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执行蒙特利尔议定书
多边基金执行委员会
第八十七次会议
2021 年 6 月 28 日至 7 月 2 日，[1] 蒙特利尔

工发组织 2021 年工作方案

[1] 由于 2019 冠状病毒病（COVID-19），将于 2021 年 6 月和 7 月举行在线会议和闭会期间批准程序。

基金秘书处的评论和建议

1. 工发组织请执行委员会核准表 1 所列金额 1,403,500 美元外加 98,245 美元机构支助费用的 2021 年工作方案。[2] 来文附于本文件之后。

表 1：工发组织 2021 年工作方案

国家	活动/项目	申请数额（美元）	建议数额（美元）
A 节：建议一揽子核准的活动			
A1: 氟氯烃淘汰管理计划项目编制			
伊朗伊斯兰共和国 [a, b, c]	编制氟氯烃淘汰管理计划（第三阶段）	15,000	15,000
	编制氟氯烃淘汰投资活动（制冷和空调制造）	50,000	50,000
	A1 小计	65,000	65,000
	机构支助费用	4,550	4,550
	A1 共计	69,550	69,550
B 节：建议个别审议的活动			
B1：逐步减少氢氟碳化物管理计划项目编制			
国家	**提交的会议**	**活动/项目**	**申请金额 (美元)**	**建议金额 (美元)**
阿尔巴尼亚 [c]	85	编制逐步减少氢氟碳化合物管理计划	63,500	*
多民族玻利维亚国	87	编制逐步减少氢氟碳化合物管理计划	170,000	*
厄瓜多尔	87	编制逐步减少氢氟碳化合物管理计划	190,000	*
约旦	85	编制逐步减少氢氟碳化合物管理计划	150,000	*
墨西哥 [c, d]	86	编制逐步减少氢氟碳化合物管理计划	125,000	*
黑山	86	编制逐步减少氢氟碳化合物管理计划	85,000	*
尼加拉瓜	87	编制逐步减少氢氟碳化合物管理计划	170,000	*
尼日尔	86	编制逐步减少氢氟碳化合物管理计划	150,000	*
尼日利亚 [b, c]	87	编制逐步减少氢氟碳化合物管理计划	25,000	*
北马其顿	86	编制逐步减少氢氟碳化合物管理计划	85,000	*
塞内加尔 [e]	86	编制逐步减少氢氟碳化合物管理计划	25,000	*
南非	86	编制逐步减少氢氟碳化合物管理计划	100,000	*
		B1 小计	1,338,500	*
		机构支助费用	93,695	*
		B1 小计	1,432,195	*
		B1 总计	1,501,745	69,550

[a] 德国政府是合作双边机构

[b] 开发计划署是牵头执行机构

[c] 环境规划署是合作执行机构

[d] 开发计划署是合作执行机构

[e] 环境规划署是牵头执行机构

* 供单独审议

A 节：建议供一揽子核准的活动

A1：氟氯烃淘汰管理计划项目编制

[2] 包括本文件所附提交第八十七次会议的新的申请，以及分别载于 UNEP/OzL.Pro/ExCom/85/17 号文件和 UNEP/OzL.Pro/ExCom/86/35 号文件的第八十五次和第八十六次会议承转的编制氢氟碳化物逐步减少管理计划的申请。

项目说明

2. 如表 1 所示，工发组织提交了关于编制一个第 5 条国家氟氯烃淘汰管理计划第三阶段总体战略和制冷和空调行业投资活动的申请，其中工发组织为合作执行机构，环境规划署和德国政府为合作执行/双边机构，开发计划署为牵头执行机构。在其 2021 年工作方案中，开发计划署作为伊朗伊斯兰共和国的牵头执行机构，申请 50,000 美元，外加机构支助费用 3,500 美元；[3] 德国政府作为合作双边机构申请 40,000 美元，外加机构支助费用 5,200 美元，[4] 以及环境规划署作为合作执行机构申请 15,000 美元，外加机构支助费用 1,950 美元。[5]

3. 在其工作方案中，作为牵头执行机构的开发计划署，提供了编制伊朗伊斯兰共和国总体战略和编制氟氯烃淘汰管理计划第三阶段制冷和空调制造行业投资项目所要求扩展的活动和相应费用的说明。[6]

