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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-seventh Meeting
Montreal, 28 June-2 July 2021[1]

PROJECT PROPOSAL: GHANA

This document consists of the comments and recommendation of the Secretariat on the following project proposal:

Phase-out

- HCFC phase-out management plan (stage II, first tranche) UNDP and UNEP

[1] Online meetings and an intersessional approval process will be held in June and July 2021 due to coronavirus disease (COVID-19).

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

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
GHANA

(I) PROJECT TITLE	AGENCY
HCFC phase-out plan (stage II)	UNDP (lead), UNEP

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2020	15.97 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									**Year:** 2020
Chemical	Aerosol	Foam	Fire-fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22					15.20				15.20
HCFC-142b					0.77				0.77

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	57.30	Starting point for sustained aggregate reductions:	57.30
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	26.27	Remaining:	31.03

(V) BUSINESS PLAN		2021	2022	2023	Total
UNDP	ODS phase-out (ODP tonnes)	5.59	0	0	5.59
	Funding (US $)	521,818	0	0	521,818
UNEP	ODS phase-out (ODP tonnes)	1.10	0	0	1.10
	Funding (US $)	108,480	0	0	108,480

(VI) PROJECT DATA			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Montreal Protocol consumption limits			37.21	37.21	37.21	37.21	18.61	18.61	18.61	18.61	18.61	0.00	n/a
Maximum allowable consumption (ODP tonnes)			20.00	16.98	15.00	15.00	12.00	8.50	8.50	8.50	5.00	0.00	n/a
Projects costs requested in principle (US $)	UNDP	Project costs	459,820	0	0	236,545	0	0	350,580	0	0	113,025	1,159,970
		Support costs	32,187	0	0	16,558	0	0	24,541	0	0	7,912	81,198
	UNEP	Project costs	112,569	0	0	160,569	0	0	135,569	0	0	50,000	458,707
		Support costs	14,634	0	0	20,874	0	0	17,624	0	0	6,500	59,632
Total project costs requested in principle (US $)			572,389	0	0	397,114	0	0	486,149	0	0	163,025	1,618,677
Total support costs requested in principle (US $)			46,821	0	0	37,432	0	0	42,165	0	0	14,412	140,830
Total funds requested in principle (US $)			619,210	0	0	434,546	0	0	528,314	0	0	177,437	1,759,507

(VII) Request for approval of funding for the first tranche (2021)		
Agency	**Funds requested (US $)**	**Support costs (US $)**
UNDP	459,820	32,187
UNEP	112,569	14,634
Total	572,389	46,821

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

Background

1. On behalf of the Government of Ghana, UNDP as the lead implementing agency has submitted a request for stage II of the HCFC phase-out management plan (HPMP), at a total cost of US $1,774,273, consisting of US $1,172,405, plus agency support costs of US $82,068 for UNDP, and US $460,000, plus agency support costs of US $59,800 for UNEP, as originally submitted.[2] The implementation of stage II of the HPMP will phase out the remaining consumption of HCFCs by 2030.

2. The first tranche of stage II of the HPMP being requested at this meeting amounts to US $1,018,434, consisting of US $713,135, plus agency support costs of US $49,919 for UNDP, and US $226,000, plus agency support costs of US $29,380 for UNEP, as originally submitted.

Status of implementation of stage I of the HPMP

3. Stage I of the HPMP for Ghana was originally approved at the 61st meeting[3] and revised at the 67th meeting,[4] to meet the 35 per cent reduction from the baseline by 2020, at a total cost of US $1,356,311, plus agency support costs, to phase out 26.27 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector. Stage I of the HPMP will be completed by December 2021.

HCFC consumption

4. The Government of Ghana reported a consumption of 15.97 ODP tonnes of HCFC in 2020, which is 72 per cent below the HCFC baseline for compliance and 57 per cent below the target in the Montreal Protocol. The 2016-2020 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Ghana (2016-2020 Article 7 data)

HCFC	2016	2017	2018	2019	2020	Baseline
Metric tonnes						
HCFC-22	318.37	311.60	305.23	298.18	276.41	774.90
HCFC-142b*	15.90	36.70	16.07	11.45	11.86	225.05
Total (mt)	**334.27**	**348.30**	**321.30**	**309.63**	**288.27**	**999.95**
ODP tonnes						
HCFC-22	17.51	17.14	16.79	16.40	15.20	42.62
HCFC-142b*	1.03	2.39	1.05	0.74	0.77	14.63
Total (ODP tonnes)	**18.54**	**19.53**	**17.84**	**17.14**	**15.97**	**57.30**

* Contained in the blend R-406A, which is 55 per cent HCFC-22, 41 per cent HCFC-142b and 4 per cent R-600a.

