联 合 国 EP

联 合 国
环 境 规 划 署

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/96/22
3 May 2025

CHINESE
ORIGINAL: ENGLISH

执行蒙特利尔议定书
多边基金执行委员会
第九十六次会议
2025 年 5 月 26 日至 30 日，蒙特利尔
临时议程项目 9(c) [1]

工发组织 2025 年工作方案

[1] UNEP/OzL.Pro/ExCom/96/1

基金秘书处的评论和建议

1. 工发组织申请执行委员会核准 904,451 美元，外加 64,512 美元的机构支助费用，用于表 1 所列 2025 年工作方案。提交的材料附于本文件之后。

表 1: 工发组织 2025 年工作方案

国家	活动/项目	申请金额（美元）	建议金额（美元）
A 部分：建议一揽子批准的活动			
A1: 体制强化项目续期			
墨西哥	体制强化项目续期 (第十七阶段)	654,451	654,451
	A1 小计	654,451	654,451
	机构支持费用	45,812	45,812
	A1 合计	700,263	700,263
A2: 氟氯烃淘汰管理计划项目编制			
土库曼斯坦	编制氟氯烃淘汰管理计划（第三阶段）	30,000	30,000
	A2 小计	30,000	30,000
	机构支持费用	2,100	2,100
	A2 合计	32,100	32,100
A3: 编制国家用过或不需要的受控物质库存清单，以及此类物质的收集、运输和处置计划 [2]			
南非	编制国家用过或不需要的受控物质库存清单和计划	100,000	100,000
	A3 小计	100,000	100,000
	机构支持费用	7,000	7,000
	A3 合计	107,000	107,000
A4: 根据第 91/65 号决定编制能效试点项目			
埃及	在氢氟碳化合物逐步减少的背景下，制定一个提高数据中心能效的项目	30,000	30,000
北马其顿	在氢氟碳化合物逐步减少的背景下，制定一个提高数据中心能效的项目	30,000	30,000
	A4 小计	60,000	60,000
	机构支持费用	4,200	4,200
	A4 合计	64,200	64,200
A5: 为编制氟氯烃消费核查报告提供技术援助			
阿尔巴尼亚	氟氯烃淘汰管理计划第二阶段核查报告	30,000	30,000
亚美尼亚	氟氯烃淘汰管理计划第三阶段核查报告	30,000	30,000
	A5 小计	60,000	60,000
	机构支持费用	5,400	5,400
	A5 合计	65,400	65,400
	A1, A2, A3, A4, A5 合计	904,451	904,451
	A1, A2, A3, A4, A5 机构支持费用	64,512	64,512
	总计	968,963	968,963

* 建议单个考虑

[2] 本文称为编制国家使用或不需要的受控物质库存清单和计划

建议一揽子批准的活动

A1: 体制强化项目续期

项目说明

2. 工发组织申请表 1 中 A1 部分所列国家的体制强化项目续期。本文件附件一介绍了该项目的情况。

秘书处的评论

3. 秘书处根据关于资格和供资水平的准则 [3] 和相关决定,审查了体制强化项目续期的申请。该申请与上一阶段的原始工作计划、国家方案和第 7 条数据、氟氯烃淘汰管理计划执行情况的最新报告、该机构的进度报告以及缔约方会议的任何相关决定进行了交叉检查。据指出，该国已提交其 2023 年国家淘汰计划和第 7 条数据，符合《蒙特利尔议定书》规定的控制目标，报告的年度氟氯烃消费量不超过其与执行委员会签订的氟氯烃淘汰管理计划协定中规定的年度最高允许消费量。此外，根据第 91/63（b）号决定，提交的申请还包括对绩效指标、项目风险和可持续性以及体制建设目标实现情况的评估。

秘书处的建议

4. 秘书处建议以本文件表 1 中 A1 部分所示的供资水平一揽子核准墨西哥体制强化的续期申请。敬请执行委员会向上述政府表示本文件附件二所载的意见。

A2: 氟氯烃淘汰管理计划的项目编制

项目说明

5. 如表 1 中 A2 部分所示，工发组织作为一个指定执行机构，提交了编制氟氯烃淘汰管理计划第三阶段的申请。

6. 工发组织介绍了为支持土库曼斯坦氟氯烃淘汰管理计划第三阶段项目编制申请而开展的活动，其中包括：申请项目编制资金的理由；氟氯烃淘汰管理计划第二阶段执行进展报告；以及项目编制期间将开展的活动清单和相应的预算，使用氟氯烃淘汰管理计划项目编制申请的格式。

秘书处的评论

7. 在审查该申请时，秘书处考虑了第 71/42 号决定所载为第 5 条国家编制氟氯烃淘汰管理计划供资的准则；氟氯烃淘汰管理计划第二阶段的进展情况，包括截至本文件编制时各付款的执行情况；以及第 84/46（e）号决定。[4] 秘书处指出，所申请的资金符合第 71/42

[3] 第 91/63 号决定：（b）核准最终报告的修订格式和延长体制建设供资的请求以及相应的绩效指标；以及（c）请第 5 条国家通过双边和执行机构，自 2023 年执行委员会第一次会议起，对所有延长体制建设的请求使用上文（b）分段所述的修订格式。

[4] 只有那些已批准氟氯烃淘汰管理计划第二阶段且削减目标低于 2025 年履约目标的国家，才允许将氟氯烃淘汰管理程序第三阶段纳入业务计划。

号决定，并且该申请符合第 82/45 号决定，该决定允许在氟氯烃淘汰管理计划第二阶段结束日期前两年提交氟氯烃淘汰管理局第三阶段的项目编制申请。

8. 秘书处还注意到，该国已提交 2023 年第 7 条和国家方案数据，该国遵守了《蒙特利尔议定书》规定的控制目标，其报告的年度氟氯烃消费量不超过其与执行委员会签订的氟氯烃淘汰管理计划协定中规定的年度最高允许消费量。

9. 工发组织确认，土库曼斯坦氟氯烃淘汰管理计划第三阶段将在 2030 年 1 月 1 日前淘汰该国 100%的氟氯烃基线。

秘书处的建议

10. 秘书处建议一揽子核准土库曼斯坦氟氯烃淘汰管理计划第三阶段的项目编制，供资数额见表 1 中 A2 部分。

A3: 编制国家用过或不需要的受控物质库存清单以及此类物质的收集、运输和处置计划

项目说明

11. 工发组织提交了一份申请，要求为一个作为指定执行机构的国家，编制一份国家用过或不需要的受控物质库存清单和计划，如表 1 中 A3 部分所示。

12. 工发组织使用项目提案的相关提交表格，说明了编制南非用过或不需要的受控物质库存国家清单和计划所需的活动以及每项活动的相应费用。

秘书处的评论

13. 在审查该申请时，秘书处考虑了第 91/66 号决定所载的编制国家已用或不需要的受控物质库存清单和计划的标准，以及拟议的项目编制活动及其与该国国家淘汰/逐步减少计划（即氟氯烃淘汰管理计划或基加利 氢氟碳化合物执行计划）的关系。秘书处指出，供资申请符合第 91/66 号决定。