秘书处的评论

4. 秘书处注意到，项目编制申请的来文符合第 71/42 号决定的要求，[7] 伊朗伊斯兰共和国氟氯烃淘汰管理计划第三阶段将在 2030 年 1 月 1 日之前淘汰剩余的氟氯烃消费量，但结尾维修时期除外。

秘书处的建议

5. 秘书处建议按表 1 的 A1 节所示供资额，一揽子核准伊朗伊斯兰共和国氟氯烃淘汰管理计划第三阶段的项目编制。

B 节：建议单独审议的活动

提交第八十五次和第八十六次会议的项目编制申请

6. 如表 1 的 B1 节所示，在第八十五次会议上，工发组织在其 2020 年工作方案[8] 中列入了的编制阿尔巴尼亚和约旦逐步减少氢氟碳化物管理计划的申请，其中工发组织为牵头执行机构，环境规划署作为阿尔巴尼亚的合作执行机构。

7. 如表 1 的 B1 节所示，在第八十六次会议上，工发组织在其 2020 年工作方案修正案[9] 中列入了为 5 个第 5 条国家编制逐步减少氢氟碳化物管理计划的申请，其中工发组织作

[3] UNEP/OzL.Pro/ExCom/87/15。

[4] UNEP/OzL.Pro/ExCom/87/14。

[5] UNEP/OzL.Pro/ExCom/87/16。

[6] UNEP/OzL.Pro/ExCom/87/15。

[7] 第 5 条国家氟氯烃淘汰管理计划第二阶段编制工作供资准则。

[8] UNEP/OzL.Pro/ExCom/85/17。

[9] UNEP/OzL.Pro/ExCom/86/35。

为牵头执行机构，环境规划署和开发计划署为墨西哥的合作执行机构；作为一个国家的合作机构，环境规划署为塞内加尔的牵头执行机构。

8. 这些供单独审议的供资申请未在第八十五次和第八十六次会议上进行审议，并根据第八十六次会议上关于编制第 5 条国家逐步减少氢氟碳化物计划的准则草案的讨论[10] 和第 86/59 号决定，已推迟至第八十七次会议。因此，提交第八十五次和第八十六次会议的提案未列入本文件。

B1: 逐步减少氢氟碳化物管理计划项目编制

项目说明

9. 如表 1 的 B1 节所示，工发组织向本次会议提交了 3 个国家逐步减少氢氟碳化物管理计划的申请，其中工发组织作为牵头执行机构，一个国家的合作机构，开发计划署作为尼日利亚的牵头执行机构以及环境规划署作为其另一合作机构，申请最初由开发计划署[11] 和环境规划署[12] 提交第八十六次会议。在其 2021 年工作方案中，开发计划署作为尼日利亚逐步减少氢氟碳化物计划的牵头执行机构申请 137,000 美元，外加机构支助费用 9,590 美元，[13] 环境规划署作为合作机构申请 58,000 美元，外加机构支助费用 7,540 美元。[14]

秘书处的评论

10. 作为牵头执行机构，工发组织使用氟氯烃淘汰管理计划各阶段项目编制申请格式，提供了编制多民族玻利维亚国、厄瓜多尔和尼加拉瓜逐步减少氢氟碳化物总体战略所要求活动的说明。提交的文件包括：2015 年至 2019 年氢氟碳化物和氢氟碳化物混合物估计进口数量；项目编制活动清单包括利益攸关方会议和协商；制冷和空调行业能力建设活动；与宣传所有行业能效相关的研究和提高认识活动；以及逐步减少氢氟碳化物战略的拟订。所申请资金系基于编制逐步减少氢氟碳化物计划的拟议准则草案，[15] 该草案已提交第八十六次会议，但已推迟至第八十七次会议作进一步讨论。

11. 第八十五次会议上项目编制提案的供资金额系基于扶持活动供资（载于第 79/46 号决定(c)段）；不过，第八十六次会议上申请的资金系基于氟氯烃淘汰管理计划第一阶段项目编制的供资（载于第 56/16 号决定(c)段），因为各双边和执行机构在编制其提交第八十六次会议的 2021 年至 2023 年业务计划时使用了这一供资数额。秘书处注意到，项目编制申请的供资额是指示性数额，原因是实际数额将由执行委员会完成对编制第 5 条国家逐步减少氢氟碳化物计划的准则草案时决定（第 86/93 号决定）。[16]

