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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Eighty-seventh Meeting  
Montreal, 28 June-2 July 2021<sup>1</sup>

**UNIDO'S WORK PROGRAMME FOR 2021**

<sup>1</sup> Online meetings and an intersessional approval process will be held in June and July 2021 due to coronavirus disease (COVID-19)

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

## COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNIDO is requesting approval from the Executive Committee for US \$1,403,500, plus agency support costs of US \$98,245, for its 2021 work programme listed in Table 1.<sup>2</sup> The submission is attached to the present document.

**Table 1: UNIDO's work programme for 2021**

Country	Activity/Project	Amount requested (US \$)	Amount recommended (US \$)	
<b>SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL</b>				
<b>A1: Project preparation for HCFC phase-out management plans (HPMPs)</b>				
Islamic Republic of Iran <sup>a, b, c</sup>	Preparation of an HPMP (stage III)	15,000	15,000	
	Preparation for HCFC phase-out investment activities (refrigeration and air-conditioning (RAC) manufacturing)	50,000	50,000	
Subtotal for A1		65,000	65,000	
Agency support costs		4,550	4,550	
Total for A1		69,550	69,550	
<b>SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION</b>				
<b>B1: Project preparation for HFC phase-down management plans</b>				
Country	Meeting submitted	Activity/Project	Amount requested (US \$)	Amount recommended (US \$)
Albania <sup>c</sup>	85	Preparation of HFC phase-down management plan	63,500	*
Bolivia (Plurinational State of)	87	Preparation of HFC phase-down management plan	170,000	*
Ecuador	87	Preparation of HFC phase-down management plan	190,000	*
Jordan	85	Preparation of HFC phase-down management plan	150,000	*
Mexico <sup>c, d</sup>	86	Preparation of HFC phase-down management plan	125,000	*
Montenegro	86	Preparation of HFC phase-down management plan	85,000	*
Nicaragua	87	Preparation of HFC phase-down management plan	170,000	*
Niger	86	Preparation of HFC phase-down management plan	150,000	*
Nigeria <sup>b, c</sup>	87	Preparation of HFC phase-down management plan	25,000	*
North Macedonia	86	Preparation of HFC phase-down management plan	85,000	*
Senegal <sup>e</sup>	86	Preparation of HFC phase-down management plan	25,000	*
South Africa	86	Preparation of HFC phase-down management plan	100,000	*
Subtotal for B1		1,338,500	*	*
Agency support costs		93,695	*	*
Total for B1		1,432,195	*	*
Grand total (A1, B1)		1,501,745	69,550	*

<sup>2</sup> Including new requests to the 87<sup>th</sup> meeting attached to the present document and requests for preparation of HFC phase-down management plans forwarded from the 85<sup>th</sup> and 86<sup>th</sup> meetings presented in documents UNEP/OzL.Pro/ExCom/85/17 and UNEP/OzL.Pro/ExCom/86/35, respectively.

<sup>a</sup> Government of Germany as cooperating bilateral agency

<sup>b</sup> UNDP as lead implementing agency

<sup>c</sup> UNEP as cooperating implementing agency

<sup>d</sup> UNDP as cooperating implementing agency

<sup>e</sup> UNEP as lead implementing agency

\* For individual consideration

## **SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL**

### **A1: Project preparation for HCFC phase-out management plans**

#### **Project description**

2. UNIDO submitted requests for the preparation of the overarching strategy of stage III of the HPMP and for investment activities in the RAC manufacturing sector for one Article 5 country as cooperating implementing agency along with UNEP and the Government of Germany as cooperating implementing/bilateral agencies, with UNDP as the lead implementing agency, as shown in section A1 of Table 1. UNDP as the lead implementing agency for the Islamic Republic of Iran has requested US \$50,000 plus agency support costs of US \$3,500;<sup>3</sup> the Government of Germany as the cooperating bilateral agency has requested US \$40,000, plus agency support costs of US \$5,200<sup>4</sup> and UNEP as the cooperating implementing agency has requested US \$15,000, plus agency support costs of US \$1,950<sup>5</sup> in their work programmes for 2021.

3. UNDP as lead implementing agency, provided a description of the activities required for the preparation of an overarching strategy and for the preparation for investment projects in the RAC manufacturing sector for stage III of the HPMP for the Islamic Republic of Iran and the corresponding costs in its work programme.<sup>6</sup>

#### **Secretariat's comments**

4. The Secretariat noted that the submission for the requests for project preparation were consistent with the requirements in decision 71/42,<sup>7</sup> and that stage III of the HPMP for the Islamic Republic of Iran will phase out the remaining consumption of HCFC by 1 January 2030, except for the servicing tail.

#### **Secretariat's recommendations**

5. The Secretariat recommends blanket approval for project preparation for stage III of the HCFC phase-out management plan (HPMP) for the Islamic Republic of Iran at the level of funding shown in section A1 of Table 1.

## **SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION**

### **Project preparation requests submitted to the 85<sup>th</sup> and 86<sup>th</sup> meetings**

6. At the 85<sup>th</sup> meeting, UNIDO included in its 2020 work programme<sup>8</sup> requests for the preparation of HFC phase-down management plans for Albania and Jordan as lead implementing agency, with UNEP as cooperating implementing agency for Albania, as listed in section B1 of Table 1.

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<sup>3</sup> UNEP/OzL.Pro/ExCom/87/15

<sup>4</sup> UNEP/OzL.Pro/ExCom/87/14

<sup>5</sup> UNEP/OzL.Pro/ExCom/87/16

<sup>6</sup> UNEP/OzL.Pro/ExCom/87/15

<sup>7</sup> Guidelines for funding the preparation of stage II of the HCFC phase-out management plans for Article 5 countries

<sup>8</sup> UNEP/OzL.Pro/ExCom/85/17

7. At the 86<sup>th</sup> meeting, UNIDO included in its 2020 work programme amendment<sup>9</sup> requests for the preparation of HFC phase-down management plans for five Article 5 countries as lead implementing agency, with UNEP and UNDP as cooperating implementing agencies for Mexico; and for one country as cooperating agency with UNEP as the lead implementing agency for Senegal, as listed in section B1 of Table 1.

8. These funding requests submitted for individual consideration were not considered at the 85<sup>th</sup> and 86<sup>th</sup> meetings, and were deferred to the 87<sup>th</sup> meeting in light of the discussion of the Draft guidelines for the preparation of HFC phase-down plans for Article 5 countries at the 86<sup>th</sup> meeting<sup>10</sup> and in line with decision 86/59. Accordingly, the proposals submitted to the 85<sup>th</sup> and 86<sup>th</sup> meetings have been included in the present document.

## **B1: Project preparation for HFC phase-down management plans**

### **Project description**

9. UNIDO submitted to the present meeting requests for the HFC phase-down management plans for three countries as the lead implementing agency, and for one country as the cooperating agency with UNDP as the lead implementing agency and UNEP as the other cooperating agency for Nigeria, which was originally submitted by UNDP<sup>11</sup> and UNEP<sup>12</sup> at the 86<sup>th</sup> meeting as shown in section B1 of Table 1. UNDP as lead implementing agency for the HFC phase-down plan for Nigeria, has requested US \$137,000, plus agency support costs of US \$9,590,<sup>13</sup> and UNEP as cooperating agency has requested US \$58,000, plus agency support costs of US \$7,540,<sup>14</sup> in their work programmes for 2021.

### **Secretariat's comments**

10. UNIDO as lead implementing agency, provided a description of the activities required for the preparation of an overarching strategy for HFC phase-down for the Plurinational State of Bolivia, Ecuador and Nicaragua and the corresponding costs of each activity, using the format for requests for project preparation for stages of HPMPs. The submissions included estimated imports of HFCs and HFC blends for 2015-2019; the list of activities for the project preparation included stakeholder meetings and consultations; capacity building activities in the RAC sector; studies and awareness activities related to the promotion of energy efficiency in all sectors; and HFC phase-down strategy development. The requested funding is based on the proposed Draft guidelines for the preparation of HFC phase-down plans,<sup>15</sup> which were submitted to the 86<sup>th</sup> meeting and deferred to the 87<sup>th</sup> meeting for further discussion.