14. 供资申请中的活动包括对消耗臭氧层物质/氢氟碳化合物消费量国家调查、消耗臭氧层气体调查以及回收和再循环活动的数据进行案头研究；关于制冷剂排放和收集、报废设备收集的政策和法规研究；对不需要的消耗臭氧层物质、受控物质和设备进行全国调查；利益攸关方研讨会；以及制定行动计划和最终报告。

秘书处的建议

15. 秘书处建议以表 1 中 A3 部分所示的供资水平，一揽子核准编制一份国家用过或不需要的受控物质库存清单以及南非收集、运输和处置此类物质的计划。

A4: 在氢氟碳化合物逐步减少的背景下，准备试点项目以保持和/或提高替代技术和设备的能源效率（第 91/65 号决定）

项目说明

16. 如表 1 中 A4 部分所示，工发组织作为指定执行机构，提交了两份关于在两个国家逐步减少氢氟碳化合物的背景下提高能源效率的试点项目的项目编制申请。这些呈件是根据第 91/65 号决定提交的。

17. 这些申请是为了准备试点项目，通过采用创新的冷却技术（如液体冷却、蒸发冷却和自由空气冷却）和优化数据中心设计，提高数据中心的能源效率。这些项目的成果将支持埃及和北马其顿的行业，这些行业在中心数量和数据中心容量方面都在迅速扩大。

18. 筹备活动包括从埃及的三个数据中心和北马其顿的一个数据中心收集数据，以评估能源和氢氟碳化合物的消费，并进行技术评估，重点是提高能源效率；提供技术支持；利益相关者研讨会和编制综合项目文件以供提交。对于这两个国家，所要求的资金将用于招聘国际顾问（25,000 美元）和利益攸关方研讨会（5,000 美元）。试点项目提案预计将提交给第 98 次会议。

秘书处的评论

19. 秘书处根据第 91/65 号决定规定的标准审查了项目提案，并注意到这两项申请都属于（b）（i）c 分段的范围。[5] 这些项目将协助选定的最终用户介绍和评估选定的节能和低全球变暖潜能值技术的益处。研究结果将传播给该行业的其它最终用户，以鼓励进一步采用该技术和市场接受度。因此，这将有助于在该国更大程度地渗透基于节能低全球变暖潜能值制冷剂的技术。秘书处还注意到，第 93 次会议批准了根据第 91/65 号决定为埃及升级三个测试实验室的项目，[6] 并在本次会议上提交了根据第 91/65 号决定为北马其顿提交的项目，该项目旨在通过加强法律制度、提高氢氟碳化合物设备的能效和推广最低能源性能标准来改善该国制冷和空调行业的能效框架。

20. 关于各国政府正在考虑的避免数据中心氢氟碳化合物消费量增长的潜在政策，如更严格地执行数据中心能效标准、限制或逐步淘汰冷却系统中高全球升温潜能值氢氟碳化合物使用的法规，以及采用可持续冷却技术的激励措施，工发组织表示，两国政府都将考虑采取潜在的政策措施来解决这一问题。在项目执行期间的利益相关者会议上，将讨论可能的措施。

21. 该项目旨在通过促进向低全球升温潜能值的替代品过渡来减少氢氟碳化合物的消费。工发组织解释说，埃及估计有 20 至 30 个数据中心，北马其顿目前约有 12 个数据中心使用基于氢氟碳化合物的设备（主要是 R-407C 和 R-410A）。预计筹备资金将有助于各国确定企业数量，估算数据中心当前和预计的氢氟碳化合物消费量，以便在最终提案中明确说明试点项目对氢氟碳化合物减排和可复制性的影响。

22. 工发组织还指出，这些国家面临的挑战包括技术专长有限、利益攸关方缺乏认识和履约以及财政拮据。然而，相关机会包括加强政策框架、国际合作和发展可持续冷却技术

[5] 将优先考虑涉及设备组装和安装技术援助的项目，这些项目将导致采用技术来维持和/或提高能源效率，同时从氢氟碳化合物转换，并在国家或地区展示可复制性和可扩展性。

[6] UNEP/OzL.Pro/ExCom/93/53

的当地市场。应对这些挑战并利用各种机遇，可以帮助埃及和北马其顿向可持续的制冷行业过渡，提高能源效率，支持氢氟碳化合物的逐步淘汰。

23. 秘书处注意到，工发组织最初为埃及的项目编制申请了 100,000 美元，为北马其顿申请了 80,000 美元，这两个项目都旨在将各自国家的所有数据中心纳入其中，以绘制数据图、评估技术并制定行业计划。然而，考虑到第 91/65 号决定支持试点项目的目标，工发组织同意调整范围，并将埃及和北马其顿的试点项目开发申请分别修订为30,000美元。

秘书处的建议

24. 秘书处建议，在埃及和北马其顿逐步减少氢氟碳化合物的背景下，按照表 1 中 A4 部分所示的供资水平，一揽子核准编制提高数据中心能效的试点项目。

A5: 为编制氟氯烃消费核查报告提供技术援助

项目说明

25. 根据第 61/46（c）号决定，[7]秘书处抽取了 12 个低消费量第 5 条国家的样本，以核查其氟氯烃淘汰管理计划协定的遵守情况。所选国家列于 UNEP/OzL.Pro/ExCom/96/16 号文件的表 5，概述项目审查期间发现的问题。工发组织作为牵头执行机构，正在申请为阿尔巴尼亚氟氯烃淘汰管理计划第二阶段和亚美尼亚氟氯烃淘汰管理局第三阶段的核查工作提供资金（须经本次会议提交的氟氯烃淘汰管理计划第三阶段核准）。

秘书处的评论

26. 秘书处指出，供资申请与前几次会议为类似核查核准的资金一致，并进一步指出，核查报告必须在申请氟氯烃淘汰管理计划下一次供资付款的适用执行委员会会议前至少 10 周提交。

秘书处的建议

27. 秘书处建议按照表 1 中 A5 部分所示的供资水平，一揽子核准为阿尔巴尼亚氟氯烃淘汰管理计划第二阶段和亚美尼亚氟氯烃淘汰管理规划第三阶段编制核查报告提供技术援助，但有一项谅解，即核查报告必须在申请氟氯烃淘汰管理管理计划下一次供资付款的适用执行委员会会议前至少 10 周提交。

[7] 秘书处被要求在每年的第一次会议上提供一份名单，代表 20%的氟氯烃消费基线高达 360 公吨且氟氯烃淘汰管理计划已获批准的国家，以批准为这些国家提供资金，以核查该国对当年氟氯烃淘汰管理计划协议的遵守情况。

Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS[1]