5. The HCFC consumption has been decreasing gradually due to the implementation of the HPMP including enforcement of import controls of HCFCs, training of technicians in good servicing practices, provision of tools and equipment and awareness raising on HCFC phase-out, and the introduction of alternative technologies on the market, mainly based on HFCs and a small amount of hydrocarbon (HC) refrigerants. Based on the data collected during the preparation of stage II of the HPMP, in 2019, HCFCs accounted for 53.2 per cent of the total refrigerant used, followed by HFCs (R-410A: 23.4 per cent; HFC-134a: 21.1 per cent; and R-404A: 1.6 per cent). HC and other miscellaneous refrigerants account for 0.7 per cent.

[2] As per the letter of 11 March 2021 from the Environmental Protection Agency of Ghana to UNDP.
[3] UNEP/OzL.Pro/ExCom/61/58.
[4] Annex 11 of UNEP/OzL.Pro/ExCom/67/39.

CP implementation report

6. The Government of Ghana reported HCFC sector consumption data under the 2020 CP implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol.

Status of progress and disbursement

Legal framework

7. The Government of Ghana has established a licensing and quota system for the imports and exports of HCFCs, HCFC-based equipment and a general control on import of all refrigerants including HFCs through registration of importers. It also promulgated regulations to prohibit the import of used RAC equipment under the Energy Efficiency Regulation that went into effect in 2012. In 2016, the Environment Protection Agency issued guidelines on the use of HC refrigerants to facilitate their safe introduction into the country. Mandatory certification of technicians has started in stage I with technicians handling HC refrigerants and will be further developed and fully implemented in stage II. Ghana also follows the Harmonized Regulation on ozone-depleting substance (ODS) management of the Economic Commission of West African States (ECWAS), collaborating with other countries to control HCFC imports and exports.

8. The Government has implemented a policy initiative to include tax incentive and disincentive features in legal document LI 1812 to favour the introduction of low-global warming potential (GWP), and zero-ODP refrigerants. This legal document is being reviewed to extend it to HFCs.

9. In 2017, the Government launched a project to introduce a computerized import control system, which connects customs with the national ozone unit (NOU), and enhances communications between the Customs department and the NOU. Matters related to the Montreal Protocol and the protection of the ozone layer has been integrated into the training of customs officers to ensure the sustainability of training. In stage I, six refrigerant identifiers were provided to customs officers to facilitate the identification of refrigerant and a total of 606 customs officers were trained in import control of ODS.

10. In stage I, the following activities were implemented:

(a) Two professional training institutions and three excellence centres were supported to provide systematic training and technical support to technicians; three trainers and 778 technicians have been trained in good servicing practices and the safe handling of alternatives, including conversion of HCFC-22-based air-conditioners (ACs) to R-290; and a certification system for servicing technicians is being developed based on the practice used in managing the conversion of equipment to HCs;

(b) Equipment and tools were provided to two training institutions, three excellence centres and 11 service workshops to facilitate the introduction of RAC equipment based on HC refrigerants and to enhance efficiency in technician training; and a total of 10,202 units of ACs were converted to R-290; and

(c) A handbook for good servicing practices and safe handling of flammable refrigerants (1,500 copies) was distributed to end-users to raise awareness on the transition to low-GWP alternatives, and training for end-users has been planned for the sixth tranche.

11. The HPMP was implemented by the project management unit (PMU) and technically supported by consultants. In stage I, a total of US $318,847 was used to support the PMU (consultants at US $240,762, and travel and development of the online HCFC monitoring system at US $78,085).

12. As of March 2021, of the US $1,356,311 approved, US $1,202,077 (89 per cent) had been disbursed (US $911,260 for UNDP, and US $290,817 for the Government of Italy). A balance of US $154,234 will be disbursed in 2021-2022.

Completion of stage I

13. Stage I was planned to be completed by the end of 2021 as per paragraph 14 of the Agreement. The implementation of the sixth tranche is progressing while observing the health protocols under the COVID-19 pandemic. It is hoped that the cases of COVID-19 will continue to decline and the implementation of the activities in stage I will be completed on time. However, the situation in the country could change and lead to unanticipated delays caused by the pandemic. In view of uncertainties in implementation, the Government of Ghana has requested a six-month extension of stage I until 30 June 2022. The project completion report for stage I of the HPMP will be submitted to the second meeting in 2022.

