and maintenance of commercial refrigeration systems operating with the natural refrigerants CO_2 and propane carried out and equipment delivered to beneficiaries; Five technical training institutions for the training project for the safe use of flammable refrigerants in air conditioning systems selected and contracted (one training institutions in each region of Brazil); Tender process for the acquisition of R-290 air conditioner for the training in the safe use of flammable refrigerants in air conditioning systems carried out and suppliers contracted; Elaboration of educational material for the training in the safe use of flammable refrigerants in air conditioning systems ongoing. Outreach: Updating and operation of the project website (www.boaspraticasrefrigeracao.com.br); Operation of the Project fan page on Facebook (https://www.facebook.com/camadadeozonioerefrigeracaoeclima); Photos of the activities implemented published on Flickr: https://www.flickr.com/photos/147992141@N07/collections/72157690669896345/; Interviews with participants of the best practice training courses performed, and testimonials published and disseminated; Three best practice handbooks (Leak Control, Sealed System Design, Planned Preventive Maintenance) printed and disseminated; Poster on the "10 Golden Rules for the Maintenance of RAC Systems" prepared, printed and disseminated; Technical rulers for the quick conversion of pressure and temperature developed, produced and distributed; Stickers/labels for dissemination of best practices for RAC systems developed and distributed; Educational video for leak reduction in the servicing sector produced (three versions are available: original video with Portuguese audio, video with English subtitles, and video with Portuguese subtitles); Project folder and posters developed, printed and distributed; Card listing the specific gravity of refrigerants developed, produced and distributed; Video for awareness raising of end users towards contracting appropriate services for air conditioning systems produced (three versions are available: original video with Portuguese audio, video with English subtitles, and video with Portuguese subtitles); Video for dissemination of best practices in the commercial refrigeration sector produced (three versions are available: original video with Portuguese audio, video with English subtitles, and video with Portuguese subtitles); Two videos of the series "Capacity Building in Focus", whose purpose is depicting the life and work of refrigeration professionals who disseminate best practices and new technologies in the sector for the protection of the environment, were produced (two more videos are currently under production); Five videos of the series "Best Practices in Minutes" were produced and two more videos are currently under production (it is a series of educational videos bringing together technology and audio-visual communication to convey knowledge to technicians of the refrigeration and air conditioning sector throughout Brazil); Participation in trade shows, events, seminars, etc., of the sector and partners.

Currently, the country is in the process of preparing Stage III of the HPMP, which will direct actions to eliminate the consumption of HCFCs by 2030.

Additionally, the import quota system for HCFCs and mixtures containing HCFCs, created and regulated by IBAMA Normative Instruction No. 14, of December 20, 2012, and updated by Normative Instruction No. 04, of February 14, 2018, combined with the actions being implemented under the Brazilian HPMP, has ensured compliance with the commitment assumed by the country in phasing out the HCFCs consumption. Furthermore, within the scope of the HPMP, the Brazilian Government and the implementing agencies - UNDP, UNIDO and GIZ - have been supporting the Brazilian Association of Technical Standards (ABNT) in the elaboration and discussion of specific technical standards that ensure, at the national level, the

standardization of the handling, installation, and maintenance of equipment that use flammable substances as alternative to HCFCs.

It is important to point out that the implementation of ozone layer protection projects for the polyurethane foam manufacturing sectors and refrigeration and air conditioning equipment, among others, has enabled the country to eliminate the use of ODS in these production processes, reflecting in relevant changes in the national policy of banning/restricting the importation and use of ODS in recent decades, in accordance with the international commitments assumed by the Brazilian Government under the Montreal Protocol.

However, there are currently ODS banks which remain present as a refrigerant in previously produced equipment and which may be released into the atmosphere at some point in the equipment's life cycle, causing damage to the ozone layer. Regarding older equipment, which does not support adaptation with another type of substance, there is still the consumption of ODS for its maintenance, which should last until the end of the useful life of each machine. In contrast, the growing demand for refrigeration and air conditioning systems and the search for ODS-free technologies that offer greater energy efficiency have been observed in Brazil.

In 2022, Brazil completed the Demonstration Project for the Management and Final Disposal of ODS Waste, which constituted a relevant initiative for the country by confirming the feasibility of the experience initiated within the scope of the National CFC Phase-out Management Plan, of a management system, with emphasis on the operability of the final destination of ODS waste, as well as it allowed identifying the challenges of ODS management in the country and the challenges to promote the sustainability of this Management System with the enterprises that will operate in this market and the environmental agencies that will control and supervise these banks.

Considering that in the coming years the country will start implementing the HFCs consumption reduction schedule, through the implementation of the Kigali Amendment in Brazil, the strengthening of the system for the environmentally sound management of both ODS and HFCs will be of great importance to guarantee the availability of quality recycled or reclaimed substances and, once the life cycle of these substances is completed, that the final destination occurs in an environmentally appropriate manner.

11. Overview of current HFC consumption in metric tonnes by substance (last three years)

Current consumption (difference between imports and exports of HFCs) in Brazil is presented in the table below. There is no production of HFCs in Brazil and there are very low exports.

Substance	Sector	2020	2021	2022
HFC-32	Refrigeration and Air Conditioning Manufacturing / Servicing	1,729.47	2,937.08	4,334.94
HFC-41	---	0.00	0.00	0.00
HFC-125	Fire Fighting* / Refrigeration and Air Conditioning Manufacturing	1,978.50	2,940.89	6,057.84
HFC-134	---	0.00	0.00	0.00
HFC-134a	Aerosol** / Other Manufacturing** / Refrigeration and Air Conditioning Manufacturing / Servicing / Other	9,435.71	10,583.20	16,222.11
HFC-143	---	0.00	0.00	0.00
HFC-143a	Other Manufacturing **/Refrigeration and Air Conditioning Manufacturing	54.00	18.00	789.20
HFC-152	Other	0.00	0.00	1.89
HFC-152a	Other Manufacturing ***Refrigeration and Air Conditioning Manufacturing / Servicing / Other	0.00	1.00	30.79
HFC-227ea	Fire Fighting	0.00	1.00	47.89
HFC-236cb	---	0.00	0.00	0.00
HFC-236ea	---	0.00	0.00	0.00
HFC-236fa	Fire Fighting	0.0	0.00	2.39
HFC-245ca	---	0.00	0.00	0.00
HFC-245fa	Foam	5.49	0.00	28.67
HFC-365mfc	---	0.00	0.00	0.00
HFC-43-10mee	Solvent	1.16	1.57	1.12
HFC-23 (use)	Servicing	0.00	0.00	0.44

Total	**---**	**13,204.33**	**16,482.74**	**27,517.28**
Blend	**Sector**	**2020**	**2021**	**2022**
R-404A (HFC-125 = 44%, HFC-134a = 4%, HFC-143a = 52%)	Refrigeration and Air Conditioning Manufacturing / Servicing	2,360.08	2,465.65	5,645.04
R-407A (HFC-32 = 20%, HFC-125 = 40%, HFC-134a = 40%)	Servicing	0.00	4.52	4.52
R-407C (HFC-32 = 23%, HFC-125 = 25%, HFC-134a = 52%)	Refrigeration and Air Conditioning Manufacturing / Servicing	333.96	434.62	506.50
R-407F (HFC-32 = 30%, HFC-125 = 30%, HFC-134a = 40%)	Servicing	5.67	0.00	13.37
R-410A (HFC-32 = 50%, HFC-125 = 50%)	Refrigeration and Air Conditioning Manufacturing / Servicing	3,541.29	4,960.08	6,730.18
R-507A (HFC-125 = 50%, HFC-143a = 50%)	Servicing	21.56	57.99	187.65
R-508B (HFC-23 = 46%, PFC-116 = 54%)	Servicing	0.19	9.45	9.32
R-413A (HFC-134a= 88% PFC-218= 9% HC 600 a= 3%)	Servicing	122.52	856.70	0.00
R-417A (HFC-125= 46,6% HFC-134a= 50% HC-600= 3,4%)	Servicing	10.44	7.24	10.44
R-422D (HFC-125= 85,1% HFC-134a= 11,5% HC-600 a = 3,4%)	Servicing	2.72	1.36	2.27
R-437A (HFC-125= 19.5% HFC= 134a = 78.5% HC-600= 1.4% HC-601= 0.6%)	Servicing	9.49	7.86	10.93
R-438A (HFC-32= 8.5% HFC-125= 45% HFC= 134a = 44.2% HC-600= 1.7% HC-601= 0.6%)	Servicing	32.69	34.90	40.86
R-444B (HFC-32=41,5% HFC-152= 10%, HFO-1234 ze= 48,5%)	Servicing / Refrigeration and Air Conditioning Manufacturing *	0.00	0.40	2.25
R-448A (HFC-32=26,00%, HFO-1234yf=20,00%, HFC-125=26,00%, HFO-1234ze=7,00%, HFC-134a=21,00%)	Servicing	0.00	0.00	1.36
R-449A (HFC-125=24.7% HFC-134a = 25.7% HFC-32 24.3% HFO1234yf= 25.3%)	Servicing	7.26	15.44	44.49
R-449C (HFC-125=20,00%, HFC-134a=29,00%, HFO-1234yf=31,00%, HFC-32=20,00%)	Export / Servicing	- 0.19****	0.00	4.35
R-451A (HFC-134a = 44% HFO1234yf= 56%)	Servicing	1.82	1.63	0.54
R-452A (HFC-32= 11%, HFC-125= 59%, HFO1234yf= 30%)	Servicing	0.00	3.09	2.27
R-454B (HFC-32=68,90%, HFO-1234yf=31,10%)	Refrigeration and Air Conditioning Manufacturing	0.00	0.1	0.19
R-454C (HFO-1234yf=78,50%, HFC-32=21,50%)	Refrigeration and Air Conditioning Manufacturing	0.00	0.02	0.60
R-455A (HFO-1234yf=75,50%, HFC-32=21,50%, R-744=3,00%)	Other	0.00	0.00	0.27
R-513A (HFC-134a=44,00%, HFO-1234yf=56,00%)	Refrigeration and Air Conditioning Manufacturing	0.00	0.00	0.12

R-515B (HFO-1234ze(E)=91,10%, HFC-227ea=8,90%)	Other	0.00	0.00	0.22
Solvay (HFC-365 = 50%, HFC-227 = 7%)	Foam / Solvent*	453.20	729.60	553.48
PFC 1102 HC (HFC-125 =24%, HFC-236fa=26%, R-14=21%, R-740=10%, HFC-23=19%)	Servicing	0.00	0.00	0.18
Placebo Fostair DPI (HFC-134a = 88%)	Other	0.00	0.00	0.11
HFC-32 = 21,5%, HFO-1234yf = 78,5%	Servicing	0.00	0.02	0.00
HFC-32 = 68,9%, HFO-1234yf = 31,1%	Servicing	0.00	0.10	0.00
R-514A (HFO-1336mzz = 74.7%, /trans-1,2-dichloroethylene (t-DCE) = 25.3%)	Export	0.00	-0.64	0.00
Total	**---**	**6,902.70**	**9,590.13**	**13,771.51**

* Only 2022

** 2020 and 2021

*** Only 2021

**** Only export

12. Based on the consumption data given above, please provide a description of the sector/sub-sector that use HFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing).

The main HFCs used in the country are HFC-134a, HFC-410A, HFC-125, HFC-404A and HFC-32.

HFC-134a is the most consumed substance, and its main applications are in automotive air conditioning equipment, such as light cars, buses, trucks and other vehicles, both for manufacturing and maintenance, and in domestic, commercial and industrial refrigeration. It is estimated that 60% of the **HFC-134a** is currently used in the Brazilian automotive air conditioning sector (manufacturing and maintenance). The remaining 25% is distributed in the domestic refrigeration sector (manufacturing and maintenance) and 15% is utilized by the commercial refrigeration sector (manufacturing and maintenance).

HFC-404A is also used in commercial refrigeration systems and in refrigerated transportation, both in manufacturing and equipment maintenance.

In the scope of commercial refrigeration, **HFC-404A** and **HFC-134a** are predominantly used in self-display equipment, which is characterized by a low refrigerant charge; and in air condensing units, which demand a medium refrigerant charge. **HFC-404A** can be applied in cooling and freezing systems, while **HFC-134a** can only be used in cooling systems. However, despite being more energy efficient in the cooling system, **HFC-134a** is often preferred over **HFC-404A** due to the high cost of the compressors that use it.

In Brazil, most medium and large supermarkets have indirect expansion systems in display units and refrigerated cold chambers, which promote a minimum reduction of 70% in the refrigerant charge when compared to the direct expansion system; and the island freezers are predominantly stand-alone units using **HC-290**.

It is possible to find refrigeration systems and displays that use **HFC-404A**, **HFC-410A** and **R-744 (CO_2),** related to indirect expansion systems with 35% aqueous propylene glycol solution as secondary fluid. For central systems installations, operating at medium temperature (cooling), there are systems with **HFC-134a** with direct or indirect expansion, **HFC-410A** in a chiller to cool glycol and **HFC-404A**. At low temperature (freezing) **HFC-404A** is predominant.

Industrial refrigeration in Brazil uses various types of chillers in the food industry, in cold stores, overhead cranes and manufacturing processes, with prevalence of the use of refrigerants such as **HFC-134a**, **HFC-410A**, **HCFC-22** and **R-717 (ammonia**).

In the industrial sector, **HFC-134a** is mostly used in chillers, of all capacity ranges, when compressors are not of the scroll type, being the most comprehensive refrigerant adopted by all manufacturers, in all capacities. In refrigeration systems that use compressor RACKs, its applicability is reduced due to the greater need for displaced refrigerant volume, thus it is less competitive than other refrigerants, such as **HFC-404A**.