11. The funding amount for the preparation of the project proposals requested at the 85<sup>th</sup> meeting was based on the funding for enabling activities (contained in decision 79/46(c)); however, the funding requested at the 86<sup>th</sup> meeting was based on the funding for project preparation for stage I of HPMPs (contained in decision 56/16(c)), as this funding was used by bilateral and implementing agencies in preparing their 2021-2023 business plans that were submitted to the 86<sup>th</sup> meeting. The Secretariat notes that the funding amounts for project preparation requests are indicative, as the actual amounts will be decided when the Executive Committee concludes its consideration of the Draft guidelines for the preparation of HFC phase-down plans for Article 5 countries (decision 86/93).<sup>16</sup>

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<sup>9</sup> UNEP/OzL.Pro/ExCom/86/35

<sup>10</sup> Agenda item 13(c)

<sup>11</sup> UNEP/OzL.Pro/ExCom/86/33

<sup>12</sup> UNEP/OzL.Pro/ExCom/86/34

<sup>13</sup> UNEP/OzL.Pro/ExCom/87/15

<sup>14</sup> UNEP/OzL.Pro/ExCom/87/16

<sup>15</sup> UNEP/OzL.Pro/ExCom/86/88

<sup>16</sup> UNEP/OzL.Pro/ExCom/87/46

12. The Secretariat reviewed the submissions based on the experience of reviewing requests for preparation of HPMPs, and taking into account guidance provided and decisions adopted by the Executive Committee for such projects.

13. Following this review, the Secretariat noted the following:

- (a) All three countries for which UNIDO requested funding for preparation of an HFC phase-down management plan as lead implementing agency have ratified the Kigali Amendment;<sup>17</sup> each country would be eligible for project preparation funding in line with decision 79/46(b)(iii);<sup>18</sup> the countries have also provided endorsement letters signifying their intention to take early action on HFC phase-down; and
- (b) The activities included in project preparation are similar to those required to prepare HPMPs except for the absence of a survey of HFC consumption; some activities also closely resembled those included under the enabling activities for HFC phase-down for which funding had already been provided for all three countries, and which are currently ongoing.

14. UNIDO clarified that the project preparation for the overarching strategy for HFC phase-down would draw on the activities implemented under the enabling activities, as these were the first actions associated with the phase-down of HFCs and had contributed to the ratification of the Kigali Amendment in each country. UNIDO emphasized that duplication of activities already implemented will be avoided.

15. With regard to the survey of HFC consumption, UNIDO explained that it will be undertaken through stakeholder consultations as there are currently no quota and licensing systems for HFCs in these countries; data from the completed surveys on ODS alternatives will be used, as well as information gathered during preparation of each country's stage II of the HPMP which includes data gathering for HCFCs and alternatives including HFCs.

16. The Secretariat informed UNIDO that it will be unable to make a recommendation on these requests as guidelines on funding these requests will continue to be discussed at the 87<sup>th</sup> meeting.

#### **Secretariat's recommendation**

17. The Executive Committee may wish to consider, in line with discussions under agenda item 9(a), Overview of issues identified during project review, and agenda item 13(c), Draft guidelines for the preparation of HFC phase-down plans for Article 5 countries (decision 86/93), the requests for funding the preparation of HFC phase-down management plans for the countries listed in section B1 of Table 1.

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<sup>17</sup> Date of ratification (or acceptance) of the Kigali Amendment: Bolivia, 9 October 2020; Ecuador, 22 January 2018; Nicaragua 30 September 2020.

<sup>18</sup> Funding for the preparation of national implementation plans to meet initial reduction obligations for the phase-down of HFCs could be provided, at the earliest, five years prior to those obligations, after a country had ratified the Kigali Amendment and on the basis of guidelines to be approved in the future.



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

# UNIDO WORK PROGRAMME

Presented to the 87<sup>th</sup> Meeting of the Executive Committee of the Multilateral Fund

## Introduction

The UNIDO Work Programme (WP) for the consideration of the 87<sup>th</sup> Meeting of the Executive Committee (ExCom) of the Multilateral Fund (MLF) has been prepared following the Government requests as well as based on ongoing and planned activities. The Work Programme will support the implementation of UNIDO's three year Rolling Business Plan 2021-2023.

The 87<sup>th</sup> UNIDO WP is addressing preparatory assistance requests.

Preparatory assistance is submitted for the 87<sup>th</sup> Executive Committee Meeting consideration for Iran to enable the country to overview and update data necessary for the launch and implementation of HPMP Stage III.

UNIDO is submitting preparatory assistance for HFC phase-down plans for Bolivia Ecuador, Nicaragua and Nigeria to assist the countries with the implementation of the next phases of the Kigali Amendment to the Montreal Protocol.

The UNIDO Work Programme for the consideration of the 87<sup>th</sup> ExCom Meeting comprises the following sections:

- **Section 1:** Consolidated list of activities foreseen for the above requests by project types and country;
- **Section 2:** Project concepts indicating details and funding requirements; and
- **Section 3:** Request for extension of the duration of the Enabling activities for HFC phase down.

Funding is requested as follows:

- Preparatory assistance funding for HPMP Stage III in Iran<sup>1</sup> amounting to US\$ 69,550 (including US\$ 4,550 representing 7.0 % agency support costs); and
- Preparatory assistance funding for HFC phase-down plans in Bolivia, Ecuador, Nicaragua and Nigeria<sup>2</sup> amounting to US\$ 593,850 (including US\$ 38,850 representing 7.0% agency support costs).

**Total: US\$ 663,400 (including US\$ 43,400 agency support cost).**

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<sup>1</sup> The Project Concept for Iran is included in the Lead Agency (UNDP) Work Programme.

<sup>2</sup> The Project Concept for Nigeria is included in the Lead Agency (UNDP) Work Programme.

**SECTION 1**

Country	MLF HCFC Status	Type	Substance	Sector and Sub-Sector	Title of Project	Total amount USD	A.S.C.	Total (incl ASC) USD	A.S.C. %	P.D.	Remarks
<b>Preparatory Assistance for HPMP</b>											
Iran, Islamic Republic of	Non-LVC	PRP	HCFC-22	Overarching	Preparation of Stage III HPMP	15,000	1,050	16,050	7%	24	In cooperation with UNDP, UNEP and GIZ. Project concept is in UNDP Work Programme
Iran, Islamic Republic of	Non-LVC	PRP	HCFC-22	REF-Air conditioning	Preparation of Stage III HPMP	50,000	3,500	53,500	7%	24	In cooperation with UNDP, UNEP and GIZ. Project concept is in UNDP Work Programme
<b>SUBTOTAL</b>						<b>65,000</b>	<b>4,550</b>	<b>69,550</b>			
<b>Preparatory Assistance for HFC Phase-Down Plans</b>											
Bolivia	LVC	PRP	HFC	SEV	Preparation of HFC phase-down plan	170,000	11,900	181,900	7%	24	
Ecuador	LVC	PRP	HFC	SEV	Preparation of HFC phase-down plan	190,000	13,300	203,300	7%	24	
Nicaragua	LVC	PRP	HFC	SEV	Preparation of HFC phase-down plan	170,000	11,900	181,900	7%	24	
Nigeria	Non-LVC	PRP	HFC	SEV	Preparation of HFC phase-down plan	25,000	1,750	26,750	7%	24	In cooperation with UNDP and UN Environment. Project concept is in UNDP Work Programme.
<b>SUBTOTAL</b>						<b>555,000</b>	<b>38,850</b>	<b>593,850</b>			
<b>GRAND TOTAL</b>						<b>620,000</b>	<b>43,400</b>	<b>663,400</b>			

## SECTION 2

### PROJECT CONCEPT – Bolivia

#### Multilateral Fund FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL PROJECT PREPARATION REQUEST FORM HFC Phase-down Management plan (OVERARCHING)

##### Part I: Project Information

<b>Project title:</b>	HFC phase-down plan preparation	
<b>Country:</b>	Plurinational State of Bolivia (Bolivia)	
<b>Implementing</b>	UNIDO	
<b>Implementation period:</b>	July 2021 – June 2023	
<b>Funding requested:</b>		
<b>Agency</b>	<b>Sector</b>	<b>Funding requested (US\$)*</b>
UNIDO	Overarching	170,000

\*Given the absence of the approved cost guidelines for HFC phase-down, and in particular a cost structure for project preparation requests, the agreed funding levels for HPMP stage I project preparation are applied (Decision 55/27).