[10] 议程项目 13(c) 。

[11] UNEP/OzL.Pro/ExCom/86/33。

[12] UNEP/OzL.Pro/ExCom/86/34。

[13] UNEP/OzL.Pro/ExCom/87/15。

[14] UNEP/OzL.Pro/ExCom/87/16。

[15] UNEP/OzL.Pro/ExCom/86/88。

[16] UNEP/OzL.Pro/ExCom/87/46。

12. 秘书处根据审查氟氯烃淘汰管理计划编制工作的申请的经验审查了来文，同时考虑到执行委员会就这种项目提供的指导意见和通过的决定。

13. 经上述审查后，秘书处注意到：

(a) 工发组织作为牵头执行机构为其申请编制逐步减少氢氟碳化物计划的资金的所有3个国家，都已批准《基加利修正案》；[17] 各国都将有资格根据第79/46号决定(b)(三)段获得编制工作资金；[18] 各国还提交了核可信函，表明其打算及早采取逐步减少氢氟碳化物的行动；以及

(b) 列入项目编制中的活动与编制氟氯烃淘汰管理计划所需开展的活动类似，但没有关于氢氟碳化物消费情况的调查；一些活动非常类似逐步减少氢氟碳化物的扶持活动中包括的活动，为所有 3 个国家的活动都提供了此种资金，这些活动目前还在进行中。

14. 工发组织澄清说，逐步减少氢氟碳化物总体战略的项目编制将以根据扶持活动开展的活动为基础，因为这些活动是与逐步减少氢氟碳化物相关的第一批行动，推动了各国的《基加利修正案》的批准工作。工发组织强调说，将避免已实施活动的重迭。

15. 关于对氢氟碳化物消费情况的调查，工发组织解释说，将通过利益攸关方协商开展调查工作，因为目前这些国家没有氢氟碳化物的配额和许可证制度；来自已完成的消耗臭氧层物质替代品调查的数据已被采用，编制各国氟氯烃淘汰管理计划第二阶段时收集的信息也已被采用，其中包括为氟氯烃和包括氢氟碳化物的替代品收集的信息。

16. 秘书处通知工发组织，秘书处将无法就这些申请提出建议，因为关于为这些申请供资的准则还要继续在第八十七次会议上讨论。

秘书处的建议

17. 执行委员会不妨根据关于“项目审查期间所查明问题概览”的议程项目 9(a)和关于“编制第 5 条国家逐步减少氢氟碳化物计划准则草案（第 86/93 号决定）”的议程项目 13(c)，审议为编制表 1 的 B1 节所列国家逐步减少氢氟碳化物管理计划供资的申请。

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[17] 批准（或接受）《基加利修正案》的日期：玻利维亚，2020 年 10 月 9 日；厄瓜多尔，2018 年 1 月 22 日；尼加拉瓜，2020 年 9 月 30 日。

[18] 在一个国家批准《基加利修正案》之后，可以在初步减少氢氟碳化合物的义务生效之前五年内，根据今后批准的准则提供资金，用于编制履行这些义务的国家执行计划。

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO WORK PROGRAMME

Presented to the 87th Meeting of the Executive Committee of the Multilateral Fund

Introduction

The UNIDO Work Programme (WP) for the consideration of the 87th 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 87th UNIDO WP is addressing preparatory assistance requests.

Preparatory assistance is submitted for the 87th 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 87th 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[1] 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[2] 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).