Regarding refrigerated transport, it is estimated that 20% of the **HFC-404A** brought to Brazil is used in this sector, distributed between manufacturing and maintenance. However, from 2022, the use of **HFO-452A** was also observed. Smaller systems, such as the parking cooler, operate on **HFC-134a**.

For automotive air conditioning (light vehicles, trucks, buses, etc.) in Brazil, in 1995, the conversion of CFC-12 took place directly to **HFC-134a** and, currently there is a prevalence of this HFC in the sector, and the presence of imported vehicles with **HFO-1234yf**. The technology conversion is already being discussed in the ambit of ANFAVEA (Brazilian Association of Automotive Vehicle Manufacturers).

Currently, Brazil has a considerable industrial park, with many manufacturing enterprises with high technological level to produce air conditioning devices and equipment. This park is responsible for the local production of window and split type air conditioners; so-called commercial systems, such as VRFs or VRVs (Variable Refrigerant Flow), in addition to medium and large equipment such as chillers (liquid coolers), used in chilled water central air-conditioning systems.

From 2000, **HFC-410A** and **HFC-407C** began to be used as alternatives to HCFC-22 in the production of compact air conditioners (domestic, commercial rooms and small spaces) and, from 2015, **HFC-32** began to be tested as an alternative, gaining more relevance from 2020.

HFC-407C reached the Brazilian market to replace HCFC-22, being used in the retrofit and maintenance of equipment in the air conditioning sector that were manufactured with HCFC but, currently, registers decreasing consumption. In the manufacturing sector, the market opted for **HFC-410A** for domestic window and split air conditioning equipment and heat pumps.

The consumption of **HFC-410A** is intend for the servicing and manufacturing sector, since this refrigerant is the main alternative adopted in Brazil for the replacement of HCFC-22 by the low and medium capacity residential and commercial air conditioning industry, and has registered a growing and stable consumption, accompanying the national economic growth.

Regarding central and commercial air conditioning, the Brazilian chiller manufacturers produce equipment containing **HFC-134a**, **HFC-407C** and **HFC-410A** refrigerants. Currently, most manufacturing enterprises produce chillers with **R-410A** refrigerant. The same occurs with manufacturers of VRFs or VRVs systems, where most of their production uses **R-410A** refrigerant, but products that use **HFC-134a** and, more recently, **HFC-32** are also identified. Several commercial establishments are choosing to use chillers with **HFC-410A** due to the HCFC phase-out schedule that is being implemented in the country and, it is worth mentioning that, in many cases, there is evidence that these establishments will opt for the replacement of the chiller type system by VRF, also with **HFC-410A** refrigerant.

Regarding the use in other sectors, such as propellant and solvent for cleaning circuits and electronic boards, various industrial uses, fine metallurgy and mold release agents, it is currently observed a transition from HCFC-141b to HFCs, especially to **HFC-134a**, as propellant, and to **HFC-43-10mee**, HFE (Hydrofluorether) and HFO (Hydrofluoroolefin), as solvent.

After the ban of the use of CFCs in Brazil, the fire extinguishing sector started to use powder-based extinguishing agents with monoammonium phosphate, sodium bicarbonate, potassium bicarbonate, among others, in addition to the use of nitrogen, carbon dioxide and water. Some models started to use HFCs and, today migrated to Hydrofluorether (HFE). **HFC-227ea** became widely used in lines that suppress flames by extinguishing O_2, as well as **HFC-236fa**, used in IT rooms, dielectric systems and even museums.

The **HFC-365mfc/HFC-227ea** blend is imported into Brazil to produce fully formulated polyols. Additionally, the country does not import fully formulated polyols containing this mixture. Finally, should be highlighted the announcement by the producer of this mixture that it will end production as of September 1, 2023.

The data presented above indicates an increasing trend in the consumption of HFCs over the next couple of years. The consumption of HFCs in the servicing sector has been growing sharply due to the growing demand for new equipment, mainly in the air conditioning sector, since **HFC-410A** is currently the most used refrigerant in the manufacturing industry of residential window and split type air conditioning equipment and in commercial appliances such as multi-split and chillers. In general, there is a fear from the Brazilian manufacturers in the use of flammable refrigerants as alternatives to F-Gases, due to the shortage of qualified labor in this area.

13. Description of information that needs to be gathered during project preparation. Explain how this data will be gathered

Information needed	Description	Agency
Data on HFC consumption in manufacturing/servicing sector	General survey on HFCs (pure and mixtures) consumption in Brazil, detailed profile of HFCs consumption in the sectors of air conditioning, foams, propelling agents / aerosol, solvents, firefighting and proposal of strategies for each sector, survey on the gender mainstreaming in the aforementioned sectors. Regarding HFC waste management, identifying bottlenecks and proposing a strategy to improve the market's ability to recover, recycle, reclaim, and dispose of HFCs, assess the availability of recovery machines for larger volumes and modernize equipment for leakage control and recovery of HFCs.	UNDP
HFC sectoral consumption information	Survey on market trends and use of substances alternatives to HFCs, identification of existing barriers to the use of low-GWP alternatives and proposition of a strategy to overcome the barriers identified for the aforementioned sectors.	UNDP
Analysis of types of equipmentt using HFCs	Data collection on the amount of equipment / type of fluid / energy efficiency class, especially in the air conditioning sector.	UNDP
New information on ODS regulations	Update, in coordination with relevant stakeholders, the information on the country's legal framework for the subject.	UNDP
Data on HFC consumption in manufacturing/servicing sector	General diagnosis on the consumption of HFCs (pure and blends) in Brazil, detailed profile of HFC consumption in the commercial refrigeration, industrial refrigeration, domestic refrigeration, transport refrigeration (including road and maritime transport) sectors; and proposition of strategies for each of these sectors; survey on gender integration in the aforementioned sectors, identification of barriers and proposal of strategy to improve the market's capacity to replace.	UNIDO
HFC sectoral consumption information	Diagnosis on market trends and use of alternative substances to HFCs, identification of existing barriers to the use of low-GWP alternatives, and proposition of strategy to overcome the identified barriers for the above mentioned sectors.	UNIDO
Analysis of types of equipmentt using HFCs	Data collection on the amount of equipment / type of fluid / energy efficiency class, in particular in the commercial, industrial, and residential refrigeration sectors.	UNIDO
Data on HFC consumption in manufacturing/servicing sector	General survey on the refrigeration and air conditioning servicing sector in Brazil, addressing the following elements: 1) Data collection on the consumption of HFCs in the refrigeration and air conditioning servicing sector; 2) Analysis of the current situation and market trends regarding the use of alternative substances in the	Other (Bilateral)

	refrigeration and air conditioning servicing sector, with a special focus on refrigeration circuit cleaning practices (flushing); 3) Analysis of current practices and market trends regarding tools used in the installation, maintenance and repair of HFCs-based equipment; 4) Survey and analysis of specific practices in the servicing sector aimed at energy efficiency of appliances.	
Others, specify.	Updating, in coordination with relevant interlocutors, and analysis of technical standards and minimum energy efficiency performance standards available and applied in the country in the refrigeration and air conditioning sector.	Other (Bilateral)
Others, specify.	Collection of information on infrastructure for the implementation of a Qualification, Certification and Registration (QCR) scheme for refrigeration and air conditioning technicians.	Other (Bilateral)

14. Activities to be undertaken for project preparation and funding (decision 87/xx(b))

Activity	Indicative funding (US $)	Agency
Carry out a comprehensive diagnosis, consult with stakeholders; data collection, detail the HFCs consumption profile in air conditioning, foams, propelling agents / aerosol, solvents, firefighting; assess gender integration in the aforementioned sectors and propose a strategy for the gradual reduction of HFCs consumption in those sectors. Carry out a diagnosis on market trends and the use of alternative substances to HFCs, identify and propose a strategy to overcome the barriers identified in the aforementioned sectors. Carry out a survey on the amount of equipment / type of fluid / energy efficiency class, especially in the air conditioning sector. Propose a strategy for disseminating information and strengthening the ODS management system to include HFCs within the scope of the KIP; consolidate strategies (overarching strategy) for all subsectors to be included in the KIP.	126,500.00	UNDP
To conduct general diagnostic with stakeholder consultations, data collection and analysis, interviews and field visits to establish the consumption profile of HFCs (pure and blends) in the sectors of commercial refrigeration, industrial refrigeration, domestic refrigeration and transport refrigeration (including road and maritime transport). Assess gender mainstreaming in the target sectors, and propose a strategy for the gradual reduction of HFC consumption in these sectors, as well as identify barriers to promoting gender equality in these sectors. Carry out a diagnosis on market trends and the use of alternative substances to HFCs, identify and propose strategies to overcome the barriers identified for the target sectors of the diagnosis. To carry out data collection on the amount of equipment / type of fluid / energy efficiency class, in the commercial, industrial, and residential refrigeration sectors. To propose strategy to enable the dissemination of information.	63,500.00	UNIDO
Carry out general survey on the consumption of HFCs in the refrigeration and air conditioning servicing sector and specific practices aimed at energy efficiency of the appliances; Stakeholder consultations; Data collection; Data collection on technical standards, existing certification schemes, minimum energy efficiency performance standards, which are available and applied in the country in the refrigeration and air conditioning sector; Elaboration of	40,000.00	Other (Bilateral)

strategy to address the RAC servicing sector in the KIP considering complementarity with ongoing activities and lessons learned under the HPMP, and always prioritizing activities that promote safe and energy efficient use of low GWP refrigerants.		
Click or tap here to enter text.		(select)
Click or tap here to enter text.		(select)
TOTAL	**230,000.00**	

15. How will activities related to preparing the KIP be linked to the current stages of the HPMP being implemented in the country? (OPTIONAL)

Brazil is on the way to eliminate HCFCs consumption. Stage III of the HPMP, which is currently being developed and will soon be submitted to the ExCom, will phase out 97.5% of HCFCs by 2030. The activities will focus on the sustainable phase-out of HCFCs and, as far as possible, promote the safe use of low-GWP alternatives. Brazil will make efforts to ensure synergy between the HPMP and the KIP. It is important to highlight that the phase out of HCFCs can be achieved, in many cases, through the application of currently available non-flammable and non-toxic technologies. However, the gradual reduction of HFCs is a more complex task, as it requires the introduction of flammable refrigerants. The safe handling of these substances is a complex task, which will require, not only the training, certification and capacity building of technicians, but also the adaptation of manufacturing structures of RAC equipment and the updating/introduction of safety standards, guidelines, regulations, norms, for safe and efficient handling, in addition to intensifying the dissemination of information covering the entire lifecycle of equipment containing HFCs and alternative substances.

Brazil has been working on strengthening the Management System for the Final Disposal of ODS Waste and other substances controlled by the Montreal Protocol, which is expected to remain operational in the coming years, either to meet the demand arising from the maintenance of older equipment that cannot be adapted to another type of substance or to ensure environmentally sound final disposal, once the lifecycle of these substances is completed.

It is worth noting that, within the scope of the HPMP, the Brazilian Government, together with UNDP, UNIDO and GIZ, has already been promoting awareness campaigns on the safe handling of low-impact alternatives to the global climate system that present some degree of flammability. Furthermore, it has supported the Brazilian Association of Technical Standards (ABNT) in the development and discussion of specific technical standards to ensure, at the national level, the standardization of handling, installation and maintenance of equipment that use flammable alternatives to HCFCs and HFCs. Among the initiatives it is important to highlight the revision of the ABNT NBR 16069 Standard on “Safety in refrigeration systems”; the translation of the international standard ISO 5149; the adaptation of the international standard ISO 22712 and the development of a technical standard on the terminology of refrigerants.

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
KIGALI-HFC IMPLEMENTATION PLAN (KIP) PROJECT PREPARATION (PRP)
KIP (INV - REF)
KIP (INV - A/C)

Part I: Project information

Project title:	PRP for Investment projects in the RAC Manufacturing sector.	
Country:	Colombia	
Lead implementing agency:	UNDP	
Implementation period for stage I of the KIP:	2024 - 2029	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the KIP (please specify): 12 Months.		
Funding requested:		
Agency	**Sector**	**Funding requested (US $)***
UNDP	INV - REF	150,000
UNDP	INV - AC	50,000

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating the specifying roles of respective agencies (where more than one IA is involved)	☒	☐

A. Information required for PRP funding request for investment projects/sector plans as part of or in advance of the KIP

1. Agency:	UNDP
2. Sector:	Refrigeration
3. HFC consumption in item #2 reported under country programme data?	☒ **Yes**, please specify reported amount and year: _____ ☐ **No**
4. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☒ **Yes**, please provide support letter. Support letters will be collected during the preparation of the project; discussions have been already carried out with most of the companies and have expressed their support and interest. ☐ **No**
5. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☐ **Yes** ☒ **No.** The written commitment will be collected during the preparation of the project.
6. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	The adoption of low-GWP, energy efficient alternatives is one of the pillars of the design of the KIP, so it is important for the country to support the transition to alternatives of low-GWP technologies in the manufacturing sector. Reduction in manufacturing will support the country to reduce the consumption of virgin HFC and HFC blends, avoid growth and the long-term demand of this refrigerants.

	The Stage I of the KIP is planned to be submitted in 2024.