##### Part II: Prerequisites for submission

Item	Yes	No
1. Official endorsement letter from Government for choice of agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Kigali Amendment ratified	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

<b>1. Montreal Protocol HFC phase-down target to be met in stage I of the HFC phase-down plan</b>			
Commitment	Freeze 10% reduction	Year	2024 2029
<input type="checkbox"/> Servicing only	<input type="checkbox"/> Manufacturing only	<input checked="" type="checkbox"/> Servicing and manufacturing	
<b>2. Brief background on previous activities related to the Kigali amendment and the HFC phase-down, as well as HPMP stages</b>			
Please provide a brief background on the Enabling Activities project, when it was approved, a brief description of the progress in implementation and expected end date.			
In response to Decision 79/46 of the Executive Committee on guidelines for Enabling Activities for HFC Phase down, the Government of Plurinational State of Bolivia (Bolivia) submitted a proposal to the 82nd Executive Committee meeting of the Multilateral Fund, which approved the project for Bolivia's Enabling Activities for HFC Phase Down by a sum of US\$150,000, to facilitate early ratification of the Kigali Amendment and undertake activities to meet the initial obligations of the Amendment. The specific objectives of the Enabling Activities Project were mainly to: <ul style="list-style-type: none"> <li>• Achieve a broader understanding of the Kigali amendment provisions and to prepare legislative basis for the ratification</li> </ul>			

- Develop a required regulatory package to set up import/export licensing system for HFC and HFC's alternatives
- Provide basic training to the GOC, servicing and assembly sectors and end-users for addressing the emerging responsibilities of the Kigali Amendment.
- Identify the needs of the servicing sector that would facilitate the HFC phase-down.
- Enhance the expertise of service sectors and end-users for adopting alternatives of low-GWP and zero-GWP and safe handling of flammable refrigerants.

It is noteworthy that the implementation of the Enabling Activities is being implemented using the existing national infrastructure and institutional setting already established for ODS phase-out activities. It is scheduled to be completed in June 2021. On October 10, 2019, through Law No. 1248-2019, the Chamber of Deputies approved the Kigali Amendment and it was ratified on October 9, 2020. The EA project achieved the following outputs and results:

- An inter-institutional event was held to explain the benefits of the ratification of the Kigali Amendment, in which high-level officials from the Ministry of the Environment, representatives of the Chamber of Deputies and of relevant public and private establishments participated. The Law 1248 was approved in October 2019 for the ratification of the Kigali Amendment in Bolivia as a result of this event.
- In September 2019, the regulation R.A. 025/2019 for the control of the import and trade of substances regulated by the Montreal Protocol, included the HFCs, as a previous step to the modification of Supreme Decree DS 27421 referring to the ODS Licensing and Quota System. Through this regulation, the Government Ozone Commission, in coordination with the Customs Authority and importers, registers and monitors HFC imports.
- Understanding of the needs of the servicing sector for further planning of the activities related to the adoption of low-GWP and zero-GWP replacement technologies to HFCs.
- Training for 70 technicians for handling/ use of new alternative technologies in RAC sector with high energy efficiency and low or no GWP.
- For the III International Air Conditioning, Ventilation, Refrigeration and Heating Exhibition (Expo Frio Calor Bolivia) that will take place in October 2020 in Santa Cruz, the Government Ozone Commission, in coordination with the Organizing Committee, agreed to present 'Energy Efficiency' as the theme of the event; this will involve the distribution of technical information on energy efficient technologies.
- Bolivia participated in three Twinning of National Ozone Officers and Energy Policymakers for Energy Efficient and Climate Friendly Cooling workshops (Paris/2019, Guatemala/2018 and Quito/2018), which aimed to jointly build the capacity of National Ozone Officers and national energy policymakers for linking energy efficiency with Montreal Protocol objectives in support of the Kigali Amendment, as well as discussed policies to ensure an energy efficient RAC sector.

**3. Current progress in implementation of Enabling Activities for HFC phase-down**  
**Budget: All funds for EA were utilized (US\$ 150,000)**

Activity	Description	Status	Implementing agency
Activities to support the early ratification of the KA	Bill ratified by competent body	Completed	UNEP
Institutional arrangements	Reviewing operating codes and standards for the efficient use of HFCs and ODS alternatives in the entire value chain.	In Progress	UNEP

Review of licensing systems and data reporting	Preparing harmonized tariff codes according to HFCs commitments, with special attention to HFC blends and review of the national mechanisms used for ODS reporting to include HFCs	In Progress. Regulation R.A. 025/2019 for control of the import and trade of substances regulated by the Montreal Protocol, included the HFCs. The Government Ozone Commission, in coordination with the Customs Authority and importers, registers and monitors HFC imports.	UNEP
Identify the needs of the servicing sector that would facilitate the HFC phase-down and enhance the expertise of service sectors and end-users for adopting alternatives of low-GWP and zero-GWP and safe handling of flammable refrigerants.	Training for 70 technicians for handling/ use of new alternative technologies in RAC sector with high energy efficiency and low or no GWP.	In progress	UNEP
Awareness, communication and dissemination	Awareness raising of stakeholders (public and private sectors) on HFC phase-down and energy efficiency (EE) improvement options	In progress mainly for EE improvements	UNEP

**4. Description of information that needs to be gathered and updated. Explain why this has not been undertaken during the implementation of activities related to the Kigali Amendment and HFC phase-down.**

Information needed	Description	Agency
Updated ODS alternatives data and subsector where are use.	Review available data and additional sector-specific data collection from 2016 through questionnaires and interviews as this was not included in the enablement activities and data collection from previous ODS alternatives only covered data for the period 2012-2015. This includes data related to the subsector, number and age of equipment in the subsectors, energy efficiency, and prices of alternative equipment.	NOU

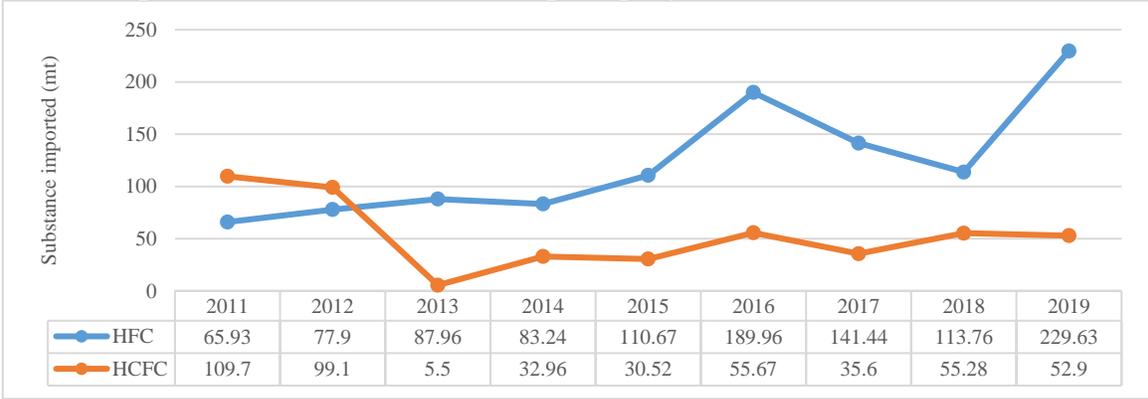
**5. Overview of estimated import of ODS alternatives 2015 – 2019 in Metric Ton per year.**

Substance	2015	2016	2017	2018	2019
<b>HFC pure</b>					
HFC 134a	91.80	106.42	81.73	84.13	119.18
<b>HFC blends</b>					
R 404A	9.27	31.87	15.26	21.11	51.37
R 407C	4.52	13.18	3.16	0.00	6.35
R 410A	4.51	17.25	22.17	8.18	40.11

R 507A	0.57	3.39	0.00	0.34	12.62
R 417A	0.00	17.85	19.12	0.00	0.00
<b>HFC total (pure + blends)</b>	<b>110.67</b>	<b>189.96</b>	<b>141.44</b>	<b>113.76</b>	<b>229.63</b>
<b>Natural refrigerants</b>					
HC-600a	0.00	0.00	2.26	9.91	1.95

Import data confirms that high GWP HFCs imports continue growing rapidly. In that respect, the main HFC refrigerant imported in 2011-2019 period was HFC-134a (63.57%), as it is widely used in domestic and commercial refrigeration and mobile air conditioning, followed by the HFC-404A refrigerant (17.85%), which is used in low temperature refrigeration, where HCFC-22 was also extensively. They were followed by HFC-410A (10.42%), used in fixed air conditioners. These three substances represent 91.84% of the total alternatives contained in RAC equipment. The import of these substances alternatives has increased while that of HCFC-22 has decreased.