Stage II of the HPMP

Remaining eligible consumption for funding

14. After deducting 26.27 ODP tonnes of HCFCs associated with stage I of the HPMP, the remaining consumption eligible for funding in stage II amounts to 31.03 ODP tonnes of HCFC-22.

Sector distribution of HCFCs

15. There are approximately 3,350 technicians and 920 workshops (520 in the formal sector and 400 in the informal sector), consuming mainly HCFC-22 (91 per cent) and a small amount of R-406a[5] (9 per cent) in servicing RAC equipment, as shown in Table 2. HCFC-22 used in AC (window and split units) applications accounts for 90.3 per cent of total HCFC consumption; R-406a used in mobile AC and domestic refrigeration applications accounts for 9.3 per cent with the remaining HCFCs consumed in commercial AC and refrigeration applications.

Table 2. Sectoral distribution of HCFC-22 and R-406A in Ghana in 2019*

Sectors/Sub-sectors	No of units	Unit charge (kg)	Total installed refrigerant (kg)	Leakage rate (%)	Consumption (mt)		Consumption (ODP tonnes)	
					HCFC-22	R-406A	Total	Share (%)
Domestic refrigeration	1,396,500	0.1	139.65	2		2.79	0.16	0.93
Commercial and industrial refrigeration	70	23	1.61	30	0.48		0.03	0.16
Process chiller	34	17.5	0.60	22	0.13		0.01	0.04
Self-contained (window) unit	5,059	1.05	5.31	25	1.33		0.07	0.43
Single split unit (non-ducted)	952,601	1.2	1,143.12	23	262.92		14.46	85.01
Multi split (VRV/VRF)	36	9.5	0.34	35	0.12		0.01	0.04
Single split unit (ducted)	19,820	3.76	74.52	20	14.90		0.82	4.82
Rooftop packaged (ducted)	121	7.51	0.91	31	0.28		0.02	0.09
Comfort AC chiller	24	40.15	0.96	22	0.21		0.01	0.07
Small vehicle AC (saloon car, light commercial)	59,394	0.57	33.85	33		11.17	0.64	3.74
Large vehicle AC (bus)	6,848	6.18	42.32	33		13.97	0.79	4.67
Total	**2,440,507**		**1,443.20**		**280.38**	**27.93**	**17.01**	**100.00**

* The import in 2019 is higher than the estimated demand as additional import was put in stock.

[5] A refrigerant blend with the composition of 55 per cent HCFC-22, 41 per cent HCFC-142b and 9 per cent R-290.

16. HCFCs account for approximately 53 per cent of total refrigerant use in Ghana and is mainly used in the AC sub-sector with single split non-ducted ACs consuming 85 per cent of total HCFCs. While the HCFC-based ACs are being phased out, R-410A-based split ACs are growing rapidly. In 2019, approximately 1.2 million units of R-410A-based ACs were imported, which was over 300 per cent of the quantities imported in 2018.

Phase-out strategy and activities planned for stage II of the HPMP

17. The Government of Ghana proposes to achieve a 67.5 per cent reduction in HCFC consumption baseline by 2025, and complete phase-out of HCFCs by 2030, with a servicing tail from 2030 to 2040. The Government will ban the import of HCFC-based equipment by 2026 and ban the import of all HCFCs by 2033. The remaining HCFC consumption will be phased out through the promotion and adoption of low-GWP alternatives in synergy with activities under the Kigali Amendment for HFC phase-down. In supporting this strategy, import control and policy measures will be put in place to facilitate the uptake of R-290 refrigerant.

18. Based on the results in the implementation of the retrofitting programme to convert HCFC-22 based ACs to R-290 during stage I, the Government of Ghana decided to continue the programme in stage II, as one of the important pillars for HCFC phase-out and the transition to low-GWP technologies.

19. In addition, activities on the promotion of low-GWP alternatives to HCFCs, raising the awareness of key stakeholders, and providing training in the RAC sector, will be implemented. The lessons learned and infrastructure established during the implementation of stage I will be utilized in stage II.