7. Information on sector consumption (2022)

Substance	Consumption (metric tonnes)
HFC-134a	150.01
R-404A	104.49
R-507A	123.81

8. Information on enterprise(s) for which funding is being sought

Enterprise	Year established	HFC consumption (metric tonnes) (last three years)			HFC phase-out to be achieved (metric tonnes and CO_2-eq. tonnes)
		2020	2021	2022	
Weston	1963	Detail information will be available during this preparation project.			
Sefrío	1983				
Danval	2006				
Rojas Hermanos	1968				
Frigrite America	1990				
Industrias Wonder	2004				
Supernórdico	1942				
20 SME has been identified during the preparation of the KIP.					

9. Activities to be undertaken for preparation of the investment project and funding requested

Activity	Indicative funding (US $)	Bilateral/implementing agency
Data collection for development of KIP Manufacturing plan, consultation with enterprises including site visits for collecting data, and information related to equipment and processes	75,000	UNDP
Review of the data and validation	15,000	UNDP
Alternatives and supply chain assessment: Assess the viability of proposed alternatives and their supply chain, and propose other options to the enterprises, considering the information collected	30,000	UNDP
Stakeholders Consultation. Final consultation with enterprises and with relevant stakeholders and finalization of KIP refrigeration manufacture projects	30,000	UNDP
TOTAL	**150,000**	

B. Information required for PRP funding request for investment projects/sector plans as part of or in advance of the KIP

10. Agency:	UNDP
11. Sector:	Air-conditioning
12. HFC consumption in item #2 reported under country programme data?	☒ **Yes**, please specify reported amount and year: _____ ☐ **No**
13. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☒ **Yes**, please provide support letter._ Support letter will be collected during the preparation of the project; discussions have been already carried out with most

	of the companies and have expressed their support and interest. ☐ **No**
14. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☒ **Yes** ☐ **No**
15. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	The adoption of low-GWP, energy efficient alternatives is one of the pillars of the design of the KIP, so it is important for the country support the transition to alternatives of low GWP technologies in the manufacturing sector. Reduction in manufacturing will support the country to reduce the consumption of virgin HFC and HFC blends, avoid growth and the long-term demand of this refrigerants. The final KIP is planned to be submitted in 2024.

16. Information on sector consumption (specify previous year HFC consumption)

Substance	**Consumption (metric tonnes)**
R-410A	54.11

17. Information on enterprise(s) for which funding is being sought

Enterprise	**Year established**	**HFC consumption (metric tonnes) (last three years)**		**HFC phase-out to be achieved (metric tonnes and CO_2-eq. tonnes)**
		Detail information will be available during this preparation project. The market share of each company was used to determine the estimated consumption in 2022.	**2022**	
Thermotar	1978		24.35	
Tecam	1963		13.53	
Comfort fresh	2016		4.3	
MTC	2006		6.48	

18. Activities to be undertaken for preparation of the investment project and funding requested

Activity	Indicative funding (US $)	Bilateral/implementing agency
Data collection for development of KIP Manufacturing plan, consultation with enterprises including site visits for collecting data, and information related to equipment and processes	25,000	UNDP
Review of the data and validation	5,000	UNDP
Alternatives and supply chain assessment: Assess the viability of proposed alternatives and their supply chain, and propose other options to the enterprises, considering the information collected	10,000	UNDP
Stakeholders Consultation. Final consultation with enterprises and with relevant stakeholders and finalization of KIP refrigeration manufacture projects	10,000	UNDP
TOTAL	**50,000**	

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
KIGALI-HFC IMPLEMENTATION PLAN (KIP) PROJECTS PREPARATION (PRP)
KIP (INV-OTHER)

Part I: Project information

Project title:	Demonstration project with use of R290 in automotive thermal Systems with double loop secondary cooling system	
Country:	India	
Lead implementing agency:	UNDP	
Cooperating agency (1):	(select)	Click or tap here to enter text.
Cooperating agency (2):	(select)	Click or tap here to enter text.
Cooperating agency (3):	(select)	Click or tap here to enter text.
Implementation period for stage I of the KIP:	2029-2032	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the KIP (please specify): 24 Months		
Funding requested:		

Agency	Sector	Funding requested (US $)*
UNDP	INV - Mobile AC	30,000
UNDP	(select)	Click or tap here to enter text.
(select)	(select)	Click or tap here to enter text.
(select)	(select)	Click or tap here to enter text.

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating the specifying roles of respective agencies (where more than one IA is involved)	☒	☐

A. Information required for PRP funding request for the overarching strategy of the KIP

1. Montreal Protocol compliance target to be met in ☒ stage I of the KIP			
Phase-out commitment (%)	**10%**	**Year of commitment**	**2032**
☐ **Servicing only**		☐ **Manufacturing only**	✕ **Servicing and manufacturing**

2. Brief background/description/information on approved relevant projects and multi-year agreements as follows:

- The current progress in implementation of any funded HFC-related project (enabling activities or stand-alone HFC investment projects)
- The current progress in ongoing HCFC phase-out management plan (HPMPs)
- Consideration of integrating HFC phase-down activities with HPMP activities taking into account previously approved HFC-related projects, if this information is available.

India ratified the Kigali Amendment to the Montreal Protocol on 27 September 2021. The Kigali Amendment came into force for India on 26 December 2021. As per the provisions of the Montreal Protocol, licensing system has been put in place before 26 March 2022. Data reporting on HFCs and blends containing HFCs for the year 2021 was also done during 2022 and will continue. India is in the process of developing a National Strategy including policy framework for HFC phase down in the country, which is expected to be completed by 2023. Three HFC phase down projects have been submitted for consideration of the ExCom at its 93rd meeting scheduled to be held in December 2023.

Regarding HCFC phase out, India has met the 2013, 2015 and 2020 compliance targets as per the accelerated phase out schedule of the Montreal Protocol through implementation of HPMP Stage-1 and HPMP Stage-2 as well as through the policy and regulatory framework put in place for HCFC phase out. India also complied

with the provisions of agreement with the ExCom both for HPMP Stage-1 and HPMP Stage-2. The stage-3 of the HPMP was approved in the 91st meeting of the ExCom of the MLF, to meet the 2025 and 2030 HCFC compliance targets and to be implemented from 2023 to 2030, with complete phase out of HCFCs in the manufacturing sectors by 31.12.2024. Activities in the servicing sector will continue till 2030.

Since there is no previous experience of implementing any HFC phase down projects and also considering that the national strategy and policy framework for HFC phase down in line with the Kigali Amendment to the Montreal Protocol is being developed, presently India has not considered integrating HFC phase-down activities with HPMP activities. This aspect could be examined once the national strategy and policy framework for HFC phasedown is ready.

3. Overview of current HFC consumption in metric tonnes by substance (last three years)

Substance/blend	Sector	2020	2021	2022
(select)	(select)		Data on HFCs for the years 2021 and 2022 is enclosed at Annexure – 1	
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			

4. Based on the consumption data given above, please provide a description of the sector/sub-sector that use HFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing)

As part of development of national strategy for HFC phase down, sector specific questionnaires have been developed for collection of HFC data, to be used to analyze the trends of HFC production and consumption. Keeping in view that HFCs have been brought under licensing system only in March 2022, HFC data for the previous years is not readily available. The information is likely to be available by the end of 2023

5. Description of information that needs to be gathered during project preparation. Explain how this data will be gathered

Information needed	Description	Agency
Data on HFC consumption in manufacturing/servicing sector	While the data collection as part of national strategy will give only sector wise information, category wise information in the sector would also be needed for project preparation	UNDP
Analysis of the types of equipment using HFCs	The equipment currently used, and the modifications needed	UNDP
Others, specify.	Viability for the proposed alternatives need to be examined taking into account global experiences as well as national circumstances	UNDP

6. Activities to be undertaken for project preparation and funding (decision 87/xx(b))

Activity	Indicative funding (US $)	Agency
Develop template for data collection for developing project proposal	5,000	UNDP
Consultation with stakeholders including national and international experts	7,500	UNDP
Feasibility study on dual secondary loop thermal systems for reducing the environmental impact of automotive air conditioning. And reduction of direct and indirect CO2 emissions	10,000	UNDP

Analysis of the information collected and development draft project proposal	5,000	UNDP
Consultation with nodal line ministries/departments, related stakeholders and finalization of the project proposal	2,500	UNDP
TOTAL	**30,000**	

7. How will activities related to preparing the KIP be linked to the current stages of the HPMP being implemented in the country? (OPTIONAL)

As mentioned above, since there is no previous experience of implementing any HFC phase down projects and also considering that the national strategy and policy framework for HFC phase down in line with the Kigali Amendment to the Montreal Protocol is being developed, presently India has not considered integrating HFC phase down activities with HPMP activities. This aspect could be examined once the national strategy and policy framework for HFC phasedown is ready.

8. How will the Multilateral Fund gender policy be considered during project preparation?

In line with the decision 84/92, the operational policy on gender mainstreaming would be applied wherever feasible in the preparation of the project including in the following activities (a) Encouraging participation in the consultative meetings. (b) Promoting awareness to develop staff competency and awareness on gender mainstreaming as part of the consultation exercise. (c) Share experiences and lessons learned on gender mainstreaming.

B. Information required for PRP funding request for investment projects/sector plans as part of or in advance of the KIP

1. Agency:	UNDP
2. Sector:	Mobile Air-conditioning
3. HFC consumption in item #2 reported under country programme data?	☒ **Yes**, please specify reported amount and year: ___2022_____ ☐ **No**
4. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☒ **Yes**, please provide support letter _ ☐ **No**
5. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☒ **Yes** ☐ **No**
6. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	Proposed smart microprocessor-based system employs a secondary coolant loop to maintain the passenger cabin temperature, Battery pack temperature (in case of Electric 7 Hydrogen fuel cell vehicle) allowing the safe use of natural refrigerant (R290). The project will enable reduction of refrigerant quantity by at least 50%. Additionally, instead of using air cooled condenser, a water-cooled condenser is used to further reduce the refrigerant charge quantity and increase the system's Coefficient of performance. Overall, smart dual secondary loop thermal systems offer a promising solution for reducing the environmental impact of automotive air conditioning. Smart dual secondary loop thermal system for automotive air conditioning can

	greatly reduce direct and indirect CO2 emissions produced by air conditioning units in automotive sector.

7. Information on sector consumption (specify previous year HFC consumption)	
Substance	**Consumption (metric tonnes)**
Others, specify	Details given at Annexure – 1
Others, specify.	
Others, specify.	

8. Information on enterprise(s) for which funding is being sought

Enterprise	**Year established**	**HFC consumption (metric tonnes) (last three years)**			**HFC phase-out to be achieved (metric tonnes and CO_2-eq. tonnes)**
		2019	**2020**	**2021**	
Subros Limited	The information will be collected as part of the questionnaire to be developed for data collection and included in the project proposal for each enterprise.				

9. Activities to be undertaken for preparation of the investment project and funding requested

Activity	Indicative funding (US $)	Bilateral/implementing agency
Click or tap here to enter text.		
Click or tap here to enter text.		
Click or tap here to enter text.		
Click or tap here to enter text.		
Click or tap here to enter text.		
Click or tap here to enter text.		
TOTAL		

Annexure – 1

HFC Data 2022 (Article-7)

HFCs		**Production**	**Import**	**Export**	**Consumption**
HFC-32	Mt	9590.20	8994.68	2391.383	16193.497
	mt CO_2-eq	6473385	6071409	1614183.525	10930610.48
HFC-125	Mt	8754.751	122.26	4874.95	4002.061
	mt CO_2-eq	30641628.5	427910	17062325	14007213.5
HFC-134a	Mt	14727.82	9125.191	6112.542	17740.469
	mt CO_2-eq	21060782.6	13049023.13	8740935.06	25368870.67
HFC-152a	Mt		2940.478	4.970	2935.508
	mt CO_2-eq		364619.272	616.28	364002.992
HFC-227ea	Mt		263.973	0.415	263.558
	mt CO_2-eq		849993.06	1336.3	848656.76
HFC-236fa	Mt		72.584	0.155	72.429
	mt CO_2-eq		712049.04	1520.55	710528.49
HFC-245fa	Mt		1064.839	0	1064.839
	mt CO_2-eq		1096784.17	0	1096784.17
HFC-365MFC	Mt		38.4	0	38.4
	mt CO_2-eq		30489.6	0	30489.6
HFC-43-10mee	Mt		0.6	0	0.6
	mt CO_2-eq		984		984
HFC-23	Mt		0	0	0
	mt CO_2-eq		0	0	0
R-404A	Mt		1265.6	227.334	1038.266
	mt CO_2-eq		4963683.2	891603.948	4072079.252

HFCs		Production	Import	Export	Consumption
R-407C	Mt		718.92	274.371	812.049**
	mt CO_2-eq		1275364.08	486734.154	1440574.926
R-407F	Mt		1.452		1.452
	mt CO_2-eq		2649.9		2649.9
R-410A	Mt		3887.67	4627.717	3814.326**
	mt CO_2-eq		8117454.96	9662673.096	7964312.688
R-426A	Mt		20	0	20
	mt CO_2-eq		30160		30160
R-438A	Mt		200	0	200
	mt CO_2-eq		452800		452800
R-467A	Mt		0	37.800	0
	mt CO_2-eq			51370.2	
R-454B	Mt		0.176	0	0.176
	mt CO_2-eq		81.84	0	81.84
R-454C	Mt		0.073	0	0.073
	mt CO_2-eq		10.585	0	10.585
R-455A	Mt		0.8	0	0.8
	mt CO_2-eq		116	0	116
R-513A	Mt		0.684	0	0.684
	mt CO_2-eq		430.236	0	430.236
HFC-365mfc/HFC-227ea	Mt		115.2	0	115.2
	mt CO_2-eq		132480	0	132480

**As per Article-7 and Country Programme Progress Report, no need to report the production of mixtures/blends. However, the consumption is calculated considering R-407C production= 367.5 MT and R-410A production= 4554.373 during the year 2022.