**HFC consumption behavior vs HCFC consumption per year**



Source: National Custom of Bolivia and Ozone Governmental Commission CGO.

**6. 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)**

- **Domestic Refrigeration** mainly uses R-134a and R-600a as refrigerants. HC has been contained in imported equipment since 2013, showing an incremental behavior in the forthcoming years. R-134a has a discontinuous behavior of consumption, and in 2017, it was present primarily in spare parts such as compressors.
- **Commercial refrigeration.**
  - ✓ **Stand-alone.** Stand-alone equipment is the leading subsector in the commercial refrigeration subsector of Bolivia. Equipment imports had a significant import-increase in 2017 and then a reduction in imports in 2018. The most common refrigerants used in this sector are R-134a and R-404A, but statistics show that in the last years, R-134a has been gradually displaced by R-404A.
  - ✓ **Condenser units.** Condensing units can be fully imported as equipment or imported as spare parts to be assembled in the country. In this case, Customs reported additional spare parts that could belong to refrigeration condensing units, and practically all of these units have R-404A as refrigerant.

✓ **Centralized system.** Refrigeration Centralized systems are imported in smaller amounts than stand-alone equipment and condenser units. Lately, imports of these systems have grown. Refrigerant found in this equipment in 2016 and 2017 had R-404A as refrigerant.

- **Industrial refrigeration.** Industrial refrigeration consumes mainly R-717. However, during the last years, R404A displaced R-717 probably due to the health and safety risks associated to work with ammonia as refrigerant. Except for the 2013-amount of refrigeration imported units, the next years present an almost.
- **Transport refrigeration.** As well as domestic refrigeration and stand-alone equipment, transport refrigeration presented an increase in imports in 2018. The refrigerant gas consumed in this subsector is mainly R404A. However, units coming from the USA have potentially R-452A as a refrigerant.
- **Residential AC.** Residential AC had a considerable amount of imports in 2017. However, 2018 presented an essential lessening of importations. Most common refrigerants used in residential AC are R-22, R-407C and R-410A. The later refrigerant predominates in the imports from 2016 to 2018.
- **Chillers.** In 2015, the data collected by the HFC Survey, performed to a few companies importing chillers, showed that in all (100%) companies visited, the refrigerant used was R-22. Nonetheless, imports also show other refrigerants such as R-407C, R-410A, and R-717.
- **Transport AC.** Transport AC is related mainly to AC systems in the automobile sector. Until 2018, the most common refrigerant gas used was R-134a. It is expected that the forthcoming years could present new substances such as HFO.

#### 7. Activities to be undertaken for project preparation and funding

Activity	Indicative funding (US \$)	Agency
1- Ground work: Review of documents and existing regulations as well as measure new data on HFCs and other ODS alternatives. Prepare questionnaires for stakeholder interviews and conduct interviews with relevant stakeholders (including government, private sector, civil society organizations, vocational centers, academic communities) to update available data on ODS alternatives. Consultations for the integration of national regulations and procedures for KA implementation and consolidation of technical capacities in the institutions involved in HFC control	USD 20,000	UNIDO
2- Capacity building activities related to RAC sector activities and enforcement: a) Review and assessment of innovative tools and approaches to build the capacity of relevant actors, b) update of training curricula of vocational schools, university and customs, online training and certification tools; c) public procurement policies, potential impact of incentives and taxes, gender considerations, d) HFC-free labeling, equipment inventories / logbooks, potential of not-in-kind alternatives etc.	USD 25,000	UNIDO
3 - Preparation of initial HFC related policies and legislation in line with the draft HFC phase-down strategy and the overview table of HFC policy and legislative measures already in place, planned to be put in	USD 20,000	UNIDO

place and not planned to be put in place. This will consider the HFC policy and legislative measures recommended for early implementation in UNEP's publication on the same topic including the mandatory reporting by HFC importers / exporters, HFC emission control measures and awareness raising of stakeholders.		
4- Conducting studies, stakeholders' workshops and assessment related to the promotion of energy efficiency in all sectors, by: a) Promoting upgrades for mandatory and voluntary standards; b) Promoting the replacement of RAC equipment in homes, businesses and industry; c) Promoting efficient practices of operation, maintenance and installation in RAC systems; d) Developing detailed studies for RAC equipment characterization and project portfolio evaluation for energy efficiency upgrades.	USD 25,000	UNIDO
5 - HFC phase-down strategy development: Technical and legal experts to prepare all legal and technical documents, consult all key stakeholders and develop detailed strategy, including: a) assessment and development/update trainings and certification scheme for the use of flammable refrigerants, b) developing training plan and organizing workshops with main stakeholders and training institutions; c) set up an ozone committee within the NOU bringing together representatives of the Department of the Environment, the ozone focal point within the customs, the Ministry of Commerce, importers and the association refrigeration technicians with the responsibility of monitoring HFC consumption d) Enhance the recovery and recycling of refrigerants and improve the monitoring and evaluation system of R&R practices	USD 30,000	UNIDO
6 - Communication and outreach plan: Preparation of a comprehensive communication and outreach plan in consultation with key stakeholders including RAC associations and media. The plan will focus on technology and policy awareness raising to influence the investment and user behavior.	USD 30,000	UNIDO
7. Validation: Consultations, review and validation of the prepared strategy	USD 20,000	UNIDO
<b>TOTAL</b>	<b>USD 170,000</b>	
<b>8. How will activities related to HPMP implementation be considered during project preparation for the HFC phase-down management plan?</b>		
Synergies from ongoing and future HPMP activities will be assessed in an integrated manner and incorporated into the HFC phase-down plan development. Furthermore, lessons learned from HPMP implementation will be taken into considered to the extent possible.		
<b>9. How will the Multilateral Fund gender policy be considered during project preparation?</b>		
In line with the MLF gender policy contained in ExCom document 84/73, special effort will be made to involve female trainees in vocational schools as well as female technicians for awareness-raising activities as well as training events on non-HFC ODS alternatives. The project preparation will aim to advocate the importance of gender-responsive actions and provisions in developing HFC phase-down plan. Programs will take into account allocations for the proposed gender activities (e.g., capacity building activities for female technicians). Also each project component in terms of stakeholders and participation will ensure that both women and men can provide input, access and participate in project activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).		

## PROJECT CONCEPT – Ecuador

### MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL HFC PROJECT PREPARATION REQUEST FORM HFC Phase-down Management plan (OVERARCHING)

#### Part I: Project Information

<b>Project title:</b>	HFC phase-down plan preparation	
<b>Country:</b>	Republic of Ecuador (Ecuador)	
<b>Implementing</b>	UNIDO	
<b>Implementation period:</b>	July 2021 – June 2023	
<b>Funding requested:</b>		
<b>Agency</b>	<b>Sector</b>	<b>Funding requested (US\$)*</b>
UNIDO	Overarching	190,000

\*Given the absence of the approved cost guidelines for HFC phase-down, and in particular a cost structure for project preparation requests, the agreed funding levels for HPMP stage I project preparation are applied (Decision 55/27).