Mexico: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNIDO
Amounts previously approved for institutional strengthening (US $):		
Phase I:	Jun-92 & Dec-94	350,000
Phase II:	Jul-95 & May-96	107,350
Phase III:	Oct-96	214,700
Phase IV:	Jul-98	214,700
Phase V:	Jul-00	163,190
Phase VI:	Jul-02	274,191
Phase VII:	Apr-05	265,525
Phase VIII:	Jul-07	264,232
Phase IX:	Jul-09	198,842
Phase X:	Dec-10	262,724
Phase XI:	Dec-12	264,286
Phase XII	Nov-14	264,196
Phase XIII	Jul-17	337,940
Phase XIV:	Dec-18	319,561
Phase XV:	Dec-20	315,672
Phase XVI:	Dec-22	466,842
	Total:	4,283,952*
Amount requested for renewal (phase XVII) (US $):		654,451
Amount recommended for approval for phase XVII (US $):		654,451
Agency support costs (US $):		45,812
Total cost of institutional strengthening phase XVII to the Multilateral Fund (US $):		700,263
Date of approval of country programme:		1992
Date of approval of HCFC phase-out management plan:		2011
Date of approval of Kigali HFC implementation plan:		2023
Baseline consumption of controlled substances (ODP tonnes/CO_2-eq tonnes):		
(a) Annex B, Group III (methyl chloroform) (average 1998-2000)		56.4
(b) Annex C, Group I (HCFCs) (average 2009-2010)		1,148.8
(c) Annex E (methyl bromide) (average 1995-1998)		1,130.8
(d) Annex F (HFCs) (average 2020-2022 plus 65% of HCFC baseline)		76,982,664
Latest reported ODS consumption (2023) (ODP tonnes) as per Article 7:		
(a) Annex B, Group III (methyl chloroform)		0.00
(b) Annex C, Group I (HCFCs)		168.23
(c) Annex E (methyl bromide)		0.00
	Total:	168.23
(d) Annex F (HFCs) (CO_2-eq tonnes) as per Article 7		50,254,745
Year of reported country programme implementation data:		2023
Amount approved for projects (as at December 2024) (US $):		153,254,349
Amount disbursed (as at December 2023) (US $):		135,621,141
ODS to be phased out (as at December 2024) (ODP tonnes):		8,601.5
ODS phased out (as at December 2023) (ODP tonnes):		7,259.7

*Excluding funds transferred from UNDP to UNIDO at the 37th meeting

[1] Data as at December 2023 are based on document UNEP/OzL.Pro/ExCom/95/18.

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	134,472,494
(b) Institutional strengthening:	4,340,486*
(c) Project preparation, technical assistance, training and other non-investment projects:	14,441,369
Total:	153,254,349
(d) HFC activities funded from additional voluntary contributions	1,298,123

*This includes the US $56,535 for phase V of the institutional strengthening project that was transferred from UNDP to UNIDO at the 37th meeting

Progress report

2. In phase XVI of the IS project, the NOU oversaw the implementation of the approved Montreal Protocol project portfolio and the application of the quota and licensing system to ensure compliance with the phase-out schedule under stage II of the HPMP. Adjustments to the national regulations were made to incorporate HFC mix codes. Collaboration with authorities in charge of enforcing restrictions for the import of HCFC and HFC was strengthened. Awareness-raising activities were carried out to promote the use of alternatives with low global warming potential. A project portfolio including the KIP, energy-efficiency strategy, banks of used or unwanted controlled substances inventory, and phase-out HFC-23 represented a high level of complexity in both technical and operational aspects.

Plan of action

3. The NOU is committed to building on the achievements under phase XVI to ensure continuous monitoring of ODS and other controlled substances. The NOU plans to improve the HFC quota distribution mechanism and HCFC reduction calendar for 2026-2028 and continue improving the required regulatory mechanism and instruments to ban ODS including pre-blended polyols. The NOU will continue complying with international guidelines on project development and will maintain advocacy and awareness-raising activities with relevant stakeholders. The institutional capacities of the NOU will be reinforced through training on project management, logical framework, project cycle and gender mainstreaming. The NOU is committed to gender mainstreaming and will promote synergies between the recently approved KIP and HPMP projects. Due to the heavy workload, an expansion of the NOU team is required to ensure the effective delivery of all Multilateral Fund programme and project activities.

Sustainability and risk assessment

4. The NOU is well established under the Ministry of Environment and Natural Resources with clear roles and responsibilities. The legislation already in place ensures that the NOU can conduct its responsibilities. Continuous trainings for NOU staff can further help to strengthen the capacities of the NOU team and thus further contribute to the sustainability of the achieved results.

附件二

执行委员会向第 96 次会议提交的关于体制强化项目续期的意见草案

墨西哥

1. 执行委员会审查了与墨西哥体制强化项目续期（第十七阶段）的申请一并提交的报告，并赞赏地注意到分别向臭氧秘书处和基金秘书处报告了2023年和2024年的第7条和国家方案数据，表明该国遵守了《蒙特利尔议定书》的淘汰时间表。委员会注意到，墨西哥报告了氢氟碳化合物数据，并将其消费量冻结在基线水平。委员会还注意到，墨西哥对受控物质的消费实施了严格的监测制度，与参与控制系统指导的当局定期举行会议，并与所有相关利益攸关方协调了必要的活动。委员会注意到，还组织了提高认识活动，包括每年纪念世界臭氧日的活动，以及在制冷和空调技术人员培训中心举办的几次活动，这些活动强调了培养充分管理氟氯烃和氢氟碳化合物替代品所需技能的重要性。委员会认可墨西哥政府的努力，因此希望墨西哥政府在未来三年内继续成功执行多边基金支持的活动，以保持对《蒙特利尔议定书》控制措施的遵守。

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO WORK PROGRAMME

Presented to the 96th Meeting of the Executive Committee of the Multilateral Fund

Introduction

The UNIDO Work Programme (WP) for the consideration of the 96th 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 2025-2027.

The 96th UNIDO WP is addressing preparatory assistance, institutional strengthening requests and verification reports.

Preparatory assistance is submitted for the 96th Executive Committee Meeting consideration for Turkmenistan to enable the country to overview and update data necessary for the launch and implementation of HPMP Stage III.

Based on decision 91/66, funding is requested for preparation of inventory of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances for South Africa.

Preparatory assistance funding for developing energy efficiency pilot projects is requested for Egypt and North Macedonia.

Institutional strengthening extension request is submitted based on the country request for Mexico.

Verification report funding is being requested for two LVC countries, namely Albania and Armenia.

The UNIDO Work Programme for the consideration of the 96th ExCom Meeting comprises the following sections:

- **Section 1**: Consolidated list of activities foreseen for the above requests by project types and country; and
- **Section 2**: Project concepts indicating details and funding requirements.

Funding is requested as follows:

- Preparatory assistance funding for HPMP Stage III for Turkmenistan amounting to US$ 32,100 (including US$ 2,100 representing 7.0 % agency support costs);
- Preparatory assistance for preparation of national inventory of banks of waste controlled substances and development of a national plan for management of these substances in South Africa amounting to US$ 107,000 (including US$ 7,000 representing 7.0% agency support costs);
- Preparatory assistance funding for developing energy efficiency pilot projects in Egypt and North Macedonia amounting to US$ 64,200 (including US$ 4,200 representing 7.0 %

agency support costs);

- Institutional strengthening project for Mexico amounting to US$ 700,263 (including US$ 45,812 representing 7.0 % agency support costs); and
- Verification report funding for Albania and Armenia amounting to US$ 65,400 (including US$ 5,400 representing 9% agency support costs).