HFC Data 2021 (Article-7)

HFCs		Production	Import	Export	Consumption
HFC-32	Mt	9598.75	6700.24	3578.71	12720.28
	mt CO2-eq	6479156.25	4522662.00	2415629.25	8586189
HFC-125	Mt	4993.53	25.409	2010.47	3008.469
	mt CO2-eq	17477355.00	88931.50	7036645	10529641.5
HFC-134a	Mt	11580.59	4911.208	6450.12	10041.678
	mt CO2-eq	16560243.70	7023027.44	9223671.6	14359599.54
HFC-152a	Mt		2672.8		2672.80
	mt CO2-eq		331427.20		331427.2
HFC-227ea	Mt		157.8906		157.8906
	mt CO2-eq		508407.73		508407.732
HFC-236fa	Mt		532.792		532.792
	mt CO2-eq		5226689.52		5226689.52
HFC-245fa	Mt		587.207		587.207
	mt CO2-eq		604823.21		604823.21
HFC-43-10mee	Mt		1.901		1.901
	mt CO2-eq		3117.64		3117.64
HFC-23	Mt		11.1565		11.1565
	mt CO2-eq		165116.20		165116.2
R-404A	Mt		820	188.38	631.62
	mt CO2-eq		3216040	738826.36	2477213.64
R-407A	Mt			32.00	32.00
	mt CO2-eq			67424	67424
R-407C	Mt		2266.1	988.531	1277.569
	mt CO2-eq		4020061.4	1753653.994	2266407.406
R-410A	Mt		3712.285		3712.285
	mt CO2-eq		7751251.08		7751251.08
R-422B	Mt			77.29	77.29

	mt CO2-eq			195234.54	195234.54
R-426A	Mt		60		60
	mt CO2-eq		90480		90480
R-438A	Mt		40		40
	mt CO2-eq		90560		90560
R-467A	Mt			56.00	56.00
	mt CO2-eq			76104	76104
R-507A	Mt		1.2712		1.2712
	mt CO2-eq		5065.732		5065.732
R-508B	Mt		1.8778		1.8778
	mt CO2-eq		12784.0624		12784.0624

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
KIGALI-HFC IMPLEMENTATION PLAN (KIP) PROJECT PREPARATION (PRP)
KIP (INV - REF)

PLEASE ADJUST THE TEXT IN THE ANNEX IN LINE WITH THE TEXT IN THE GUIDE

Part I: Project information

Project title:	KIP Stage I Preparation / Sector Plan for Manufacturing Sector	
Country:	Lebanon	
Lead implementing agency:	UNDP	
Cooperating agency (1):	(select)	
Cooperating agency (2):	(select)	Click or tap here to enter text.
Cooperating agency (3):	(select)	Click or tap here to enter text.
Implementation period for stage I of the KIP:	June 2024-December 2030 (estimated)	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the KIP (please specify): 24 months		
Funding requested:		

Agency	Sector	Funding requested (US $)*
UNDP	INV - REF	70,000
(select)	(select)	Click or tap here to enter text.
(select)	(select)	Click or tap here to enter text.
(select)	(select)	Click or tap here to enter text.

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating the specifying roles of respective agencies (where more than one IA is involved)	☒	☐

A. Information required for PRP funding request for the overarching strategy of the KIP

1. Montreal Protocol compliance target to be met in ☒ stage I of the KIP			
Phase-out commitment (%)	**Freeze and 10%**	**Year of commitment**	**2024 and 2029**
☐ **Servicing only**		**Manufacturing only**	**X Servicing and manufacturing**

2. Brief background/description/information on approved relevant projects and multi-year agreements as follows:

- The current progress in implementation of any funded HFC-related project (enabling activities or stand-alone HFC investment projects)
- The current progress in ongoing HCFC phase-out management plan (HPMPs)
- Consideration of integrating HFC phase-down activities with HPMP activities taking into account previously approved HFC-related projects, if this information is available.

This KIP preparation proposal for Overarching strategy and RAC Servicing sector plan for submitted and approved at the 87th ExCom meeting. This request is in addition to the KIP preparation project approved. The preparation fund for manufacturing sector was requested along with KIP preparation request. The KIP preparation activities are being implemented, and data collection is on its final stage. Lebanon has a consumption profile in which HFCs are mostly used in servicing sector. However, during the process of data collection, it was found that there are about 40 RAC manufacturing enterprises in Lebanon using HFCs. Majority of these companies are SMEs operating in the commercial refrigeration manufacturing sector, however detailed information at company level was not possible to be cross-checked and verified given limited funding available. Hence this additional request for preparation is requested to allow the Government of Lebanon to assess HFCs use information at company level, collect baseline data and develop Investment Plan/Project Strategies to assist the phase-down in this sector.

3. Overview of current HFC consumption in metric tonnes by substance (last three years)

Substance/blend	Sector	2020	2021	2022
(select) HFC-32	Other, specify.	37.6	53	43.25
(select) HFC-134a	Other, specify.	637.65	548	505.0
(select) HFC-227ea	(select)	17.5	9.5	5.65
(select) R-404A	(select)	135.65	132	130.0
(select) R-407C	(select)	35.48	51	47.35
(select) R-410A	(select)	72.32	70.2	62
(select) R-507A	(select)			9
(select) R-408A	(select)			1.68
(select) HFC-365mfc	(select)	4.5		

4. Based on the consumption data given above, please provide a description of the sector/sub-sector that use HFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing)

In addition to analysis of RAC servicing sector submitted along with KIP preparation request, during the survey of KIP preparation, it was found that there are about 40 refrigeration manufacturing companies are using R-134a and R-404 A. The above data is based on the survey, which shows that there is consumption of HFC in the manufacturing sector, however detailed assessments at company level are needed to fully determine sector-wise use and demands. Under this PRP request project, consultants will collect additional data by visiting each company, verify baseline equipment and eligibility and assess alternatives' landscape and supply chain to support the Government of Lebanon to determine the best phase-down strategy for the manufacturing sector. Upon this validation, the proper analysis of the trends of HFC consumption in manufacturing sector will be possible to be made.

It may be noted that Lebanon went through the severe economic crisis in 2020, 2021 and 2022 and that has affected the refrigerant consumption in addition to all other imports. The above data is from A7 Report. However, more precise data and trend will be available after implementation of this preparation project.

5. Description of information that needs to be gathered during project preparation. Explain how this data will be gathered

Information needed	Description	Agency
Data on HFC consumption in manufacturing/servicing sector	Collect specific HFC use data at company level for three years, cross-check and validate consumption with Importers/distributors	UNDP
Analysis of the types of equipment using HFCs	Based on data, conduct analysis of company production profile, production output and assess baseline manufacturing equipment as well as review needs and estimate costs for the modifications needed for technology conversion need	UNDP
Others, specify.	Analysis of available of alternatives and supply chain	UNDP
(select)	Click or tap here to enter text.	(select)

6. Activities to be undertaken for project preparation and funding (decision 87/xx(b))

Activity	Indicative funding (US $)	Agency
Click or tap here to enter text.		(select)

TOTAL	

7. How will activities related to preparing the KIP be linked to the current stages of the HPMP being implemented in the country? (OPTIONAL)

8. How will the Multilateral Fund gender policy be considered during project preparation?

The Government of Lebanon is aware of the Multilateral Fund gender policy contained in ExCom document 84/73, and the related Executive Committee decision 84/92.The RAC sector is crucial to all countries in the successful phaseout of HCFCs and forthcoming phase-down of HFCs under the Montreal Protocol. The fast-growing RAC sector in Lebanon also can offer a wide variety of interesting and fulfilling careers for women as well as men. During the project preparation, gender considerations and actions on gender mainstreaming will be assessed and a Gender Management Plan is to be included in the HFC phase down over-arching strategy: The following actions are expected to be carried in the preparation phase:• Look into introduction of gender considerations when designing components and activities • Assess barriers or bottlenecks for women engagement in the sector• To establish a baseline of women technicians in RAC sector and compare it with the number of women involved in NOU RAC activities• To incorporate gender aspects in the recruitment of staff for the PRP and consultants (emphasizing that female candidates are welcome and encouraged to apply)• Draft a Gender Management Plan to be supported as part of the HFC phase down management plan - over-arching strategy

B. Information required for PRP funding request for investment projects/sector plans as part of or in advance of the KIP

10. Agency:	UNDP
11. Sector:	Refrigeration
12. HFC consumption in item #2 reported under country programme data?	☐ **Yes**, please specify reported amount and year: _____ ☒ **No**
13. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☒ **Yes**, please provide support letter _____ ☐ **No**
14. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☐ **Yes** ☒ **No**
15. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	As mentioned above, there are about 40 manufacturing companies using HFCs for manufacturing of refrigeration equipment. The investment project(s) will support these companies to transfer to alternative low GWP technologies. Reduction in manufacturing will support the country to reduce the consumption and avoid growth. However, the commitment of enterprises will be known during preparation of these projects.

16. Information on sector consumption (specify previous year HFC consumption)

Substance	Consumption (metric tonnes) 2020 and 2021 consumption in MT in manufacturing sector
HFC-134a	To be determined
Others, specify. R 404A	To be determined
(select)	

17. Information on enterprise(s) for which funding is being sought

Enterprise	Year established	HFC consumption (metric tonnes) (last three years)	HFC phase-out to be achieved

		2019	2020	2021	(metric tonnes and CO_2-eq. tonnes)
Data to be obtained as result of this preparation project.					

18. Activities to be undertaken for preparation of the investment project and funding requested		
Activity	Indicative funding (US $)	Bilateral/implementing agency
Data collection for development of KIP Manufacturing plan	43,000	UNDP
Peer review and validation	10,000	UNDP
Alternatives and supply chain assessment	7,000	UNDP
Stakeholders Consultation	10,000	UNDP
Click or tap here to enter text.		
Click or tap here to enter text.		
TOTAL	70,000	

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
KIGALI-HFC IMPLEMENTATION PLAN (KIP) PROJECT PREPARATION (PRP)
KIP (INV - REF)

PLEASE ADJUST THE TEXT IN THE ANNEX IN LINE WITH THE TEXT IN THE GUIDE

Part I: Project information

Project title:	KIP Stage I Preparation (for Manufacturing sector)	
Country:	Sri Lanka	
Lead implementing agency:	UNDP	
Cooperating agency (1):	UNEP	UNEP is the cooperating agency for the RAC servicing sector.
Cooperating agency (2):	(select)	Click or tap here to enter text.
Cooperating agency (3):	(select)	Click or tap here to enter text.
Implementation period for stage I of the KIP:	June 2024-December 2028	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the KIP (please specify): 6 months		
Funding requested:		

Agency	Sector	Funding requested (US $)*
UNDP	INV - REF	80,000
(select)	(select)	Click or tap here to enter text.
(select)	(select)	Click or tap here to enter text.
(select)	(select)	Click or tap here to enter text.

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating and specifying roles of respective agencies (where more than one IA is involved)	☒	☐

A. Information required for PRP funding request for the overarching strategy of the KIP

1. Montreal Protocol compliance target to be met in ☒ stage I of the KIP			
Phase-out commitment (%)	**Freeze and 10%**	**Year of commitment**	**2024 and 2029**
☐ **Servicing only**		**Manufacturing only**	**X Servicing and manufacturing**

2. Brief background/description/information on approved relevant projects and multi-year agreements as follows:

- The current progress in implementation of any funded HFC-related project (enabling activities or stand-alone HFC investment projects)
- The current progress in ongoing HCFC phase-out management plan (HPMPs)
- Consideration of integrating HFC phase-down activities with HPMP activities taking into account previously approved HFC-related projects, if this information is available.

This KIP preparation proposal for Overarching strategy and RAC Servicing sector plan for submitted and approved at the 87th ExCom meeting. This request is in addition to the KIP preparation project approved. The preparation funding for manufacturing sector was requested along with KIP preparation request. However, PRP request for manufacturing sector was withdrawn as required data related to manufacturing was not available and there was not much clarity about manufacturing sector. The KIP preparation activities were implemented, and data collection was done. The HFCs are used mainly in RAC servicing sector in Sri Lanka. However, during the process of data collection, it was found that there are about 10-15 RAC manufacturing enterprises in Sri Lanka using HFCs. Hence this additional request for preparation is requested to deep dive in this sector and to prepare a relevant manufacturing sector phase down plan.

3. Overview of current HFC consumption in metric tonnes by substance (last three years)

Substance/blend	Sector		2020	2021
(select)	Manufacturing-REF	HFC 134a	0.13	0.13
(select)	Manufacturing-REF	R 404 A	22.8	8.03
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			
(select)	(select)			

4. Based on the consumption data given above, please provide a description of the sector/sub-sector that use HFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing)

In addition to analysis of RAC servicing sector submitted along with KIP preparation request, during the survey of KIP preparation, it was found that there are a few (10-15) refrigeration manufacturing companies using R-134a and R-404 A. The above data is based on the survey, which shows that there is consumption of HFC of about 10-20 MT by manufacturing sector. Under this project, manufacturing enterprises data will be deep dived to understand the usage, trend and market scenario. Upon this validation, the proper analysis of the trends of HFC consumption in manufacturing sector will be possible to be made.

It may be noted that Sri Lanka went through the economic crisis in 2021 and that has affected the refrigerant consumption badly in addition to all other imports. The above data is from survey of KIP. However, more precise data and trend will be available after implementation of this preparation project.