#### Part II: Prerequisites for submission

Item	Yes	No
1. Official endorsement letter from Government for choice of agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Kigali Amendment ratified	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### B. Information required to support PRP funding (Overarching strategy)

<b>3. Montreal Protocol HFC phase-down target to be met in stage I of the HFC phase-down plan</b>			
Commitment	Freeze 10% reduction	Year	2024 2029
<input type="checkbox"/> Servicing only	<input type="checkbox"/> Manufacturing only	<input checked="" type="checkbox"/> Servicing and manufacturing	
<b>4. Brief background on previous activities related to the Kigali amendment and the HFC phase-down, as well as HPMP stages</b>			
Please provide a brief background on the Enabling Activities project, when it was approved, a brief description of the progress in implementation and expected end date.			
In response to Decision 79/46 of the Executive Committee on guidelines for Enabling Activities for HFC Phase down, the Republic of Ecuador (Ecuador) submitted a proposal to the 80th Executive Committee meeting of the Multilateral Fund, which approved the project for Ecuador's Enabling Activities for HFC Phase Down by a sum of US\$150,000, to facilitate and support the country's ratification of the Kigali Amendment and to undertake specific initial activities that help fulfil the initial obligations with regard to hydrofluorocarbon (HFC) phase-down in line with the Kigali Amendment. The objectives of the project were mainly to:			

- (i) Provide policy and technical support and guidance to the Government to facilitate the early ratification of the Kigali Amendment and enable the country to meet initial obligations with respect to the phase-out of hydrofluorocarbons (HFCs).
- (ii) Help sensitize and maximize national stakeholders' ownership of their roles and responsibilities necessary for the successful implementation of the Kigali Amendment.
- (iii) Strengthen the capacity of the National Ozone Unit, service workshops, customs officials, end-users, and other newly identified national partners to address the new responsibilities of the Kigali Amendment.
- (iv) Support the Government in reviewing existing mechanisms for HCFC import/export, data collection, and reporting to establish a licensing and quota system as well as a monitoring and reporting mechanism for HFCs and alternatives to HFCs and their equipment.
- (v) Support the Government to revise the national customs harmonization codes for commonly imported HFCs and their alternatives to ensure proper tracking and recording of imports/exports of individual HFCs/alternatives.
- (vi) Support the Government in the development of the software for the online import/export quota and licensing system for HFCs and their alternatives and their equipment.

It is noteworthy that the implementation of the Enabling Activities is being implemented using the existing national infrastructure and institutional setting already established for ODS phase-out activities. The Government of Ecuador ratified the Kigali Amendment on 22 January 2018 and the project was completed in December 2020. Apart from the ratification of the Amendment, the EA project achieved the following outputs and results:

- a) The country carried out an assessment that included recommendations on policy measures, technical assistance activities and investment activities, which were used as a roadmap for the implementation of the Kigali Amendment.
- b) Sensitization of national stakeholders and the general public on the importance and benefits of the Kigali Amendment. National stakeholders understood their new roles and responsibilities under the implementation of the Kigali Amendment.
- c) The NOU has strengthened the partnership with the Ministry of Energy and Non-Renewable Natural Resources to identify the linkage between the HFC phase-down and energy efficiency.
- d) The HFC licensing system has been in force and operational since January 1st, through COMEX Resolution No. 023-2017 of August 22, 2017.
- e) Development and implementation of an online import/export licensing system for HFCs and their equipment containing HFCs.
- f) Four online workshops were carried out on ODS-free and low-emission technologies for air conditioning and refrigeration applications in supermarkets, shopping malls, hotels and hospitals, fast food, meat processing and dairy production sectors.
- g) Two online master classes were held for senior RAC systems professionals on the latest technology trends, multilateral agreement development and service best practices.

**5. Current progress in implementation of Enabling Activities for HFC phase-down**  
**Budget: All funds for EA were utilized (US\$ \$112,286.40)**

Activity	Description	Status	Implementing agency
Activities to support	Kigali Amendment ratified by the country on	Completed	UNEP

the early ratification of the KA	22 January 2018.		
Institutional arrangements	Automation of the import control system for substances controlled by the Montreal Protocol.	Completed	UNEP
Review of licensing systems and data reporting	COMEX Resolution 023-2017 of December 2017 included 11 subheadings corresponding to HFCs to the list of restricted substances under prior import/export license. Importers must submit a quarterly report of HCFC's and HFC's imported quantities.	Completed.	UNEP
Awareness raising of relevant stakeholders on HFC phase-down and energy efficiency options	The staff of the Energy Efficiency Project Management and Promotion Department of the Ministry of Energy and Non-Renewable Natural Resources was trained in aspects related to the Kigali Amendment.	Completed.	UNEP
Specific training in selected alternatives considering energy efficiency advantages of each RAC sub-sector for end-users (chain of hotels, supermarkets, shopping malls, etc.) and manufacturing industries.	Four online workshops were carried out on ODS-free and low-emission technologies for air conditioning and refrigeration applications in supermarkets, shopping malls, hotels and hospitals, fast food, meat processing and dairy production sectors.  Two online master classes were held for senior RAC systems professionals on the latest technology trends, multilateral agreement development and service best practices	Completed.	UNEP
Organize round tables to analyze the adoption of national standards on the safe use of flammable refrigerants and disseminate national standards on the safe use of flammable refrigerants	Three proposals for technical regulations related to the refrigeration and air conditioning (RAC) sector:  - labeling of refrigerant cylinders - good refrigeration practices and safe handling of hydrocarbons, - design of commercial refrigeration equipment based on alternative substances. 1 manual of good refrigeration practices, based on the structure of the certification scheme for technicians	Completed	UNEP
Awareness, communication and dissemination	Awareness raising of stakeholders (public and private sectors) on HFC phase-down and energy efficiency (EE) improvement options	In progress	UNEP
<b>6. Description of information that needs to be gathered and updated. Explain why this has not been undertaken during the implementation of activities related to the Kigali Amendment and HFC phase-down.</b>			
<b>Information needed</b>	<b>Description</b>	<b>Agency</b>	

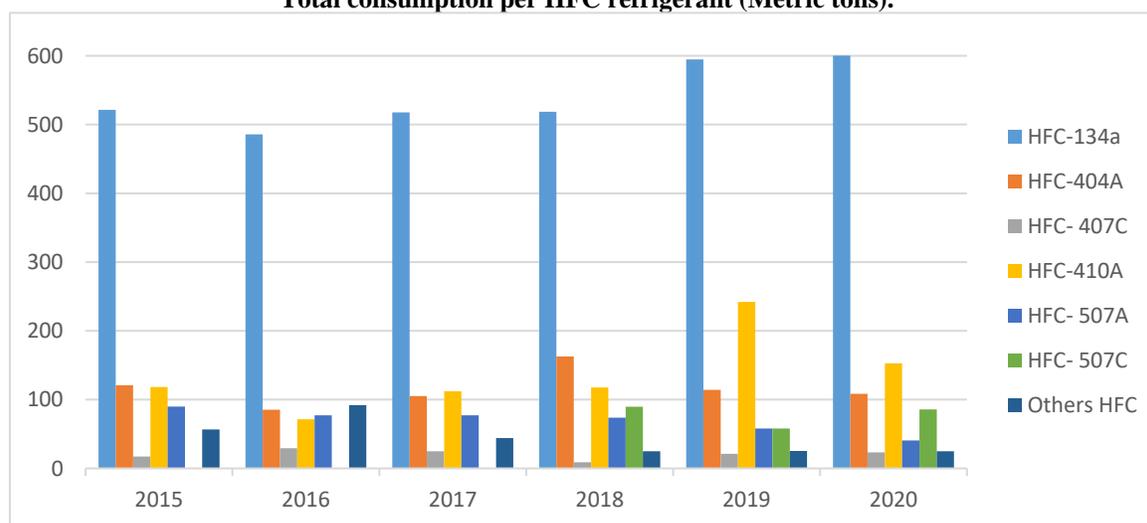
Develop a mapping study to obtain information on the main characteristics of the RAC sector, users and location in the country.	To determine the existing stock of appliance systems in domestic, commercial and industrial RAC sector, its main characteristics and use by regions in the country, to make predictions of emissions, and mitigation actions in each subsector and by regions.	NOU
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**7. Overview of estimated import of ODS alternatives 2015 – 2020 in Metric Ton per year.**

Substance	2015	2016	2017	2018	2019	2020
HFC-134a	521.37	485.81	517.7	518.64	594.79	600.18
HFC-404A	120.95	85.23	105.10	162.72	114.23	108.43
HFC- 407C	17.27	29.20	25.02	8.92	21.17	23.38
HFC-410A	118.43	71.48	112.10	117.59	242.19	152.95
HFC- 507A	89.80	77.09	77.09	73.81	57.89	40.65
HFC- 507C	0.00	0.00	0.00	89.66	58.02	85.72
Others HFC	56.71	92.06	44.06	24.97	25.40	24.99
<b>HFC total</b>	<b>924.53</b>	<b>840.87</b>	<b>881.07</b>	<b>996.31</b>	<b>1,113.69</b>	<b>1,036.30</b>

After the HCFCs freeze in 2013, HFCs, mainly those that replace R-22 in high, medium and low temperature applications, showed an increase in imports, such as R-410A refrigerants in air conditioning, and R-404A, R-507A and R-507C in low temperature applications. R-134a has shown stable behavior during the years analyzed, and is the most imported HFC refrigerant, which is used mainly in domestic refrigeration and mobile air conditioning.