Total: US$ 968,963 (including 64,512 agency support cost).

SECTION 1

Country	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.
Preparatory Assistance for HPMP										
Turkmenistan	LVC	PRP	HCFC	Overarching	Preparation of Stage III HPMP	30,000	2,100	32,100	7%	24
SUBTOTAL						**30,000**	**2,100**	**32,100**		
Preparation of national inventory of banks of waste controlled substances and development of a national plan for management of these substances										
South Africa	Non-LVC	PRP	SEV	DES	Preparation of national inventory of banks of waste controlled substances and development of a national plan for management of these substances	100,000	7,000	107,000	7%	24
SUBTOTAL						**100,000**	**7,000**	**107,000**		
Institutional Strengthening										
Mexico	Non-LVC	INS	All	SEV	Institutional strengthening	654,451	45,812	700,263	7%	36
SUBTOTAL						**654,451**	**45,812**	**700,263**		
Funding for preparation of energy efficiency pilot projects under decision 91/65										
Egypt	Non-LVC	PRP	HFC	EEF	Preparation of energy efficiency pilot project	30,000	2,100	32,100	7%	24
North Macedonia	LVC	PRP	HFC	EEF	Preparation of energy efficiency pilot project	30,000	2,100	32,100	7%	24
SUBTOTAL						**60,000**	**4,000**	**64,200**		
Verification reports										
Albania	LVC	TAS	HCFC	SEV	Verification report	30,000	2,700	32,700	9%	24
Armenia	LVC	TAS	HCFC	SEV	Verification report	30,000	2,700	32,700	9%	24
						60,000	**5,400**	**65,400**		
GRAND TOTAL						**904,451**	**64,512**	**968,963**		

SECTION 2

PROJECT CONCEPT – TURKMENISTAN

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL HPMP PROJECT PREPARATION REQUEST FORM HCFC phase-out management plan (Overarching strategy)

Part I: Project information

Project title:	**HCFC phase-out plan (stage III)**	
Country:	**Turkmenistan**	
Lead implementing agency:	**UNIDO**	
Implementation period:	**2025-2030**	
Funding requested:		
Agency	**Sector**	**Funding requested (US $)***
UNIDO	**Overarching**	**30,000**

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

Part II: Prerequisites for submission

Item	Yes	No
1. Official endorsement letter from Government specifying roles of respective agencies (where more than one IA is involved)	☒	☐
2. Written confirmation – balances from previous PRP funding approved for stage I HPMP had been returned / will be returned (d**ecision 71/42(i)**)	☐	☒
• Specify meeting at which PRP funding balance had been returned/will be returned	PRP funds have been fully utilised.	

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

1. Montreal Protocol compliance target to be met in ☐ stage II / ☒ stage III of the HPMP			
Phase-out commitment (%)	**100% (Allowance of 2.5% for servicing of RAC equipment existing on 1 January 2030)**	**Year of commitment**	**2030**
☒ **Servicing only**		☐ **Manufacturing only**	☐ **Servicing and manufacturing**

2. Brief background on previous stage of the HPMP (i.e., when the HPMP was approved; a description of the progress in implementation of the previous stage of the HPMP to demonstrate that substantial progress had been made.)

Stage II of the HPMP for Turkmenistan was approved at the 86th meeting to meet the 67.5 per cent reduction from the baseline by 2025, at a total cost of US $308,500, plus agency support costs, to phase out 2.21 ODP tonnes of HCFCs used in the refrigeration and air conditioning (RAC) servicing sector for five years starting in January 2021. The Government of Turkmenistan decided to separate the IS project from stage II of the HPMP, as a way of seeking complementary actions and optimizing resources. At the end of Stage II the Government of Turkmenistan has issued HCFC import quotas for 2025 at 2.22 ODP tonnes, which is corresponding the Montreal Protocol control targets.

Substantial progress was achieved under the previous stage of the HPMP, particularly in the refrigeration servicing sector. The Centre of Excellence was upgraded with eight new training simulators, and trainers were certified to deliver programs aligned with international standards. Over 40 environmental inspectors received training on the Montreal Protocol, non-ODS technologies, and ODS identification. Certification courses for RAC technicians were launched, focusing on natural refrigerants, ODS recovery, and energy efficiency. Additionally, 50 stakeholders, including government and private sector representatives, were trained on updated legislation and best practices. Progress on establishing an ODS reclamation system has been more limited. While draft

regulations were prepared, potential reclamation sites identified, and technical documentation developed, the procurement of the necessary equipment and operationalization of the system is scheduled for the final tranche of Stage II. This work remains a key priority for completion before 2025.

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

Activity	Description	Implementing agency
Refrigeration servicing sector	Upgrading the centre of excellence in low- and zero-GWP alternative technology: eight training simulators were procured and distributed to the Centre of Excellence, training on their proper use was successfully completed; the training programs were developed and delivered.	UNIDO
Refrigeration servicing sector	Capacity Building for Environmental Inspectors: a total of 40 environmental inspectors (both men and women) from the Hydrometeorology and State Ecological Control Services received training on the Montreal Protocol, alternative non-ODS technologies, the ODS licensing and quota system, and ODS identification in Turkmenistan.	UNIDO
Refrigeration servicing sector	Training for Trainers at the Centre of Excellence: the trainers (both men and women) from the Centre of Excellence (Innovation Scientific and Education Center at Yagshageldi Kakaev International Oil and Gas University) were trained in accordance with internationally recognized certification requirements. This training equips them to educate students using the Center's programs, ensuring compliance with global certification standards.	UNIDO
Refrigeration servicing sector	Certification Courses for RAC Technicians covering the safe use of natural refrigerants, ODS recovery and destruction, and energy efficiency were initiated and implemented.	UNIDO
Refrigeration servicing sector	Stakeholder Training on Policy and Technical Advancements: fifty key stakeholders, including government authorities and private sector representatives in the RAC industry, participated in training sessions on updated ozone layer protection and climate change legislation. Sessions also covered the use of natural refrigerants across various sectors and energy efficiency practices. Efforts were made to ensure the participation of women.	UNIDO
Refrigeration servicing sector	To establish an ODS reclamation system needed regulatory measures were identified and proposed, e. g. prohibition of the deliberate venting of ODS, mandatory leakage control for industrial refrigeration and chillers, and compulsory collection, reclamation, and disposal of ODS; three enterprises were chosen as potential candidates for the reclamation site, and to supply the set of equipment to collect and recycle ODS and HFCs, including a reclamation unit, refillable containers, filters, and accessories for three years. Development of technical documentation for the establishment of an ODS and HFC collection and reclamation system were conducted. The procurement of the necessary equipment and operationalization of the system is scheduled for the final tranche of Stage II	UNIDO

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

Substance	Sector	2022	2023	2024
HCFC-22	RAC servicing	73.30	77.38	64.41

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

Since 2020, HCFC consumption has remained below the control level of 4.42 ODP tonnes, largely due to the successful implementation of HPMP activities. These efforts include the enforcement of a licensing and quota system, training for servicing technicians, public awareness campaigns, and the ban on importing HCFC-based equipment, which took effect on 1 January 2016. Additionally, the increasing importation of RAC equipment using alternative refrigerants has contributed to the decline. The higher consumption observed in 2023 resulted from lower consumption in preceding years, driven by the country's economic situation.