5. Description of information that needs to be gathered during project preparation. Explain how this data will be gathered

Information needed	Description	Agency
Data on HFC consumption in manufacturing/servicing sector	Collect specific HFC use data at company level for three years, cross-check and validate consumption with Importers/distributors	UNDP
Analysis of the types of equipment using HFCs	Based on data, conduct analysis of company production profile, production output and assess baseline manufacturing equipment as well as review needs and estimate costs for the modifications needed for technology conversion need	UNDP
Others, specify.	Analysis of available alternatives and supply chain	UNDP
(select)	Click or tap here to enter text.	(select)

6. Activities to be undertaken for project preparation and funding (decision 87/xx(b))

Activity	Indicative funding (US $)	Agency
Click or tap here to enter text.		(select)
Click or tap here to enter text.		(select)
Click or tap here to enter text.		(select)
Click or tap here to enter text.		(select)
Click or tap here to enter text.		(select)
TOTAL		

7. How will activities related to preparing the KIP be linked to the current stages of the HPMP being implemented in the country? (OPTIONAL)

8. How will the Multilateral Fund gender policy be considered during project preparation?

B. Information required for PRP funding request for investment projects/sector plans as part of or in advance of the KIP

1. Agency:	UNDP

2. Sector:	Refrigeration
3. HFC consumption in item #2 reported under country programme data?	☐ **Yes**, please specify reported amount and year: _____ ☒ **No**
4. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☐ **Yes**, please provide support letter _____ ☒ **No**
5. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☐ **Yes** ☒ **No**
6. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	As mentioned above, there are 10-15 manufacturing companies using HFCs for manufacturing refrigeration equipment. The investment project will support these companies to transfer to alternative low GWP technologies. Reduction in manufacturing will support the country to reduce the consumption and avoid growth. However, the commitment of enterprises will be known during preparation of these projects. The final KIP is planned to be submitted in 2024.

7. Information on sector consumption (specify previous year HFC consumption)

Substance	Consumption (metric tonnes) 2020 and 2021 consumption in MT in manufacturing sector
HFC-134a	0.13 0.13
Others, specify. R 404A	22.8 8.03
(select)	

8. Information on enterprise(s) for which funding is being sought

Enterprise	Year established	HFC consumption (metric tonnes) (last three years)			HFC phase-out to be achieved (metric tonnes and CO_2-eq. tonnes)
		2019	2020	2021	
Will be available during this preparation project. KIP PRP survey found 10-15 manufacturing enterprises.					

9. Activities to be undertaken for preparation of the investment project and funding requested

Activity	Indicative funding (US $)	Bilateral/implementing agency
Data collection for development of KIP Manufacturing plan, consultation with enterprises including site visits for collecting data, and information related to equipment and processes	40,000	UNDP
Review of the data and validation	15,000	UNDP
Alternatives and supply chain assessment: Assess the viability of proposed alternatives and their	10,000	UNDP

supply chain, and propose other options to the enterprises, considering the information collected		
Stakeholders Consultation. Final consultation with enterprises and with relevant stakeholders and finalization of KIP Manufacturing and Assembly sector plan	15,000	UNDP
Click or tap here to enter text.		
Click or tap here to enter text.		
TOTAL	80,000	

ANNEX 3

Project preparation (PRP) requests for national inventories of banks for used and/or unwanted controlled substances and a plan for the collection, transport and disposal of such substances

1. **Cuba**
2. **Egypt**
3. **Jamaica**
4. **Peru**
5. **Trinidad and Tobago**
6. **Uruguay**

GOVERNMENT OF THE REPUBLIC OF CUBA

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES

Lead Implementing Agency: **UNDP**

National Executing Agency: **National Ozone Unit, CUBAENERGIA – Ministry of Science, Technology and Environment**

October 2023

Part I: Project information

Project title:	Preparation of national inventories of banks of used or unwanted controlled substances
Country:	Cuba
Lead implementing agency:	UNDP
Meeting where request is being submitted	93rd
Implementation period	December 2023 – November 2025
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24	
Funding requested:	
Agency	**Funding requested (US $)**
UNDP	**90,000**

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval	☒	☐
Project included in the bilateral/IA business plan?	☒	☒
UNDP's business plan for 2023 was submitted prior to the 91st ExCom when the funding window was established.		

A. Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.

1. Brief overview of the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes.

The Government of the Republic of Cuba is requesting funding for the preparation of the national inventories of banks of used or unwanted controlled substances. The project complies with the criteria established by Decision 91/66.
ODS banks are defined as the 'total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere' (IPCC/TEAP, 2005). Thus, ODS can either be quantified in an aggregated manner such as bulk/cylinder (stockpiles) or estimated via ODS-containing equipment.

A sound understanding of ODS banks at the country level is the basis for any action and policy decisions in the field of ODS bank management. In particular, the inventory is important to:

- Assess the general need for action in the field of ODS bank management.
- Assess the potential environmental benefits to the ozone layer and the climate.
- Decide whether to export ODS or to find a local destruction solution.
- Design optimal capacities for destruction technology in case of local destruction options.
- Assess long-term availability of ODS to guarantee economic viability of a destruction plant.
- Design appropriate policy measures.
- Design appropriate collection systems.

Key elements of responsible ODS/HFC management:

- Promote onsite recycling.
- Use of reusable cylinders.
- Adopt a take-back obligation with a deposit-and-refund scheme.
- Ensure accessible collection points for refrigerants or waste appliances.

- Ensure reclamation and destruction facilities.
- Building a quality infrastructure based on informed decision-making.

The case of Cuba has the following unique features:

- Cuba is a developing country with low ODS/HFC consumption with an ODS destruction facility in place in a cement plant.
- The opportunity to leverage market-based finance mechanisms will be explored for the conversion of environmental services of avoided ODS emissions into carbon assets. Methodology and standards and the critical issues (technical, regulatory and financial risks) will be discussed.
- This proposal will review and evaluate the development and implementation of the ODS and HFC destruction strategy in place.
- The main challenge in Cuba is related to setting up the logistic framework and cost-effective infrastructure for transport, storage and destruction of ODS/HFC.

2. Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency

Activity	Description	Agency
Others, specify. Data collection and analysis	Elaboration of an inventory to cover the equipment in-service and predictive analysis to estimate the rate it reaches EOL(End-of-life) inclusive of national capability to maintain it and update the initial EOL management plan	UNDP
Stakeholder consultations	Conducting interviews, organizing workshops and stakeholders' consultations for the integration of national regulations and procedures and the harmonization with national waste management regulation to accommodate EOL ODS/HFCs.	UNDP
Others, specify. Analysis and evaluation of the disposal system of refrigerant waste in place.	Assessment of options for the final disposal of refrigerant waste in the country.	UNDP
Preparation of inventory report/national plan	Delivery of inventory report and national plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	Awareness raising of relevant stakeholders on ODS/HFC banks and EOL management and disposal.	UNDP

3. Funding for the activities described in 2 above

Activity	Indicative funding (US $)	Agency
Data collection and analysis	20,000	UNDP
Stakeholder consultations	20,000	UNDP
Analysis and evaluation of the disposal system of refrigerant waste in place.	15,000	UNDP
Preparation of inventory report/national plan	25,000	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	10,000	UNDP
TOTAL	**90,000**	

4. How will the Multilateral Fund gender policy be considered during project preparation?

The objective of the gender policy of the Multilateral Fund is to promote gender mainstreaming (gender equality and women's empowerment - GEWE) in the preparation and implementation of projects funded by the Multilateral Fund, consistent with the gender policies of the implementing agencies.

The Cuban Government promotes a program for the inclusion of women in line with the MLF gender policy contained in ExCom document 84/73 and special effort will be made to involve females in data collection and analysis of inventory of ODS/HFC bank as well as on EOL management of RAC equipment.
The project preparation will aim to advocate the importance of the leadership of women technicians in awareness-raising activities.
Also, this project preparation will ensure that both women and men can provide input, access and participate in all activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES AND A PLAN FOR THE COLLECTION, TRANSPORT AND DISPOSAL OF SUCH SUBSTANCES, INCLUDING CONSIDERATION OF RECYCLING, RECLAMATION & COST-EFFECTIVE DESTRUCTION

Part I: Project information

Project title:	Preparation of national inventory and action plan for banks of controlled substances
Country:	EGYPT
Lead implementing agency:	UNDP
Meeting where request is being submitted	93rd ExCom
Implementation period	1 Jan 2024 – 31 Dec 2025
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24 months	
Funding requested:	
Agency	**Funding requested (US $)***
UNDP	$100,000

*Details should be consistent with information provided in the relevant sections below.

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval	☒	☐
Project included in the bilateral/IA business plan?	☐	☒
If **NO**, please provide explanation: UNDP's business plan for 2023 was submitted prior to the 91st ExCom when the funding window was established.		

A. Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.

1. Brief overview of the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes.

The objective proposed for preparation of EGYPT national inventory and action plan for the management of End of Life (EOL) controlled substances is to define the measures needed now and into the future to prevent their emission.

This will be achieved through development of national plan and program for the systematic capture, retention, and ultimately environmentally sound treatment and/or destruction of controlled substances. The overall strategy selected for this to build on the knowledge base developed through implementation of previous MLF programs associated with HPMPs and current initiation of the country's Stage 1 KIPs into which it will be closely associated with linked upon implementation.

Additionally, it applies an approach that prioritizes the capture and retention of EOL controlled substances in the RACHP sector and on initially focusing on capture and retention of EOL ODS/HFCs at source and managing it in the first instance within the refrigeration servicing sector through build on its existing capacity and capability. This proposal to develop for preparation of the national inventory and action plan is presented

in the expectation it being a first step and forming the basis for more detailed proposals for MLF funding in the event that decisions are made to provide support for such programming.

The methodology applied for implementing this proposal is based on systematically following through a series of steps that start with defining a country specific baseline for relevant to above objective, then undertaking the detailed data collection and associated analysis required to develop a detailed inventory of banked controlled substances in use and estimates of annual generation of what reaches EOL in accessible form and finally undertaking the planning development work to develop a formal national plan for policy endorsement and be ready for implementation. This process would incorporate the linkages that this work will have with other MLF programs and including KIPs, as well as national program and policy initiatives on waste management and circular economy promotion. Additionally, each step will include stakeholder engagement for purposes of increasing awareness, identifying issues & obtaining information. The following elaborates on each of these steps.

Step 1 - Defining Egypt specific baseline: This step will involve largely desk study work to assemble existing baseline data and information including; i) relevant data from inventories and related studies developed for previous convention driven and MLF funded projects such as refrigerant management plans, the current HPMP, and the Stage I KIP work being initiated; ii) the current policy and regulatory framework for controlled substances and more broadly related to chemical/hazardous waste management; iii) a profile of the present business structure, existing relevant management capacity and infrastructure particularly in the RACHP servicing sector, equipment and chemicals supply/distribution operations, and waste management sector; iv) stakeholder identification and initial awareness engagement. Also undertaken in the stage would be initial identification of issues and challenges that will have to be addressed in subsequent stages and ultimately in the implementation of a national plan.

Step 2 - Preparation of detailed data collection and analysis for Egypt national inventory: This step will cover the work required to collect the data and supporting information required and undertake the analytical work that will generate and validate the detailed national inventory of banked controlled substances in use and estimates of annual generation of what reaches EOL in accessible form, as well as any controlled substance stockpiles that may exist. The method for doing so will be based on the hybrid option with bottom-up/equipment based and top-down/chemicals approach, as relevant. The concluding part of this step will be preparation of the Egypt National Inventory Report as a principal project deliverable. This will include an analysis of the results in terms of information and capacity gaps including those associated with policies and regulations, financial capacity/incentives and the physical and human resource capacity deficits that need to be addressed in the next plan preparation step.

Step 3: Preparation of Egypt national action plan: This stage involves the work to develop, document and obtain key stakeholder consensus and national policy commitment to the national action plan for EOL controlled substance management. The key aspects of this planning process will involve: i) development of an overall strategy for implementing action on the issue taking into account the information and priorities identified in the results from the national inventory; ii) developing a program to fill identified gaps in national policy, regulatory, and institutional framework required for management of EOL controlled substance management in Egypt; iii) determining the general scope in terms of components and scale applicable to the required operational infrastructure envisioned as requiring development including indicative costs.

With respect to implementation arrangements, the work will be undertaken over a 24-month project period directly by the NOU staff and national consultants, supported by UNDP country office and regional Hub experts. Monitoring and reporting will be consistent with current MLFS and UNDP procedures.

2. Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency.