**Total consumption per HFC refrigerant (Metric tons).**



Source: : Ministry of Production, Foreign Trade, Investment and Fisheries (MPCEIP)

**8. 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)**

HFCs are the main HCFC alternatives which are currently imported in Ecuador. Use of other alternatives such as hydrocarbons or natural refrigerants is currently limited in the country. Three main refrigerants consumed in Ecuador, in terms of metric tons, are the same refrigerants in importance in terms of the impact in the climate change, due to the quantity and the high GWP of the HFC-134a, HFC-410A, which show a growing trend due to the phase-down of HCFC-22.

For residential air conditioning, the trend is to change from HCFC-22 to R-410A, while in domestic refrigeration and mobile air conditioning, HFC-134a has been in use for some time. For HFC-134a, the consumption is increasing for both domestic refrigeration and mobile air conditioning.

For commercial refrigeration are used R-404A, R-507A and R-507C. The consumption of hydrocarbons in domestic refrigeration is also increasing, but not to levels as to affect the consumption of HFC-134a in that sector.

**Estimation of refrigerant use in servicing in different RAC sub-sector (mt).**

Subsector	Estimation of refrigerant use in servicing (mt)							
	HCFC-22	HFC-410A	HFC-134a	HFC-404A	HC-290	Others	Total	
Domestic refrigeration	0.00	0.00	89.22	0.00	0.00	1.50	90.72	
Commercial refrigeration	Stand-alone	0.00	0.00	59.48	11.42	1.43	10.88	83.21
	Condenser units	24.12	0.00	0.00	43.41	0.00	34.77	102.30
	Centralized system	0.00	0.00	0.00	22.85	0.00	34.77	57.62
Industrial refrigeration	48.24	0.00	0.00	19.42	0.00	46.36	114.02	
Transport refrigeration	0.00	0.00	14.87	11.42	0.00	0.00	26.29	
Residential AC	96.48	145.31	0.00	0.00	0.00	20.16	261.95	
Other AC	48.24	96.87	0.00	0.00	0.00	13.44	158.55	
Chillers	12.06	0.00	14.87	5.71	0.00	1.51	34.15	
Transport AC	0.00	0.00	118.96	0.00	0.00	0.82	119.78	
Others	12.06	0.00	0.00	0.00	0.08	0.00	12.14	
<b>Total use</b>	<b>241.21</b>	<b>242.19</b>	<b>297.39</b>	<b>114.23</b>	<b>1.50</b>	<b>164.21</b>	<b>1060.73</b>	

The increase in ODS-alternatives is mainly due to the introduction of new equipment, since the country does not have a restriction to import HFC-based equipment. The national industry is reconverted (in domestic refrigeration to HC), while the RAC commercial sector it still consumes HFCs, but the market responds more to imported products.

**9. Activities to be undertaken for project preparation and funding**

Activity	Indicative funding (US \$)	Agency
1- Ground work: Review of documents and existing regulations as well as measure new data on HFCs and other ODS alternatives. Organize and carry out forums and roundtables of sectorial work with relevant stakeholders, including government, private sector, trade unions, associations, civil society organizations, vocational centers, academic communities, among others to update available data on ODS alternatives. Consultations for the elaboration of a comprehensive national policy for the application of the Montreal Protocol, regulations and national procedures for its implementation, including the Kigali Amendment. Develop a mapping study to obtain information on the main characteristics of the RAC sector, users and location in the country.	USD 45,000	UNIDO

2- Capacity building activities related to RAC sector activities and enforcement: a) Review and assessment of innovative tools and approaches to build the capacity of relevant actors, b) Manage update of training curricula of vocational schools, university and customs, online training and certification tools; c) develop a policy proposal that includes a roadmap and impact analysis, which considers the convenience of creating tax or fiscal incentives or reducing tariffs in the purchase of equipment and tools for the management of alternative refrigerants, as well as the implementation of refrigeration and air conditioning projects with low impact refrigerants; d) public policies of gender considerations.	USD 30,000	UNIDO
3- Conducting studies, stakeholders' workshops and assessment related to the promotion of energy efficiency in all sectors, by: a) Promoting upgrades for mandatory and voluntary standards; b) Promoting the replacement of RAC equipment in homes, businesses and industry; c) Promoting efficient practices of operation, maintenance and installation in RAC systems; d) Developing detailed studies for RAC equipment characterization and project portfolio evaluation for energy efficiency upgrades.	USD 30,000	UNIDO
4 - HFC phase-down strategy development: Technical and legal experts to prepare all legal and technical documents, consult all key stakeholders and develop detailed strategy, including: a) assessment and development/update trainings and certification scheme for the use of flammable refrigerants, b) developing training plan and organizing workshops with main stakeholders and training institutions; c) Enhance the recovery and recycling of refrigerants and improve the monitoring and evaluation system of R&R practices.	USD 30,000	UNIDO
5 - Communication and outreach plan: Preparation of a comprehensive communication and outreach plan in consultation with key stakeholders including RAC associations and media. The plan will focus on technology and policy awareness raising to influence the investment and user behavior.	USD 35,000	UNIDO
6 - Validation: Consultations, review and validation of the prepared strategy	USD 20,000	UNIDO
<b>TOTAL</b>	<b>USD 190,000</b>	
<b>10. How will activities related to HPMP implementation be considered during project preparation for the HFC phase-down management plan?</b>		
Synergies from ongoing and future HPMP activities will be assessed in an integrated manner and incorporated into the HFC phase-down plan development. Furthermore, lessons learned from HPMP implementation will be taken into considered to the extent possible.		
<b>11. How will the Multilateral Fund gender policy be considered during project preparation?</b>		
In line with the MLF gender policy contained in ExCom document 84/73, special effort will be made to involve female trainees in vocational schools as well as female technicians for awareness-raising activities as well as training events on non-HFC ODS alternatives. The project preparation will aim to advocate the importance of gender-responsive actions and provisions in developing HFC phase-down plan. Programs will take into account allocations for the proposed gender activities (e.g., capacity building activities for female technicians). Also each project component in terms of stakeholders and participation will ensure that both women and men can provide input, access and participate in project activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).		

## PROJECT CONCEPT – Nicaragua

### MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL HFC PROJECT PREPARATION REQUEST FORM HFC Phase-down Management plan (OVERARCHING)

#### Part I: Project Information

<b>Project title:</b>	HFC phase-down plan preparation	
<b>Country:</b>	Nicaragua	
<b>Implementing</b>	UNIDO	
<b>Implementation period:</b>	July 2021 – June 2023	
<b>Funding requested:</b>		
<b>Agency</b>	<b>Sector</b>	<b>Funding requested (US\$)*</b>
UNIDO	Overarching	170,000

\*Given the absence of the approved cost guidelines for HFC phase-down, and in particular a cost structure for project preparation requests, the agreed funding levels for HPMP stage I project preparation are applied (Decision 55/27).

#### Part II: Prerequisites for submission

Item	Yes	No
1. Official endorsement letter from Government for choice of agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Kigali Amendment ratified	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### C. Information required to support PRP funding (Overarching strategy)

<b>3. Montreal Protocol HFC phase-down target to be met in stage I of the HFC phase-down plan</b>			
Commitment	Freeze 10% reduction	Year	2024 2029
<input type="checkbox"/> Servicing only	<input type="checkbox"/> Manufacturing only	<input checked="" type="checkbox"/> Servicing and manufacturing only	
<b>4. Brief background on previous activities related to the Kigali amendment and the HFC phase-down, as well as HPMP stages</b>			
Please provide a brief background on the Enabling Activities project, when it was approved, a brief description of the progress in implementation and expected end date.			
In response to Decision 79/46 of the Executive Committee on guidelines for Enabling Activities for HFC Phase down, the Government of Nicaragua submitted a proposal to the 81st Executive Committee meeting of the Multilateral Fund, which approved the project for Nicaragua's Enabling Activities for HFC Phase Down by a sum of US\$150,000, to facilitate and support the country's ratification of the Kigali Amendment and to undertake specific initial activities that help fulfil the initial obligations with regard to hydrofluorocarbon (HFC) phase-down in line with the Kigali Amendment. The objectives of the project were mainly to:			
(vii) Provide policy and technical support and guidance to the Government to facilitate the early ratification of the Kigali Amendment and enable the country to meet initial obligations with respect to the phase-out of hydrofluorocarbons (HFCs).			