20. Stage II proposes the following activities:

(a) Upgrading the safety guidelines for the use of HC refrigerants to enforceable standards to improve safety in the handling and use of flammable refrigerants (UNEP) (US $25,000);

(b) Developing a training manual, training 20 trainers and 600 customs officers in identifying refrigerants, controlling imports of HCFCs and preventing illegal trade (UNEP) (US $75,000); and procuring 10 refrigerant identifiers (UNDP) (US $62,400);

(c) Strengthening the capacity of workshop owners and the RAC practitioners' association (NARWOA) through seminars to enhance effectiveness in mobilizing its members, and encouraging its members to conduct good servicing practices, provision of office equipment and reliable internet (UNEP, US $20,000) (UNDP, US $130,000);

(d) Awareness-raising and training activities for 200 Government officials, architects, engineers, and procurement officers on alternative technologies to HCFCs, low-GWP cooling systems, maintaining/improving energy efficiency of RAC systems (UNEP) (US $100,000);

(e) Awareness creation and information dissemination for 950 importers, distributors and retailers of controlled substances and equipment through meetings and seminars on alternative technologies and global trends for phasing out controlled substances (UNEP) (US $90,000);

(f) Providing support to four centres of excellence in the training of 1,400 technicians in good servicing practices and safe handling of HC refrigerants through the provision of equipment and tools (e.g., recovery station, leak detector, charging machine, brazing equipment, various tools) (UNDP) (US $100,000);

(g) Providing support for five universities by training trainers and providing equipment and tools (service kits for HC, identifiers and portable recycling machines) to facilitate the inclusion in the curriculum of safe handling of flammable refrigerants and the training of 1,500 technicians (UNDP) (US $230,500);

(h) Implementing a certification programme for RAC technicians in collaboration with the Council for Vocational Educational Training (COTVET), covering all aspects of good RAC practices and the safe use of HC refrigerants (UNEP) (US $60,000);

(i) Providing equipment and tools (e.g., recovery station, leak detector, charging machine, brazing equipment, various tools) to 50 workshops to enable improved apprenticeship training of 450 technicians in refrigerant recovery and recycling, and retrofitting to HC refrigerants (UNDP, US $196,500) (UNEP, US $50,000);

(j) Supporting the Refrigeration and Air-Conditioning Engineers Association of Ghana (RAAG) in participating at international meetings, subscription to technical literature, and organizing national workshops and seminars; upgrading the office facilities to improve networking with its members (UNDP, US $50,000) (UNEP, US $10,000);

(k) Establishing two refrigerant reclamation centers through provision of equipment and tools (e.g., storage tanks, reclamation unit, scales, vacuum pump, leak detectors, refrigerant identifiers, testing equipment) to reclaim recovered refrigerants for use in the same category of appliances; (UNDP) (US $140,000);

(l) Continue implementing an end-user incentive programme targeting major RAC end-users for the adoption of low-GWP technologies, including sponsorship to relevant international seminars or trade fairs, familiarization visits to similar enterprises, seed money to catalyze the adoption of mature environmentally sound technologies or to organize special technical seminar/workshops to promote mature low-GWP technologies (UNDP, US $75,000) (UNEP, US $30,000); and

(m) Establishing a R-290 refrigerant bank to ensure a sustainable and affordable supply of R-290 refrigerant for AC service workshops to support the adoption and market penetration of R-290 technology (UNDP) (US $40,000).

Project implementation and monitoring

21. The system established under stage I of the HPMP will continue into stage II. A national consultant will be employed to provide technical support, coordinate the project and report to the NOU. An international consultant will provide policy and technical advice. The NOU and UNDP will monitor activities, report on progress, and work with stakeholders to phase out HCFCs. The cost of those activities amounts to US $148,005 for stage II (consultants (US $137,700) and travel (US $10,295))

Gender policy implementation[6]

22. In stage II, gender mainstreaming will be integrated into the detailed design, implementation, monitoring and evaluation of the HPMP. Gender equality will be emphasized in the implementation of various activities, including policy development, training and the decision-making process. In particular, it

[6] Decision 84/92(d) requested bilateral and implementing agencies to apply the operational policy on gender mainstreaming throughout the project cycle.

is planned to train minimum 150 female technicians in the RAC apprentice training in stage II. Gender disaggregated data will be collected.

Total cost of stage II of the HPMP

23. The total cost of stage II of the HPMP for Ghana has been estimated at US $1,623,405 (plus agency support costs), as originally submitted for achieving a 67.5 per cent reduction from its HCFC baseline consumption by 2025 and 100 per cent reduction by 2030. The proposed activities and cost breakdown are summarized in Table 3.