Activity	Description	Agency
Data collection	• Based on existing baseline inventory data and relevant experience/studies, initiate the collection of inventory data required support for the selected controlled substance bank estimate method using hybrid method of a bottom-up/equipment and top-down/chemicals method based on reported consumption, as relevant.	UNDP

	• Assemble documentation on the resulting data sets differentiated by controlled substance (primarily ODS/HFCs) by application sub-sectors and controlled substances and estimate the current inventory of equipment and products in use. • Identify by survey and experience-based references the age profile of the equipment and products in use, typical useful life in use to estimated determine the year over year rate of generation of EOL controlled substances. • Collect data on current refrigeration servicing sector capacity and recovery and recycling performance.	
Analysis of data collected	• Undertake validation procedures on inventory data collected. • Finalize the bank inventory and EOL data sets in a form that can provide realistic estimates of EOL waste streams available for management. • Based on final inventory and EOL generation data determine priority application sub-sectors and ODS/chemicals in terms of developing management capability considering volume accessibility and environmental impact of emissions. • Evaluate challenges and risks associated with proposed national plan implementation. • Identification and analysis of approaches used in the collection and management of EOL. controlled substances undertaken at a national level. • Identify required policy and regulatory measures and financial mechanisms. • Evaluate realistic near and long-term options for treatment/reclaim and destruction including assessment of financial feasibility. • Develop indicative cost estimate for key plan measures considered. • Evaluate business models and financing options to incentivize and sustainably fund the various operational components of a potential EOL management system.	UNDP
Preparation of inventory report/national plan	• Finalization of the National Inventory Report including printing and presentation • Prepare and finalize the proposed National Plan including presentation and policy commitment, as well as provide an analysis of implementation challenges and risks.	UNDP
Stakeholder consultation	• As part of the initial base line step, identify key stakeholders and their interests. • Prepare a stakeholder consultation and outreach plan for the project. • Undertake stakeholder and public awareness raising activities, consultations, and outreach at each implementation step in the national inventory and action plan development to ensure the input, acceptance and commitment participation of all relevant stakeholders and partners and facilitate the collection of accurate	UNDP

	data and the development of a robust and widely accepted plan of activities including national policy commitment.	
3. Funding for the activities described in 2 above		
Activity	**Indicative funding (US $)**	**Agency**
Data collection	40,000	UNDP
Analysis of data collected	25,000	UNDP
Preparation of Inventory Report and National Plan	20,000	UNDP
Stakeholder consultation	10,000	UNDP
Others (miscellaneous)	5,000	UNDP
TOTAL	**100,000**	
4. How will the Multilateral Fund gender policy be considered during project preparation?		
The project will adopt practices and measures based on the direction provided by ExCom, the MLFS and guidance provided by UNDP. This will include adoption of mandatory requirements and performance indicators consistent with ExCom decision 92/40 and ExCom document 92/51 applicable to projects submitted at ExCom 94 and thereafter. Gender considerations and actions on gender mainstreaming will be assessed during the development of the national inventory and action plan. The following actions are expected to be carried out: i) consideration of the need and collection of gender-disaggregated date; ii) consultations with gender experts in the development of the action plan, and iii) development of the gender management plan as part of the action plan (as agreed by stakeholders)		

GOVERNMENT OF JAMAICA

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES

Lead Implementing Agency: **UNDP**

National Executing Agency: **National Ozone Unit (NOU)**

– National Environment and Planning Agency, (NEPA)

Jamaica

October 2023

Part I: Project information

Project title:	Preparation of national inventories of banks of used or unwanted controlled substances
Country:	Jamaica
Lead implementing agency:	UNDP
Meeting where request is being submitted	93rd
Implementation period	December 2023 – November 2025
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24	
Funding requested:	
Agency	**Funding requested (US $)**
UNDP	**90,000**

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval	☒	☐
Project included in the bilateral/IA business plan?	☐	☒
UNDP's business plan for 2023 was submitted prior to the 91st ExCom when the funding window was established.		

A. Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.

1. Brief overview of the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes.

The Government of Jamaica is requesting funding for the preparation of the national inventories of banks of used or unwanted controlled substances. The project complies with the criteria established by Decision 91/66. ODS banks are defined as the 'total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere' (IPCC/TEAP, 2005). Thus, ODS can either be quantified in an aggregated manner such as bulk/cylinder (stockpiles) or estimated via ODS-containing equipment.

A sound understanding of ODS banks at the country level is the basis for any action and policy decisions in the field of ODS bank management. In particular, the inventory is important to:

- Assess the general need for action in the field of ODS bank management.
- Assess the potential environmental benefits to the ozone layer and the climate.
- Decide whether to export ODS or to find a local destruction solution.
- Design optimal capacities for destruction technology in case of local destruction options.
- Assess long-term availability of ODS to guarantee economic viability of a destruction plant.
- Design appropriate policy measures.
- Design appropriate collection systems.

Key elements of responsible ODS/HFC management:

- Promote onsite recycling.
- Use of reusable cylinders.
- Adopt a take-back obligation with a deposit-and-refund scheme.
- Ensure accessible collection points for refrigerants or waste appliances.

- Ensure reclamation and destruction facilities.
- Building a quality infrastructure based on informed decision-making.

The case of Jamaica has the following unique features:

- Jamaica is a developing country with low ODS/HFC consumption with no ODS destruction facilities in place. The potential of at least one destruction technology will be analyzed through private operators using their existing waste management expertise and infrastructure versus shipping ODS to other countries for destruction.
- If export for destruction is identified as the most cost-effective disposal option, the plan should contain an indication that national legislation and policies are consistent with the requirements of the relevant conventions, particularly in relation to the transboundary movement of those wastes.
- If the local destruction of ODS waste is found to be viable in Jamaica, the feasibility of importing ODS wastes from neighboring Caribbean countries will be explored. The risks and barriers (economic, legal, Basel and Rotterdam conventions stipulations, etc.) for such interventions will be identified and means for mitigation will be formulated.
- The opportunity to leverage market-based finance mechanisms will be explored for the conversion of environmental services of avoided ODS emissions into carbon assets. Methodology and standards and the critical issues (technical, regulatory and financial risks) will be discussed.
- This proposal would be a primary study for the development, evaluation, and implementation of an ODS and HFC destruction strategy to be developed in the second stage of the KIP.
- The main challenge in Jamaica is related to setting up the logistic framework and cost-effective infrastructure for transport, storage and destruction of ODS.

2. Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency

Activity	Description	Agency
Others, specify. Data collection and analysis	Elaboration of initial bank inventory work to cover the whole bank of in-service equipment and predictive analysis to estimate the rate it reaches EOL(End-of-life) inclusive of national capability to maintain it and update the initial EOL management plan	UNDP
Stakeholder consultations	Conducting interviews, organizing workshops and stakeholders' consultations for the integration of national regulations and procedures: • Harmonization with national waste management regulation to accommodate EOL ODS/HFCs. • Capacity to manage waste import/export in accordance with international practice (Basel Convention) as required. • Fiscal measures that would operationally support sustained capture and consolidation.	UNDP
Others, specify. Analysis and definition of the most cost-effective disposal option	Decide on export for destruction or the local destruction of ODS/HFC wastes. In each case analyze technical, regulatory and financial risks and barriers.	UNDP
Preparation of inventory report/national plan	Delivery of inventory report and national plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	Awareness raising of relevant stakeholders and several people on ODS/HFC banks and EOL management and disposal.	UNDP

3. Funding for the activities described in 2 above

Activity	Indicative funding (US $)	Agency
Data collection and analysis	20,000	UNDP
Stakeholder consultations	20,000	UNDP

Analysis and definition of the most cost-effective disposal option	15,000	UNDP
Preparation of inventory report/national plan	25,000	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	10,000	UNDP
TOTAL	**90,000**	

4. How will the Multilateral Fund gender policy be considered during project preparation?

The objective of the gender policy of the Multilateral Fund is to promote gender mainstreaming (gender equality and women's empowerment - GEWE) in the preparation and implementation of projects funded by the Multilateral Fund, consistent with the gender policies of the implementing agencies.

The Jamaica Government intends to promote a program for the inclusion of women in line with the MLF gender policy contained in ExCom document 84/73 and special effort will be made to involve females in data collection and analysis of inventory of ODS/HFC bank as well as on EOL management of RAC equipment.

The project preparation will aim to advocate the importance of the leadership of women technicians in awareness-raising activities.

Also, this project preparation will ensure that both women and men can provide input, access and participate in all activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).

GOVERNMENT OF THE REPUBLIC OF PERU

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES

Lead Implementing Agency: **UNDP**

National Executing Agency: **DGAAMI - Dirección Nacional de Asuntos Ambientales de la Industria, Ministry of Production of Peru (PRODUCE)**

October 2023

Part I: Project information

Project title:	Preparation of national inventories of banks of used or unwanted controlled substances
Country:	Peru
Lead implementing agency:	UNDP
Meeting where request is being submitted	93rd
Implementation period	December 2023 – November 2025
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24	
Funding requested:	
Agency	**Funding requested (US $)**
UNDP	**90,000**

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval	☒	☐
Project included in the bilateral/IA business plan?	☒	☐

C. Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.

16. Brief overview of the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes.

The Government of the Republic of Peru is requesting funding for the preparation of the national inventories of banks of used or unwanted controlled substances. The project complies with the criteria established by Decision 91/66.
ODS banks are defined as the 'total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere' (IPCC/TEAP, 2005). Thus, ODS can either be quantified in an aggregated manner such as bulk/cylinder (stockpiles) or estimated via ODS-containing equipment.

A sound understanding of ODS banks at the country level is the basis for any action and policy decisions in the field of ODS bank management. In particular, the inventory is important to:

- Assess the general need for action in the field of ODS bank management.
- Assess the potential environmental benefits to the ozone layer and the climate.
- Decide whether to export ODS or to find a local destruction solution.
- Design optimal capacities for destruction technology in case of local destruction options.
- Assess long-term availability of ODS to guarantee economic viability of a destruction plant.
- Design appropriate policy measures.
- Design appropriate collection systems.

Key elements of responsible ODS/HFC management:

- Promote onsite recycling.
- Use of reusable cylinders.
- Adopt a take-back obligation with a deposit-and-refund scheme.
- Ensure accessible collection points for refrigerants or waste appliances.
- Ensure reclamation and destruction facilities.

- Building a quality infrastructure based on informed decision-making.

The case of Perú has the following unique features:

- Peru is a developing country with considerable ODS/HFC consumption with no ODS destruction facilities in place. At least one destruction technology will be analyzed against shipping ODS to other countries through private operators using their existing waste management expertise and infrastructure.
- If export for destruction is identified as the most cost-effective disposal option, the plan should contain an indication that national legislation and policies that were consistent with the requirements of the relevant conventions, particularly in relation to the transboundary movement of those wastes.
- If the local destruction of ODS waste is found to be viable in Peru, the feasibility of importing ODS wastes from neighboring Latin American countries will be explored. The risks and barriers (economic, legal, Basel and Rotterdam conventions stipulations, etc.) for such interventions will be identified and means for mitigation will be formulated.
- The opportunity to leverage market-based finance mechanisms will be explored for the conversion of environmental services of avoided ODS emissions into carbon assets. Methodology and standards and the critical issues (technical, regulatory and financial risks) will be discussed.
- This proposal would be a primary study for the development, evaluation, and implementation of an ODS and HFC destruction strategy to be developed in the second stage of the KIP.
- The main challenge in Peru is related to setting up the logistic framework and cost-effective infrastructure for transport, storage and destruction of ODS.

17. Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency

Activity	Description	Agency
Others, specify. Data collection and analysis	Elaboration of initial bank inventory work to cover the whole bank of in-service equipment and predictive analysis to estimate the rate it reaches EOL(End-of-life) inclusive of national capability to maintain it and update the initial EOL management plan	UNDP
Stakeholder consultations	Conducting interviews, organizing workshops and stakeholders' consultations for the integration of national regulations and procedures: • Harmonization with national waste management regulation to accommodate EOL ODS/HFCs. • Capacity to manage waste import/export in accordance with international practice (Basel Convention) as required. • Fiscal measures that would operationally support sustained capture and consolidation.	UNDP
Others, specify. Analysis and definition of the most cost-effective disposal option	Decide on export for destruction or the local destruction of ODS/HFC wastes. In each case analyze technical, regulatory and financial risks and barriers.	UNDP
Preparation of inventory report/national plan	Delivery of inventory report and national plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	Awareness raising of relevant stakeholders and several people on ODS/HFC banks and EOL management and disposal.	UNDP

18. Funding for the activities described in 2 above

Activity	Indicative funding (US $)	Agency
Data collection and analysis	20,000	UNDP
Stakeholder consultations	20,000	UNDP

Analysis and definition of the most cost-effective disposal option	15,000	UNDP
Preparation of inventory report/national plan	25,000	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	10,000	UNDP
TOTAL	**90,000**	

19. How will the Multilateral Fund gender policy be considered during project preparation?

The objective of the gender policy of the Multilateral Fund is to promote gender mainstreaming (gender equality and women's empowerment - GEWE) in the preparation and implementation of projects funded by the Multilateral Fund, consistent with the gender policies of the implementing agencies.

The KIP project Phase I includes a line of action for the evaluation of a gender study in the RAC sector.
The Peru Government intends to promote a program for the inclusion of women in line with the MLF gender policy contained in ExCom document 84/73 and special effort will be made to involve females in data collection and analysis of inventory of ODS/HFC bank as well as on EOL management of RAC equipment.

This project preparation will aim to advocate the importance of the leadership of women technicians in awareness-raising activities.
Also, it will ensure that both women and men can provide input, access and participate in all activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).

GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES

Lead Implementing Agency: **UNDP**

National Executing Agency: **National Ozone Unit (NOU) – Ministry of Planning and Development,** ***Trinidad and Tobago***

October, 2023

Part I: Project information

Project title:	Preparation of national inventories of banks of used or unwanted controlled substances
Country:	Trinidad and Tobago
Lead implementing agency:	UNDP
Meeting where request is being submitted	93rd
Implementation period	December 2023 – November 2025
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24	
Funding requested:	
Agency	**Funding requested (US $)**
UNDP	**90,000**

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval	☒	☐
Project included in the bilateral/IA business plan?	☐	☒
If **NO**, please provide explanation: UNDP's business plan for 2023 was submitted prior to the 91st ExCom when the funding window was established.		

A. Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.