[1] The Project Concept for Iran is included in the Lead Agency (UNDP) Work Programme.
[2] 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
Preparatory Assistance for HPMP											
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
SUBTOTAL						**65,000**	**4,550**	**69,550**			
Preparatory Assistance for HFC Phase-Down Plans											
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.
SUBTOTAL						**555,000**	**38,850**	**593,850**			
GRAND TOTAL						**620,000**	**43,400**	**663,400**			

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

Project title:	HFC phase-down plan preparation	
Country:	Plurinational State of Bolivia (Bolivia)	
Implementing	UNIDO	
Implementation period:	July 2021 – June 2023	
Funding requested:		
Agency	**Sector**	**Funding requested (US$)***
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	☒	☐
2. Kigali Amendment ratified	☒	☐

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

1. Montreal Protocol HFC phase-down target to be met in stage I of the HFC phase-down plan			
Commitment	Freeze 10% reduction	Year	2024 2029
☐ Servicing only	☐ Manufacturing only	☒ Servicing and manufacturing	

2. Brief background on previous activities related to the Kigali amendment and the HFC phase-down, as well as HPMP stages

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:

- Achieve a broader understanding of the Kigali amendment provisions and to prepare legislative basis for the ratification

- 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

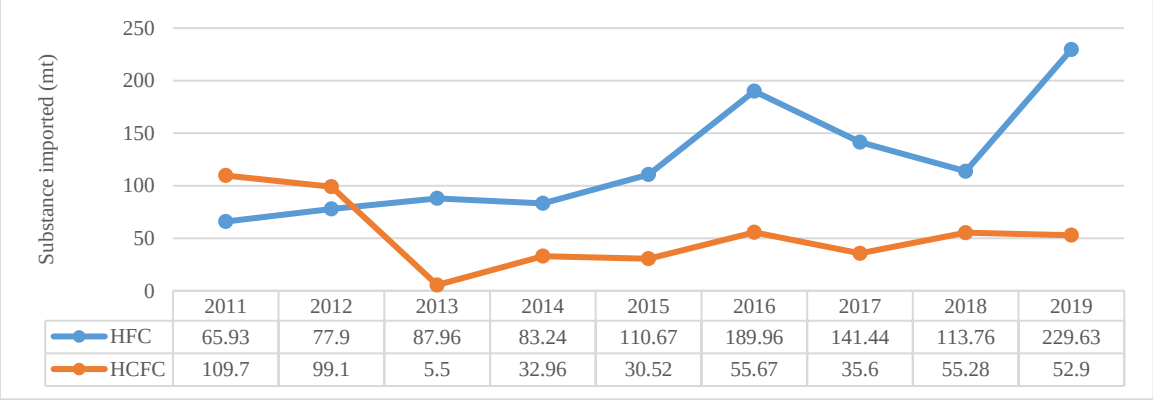
5. Overview of estimated import of ODS alternatives 2015 – 2019 in Metric Ton per year.

Substance	2015	2016	2017	2018	2019
HFC pure					
HFC 134a	91.80	106.42	81.73	84.13	119.18
HFC blends					
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
HFC total (pure + blends)	**110.67**	**189.96**	**141.44**	**113.76**	**229.63**
Natural refrigerants					
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. A***s 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
TOTAL	**USD 170,000**	

8. How will activities related to HPMP implementation be considered during project preparation for the HFC phase-down management plan?

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.

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

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

Project title:	HFC phase-down plan preparation	
Country:	Republic of Ecuador (Ecuador)	
Implementing	UNIDO	
Implementation period:	July 2021 – June 2023	
Funding requested:		
Agency	**Sector**	**Funding requested (US$)***
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	☒	☐
2. Kigali Amendment ratified	☒	☐

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

3. Montreal Protocol HFC phase-down target to be met in stage I of the HFC phase-down plan			
Commitment	Freeze 10% reduction	Year	2024 2029
☐ Servicing only	☐ Manufacturing only	☒ Servicing and manufacturing	

4. Brief background on previous activities related to the Kigali amendment and the HFC phase-down, as well as HPMP stages

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

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.