- (viii) Help sensitize and maximize national stakeholders' ownership of their roles and responsibilities necessary for the successful implementation of the Kigali Amendment.
- (ix) Strengthen the capacity of the National Ozone Unit, service workshops, customs officials, end-users, and other newly identified national partners to address the new responsibilities of the Kigali Amendment.
- (x) Support the Government in reviewing existing mechanisms for HCFC import/export, data collection, and reporting to establish a licensing and quota system as well as a monitoring and reporting mechanism for HFCs and alternatives to HFCs and their equipment.
- (xi) Support the Government to revise the national customs harmonization codes for commonly imported HFCs and their alternatives to ensure proper tracking and recording of imports/exports of individual HFCs/alternatives.

It is noteworthy that the implementation of the Enabling Activities is being implemented using the existing national infrastructure and institutional setting already established for ODS phase-out activities. The Government of Nicaragua ratified the Kigali Amendment, which entered into force on September 30, 2020 by Presidential Decree No. 8702. The EA project achieved the following outputs and results:

- h) Nicaragua carried out an assessment that included recommendations on policy measures, technical assistance activities and investment activities, which were used as a roadmap for the implementation of the Kigali Amendment.
- i) Sensitization of national stakeholders and the general public on the importance and benefits of the Kigali Amendment. National stakeholders understood their new roles and responsibilities under the implementation of the Kigali Amendment.
- j) The NOU has strengthened the partnership with the Ministry of Energy and Mines to identify the linkage between the HFC phase-down and energy efficiency.
- k) All controlled substances by Montreal Protocol, including HFCs, were included in the registry of import/export license, duly established under Decree 91-2000 "Regulation for the ODS Control" and Resolution CNRCST-001-2018 referring to the types and requirements of licenses, published in the Official Journal No. 58 on March 22, 2018.
- l) Different awareness and training events were held for RAC technicians, end users and academia, on the gradual elimination of HFCs, advantages of energy efficiency and safe handling of alternatives to HFCs.

**5. Current progress in implementation of Enabling Activities for HFC phase-down**

**Budget: All funds for EA were utilized (US\$ \$170,000)**

<b>Activity</b>	<b>Description</b>	<b>Status</b>	<b>Implementing agency</b>
Activities to support the early ratification of the KA	Kigali Amendment ratified by the country.	Completed	UNIDO
Institutional arrangements	Nicaragua is in the process of adapting and updating the normative instruments for the establishment of the baseline and quotas for the HFCs consumption.	In progress	UNIDO

<p>Review of licensing systems and data reporting.</p>	<p>Nicaragua has a licensing system, duly established under Decree 91-2000 “Regulation for the ODS Control” and Resolution CNRCST-001-2018 referring to the types and requirements of licenses, published in the Official Journal No. 58 on March 22, 2018, which included pure or blended refrigerant substances, including HFCs, in the registry of import/export license.</p>	<p>Completed.</p>	<p>UNIDO</p>
<p>Awareness raising of relevant stakeholders on HFC phase-down and specific training in selected alternatives considering energy efficiency advantages of each RAC sub-sector</p>	<ul style="list-style-type: none"> <li>- 50 students and technicians of the RAC sector sensitized in the safe handling of flammable refrigerants and energy efficient technologies.</li> <li>- Two workshops were held on June 11, 2019, which were aimed to address the RAC servicing sector and academia with a total of 100 participants. The topics covered were: the Kigali Amendment and alternative environmentally friendly and more energy-efficient technologies in the RAC sector. These two events were led by an international expert on the subjects.</li> <li>- On May 25, 26, 27, 28 and 29, 2020, one virtual workshop on safe handling of flammable refrigerants and energy efficient technologies were held, with support of International consultant, and attended by 25 RAC technicians and instructors from all over the country.</li> <li>- From June 29 to July 3, 2020, one virtual workshop on safe handling of flammable refrigerants and energy efficient technologies were held, with support of International consultant. It was attended by 86 RAC technicians from all over the country.</li> <li>- In April 2020, one training workshop on measures and guidelines for conducting energy audits in RAC equipment, with the support of the Ministry of Energy and Mines. It was attended by 25 technicians from areas of property control and maintenance of the most recognized public institutions in the country.</li> <li>- NOU representatives participated in the working session as a member of the</li> </ul>	<p>Completed.</p>	<p>UNIDO</p>

	Technical Committee of Normalization for the elaboration of two Central American technical standards for energy efficiency of inverter-type air conditioning equipment.		
Awareness, communication and dissemination	<ul style="list-style-type: none"> <li>- Awareness raising of stakeholders (public and private sectors) on HFC phase-down and energy efficiency (EE) improvement options.</li> <li>- An event for the exchange of experiences with women from the RAC sector on the country's commitments regarding the ratification of the Kigali Amendment. 25 women participated in the event.</li> </ul>	Completed	UNIDO

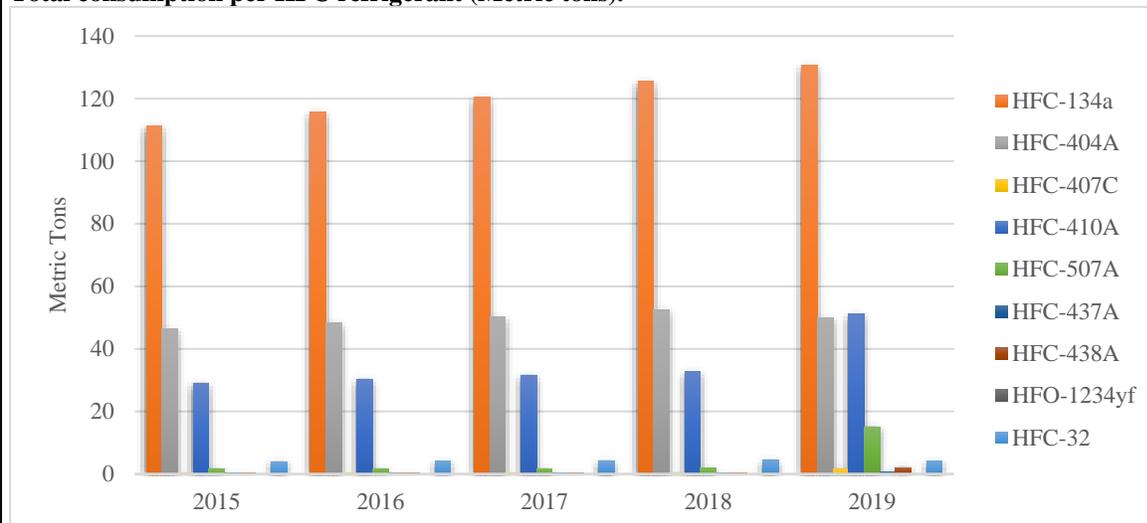
**6. Description of information that needs to be gathered and updated. Explain why this has not been undertaken during the implementation of activities related to the Kigali Amendment and HFC phase-down.**

<b>Information needed</b>	<b>Description</b>	<b>Agency</b>
Updated ODS alternatives data and subsector where are use.	Review available data and additional sector-specific data collection from 2016 through questionnaires and interviews as this was not included in the enablement activities and data collection from previous ODS alternatives only covered data for the period 2012-2015. This includes data related to the subsector, number and age of equipment in the subsectors, energy efficiency, and prices of alternative equipment.	NOU