1. Brief overview of the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes.

The Government of Trinidad and Tobago is requesting funding for the preparation of the national inventories of banks of used or unwanted controlled substances. The project complies with the criteria established by Decision 91/66.

ODS banks are defined as the 'total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere' (IPCC/TEAP, 2005). Thus, ODS can either be quantified in an aggregated manner such as bulk/cylinder (stockpiles) or estimated via ODS-containing equipment.

A sound understanding of ODS banks on the country level is the basis for any action and policy decisions in the field of ODS bank management. In particular, the inventory is important to:

- Assess the general need for action in the field of ODS bank management.
- Assess the potential environmental benefits to the ozone layer and the climate.
- Decide whether to export ODS or to find a local destruction solution.
- Design optimal capacities for destruction technology in case of local destruction options.
- Assess long-term availability of ODS to guarantee economic viability of a destruction plant.
- Design appropriate policy measures.

Key elements of responsible ODS/HFC management:

- Promote onsite recycling.
- Use of reusable cylinders.
- Adopt a take-back obligation with a deposit-and-refund scheme.
- Ensure accessible collection points for refrigerants or waste appliances.

- Ensure reclamation and destruction facilities.
- Building a quality infrastructure based on informed decision-making.

The case of Trinidad and Tobago has the following unique features:

- Trinidad and Tobago is a developing country with considerable ODS/HFC consumption with no ODS destruction facilities in place. The potential of at least one destruction technology will be analyzed through private operators using their existing waste management expertise and infrastructure versus shipping ODS to other countries for destruction.
- If export for destruction is identified as the most cost-effective disposal option, the plan should contain an indication that national legislation and policies that were consistent with the requirements of the relevant conventions, particularly in relation to the transboundary movement of those wastes.
- If the local destruction of ODS waste is found to be viable in Trinidad and Tobago, the feasibility of importing ODS wastes from neighboring Caribbean countries will be explored. The risks and barriers (economic, legal, Basel and Rotterdam conventions stipulations, etc.) for such interventions will be identified and means for mitigation will be formulated.
- The opportunity to leverage market-based finance mechanisms will be explored for the conversion of environmental services of avoided ODS emissions into carbon assets. Methodology and standards and the critical issues (the technical, regulatory and financial risks) will be discussed.
- This proposal would be a primary study for the development, evaluation and implementation of an ODS and HFC destruction strategy to be developed in the second stage of the KIP.
- The main challenge in Trinidad and Tobago is related to setting up the logistic framework and cost-effective infrastructure for transport, storage and destruction of ODS.

2. Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency

Activity	Description	Agency
Others, specify. Data collection and analysis	Elaboration of initial bank inventory work to cover whole bank of in-service equipment and predictive analysis to estimate the rate it reaches EOL(End-of-life) inclusive of national capability to maintain it and update the initial EOL management plan	UNDP
Stakeholder consultations	Conducting interviews, organizing workshops and stakeholders' consultations for the integration of national regulations and procedures: • Harmonization with national waste management regulation to accommodate EOL ODS/HFCs. • Capacity to manage waste import/export in accordance with international practice (Basel Convention) as required. • Fiscal measures that would operationally support sustained capture and consolidation.	UNDP
Others, specify. Analysis and definition of the most cost-effective disposal option	Decide on export for destruction or the local destruction of ODS/HFC wastes. In each case analyze technical, regulatory and financial risks and barriers.	UNDP
Preparation of inventory report/national plan	Delivery of inventory report and national plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	Awareness raising of relevant stakeholders and several people on ODS/HFC banks and EOL management and disposal.	UNDP

3. Funding for the activities described in 2 above

Activity	Indicative funding (US $)	Agency
Data collection and analysis	20,000	UNDP
Stakeholder consultations	20,000	UNDP

Analysis and definition of the most cost-effective disposal option	15,000	UNDP
Preparation of inventory report/national plan	25,000	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	10,000	UNDP
TOTAL	**90,000**	

4. How will the Multilateral Fund gender policy be considered during project preparation?

The objective of the gender policy of the Multilateral Fund is to promote gender mainstreaming (gender equality and women's empowerment - GEWE) in the preparation and implementation of projects funded by the Multilateral Fund, consistent with the gender policies of the implementing agencies.

This is why the Trinidad and Tobago government wants to promote a program for the inclusion of women in line with the MLF gender policy contained in ExCom document 84/73 and special effort will be made to involve females in data collection and analysis of inventory of ODS/HFC bank as well as on EOL management of RAC equipment.

The project preparation will aim to advocate the importance of the leadership of women technicians in awareness-raising activities.

Also, this project preparation will ensure that both women and men can provide input, access and participate in all activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).

GOVERNMENT OF THE REPUBLIC OF URUGUAY

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES

Lead Implementing Agency:	**UNDP**
National Executing Agency:	**National Ozone Unit – Ministry of Environment**

October 2023

Part I: Project information

Project title:	Preparation of national inventories of banks of used or unwanted controlled substances
Country:	Uruguay
Lead implementing agency:	UNDP
Meeting where request is being submitted	93rd
Implementation period	December 2023 – November 2025
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24	
Funding requested:	
Agency	**Funding requested (US $)**
UNDP	**90,000**

Part II: Prerequisites for submission

Item	Yes	No
Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval	☒	☐
Project included in the bilateral/IA business plan?	☒	☒
UNDP's business plan for 2023 was submitted prior to the 91st ExCom when the funding window was established.		

A. Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.

1. Brief overview of the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes.

The Government of the Republic of Uruguay is requesting funding for the preparation of the national inventories of banks of used or unwanted controlled substances. The project complies with the criteria established by Decision 91/66.

ODS banks are defined as the 'total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere' (IPCC/TEAP, 2005). Thus, ODS can either be quantified in an aggregated manner such as bulk/cylinder (stockpiles) or estimated via ODS-containing equipment.

A sound understanding of ODS banks at the country level is the basis for any action and policy decisions in the field of ODS bank management. In particular, the inventory is important to:

- Assess the general need for action in the field of ODS bank management.
- Assess the potential environmental benefits to the ozone layer and the climate.
- Decide whether to export ODS or to find a local destruction solution.
- Design optimal capacities for destruction technology in case of local destruction options.
- Assess long-term availability of ODS to guarantee economic viability of a destruction plant.
- Design appropriate policy measures.
- Design appropriate collection systems.

Key elements of responsible ODS/HFC management:

- Promote onsite recycling.
- Use of reusable cylinders.
- Adopt a take-back obligation with a deposit-and-refund scheme.
- Ensure accessible collection points for refrigerants or waste appliances.
- Ensure reclamation and destruction facilities.
- Building a quality infrastructure based on informed decision-making.

The case of Uruguay has the following unique features:

- Uruguay is a developing country with low ODS/HFC consumption.
- The opportunity to leverage market-based finance mechanisms will be explored for the conversion of environmental services of avoided ODS emissions into carbon assets. Methodology and standards and the critical issues (technical, regulatory and financial risks) will be discussed.
- This proposal will review and evaluate the development and implementation of the ODS and HFC destruction strategy in place.
- The main challenge in Uruguay is related to setting up the logistic framework and cost-effective infrastructure for transport, storage and destruction of ODS/HFC.

2. Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency

Activity	Description	Agency
Others, specify. Data collection and analysis	Elaboration of an inventory to cover the equipment in-service and predictive analysis to estimate the rate it reaches EOL(End-of-life) inclusive of national capability to maintain it and update the initial EOL management plan	UNDP
Stakeholder consultations	Conducting interviews, organizing workshops and stakeholders' consultations for the integration of national regulations and procedures and the harmonization with national waste management regulation to accommodate EOL ODS/HFCs.	UNDP
Others, specify. Analysis and evaluation of the disposal system of refrigerant waste in place.	Assessment of options for the final disposal of refrigerant waste in the country.	UNDP
Preparation of inventory report/national plan	Delivery of inventory report and national plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction.	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	Awareness raising of relevant stakeholders on ODS/HFC banks and EOL management and disposal.	UNDP

3. Funding for the activities described in 2 above

Activity	Indicative funding (US $)	Agency
Data collection and analysis	20,000	UNDP
Stakeholder consultations	20,000	UNDP
Analysis and evaluation of the disposal system of refrigerant waste in place.	15,000	UNDP
Preparation of inventory report/national plan	25,000	UNDP
Communication and outreach plan preparation and development of awareness-raising activities	10,000	UNDP
TOTAL	**90,000**	

4. How will the Multilateral Fund gender policy be considered during project preparation?

The objective of the gender policy of the Multilateral Fund is to promote gender mainstreaming (gender equality and women's empowerment - GEWE) in the preparation and implementation of projects funded by the Multilateral Fund, consistent with the gender policies of the implementing agencies.

The Uruguayan Government promotes a program for the inclusion of women in line with the MLF gender policy contained in ExCom document 84/73 and special effort will be made to involve females in data collection and analysis of inventory of ODS/HFC bank as well as on EOL management of RAC equipment.

The project preparation will aim to advocate the importance of the leadership of women technicians in awareness-raising activities.

Also, this project preparation will ensure that both women and men can provide input, access and participate in all activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).

ANNEX 4

Project preparation (PRP) requests for pilot projects to maintain and/or enhance energy efficiency of replacement technologies and equipment in the context of HFC phase-down

1. **Chile**
2. **Global**

Chile: Energy Efficiency window with focus in Industrial Refrigeration. Project Preparation Fund Request

Title of project: Demonstration project for the use of R-744 (Carbon Dioxide) and R-717 (Ammonia) as alternative refrigerants in Heat Pumps applied in industrial refrigeration in Chile.

Objective: The objective of this project is to design and conduct the installation, start up and operation of two independent pilot projects in two different applications and two different heat and cooling capacities of integrated refrigeration, freezing, cooling, air conditioning and heating system through heat pumps, using non-HFC refrigerant, in principle one with R-744 (Carbon Dioxide- CO_2) and other with R-717 (Ammonia- NH_3), in the sector of handling and processing of dairy process in two different regions and size of operations in Chile.

Through this project the possible advantages of the use of these technologies in terms of reduction of use of energy, the performance of the new refrigerants, the quality of the process, if possible, the reduction in food loss, and finally the reduction in operative costs will be demonstrated.

Funding Window: Energy Efficiency window with the focus on the industrial refrigeration sector

Estimated Funding for this project: US$ 1,000,000

Requested PRP funding: US$30,000

Justification of the project:

The use of integrated cold/heat pumps opens up important opportunities to significantly reduce the consumption of HFCs in the country and also to improve the efficiency in the use of high-impact resources in the economical equations of food industries (energy among others). We will follow the examples and concrete information and solutions applied in other countries for years in the industries of interest, to have a guide to reliable and proven successful solutions.

Within the global context, industry is responsible for around 25-30% of the world's demand for primary energy, and around two thirds of it are used for heating and cooling. Several recent innovations can improve the efficiency of thermal energy and allow intelligent utilization of the sun and/or surplus heat in various plants, however they are not well known and therefore rarely used.

Nevertheless, heat pump systems are already being introduced in different sectors worldwide, but there are not sufficient and proven experiences in the industrial sectors in Article 5 countries; including direct heat exchange with CO_2 or NH_3, multi-ejectors, solutions to prevent implosion in CO_2 or NH_3 refrigeration systems at low ambient temperature, integration with high temperature heat pumps (up to 75°C), ground condensers and optimal insulation. Some of these technologies are implemented, some are under construction, and some remain at the concept level. In our case we will focus on those implemented and tested successfully.

The energy dimension in kW and kg of HFCs involved worldwide, and the positive impact that these solutions have on both variables have generated a massive and broad development of the technology, which in turn implies that they will be standard for use in the future, and there will be security of supply of components, equipment, and training, since they are aimed at being a business with high and growing volumes.

Separated heat pumps and traditional refrigeration systems both with HFCs, normally do not take advantage of the heat or cold that they extract from the production process. A large part of these systems today use refrigerant gases as cooling fluid, and separately use gas or oil to operate boilers to heat water.

The integrated CO_2 or NH_3 hot / cold pumps, as the name indicates, allow using a natural refrigerant in a single piece of equipment to simultaneously produce and satisfy the cooling and heating needs of a series of industrial processes that take heat from the area to be cooled and deliver it to the area or fluid that needs to be heated and vice versa. For this purpose, a single source of energy (electrical) is used, avoiding to a large extent sending the heat or cold to the environment that is generated in traditional systems mentioned in the previous paragraph that currently waste this resource.

There are various industrial processes that meet the conditions to make full use of cold and heat, avoiding releasing them into the atmosphere and significantly increasing the coefficient of energy performance -COP- and the replacement of HFCs. The dairy industry and the processing of animal proteins fully meet these conditions, so we will focus on these to define the application to be developed and used.

As shown in the figure below, these integrated solutions can simultaneously operate in an operating range from freezing at –30°C to heating at +70°C and above.