Information needed	Description	Agency

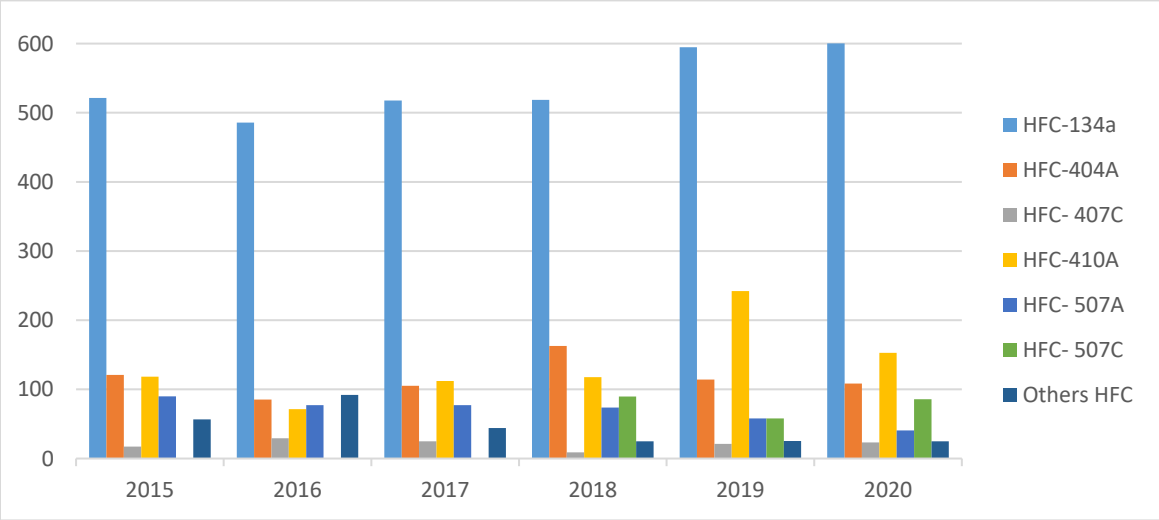
Develop a mapping study to obtain information on the main characteristics of the RAC sector, users and location in the country.	To determine the existing stock of appliance systems in domestic, commercial and industrial RAC sector, its main characteristics and use by regions in the country, to make predictions of emissions, and mitigation actions in each subsector and by regions.	NOU

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
HFC total	**924.53**	**840.87**	**881.07**	**996.31**	**1,113.69**	**1,036.30**

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
Total use		**241.21**	**242.19**	**297.39**	**114.23**	**1.50**	**164.21**	**1060.73**

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) Mange 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
TOTAL	**USD 190,000**	

10. How will activities related to HPMP implementation be considered during project preparation for the HFC phase-down management plan?

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.

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

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

Project title:	HFC phase-down plan preparation	
Country:	Nicaragua	
Implementing	UNIDO	
Implementation period:	July 2021 – June 2023	
Funding requested:		
Agency	**Sector**	**Funding requested (US$)***
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	☒	☐
2. Kigali Amendment ratified	☒	☐

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

3. Montreal Protocol HFC phase-down target to be met in stage I of the HFC phase-down plan			
Commitment	Freeze 10% reduction	Year	2024 2029
☐ Servicing only	☐ Manufacturing only	☒ Servicing and manufacturing	

4. Brief background on previous activities related to the Kigali amendment and the HFC phase-down, as well as HPMP stages

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)

Activity	Description	Status	Implementing agency
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

Review of licensing systems and data reporting.	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.	Completed.	UNIDO
Awareness raising of relevant stakeholders on HFC phase-down and specific training in selected alternatives considering energy efficiency advantages of each RAC sub-sector	- 50 students and technicians of the RAC sector sensitized in the safe handling of flammable refrigerants and energy efficient technologies. - 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. - 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. - 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. - 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. - NOU representatives participated in the working session as a member of the	Completed.	UNIDO

	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	- Awareness raising of stakeholders (public and private sectors) on HFC phase-down and energy efficiency (EE) improvement options. - 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.	Completed	UNIDO