**7. Overview of estimated import of ODS alternatives 2015 – 2019 in Metric Ton per year.**

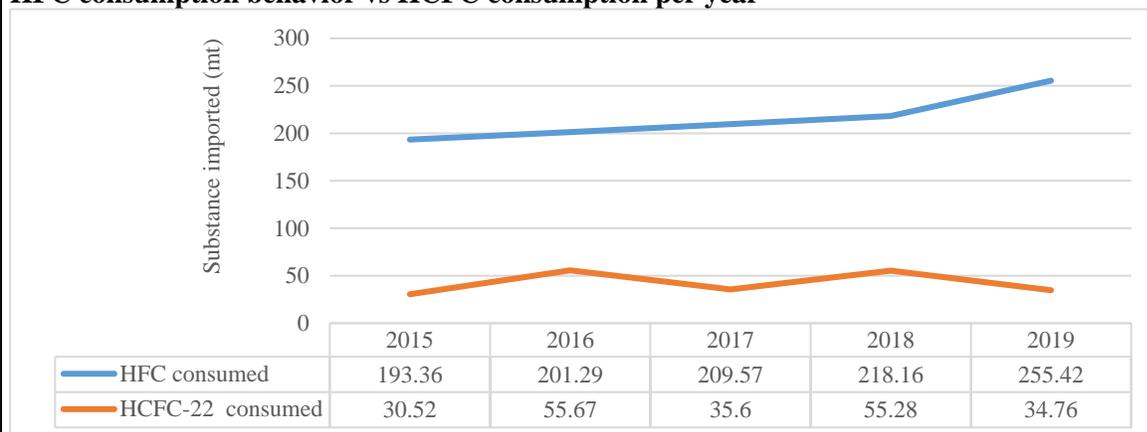
<b>Substance</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
HFC-134a	111.2	115.76	120.51	125.45	130.59
HFC-32	4.00	4.16	4.33	4.51	4.09
HFC-404A	46.43	48.33	50.32	52.38	49.96
HFC-407C	0.45	0.47	0.49	0.51	1.76
HFC-410A	29.08	30.27	31.51	32.81	51.17
HFC-507A	1.65	1.72	1.79	1.86	15.10
HFC-437A	0.34	0.35	0.37	0.38	0.70
HFC-438A	0.21	0.22	0.23	0.24	2.05
HFO-1234yf	0.00	0.01	0.02	0.02	0.02
<b>HFC total</b>	<b>193.36</b>	<b>201.29</b>	<b>209.57</b>	<b>218.16</b>	<b>255.42</b>

**Total consumption per HFC refrigerant (Metric tons).**



Source: Nicaragua, NOU.

**HFC consumption behavior vs HCFC consumption per year**



**8. 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)**

Import data confirms that high GWP HFCs imports continue growing rapidly. In that respect, the main HFC refrigerants imported in 2015-2019 period was HFC-134a, as it is widely used in domestic and commercial refrigeration and mobile air conditioning, followed by the HFC-404A refrigerant, which is used in low temperature refrigeration, where HCFC-22 was also extensively. They are followed by HFC-410A, used in air conditioners. The import of these substances alternatives has increased while that of HCFC-22 has decreased.

**Description of the sector/sub-sector that use HFCs in the country.**

- ✓ **Domestic Refrigeration** mainly uses R-134a and R-600a as refrigerants. HC has been contained in imported equipment since 2013, showing an incremental behavior in the forthcoming years.
- ✓ **Commercial refrigeration. Stand-alone equipment** is the leading subsector in the commercial refrigeration subsector of Nicaragua. The most common refrigerants used in this sector are R-134a and R-404A. **Condenser units** can be fully imported as equipment or imported as spare parts to

be assembled in the country. Practically all of these units have R-404A as refrigerant. **Refrigeration Centralized systems** Lately, imports of these systems have grown. Refrigerant found in this equipment is R-404A.

- ✓ **Industrial refrigeration.** Industrial refrigeration consumes mainly R-717. However, during the last years, R404A displaced R-717 probably due to the health and safety risks associated to work with ammonia as refrigerant.
- ✓ **Transport refrigeration.** The refrigerant gas consumed in this subsector is mainly R404A.
- ✓ **Residential AC.** Most common refrigerants used in residential AC are R-22, R-407C and R-410A. The later refrigerant predominates in the imports since 2016.
- ✓ **Chillers.** The refrigerant used was R-22. Nonetheless, imports also show other refrigerants such as R-407C, R-410A, and R-717.
- ✓ **Mobile AC.** Mobile AC is related mainly to AC systems in the automobile sector. Until 2018, the most common refrigerant gas used was R-134a. It is expected that the forthcoming years could present new substances such as HFO-1234yf.

#### 9. Activities to be undertaken for project preparation and funding

Activity	Indicative funding (US \$)	Agency
1- Ground work: Review of documents and existing regulations as well as measure new data on HFCs and other ODS alternatives. Prepare questionnaires for stakeholder interviews and conduct interviews with relevant stakeholders (including government, private sector, civil society organizations, vocational centers, academic communities) to update available data on ODS alternatives. Consultations for the integration of national regulations and procedures for KA implementation and consolidation of technical capacities in the institutions involved in HFC control	USD 20,000	UNIDO
2- Capacity building activities related to RAC sector activities and enforcement: a) Review and assessment of innovative tools and approaches to build the capacity of relevant actors, b) update of training curricula of vocational schools, university and customs, online training and certification tools; c) public procurement policies, potential impact of incentives and taxes, gender considerations, d) HFC-free labeling, equipment inventories / logbooks, potential of not-in-kind alternatives etc.	USD 40,000	UNIDO
3- Conducting studies, stakeholders' workshops and assessment related to the promotion of energy efficiency in all sectors, by: a) Promoting upgrades for mandatory and voluntary standards; b) Promoting the replacement of RAC equipment in homes, businesses and industry; c) Promoting efficient practices of operation, maintenance and installation in RAC systems; d) Developing detailed studies for RAC equipment characterization and project portfolio evaluation for energy efficiency upgrades.	USD 25,000	UNIDO
4 - HFC phase-down strategy development: Technical and legal experts to prepare all legal and technical documents, consult all key	USD 30,000	UNIDO

stakeholders and develop detailed strategy, including: a) assessment and development/update trainings and certification scheme for the use of flammable refrigerants, b) developing training plan and organizing workshops with main stakeholders and training institutions; c) set up an ozone committee within the NOU bringing together representatives of the Department of the Environment, the ozone focal point within the customs, the Ministry of Commerce, importers and the association refrigeration technicians with the responsibility of monitoring HFC consumption d) Enhance the recovery and recycling of refrigerants and improve the monitoring and evaluation system of R&R practices		
5 - Communication and outreach plan: Preparation of a comprehensive communication and outreach plan in consultation with key stakeholders including RAC associations and media. The plan will focus on technology and policy awareness raising to influence the investment and user behavior.	USD 35,000	UNIDO
6. Validation: Consultations, review and validation of the prepared strategy	USD 20,000	UNIDO
<b>TOTAL</b>	<b>USD 170,000</b>	
<b>10. How will activities related to HPMP implementation be considered during project preparation for the HFC phase-down management plan?</b>		
Synergies from ongoing and future HPMP activities will be assessed in an integrated manner and incorporated into the HFC phase-down plan development. Furthermore, lessons learned from HPMP implementation will be taken into considered to the extent possible.		
<b>11. How will the Multilateral Fund gender policy be considered during project preparation?</b>		
In line with the MLF gender policy contained in ExCom document 84/73, special effort will be made to involve female trainees in vocational schools as well as female technicians for awareness-raising activities as well as training events on non-HFC ODS alternatives. The project preparation will aim to advocate the importance of gender-responsive actions and provisions in developing HFC phase-down plan. Programs will take into account allocations for the proposed gender activities (e.g., capacity building activities for female technicians). Also, each project component in terms of stakeholders and participation will ensure that both women and men can provide input, access and participate in project activities (e.g., through outreach / invitations of female technicians to participate in stakeholder consultations, expert recruitment etc.).		

### SECTION 3

Country	Project Title	Extension Duration (months)	Reason for extending the duration	Official request for extension received?
Algeria	Enabling activities for HFC phase-down (ALG/SEV/84/TAS/83)	12	In line with decision 81/32(a), extension is requested for additional 12 months.  Remaining activities to be implemented are as follows: Update of tariff codes and licensing system, elaborating report on HFC consumption, elaborating report on the situation of the RAC servicing sector, elaborating report on the legal, institutional and policy measures for the implementation of the Kigali amendment and assistance to be provided for attaining the ratification of the amendment.	Yes