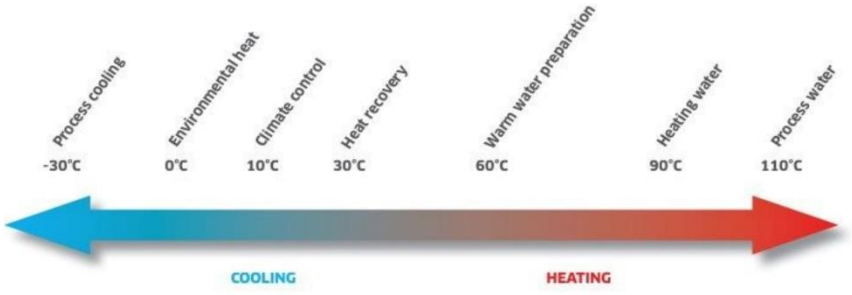

Figure 1. Application temperature range of a heat pump

Although heat pumps are technically more complex in that they are integrated and must produce and take advantage of cold and heat at the same time, as shown in the following figure:

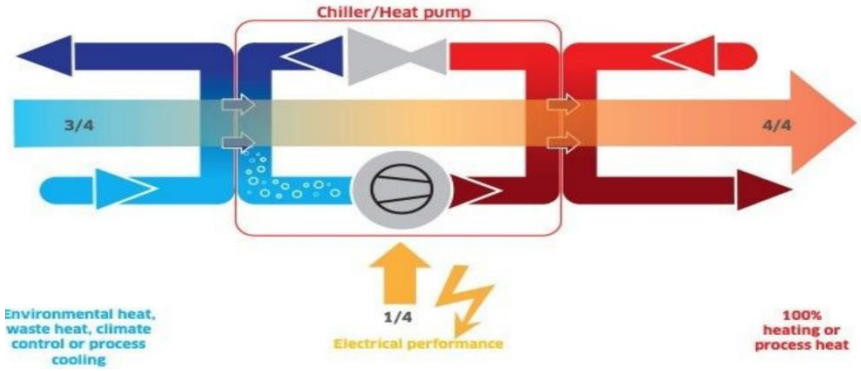

Figure 2. Scheme of the heat pump process

Finally, the aim and objective of this project is to demonstrate that integrated heat pumps are able to provide several relevant benefits and advantages over traditional solutions, where the main ones are listed below:

- It would be applicable and replicable at different scales, for example, from small milk producers to large processors of chickens and pigs.

- In technological conversions of current solutions it replaces relevant amounts of HFCs (which in many cases are the industry standard), providing an environmentally sustainable option over time, and compliance with the Kigali amendment to the Montreal Protocol.

- They are energetically much more efficient than the solutions normally in use (e.g. fossil fuels, gas or carbon), as the resulting a Coefficient of Performance (COP) is almost the sum of the COP of the heat side plus that of the cold side, improving the economic equation of installation and operative costs (i.e. operational cost) and making companies who use this new technology more competitive and efficient.

- Decreases the use of fossil fuels usually used in many traditional applications in the industries of interest.

Potential Beneficiaries

The selection of beneficiaries for the demonstration projects is based on several criteria including the capacity to install the new systems, willingness and interest to implement such project, , availability of data, and alignment with priority of Energy Efficiency and HFC phase-down policies in the country.

Estimated Budget

The cost of both demonstration projects for heat/cooling integrated systems can range from relatively affordable options for small-scale applications to more expensive solutions for larger and more complex systems.

It is important to demonstrate the potential cost savings and benefits that integrated heat-cooling systems with non-HFC refrigerants can provide. It is important to mention that the capital costs of these systems are relatively expensive, nevertheless this type of technology can be more affordable if the capacity is increased, but the most common capacity is in medium sizes, and its replicability can reach more users. It is expected that 20-30% of energy saving could be achieved. The detailed budget of the project will be analyzed at the preparation stage with a tentative estimation of project fund at 1 million US dollars. It will be considered a provision of co-financing by the beneficiaries, that will be one of the criteria for their selection.

Estimated budget for the preparation stage:

Items	**Budget Unit**	**REMARK**	**Subtotal**
International consultant	US$ 400/day	15 working days	US$ 6,000
National consultants	US$ 400/day	40 working days	US$ 16,000
Travel costs	US$ 6,000		US$ 6,000
Sundries	US$ 2,000		US$ 2,000
Total			US$ 30,000

Project Concept

Title of project: Demonstrating digital monitoring and management tools to enhance energy efficiency and reduce emission of green-house gases in the space cooling and cold chain sectors in Colombia, Lebanon, Panama, Sri Lanka, and Trinidad and Tobago

Objective: Supporting program countries to pilot digital tools for monitoring and managing air conditioning and cold chain systems to reduce emission of the green-house gases, reduce energy consumption and associated electricity costs, and improve overall maintenance of cooling system proactively.

Funding Window: Energy Efficiency window with the focus on the servicing sector

Estimated Funding for this project: US$ 1,000,000

Requested PRP funding: US$80,000

Justification of the project:

Cooling provided by air conditioning and refrigeration systems is essential for sustainable development. Cooling systems help mitigate the impacts of rising temperatures caused by climate change on human health by maintaining comfortable indoor temperatures and reducing the risk of heat-related illnesses. Cold Chain plays a crucial role in preserving food, reducing food waste, ensuring the safe storage of medicines for their effectiveness and availability. Cooling and heating technology also contribute to many industrial processes.

Despite its importance to human health and economic growth, cooling also generated a serious carbon footprint, directly and indirectly, due to the emissions of GHG refrigerants, and to the consumption of electricity. According to the International Energy Agency, space cooling currently consumes 20% of the electricity used in buildings around the world and the sales of air conditioning are expanding rapidly. Without action to address energy efficiency, energy demand for space cooling will more than triple by 2050 – consuming as much electricity as all of China and India today[1].

Digital tools provide valuable insights, and control capabilities that can significantly enhance the energy efficiency of cooling systems, reducing emission of green-house gases, identifying energy saving opportunities at unit, facility, community, and city levels. The unit and facility's level correspond to a typical cooling system, while the community and society's level correspond to all types of refrigeration and air-conditioning systems installed in a neighborhood or a municipality. Digital solutions could contribute to sustainable urban planning for a smart and integrated infrastructure and operation strategy that includes space cooling, cold chain and other energy supply and demands.

Digital tools offer the following advantages:

- Digital sensors and monitoring systems can collect real-time data on energy consumption, pressures and temperatures, and performance of equipment. IoT and AI technologies enable real-time monitoring and analysis, early detection of leaks, predictive maintenance, and improved overall system performance, ultimately leading to reduced refrigerant leakage and reduction of energy consumption.
- Digital platforms and software can integrate cooling system management in the communities into a centralized energy management system in the city. This allows for better coordination and optimization of energy usage, resulting in improved overall efficiency. The platform has the potential to advance "cooling as a service - CaaS" model for affordable cooling in low-income countries and rural communities.

Digitalization is an innovative approach that can contribute to the implementation of the Kigali Amendment by monitoring the energy performance of existing and new installed cooling equipment and system, identifying HFC refrigerant leakage and consequently reduce HFC consumption, and optimizing system setting and design for energy efficiency. **Digital solution is relevant to the decision 91/65 of the Ex. Com of the MLF with respect to energy efficiency, in line with of the criteria for assembly and servicing sectors as the technical assistance**

[1] IEA report, The Future of Cooling, 2018

activities and has broad replicability and scalability potential in the country and region during the implementation of KIPs. Especially, digital tools provide a solution for the countries that don't have a robust monitoring, testing, and reporting system on energy efficiency.

Figure 1 illustrates a flowchart detailing the process of digital data collection. In this setup, the operational machinery (or complex plant) is equipped with a selection of appropriate sensors and data acquisition systems to conduct real-time measurements. Subsequently, the collected data can be stored and analyzed for various purposes, whether on local platforms or remotely through a network.

Figure 1 Flow chart of digital data collection (source: IIR, 55th Informatory Note on Refrigeration Technologies, 2023)

IoT and digitalization offer substantial advantages in managing energy for building air conditioning, especially for energy-intensive facilities. The trend is moving towards "smart entities." This entails installing and utilizing building technology systems comprising sensors, controllers, actuators, controllable valves, pumps, cameras, and microphones interconnected through a building management system (BMS). This integration facilitates efficient energy management and enhanced comfort solutions.

IoT has been used in retail, and most equipment has been IoT-ready for some time. It performs vital functions to ensure safety compliance by monitoring temperature, maintaining equipment reliability to prevent food waste and enabling traceability for insurance purposes. IoT operates at both the product and equipment level.

Despite refrigeration and air conditioning accounting for a significant share of global energy consumption, the application of digitalization to these areas has so far received less attention than for other household appliances and mobility devices[2]. Therefore, it is important to conduct demonstration projects to accumulate experiences for replication in more countries.

Activities predicted to be carried out in the pilot project

Three priority project types will be assessed for potential implementation in the demonstration country, taking into account the specific characteristics of each country, including air conditioning, cold chain (fishing sector in SIDS), and retail sector (supermarket). The activities include:

Stakeholder Engagement:
- Organization of workshops to disseminate the benefits of RAC digitalization and to engage with relevant stakeholders, including government agencies, utilities, businesses and end-users.
- Establishment of partnerships to leverage resources and expand the project.

Technology Assessment:
- Identify and evaluate existing digital monitoring and management tools and technologies relevant to energy efficiency and refrigerant emission reduction.
- Explore potential adaptations or innovations specific to the local context.

Pilot Implementation:
- Selection of space cooling and cold chain representative installations for pilot testing of the chosen digital tools and technologies.
- Implement energy-efficient equipment, IoT sensors, and monitoring systems.
- Collect data on energy consumption and emissions before and after implementation.

Capacity Building:

[2] IIR, 55th Informatory Note on Refrigeration Technologies, USE OF INTERNET OF THINGS AND ARTIFICIAL INTELLIGENCE IN REFRIGERATION AND AIR CONDITIONING, 2023

- Provide training to local utilities, assembly companies, technicians and operators on using the digital tools and managing energy-efficient systems.
- Foster knowledge transfer and skills development among local technical community.

Monitoring and Evaluation
- Continuously monitor and collect data from the pilot site to assess the impact on energy efficiency and emissions reduction.
- Analyze the data to make necessary adjustments and improvements.

Awareness:
- Raise awareness about the project's benefits and share success stories.

Expected Deliverables
Reports with contents below:
I) Technology assessment about monitoring and management tools, IoT sensor networks and data collection systems.
ii) Pilot implementation reports with data on energy savings and emission reductions including cost of digital tools in different applications.
iii) Training Materials: Training manuals and materials for local technicians and operators.
Iv) Policy Recommendations: policy briefs advocating for energy-efficient practices and incentives for the digitalization in the space cooling and cold chain sectors.

Replication of the project
To ensure the sustainability and replication of the project, the project team will pay attention to the following points in the implementation:
-Creation of comprehensive documentation of the activities, including lessons learned and best practices. This will serve as a valuable resource for replication in other regions.
-Stressing of building local capacity, so that trained professionals can replicate the project in different locations.
-Using open-source tools to ensure free availability and encourage wider adoption and replication.

Pilot countries

The selection of demonstration countries is based on several criteria including the willingness of respective governments, relevant experience and capacity of local partner, relevant initiatives in the cooling sector in respective countries, availability of data, and alignment with priority of government policies related to digitalization and national cooling and cold chain strategy.

Based on above criteria, recommendations made by UNDP for the demonstration countries of digital tools include Sri Lanka, Trinidad and Tobago, Panama, Lebanon, and Columbia.

Why UNDP?

UNDP has extensive experience in working with governments across all geographies and levels, providing neutral expertise and independent support on diverse aspects of their digital transformation, from strategy to technology procurement, as well as convening across public and private sectors and capacity building. UNDP developed its Digital Strategy with a vision to support the digitalization in 100 countries by 2030.

UNDP has been successfully using digital tools to address the challenges in the distribution of vaccines during the covid-19 pandemic. UNDP Indonesia has helped develop and scale up the cloud-based SMILE digital system which manages tracking of vaccine inventory for the national immunization programme. Similarly, the CoWIN system in India does all that SMILE does, as well as the ability to identify, register, monitor and certify vaccine recipients. Several UNDP COs have supported the used of DHIS-2 for logistics and stock management for health. All these solutions are open-source and open-license, can be freely adopted in countries. UNDP has the experience and technical know-how to support countries in customizing and scaling up similar digital tools.

UNDP chemical and waste hub/Montreal Protocol Unit has extensive experience in the cooling sector as one of the implementing agencies of the Multilateral Fund since 1991 and has active programs and pipelines in more than 50 countries to support the transition of cooling sector to low global warming, energy-efficient technologies. The hub developed sustainable cooling offer which aims to promote integrated programs for the refrigerant

transition and energy efficiency, enabled by innovative finance, green technologies, and digital tools to accelerate the transition and amplify the impact. UNDP could build upon the on-going programs such as HCFC Phase-out Management Plan (HPMP), Kigali Implementation Plan (KIP) and other relevant initiatives, demonstrate the power of digital solutions in the cooling sector, and roll out to 50 countries by 2025.

Estimated Budget

The cost of digital monitoring software and tools for cooling systems can range from relatively affordable options for small-scale applications to more expensive solutions for larger and more complex cooling systems. It is important to demonstrate the potential cost savings and benefits that digital monitoring tools can provide. It is worth noting that the cost of these tools has been decreasing over time as technology advances and becomes more accessible at scale. It is expected that 20-30% of energy saving could be achieved by the digital tools, and even more depending on the context of pilot site. The detailed budget of the project will be analyzed at the preparation stage with a tentative estimation of project fund by the Multilateral Fund at 1 million US dollars. UNDP will provide co-financing for some technical assistance activities in this pilot project to achieve desired outcomes in a short period.

Estimated budget at preparation stage:

Items	**Budget Unit**	**REMARK**	**Subtotal**
International Consultant on air conditioning and cold chain technology	US$ 600/day	25 working days	US$ 15,000
International consultant of digital experts	US$ 600/day	25 working days	US$ 15,000
National consultants	US$ 200/day	80 working days	US$ 16,000
Travel cost	US$ 34,000		US$ 34,000
Total			US$ 80,000