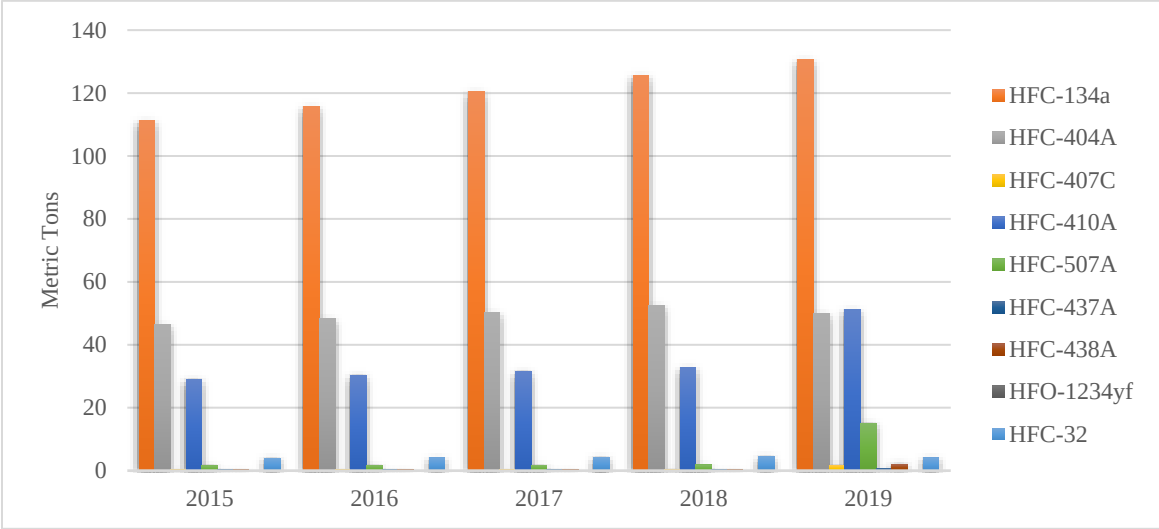
6. Description of information that needs to be gathered and updated. Explain why this has not been undertaken during the implementation of activities related to the Kigali Amendment and HFC phase-down.

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

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

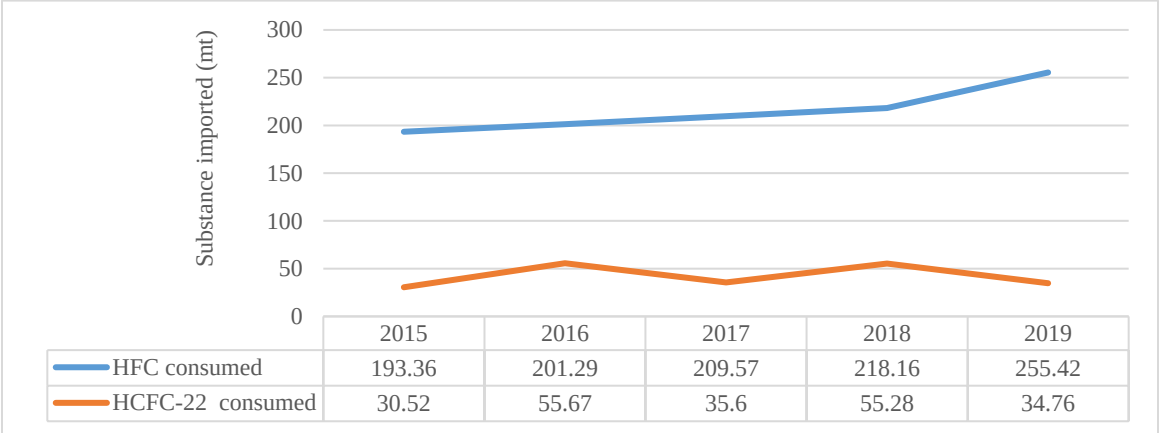
Substance	2015	2016	2017	2018	2019
HFC-134a	111.2	115.76	120.51	125.45	130.59
HFC-32	4.00	4.16	4.33	4.51	4.09
HFC-404A	46.43	48.33	50.32	52.38	49.96
HFC-407C	0.45	0.47	0.49	0.51	1.76
HFC-410A	29.08	30.27	31.51	32.81	51.17
HFC-507A	1.65	1.72	1.79	1.86	15.10
HFC-437A	0.34	0.35	0.37	0.38	0.70
HFC-438A	0.21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

Total consumption per HFC refrigerant (Metric tons).



Source: Nicaragua, NOU.

HFC consumption behavior vs HCFC consumption per year



	2015	2016	2017	2018	2019
HFC consumed	193.36	201.29	209.57	218.16	255.42
HCFC-22 consumed	30.52	55.67	35.6	55.28	34.76

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.*** **T**he 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
TOTAL	**USD 170,000**	

10. How will activities related to HPMP implementation be considered during project preparation for the HFC phase-down management plan?

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.

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

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