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

Information needed	Description	Agency
Updated sectoral consumption information	Review available information and collect additional data through questionnaires, interviews and site visits to relevant sectors. Assessment of sectoral distribution of HCFC consumption through consultation with relevant stakeholders.	UNIDO
Analysis of the types of equipment using HCFCs	Assessment of the types of equipment still using HCFCs through consultation with relevant stakeholders.	UNIDO
Others, specify.	Assessment of the needs of relevant stakeholders	UNIDO

7. Activities to be undertaken for project preparation and funding

Activity	Indicative funding (US $)	Agency
Assessment of sectoral distribution of HCFC consumption.	10,000 USD	UNIDO
Drafting of the HPMP stage III proposal.	15,000 USD	UNIDO
Workshop to validate the proposal by stakeholders.	5,000 USD	UNIDO
TOTAL	**30,000 USD**	

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

With the approval of Turkmenistan's Kigali Implementation Plan (KIP) Stage I at the 92nd Meeting of the Executive Committee, the country is now implementing both KIP Stage I and the HPMP in parallel. Given that these efforts will continue to run concurrently with the final stage of the HPMP, namely Stage III, Turkmenistan is aiming to align the phase-out of HCFCs with the phase-down of HFCs wherever feasible. This approach will help streamline activities, make better use of available resources, and reduce the risk of overlap.

The implementation of the KIP at the same time as the project preparation for stage III of the HPMP opens up the possibility for a more unified and cost-efficient strategy that addresses both ozone-depleting substances and high-GWP alternatives in a coordinated way, particularly in terms of training and equipment procurement activities.

To navigate this, Turkmenistan will apply a blend of integrated and parallel approaches. While parallel implementation allows for more tailored, substance-specific actions, integrated efforts can bring cost savings and efficiency by combining resources and avoiding duplication. This balanced strategy is expected to support a smooth and effective implementation of both plans.

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

HPMP Stage III fully integrates the Multilateral Fund's gender policy, embedding gender considerations throughout the entire project cycle. While the relevance of gender dimensions may vary depending on the specific activities, promoting gender equity and equality remains a key priority. Recognizing that gender roles and responsibilities influence access to and control over environmental resources, the project is designed to ensure that both women and men can equally benefit from its opportunities. All human resource development initiatives, including trainings, workshops, and awareness programs, are open to all genders and will actively encourage women's participation. Gender-disaggregated data, such as the ratio of male to female participants, will be collected at project inception to establish a baseline. Throughout implementation, the NOU and UNIDO will work collaboratively to improve this baseline and promote greater gender balance. At project completion, the gender indicators will be reassessed and analyzed to evaluate progress and inform future initiatives.

PROJECT CONCEPT – SOUTH AFRICA

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

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

Part I: Project information

Project title:	**Preparation for the national inventories of banks of used or unwanted controlled substances and plan for the collection, transport and disposal of such substances.**
Country:	**Republic of South Africa**
Lead implementing agency:	**UNIDO**
Meeting where request is being submitted	**96th Executive Committee Meeting**
Implementation period	**2026-2027**
Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24 months	
Funding requested:	
Agency	**Funding requested (US $)***
UNIDO	**100,000**

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

Part II: Prerequisites for submission

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

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

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

South Africa will take guidance provided in paragraphs 16 to 32 of document UNEP/OzL.Pro/ExCom/91/66 in the development of national inventories of waste-controlled substances contained in equipment and bulk stockpiles. South Africa has collected information linked to the Enabling Activities for Hydrofluorocarbon (HFC) Phase-Down and the preparation of HPMP stage II to estimate consumption and the number of equipment, for all refrigerants, installed in the country in the different applications and their servicing needs.

The past data will be used as basis for the survey to build on and collect information on the number of

installed equipment and their age, the charge inside the equipment, the rate at which this equipment will reach their end-of-life, and the amount of refrigerant of each type that will need to be recovered.
The survey will also determine the quantity of refrigerant, by type, that has been either recovered through the existing RRR process, or illegal refrigerants that have been confiscated and stockpiled.
The exercise will enable South Africa to determine the amounts that will be needed to be disposed until 2030.
The survey will also review the existing regulations regarding refrigerant recovery as well as the country's waste management landscape. Information will also be collected on the regional and international obligations of South Africa in this respect.
An action plan will be developed for the proper management and disposal of the stockpiles and to ensure the sustainability of the actions that are being proposed. The action plan will be discussed on a national level and approved by stakeholders.

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

Activity	Description	Agency
Others, specify.	A national consultant will review available data and conduct a survey on HCFC consumption per refrigerant used in the servicing sector. In addition, the consultant will conduct a study to identify and quantify the existing used and unwanted refrigerant banks and estimate the quantity of future banks based on the installed RAC appliances.	UNIDO
Others, specify.	A national consultant will review available data and collect additional sector-specific data per refrigerant through questionnaires and interviews. The survey will provide more granular data covering sectors, sub-sectors and consumption per region.	UNIDO
Others, specify.	A national consultant will conduct an inventory of equipment using HCFC. The inventory will include the type of equipment; age of equipment; substance used; quantity of substance recovered, reused, disposed of and stored. In addition, the consultant will evaluate the existing ODS regulations pertaining to the inventory and disposal of banks.	UNIDO
New information on ODS regulations	A national consultant will formulate a plan to improve or develop regulations on the inventory and management of used or unwanted controlled substances and the transport and disposal of these substances.	UNIDO

3. Funding for the activities described in 2 above

Activity	Indicative funding (US $)	Agency

1- Desk study: An initial desk study of already available data from national surveys on consumption of HCFCs undertaken in the preparation of HPMPs, ODS alternatives surveys, equipment importers, recovery and recycling activities from waste management operators, and collection, dismantling and recovery of the waste refrigerants and other substances from end-of-life equipment.	USD 10,000 Number of national consultants: 1	UNIDO
2 – Preparation work: Conduct an assessment of policies and regulations regarding refrigerant emissions and collection as well as waste collection of equipment at their end-of-life. The analysis will be done on a national and regional scale including a review of the international obligations of South Africa for related protocols and agreements. An understanding of the waste sources is needed to prepare a methodology for quantifying the amount of waste-controlled substances in the country.	US$ 10,000 Number of consultants: 1	UNIDO
3 – Survey: A national consultant will conduct an inventory of unwanted ODS, controlled substances and equipment including the type of equipment; age of equipment; substance used; charge inside the equipment, quantity of substance recovered, reused, disposed of and stored. The survey will cover all sectors Consultant will check the collected data against consumption data and other sources of information.	US$ 35,000 Number of national consultants: 3	UNIDO
4 - Preparation of a final report of the inventory of unwanted controlled substances which includes an action plan include: An understanding of the sources and banks of waste-controlled substances in the country (inventory of banks);	US$ 25,000 Number of consultants: 2	UNIDO

Description of the existing and required policies and regulations supporting the management of waste-controlled substances including recovery and recycling (and reclamation, where applicable) based on the country's institutional and regulatory framework; Defining the activities that need to be implemented for establishing an effective collection, transportation, storage mechanism and a functioning recycling and reclamation infrastructure, including a tracking system for recovered ODS and waste-controlled substances and their reuse; Description of the responsible actors and their role in the process of collection, storage, transport, and eventual disposal of unwanted controlled substances; Assessing technology options for disposal, including destruction noting best practices, and potential opportunities for co-disposal of waste-controlled substances with other hazardous waste (e.g., persistent organic pollutants (POPs) waste), especially for those countries with very small ODS waste streams; Understanding the impediments for the establishment of domestic destruction capacity and the export of waste for destruction; Addressing the institutional framework needed to support the sustainable management of waste-controlled substances, including eventual disposal and the options identified noting monitoring and verification procedures required for; and		

Cost considerations of disposal and destruction options including options for financing.		
5 - Analysis of results: The national inventory report and the subsequent data analysis will be discussed in consultation with the relevant stakeholders both in government and in the private sector (i.e., waste management operators, collection centres, or waste aggregators, appliance retailers, refrigeration associations) to ensure their involvement and cooperation for future actions related to the management of these wastes	US$ 20,000 Number of meetings: 2 Number of consultants: 2	UNIDO
TOTAL	**100,000**	

4. 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 consultants in the preparation of the proposal as well as female technicians for awareness-raising activities. The project preparation will aim to advocate the importance of gender-responsive actions and provisions in developing the inventory of used or unwanted controlled substances and the transport and disposal of these substances. 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 – EGYPT

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL ENERGY EFFICIENCY EXCOM DECISION 91/65 (EE) PROJECT PREPARATION (PRP)

Part I: Project information

Project title:	Preparatory assistance for the pilot project to enhance the energy efficiency of cooling technologies in data centres in the Arab Republic of Egypt	
Country:	Arab Republic of Egypt	
Lead implementing agency:	UNIDO	
Implementation period for stage RPR EE:	24 months	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the project proposal (please specify): 12 months		
Funding requested:		
Agency	**Sector**	**Funding requested (US $)***
UNIDO	INV - Others	30,000 USD

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

Part II: Prerequisites for submission

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

A. Information required for PRP funding request for investment projects/sector plans as part of Energy Efficiency Funding Window

1. Agency:	UNIDOUNIDO
2. Sector:	Refrigeration, Air-Conditioning
3. HFC consumption in item #2 reported under country programme data?	☒ **Yes**, please specify reported amount and year: 2023 ☐ **No**
4. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☐ **Yes**, please provide support letter _____ ☐ **No** ☒ **N/A**
5. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☐ **Yes** ☐ **No** ☒ **N/A**
6. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	The project will significantly contribute to the energy efficiency improvement in air-conditioning and refrigeration manufacturing and service sectors in Egypt.
7. Background information	

The increasing demand for data storage and processing has led to a global surge in data center development. These facilities, housing critical digital infrastructure, require substantial cooling systems to maintain optimal operating temperatures for servers and other equipment. As data centers proliferate, their energy consumption and environmental impact are becoming significant concerns.

Traditional cooling methods in data centers often rely on energy-intensive and greenhouse gas-emitting technologies, including those that utilize hydrofluorocarbons (HFCs). The Kigali Amendment to the Montreal Protocol aims to phase down the production and consumption of HFCs due to their high global warming potential. This necessitates the adoption of sustainable cooling solutions for data centers that are both energy-efficient and environmentally friendly. Innovative cooling technologies, such as liquid cooling, evaporative cooling, and free air cooling, offer promising alternatives to conventional methods. Additionally, optimizing data center design, including server layouts and airflow

management, can significantly reduce cooling needs. By prioritizing sustainable cooling practices, data centers can minimize their environmental footprint while ensuring the reliable operation of essential digital services.
While precise figures are not readily available, Egypt has a growing number of data centers. These data centers support the country's expanding digital economy, serving businesses, government agencies, and telecommunications providers. The demand for data center capacity in Egypt is expected to increase significantly in the coming years, driven by factors such as increased internet penetration, cloud computing adoption, and the development of smart cities.
Information gathered from one of the data centres is Egypt indicates the following about their current and planned cooling systems:

- **Current System:** a DX (Direct Expansion) air conditioning system;
- **Refrigerant Used:** R407 and R410;
- **Air Conditioning Network Plan:** no draft plan for the air conditioning network;
- **Eco-friendly Certificates/Measurements:** No eco-friendly certificates or measurements related to their cooling systems.
- **Planned Cooling System for New Facility:**
    - Chilled Water System (Compression Type with Adiabatic Solution) in the new facility.
    - The estimated cooling load is 865 tons of refrigerant (3025 kW).
    - Refrigerants planned to use R1234ze (GWP 1) or R513b (GWP 509).
    - The expected unit number is 4 units (N+1).
    - The expected unit capacity is 350 TR.
    - Potential cooling vendors include Johnson Controls or Vertiv.

Existing data centers in Egypt employ a range of cooling technologies, with a mix of traditional and more modern systems. There is a growing recognition of the need to transition to sustainable cooling solutions to align with international climate commitments, the Kigali Amendment, and Egypt's own sustainability goals. Based on a general desk research, Egypt has a mix of data center types. This includes:

    - Smaller facilities associated with telecom companies and local businesses.
    - Larger, carrier-neutral data centers.
    - Increasing investment in larger-scale and hyperscale facilities (often driven by cloud providers).
- Egypt has about 20-30 data center facilities. The exact number of data center will be confirmed during the preparation stage. The number is actively increasing.

The adoption of energy-efficient cooling technologies, such as those planned by Raya (chilled water systems with low-GWP refrigerants), along with liquid cooling, evaporative cooling, and free air cooling, can significantly reduce the environmental impact of data centers in Egypt. Optimizing data center design and airflow management are also crucial. By embracing sustainable cooling practices, Egypt can support the growth of its digital infrastructure while mitigating environmental impact.
Challenges and Opportunities
Egypt, like other countries, faces challenges in transitioning to sustainable cooling:

- **Technical Barriers:** Limited availability of technical expertise for implementing and maintaining advanced cooling technologies. The RAC service sector requires training and upskilling.
- **Awareness and Compliance:** Raising awareness about sustainable cooling and ensuring compliance with environmental regulations are essential.
- **Financial Constraints:** Access to funding is needed for capacity building, data collection, and promoting adoption of sustainable cooling.

However, Egypt has opportunities to advance sustainable cooling:

- **Policy and Regulatory Framework:** Strengthening and enforcing existing regulations can drive the adoption of energy-efficient technologies.
- **International Collaboration:** Collaborating with international organizations provides access to expertise, funding, and best practices.

- **Market Development:** Promoting a local market for sustainable cooling technologies can create economic benefits and reduce environmental impact.

By addressing these challenges and leveraging these opportunities, Egypt can transition to a sustainable cooling sector that supports economic growth and environmental protection.

Project Objectives

The project will assess energy and HFC consumption by collecting and analyzing data from up to three data centers, provide technical support and technology assessments to selected data center(s) focusing on energy efficiency enhancement, and develop a comprehensive project document based on the project activities' findings and outcomes.

Expected Outcome

The primary outcome of this project is to deliver a comprehensive and evidence-based project document that serves as a blueprint for synergistic activities in implementing energy efficiency projects while phasing down HFCs to achieve the highest energy efficiency levels in data centers in Egypt.

Key Deliverables

In addition to the Project Document, the following key deliverables will contribute to achieving the project's overarching outcome:

- **Technical Analysis and Gap Assessment:** Expert analysis of survey data and identification of gaps in technology and financing.
- **Project proposal** ready for the submission.

Project Activities

This preparatory assistance project proposal will conduct a comprehensive study to assess the existing data centres and provide technical support to enhance energy efficiency while phasing down hydrofluorocarbons (HFCs) in up to three data centers in Egypt. The study will identify the current state of cooling technology and HFC use, evaluate alternative technologies, and develop a project proposal for the selected data centres.

Key tasks for the preparatory assistance project proposal:

Data Collection and Analysis:

- Conduct a workshop for the selected data centre(s) to collect data on their energy consumption volume, consumption, available technologies and possibilities to apply alternative cooling technologies.

Technical Support and Technology Assessment:

- Provide technical support and technology assessment to a selected for the pilot data centre(s).
- Focus on energy efficiency enhancement of their current systems.
- Include individual consultations as part of the support.

Project Document Drafting:

- Draft the project document.

Budget and Timeline

A detailed budget is outlined in the table below. The project duration is estimated to be 24 months.

Conclusion

This preparatory project is essential for building the foundation for successful and sustainable energy efficiency interventions in Egypt's cooling systems in up to three data centers. By investing in capacity building, data collection, and feasibility studies, we can pave the way for significant.

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

Activity	Indicative funding (US $)	Bilateral/implementing agency
Technical support and technology assessment by an international consultant for selected data centre(s) on the energy efficiency enhancement on their current system and analysis of the data received from them, including webinar and individual consultations.	15,000	UNIDO
Workshop for the selected data centre(s)	5,000	UNIDO
Drafting a project document (International consultant)	10,000	UNIDO
TOTAL	30,000	

PROJECT CONCEPT – NORTH MACEDONIA

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

FUNDING REQUEST FOR THE PREPARATION OF ENERGY EFFICIENCY PILOT PROJECT UNDER DECISION 91/65

Part I: Project information

Project title:	Preparatory assistance for the pilot project to enhance the energy efficiency of cooling technologies in data centres in the Republic of North Macedonia	
Country:	Republic of North Macedonia	
Lead implementing agency:	UNIDO	
Implementation period for stage RPR EE:	24 months	
Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the project proposal (please specify): 12 months		
Funding requested:		
Agency	**Sector**	**Funding requested (US $)***
UNIDO	INV - Others	30,000 USD

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

Part II: Prerequisites for submission

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

A. Information required for PRP funding request for investment projects/sector plans as part of Energy Efficiency Funding Window

9. Agency:	UNIDOUNIDO
10. Sector:	Refrigeration, Air-Conditioning
11. HFC consumption in item #2 reported under country programme data?	☒ **Yes**, please specify reported amount and year: 2023 ☐ **No**
12. Does the enterprise commit to phase out the HFC consumption associated with the proposed investment project, if approved by the Executive Committee?	☐ **Yes**, please provide support letter _____ ☐ **No** ☒ **N/A**
13. If the project preparation is requested in advance of the KIP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established?	☐ **Yes** ☐ **No** ☒ **N/A**
14. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final KIP will be submitted (decision 87/50(e))	The project will significantly contribute to the energy efficiency improvement in air-conditioning and refrigeration manufacturing and service sectors in North Macedonia.
15. Background information	

The increasing demand for data storage and processing has led to a global surge in data center development. These facilities, housing critical digital infrastructure, require substantial cooling systems to maintain optimal operating temperatures for servers and other equipment. As data centers proliferate, their energy consumption and environmental impact are becoming significant concerns.

Traditional cooling methods in data centers often rely on energy-intensive and greenhouse gas-emitting technologies, including those that utilize hydrofluorocarbons (HFCs). The Kigali Amendment to the Montreal Protocol aims to phase down the production and consumption of HFCs due to their high global warming potential. This necessitates the adoption of sustainable cooling solutions for data centers that are both energy-efficient and environmentally friendly.

Innovative cooling technologies, such as liquid cooling, evaporative cooling, and free air cooling, offer promising alternatives to conventional methods.

Additionally, optimizing data center design, including server layouts and airflow management, can significantly reduce cooling needs. By prioritizing sustainable cooling practices, data centers can minimize their environmental footprint while ensuring the reliable operation of essential digital services.

North Macedonia has a limited number of data centers currently in operation. These data centers primarily serve domestic needs, supporting businesses, government agencies, and telecommunications providers. As the country's digital economy expands and reliance on cloud services grows, the demand for data center capacity is expected to increase within next five years.

Existing data centers in North Macedonia predominantly employ traditional cooling technologies, including air conditioning units and computer room air conditioners (CRACs). These systems often utilize HFC refrigerants, posing environmental challenges due to their high global warming potential. As the country aligns not only with international climate commitments and the Kigali Amendment, but also with more strict EU acquis, transitioning to sustainable cooling solutions for data centers becomes imperative.

The adoption of energy-efficient cooling technologies, such as liquid cooling, evaporative cooling, and free air cooling, can significantly reduce the environmental impact of data centers in North Macedonia. Additionally, optimizing data center design, including server layouts and airflow management, can further minimize cooling needs. By embracing sustainable cooling practices, North Macedonia can ensure the continued growth of its digital infrastructure while mitigating the environmental impact of data centers.

An initial desk research phase has confirmed the existence of at least twelve data centers; however, a more in-depth analysis is required to determine their specific capabilities, capacity, and service offerings

Challenges and Opportunities

While North Macedonia has made commendable progress, challenges remain:

- **Technical Barriers:** A significant challenge lies in the limited availability of technical expertise and capacity to implement and maintain sustainable cooling technologies. The RAC service sector may require upskilling to handle new technologies and refrigerants effectively.
- **Awareness and Compliance:** Raising awareness among stakeholders about the importance of sustainable cooling and ensuring compliance with environmental regulations is crucial.
- **Financial Constraints:** Access to funding is essential for capacity building, data collection, and consumer awareness. Financial incentives and support mechanisms can encourage the adoption of sustainable cooling solutions.

Despite these challenges, North Macedonia has several opportunities to advance sustainable cooling:

- **Policy and Regulatory Framework:** The existing policy and regulatory framework provides a strong foundation for promoting sustainable cooling practices. Strengthening and enforcing these regulations can further incentivize the adoption of energy-efficient technologies.

- **International Collaboration:** Collaboration with international organizations and partners can provide access to technical expertise, funding, and best practices in sustainable cooling.
- **Market Development:** Promoting the development of a local market for sustainable cooling technologies can create jobs and stimulate economic growth while reducing environmental impact.

By addressing these challenges and capitalizing on opportunities, North Macedonia can transition towards a sustainable cooling sector that supports economic growth, protects the environment, and ensures the well-being of its citizens.

Project Objectives

The project objective is to prepare a comprehensive project proposal by assessing the technical, economic, and environmental viability of phasing down HFCs in data center in North Macedonia.

Expected Outcome

The primary outcome of this project is to deliver a comprehensive and evidence-based **project document** that serves as a blueprint for synergistic activities in implementing energy efficiency projects while phasing down HFCs to achieve the highest energy efficiency levels in data centres in North Macedonia.

Key Deliverables

In addition to the Project Document, the following key deliverables will contribute to achieving the project's overarching outcome:

- **Comprehensive Survey Data:** Detailed information on the energy efficiency level of RAC technologies used in one data centre including type of HFCs used, existing legal and policy framework related to their management.
- **Technical Assistance:** Expert analysis of the survey data for one data centre and identification of key gaps in technology and financing.
- **Project Proposal: Expert will draft a project proposal ready for the submission.**

This preparatory assistance project proposal will conduct a data collection and a technical assessment for one data center in North Macedonia to furter prepare a project proposal to showcase the successful application of the energy efficient cooling system in a selected data centre.

Key tasks

1. **Consultation workshop**

a. Conduct a workshop for the selected data centre to identify the types and quantities of HFCs currently used in its cooling system.

2. **Technology Assessment:**

a. Evaluate alternative cooling technologies with low GWP, such as:

i. Natural refrigerants (e.g., ammonia, CO2, propane)

ii. Indirect evaporative cooling

iii. Liquid cooling

iv. Hybrid systems

b. Assess the technical feasibility, energy efficiency, safety, and cost-effectiveness of each alternative.

Budget and Timeline

A detailed budget is outlined in the table below. The project duration is estimated to be 24 months.

Conclusion
This preparatory project is essential for building the foundation for successful and sustainable pilot project for one data center in North Macedonia.

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

Activity	Indicative funding (US $)	Bilateral/implementing agency
Consultation workshop for one data centre	5,000	UNIDO
Technical support (International consultant) and technology assessment of one selected data centres, including webinar and individual consultations	15,000	UNIDO
Drafting a project document (national and international consultant)	10,000	UNIDO
TOTAL	30,000	

Country: MEXICO

Title: Institutional Strengthening for the implementation of Montreal Protocol in Mexico

Project Duration: 36 months (July 2025 – June 2028)

Project Budget: 654,451 (excl. 7% Agency Support Costs)

Implementing Agency: UNIDO

Coordinating Agency: National Ozone Unit (NOU)/ SEMARNAT (Ministry of Environment and Natural Resources)

Project Summary

In phase XVI of the IS project, the NOU successfully oversaw the implementation of the approved Montreal Protocol project portfolio and the application of the quota and licensing system to ensure compliance with the phase-out schedule under the HPMP Stage II. Adjustments to the national regulations were made to incorporate HFC mix codes. Collaboration with authorities in charge of enforcing restrictions for the import of HCFC and HFC was strengthened. Awareness activities were carried out to promote the use of alternatives with low global warming potential.

Project Portfolio including KIP, Energy-efficiency strategy, banks inventory, and phase-out HFC-23 represents a high level of complexity in both technical and operational aspects, for this, an expansion of the NOU team is required to ensure the effective delivery of all MLF programme and project activities.

The NOU is committed to building on the achievements under phase XVI to ensure continuous monitoring of ODS and other controlled substances, the NOU plans to adequate the HFC quota distribution mechanism and HCFC reduction calendar for 2026-2028 and continue improving the required regulatory mechanism and instruments to ban ODS including pre-blended polyols.

The NOU will continue complying with international guidelines on project development and will maintain advocacy and awareness activities with relevant stakeholders. The institutional capacities of the NOU will be reinforced through training on technical aspects such as project management, logical framework, project Cycle and gender mainstreaming. The NOU is committed to gender mainstreaming and will promote synergies between the recently approved KIP and HPMP projects.

The NOU is well established under the Ministry of Environment and Natural Resources with clear roles and responsibilities. The legislation that is already in place ensures that the NOU can conduct its responsibilities. Continuous trainings for NOU staff can further help to strengthen the capacities of the NOU team and thus further contribute to the sustainability of the results.

Country:	Albania
Title:	Verification report of national consumption targets
Project Duration:	24 months
Project Budget:	US$ 30,000 (excl. 9% Agency Support Costs)
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Tourism and Environmental / National Ozone Unit (NOU)

Project Summary

Funding requirement for the preparation of verification report of national program is being requested in accordance with decision 92/21(c).

The HCFC Phase-out Management Plan, Stage II for Albania was approved in June 2020 at the 85th Meeting of Executive Committee of the Multilateral Fund for the implementation of the Montreal Protocol. The second tranche has been approved at the 91st meeting in December 2022 and the additional funding for energy efficiency under decision 89/6 was approved at the 93rd meeting in December 2023. As per the agreement between the country and the Multilateral Fund, the next tranche request under this project is due at the first meeting in 2026. The verification report will be submitted with the 2026 tranche.

Decision 92/21 (c): *'To request the Secretariat, in line with decision 61/46, to select, from the 92nd meeting onwards, in consultation with the bilateral and implementing agencies, a sample of 20 per cent of the low-volume-consuming countries with ongoing HPMPs for the purpose of verifying those countries' compliance with their HPMP Agreements between the country's Government and the Executive Committee, and to request the bilateral and implementing agencies acting as lead agencies for the respective Agreements to include the related costs of verification in their work programmes submitted at the same meeting.*

Country:	Armenia
Title:	Verification report of national consumption targets
Project Duration:	24 months
Project Budget:	US$ 30,000 (excl. 9% Agency Support Costs)
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Environment / National Ozone Unit (NOU)

Project Summary

Funding requirement for the preparation of verification report of national program is being requested in accordance with decision 92/21(c).

The HCFC Phase-out Management Plan, Stage II for Armenia has been completed in December 2021. HPMP Stage III has been submitted for consideration to the 96th ExCom meeting taking place in May 2025. In the proposal, three tranches are foreseen, namely in 2025, 2027 and 2030. Funding is being requested to conduct verification report to be submitted jointly with the second tranche request in 2027, on the condition that the HPMP Stage will be approved at the 96th meeting.

Decision 92/21 (c): *'To request the Secretariat, in line with decision 61/46, to select, from the 92nd meeting onwards, in consultation with the bilateral and implementing agencies, a sample of 20 per cent of the low-volume-consuming countries with ongoing HPMPs for the purpose of verifying those countries' compliance with their HPMP Agreements between the country's Government and the Executive Committee, and to request the bilateral and implementing agencies acting as lead agencies for the respective Agreements to include the related costs of verification in their work programmes submitted at the same meeting.*