Table 3. Total cost of stage II of the HPMP for Ghana as submitted

No.	Description of activity	Agency	Cost (US $)
1.0	**Establishment of the regulatory environment**		
1.1	Upgrading the safety guidelines for the use of HC refrigerants	UNEP	25,000
2.0	**Focused awareness-raising/capacity-building of target groups**		
2.1	Training of 20 trainers and 600 customs officers in ODS import control and preventing illegal trade	UNEP	75,000
2.2	Purchasing 13 refrigerant identifiers	UNDP	62,400
2.3	Strengthening the capacity of NARWOA by conducting workshops/seminars, encouraging its members to conduct good servicing practices; provision of computers and reliable internet	UNEP	20,000
		UNDP	130,000
2.4	Awareness-raising and training activities on alternative technologies to HCFCs, low-GWP cooling systems, and maintaining/improving the energy efficiency of RAC systems	UNEP	100,000
2.5	Awareness and information dissemination on alternative technologies for importers, distributors and retailers of controlled substances and equipment	UNEP	90,000
3.0	**Training and certification of technicians in RAC servicing**		
3.1	Providing support to four centres of excellence in the training of 1400 technicians in good servicing practices and the safe handling of flammable refrigerants through the provision of equipment and tools	UNDP	100,000
3.2	Providing support for five universities by training trainers and providing equipment and tools to facilitate the inclusion in the curriculum of safe handling of flammable refrigerants and the training of 1,500 technicians	UNDP	230,500
3.3	Implementing the certification of RAC technicians	UNEP	60,000
4.0	**Recovery, recycling and training programme**		
4.1	Providing equipment and tools to 50 workshops and training of 450 technicians in refrigerant recovery and recycling, and retrofitting to HC refrigerants	UNDP	196,500
		UNEP	50,000
4.2	Supporting the RAAG in participating in international meetings, subscribing to technical literature and organizing national workshops and seminars; upgrading office facilities to improve networking with its members;	UNDP	50,000
		UNEP	10,000
4.3	Establishing two refrigerant reclamation centres	UNDP	140,000
5.0	**End-user incentive project to facilitate the adoption of environmentally sound alternative technologies**		
5.1	End-user incentive programme targeting major RAC end-users, supporting participation in international seminars or trade fairs, study tours to similar enterprises, seed money to catalyze the adoption of environment-friendly technologies	UNDP	75,000
		UNEP	30,000
5.3	Establishing a R-290 refrigerant bank to ensure sustainable supply of R-290 refrigerant	UNDP	40,000
6.0	**Project management, monitoring and reporting**	UNDP	148,005
	Total		**1,632,405**

Activities planned for the first tranche of stage II

24. The first tranche of stage II of the HPMP at the total amount of US $939,135 will be implemented between July 2021 and June 2024 and will include the following activities:

(a) Upgrading the safety guidelines for the use of HC refrigerants to enforceable standard to improve safety in handling flammable refrigerant (UNEP) (US $25,000);

(b) Training of customs officers in HCFC import control and the prevention of illegal imports (UNDP, US $24,960) (UNEP, US $30,000);

(c) Strengthening the capacity of NARWOA through leadership and professional development seminars for its members, encouraging its members to conduct good servicing practices, provision of computers and reliable internet (UNEP, US $10,000) (UNDP, US $80,000);

(d) Awareness-raising and training activities for Government officials, architects, engineers, and procurement officers on maintaining/improving energy efficiency and low-GWP cooling systems for green building designs; for importers and distributers of HCFCs and equipment on alternative technologies and global trends for phasing out controlled substances (UNEP) (US $89,000);

(e) Supporting four centres of excellence and five technical universities in the training of technicians through the provision of equipment and tools (e.g., recovery station, leak detector, charging machine, brazing equipment, service tools, identifiers and portable recycling machines) (UNDP, US $270,500); implementing certification of technicians (UNEP, US $24,000);

(f) Establishing a reclamation center; providing equipment and tools (recovery station, leak detector, charging machine, brazing equipment, various tools) to 50 workshops and training in refrigerant recovery and recycling; and supporting RAAG (UNDP, US $217,900) (UNEP, US $30,000);

(g) End-user incentive programme for the adoption of energy-efficient, cost-effective low-GWP technologies; activities include to sponsor major end-users to relevant international seminars or trade fairs, study tours to similar enterprises, seed money to catalyze the adoption of mature low-GWP technologies (UNDP, US $30,000) (UNEP, US $18,000);

(h) Establishing a bank of R-290 refrigerant to ensure a sustainable and affordable supply of R-290 for AC service workshops to support the adoption and market penetration of R-290 technology (UNDP) (US $24,000); and

(i) Project implementation and monitoring (UNDP) (US $65,775): consultants US $61,200; and domestic travel: US $4,575.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

25. The Secretariat reviewed stage II of the HPMP in light of the implementation of stage I of the HPMP, the policies and guidelines of the Multilateral Fund, including the criteria for funding HCFC phase-out in the consumption sector for stage II of HPMPs (decision 74/50), and the 2021-2023 business plan of the Multilateral Fund.

Overarching strategy

26. The Government of Ghana established the maximum allowable levels of consumption of HCFCs under the Agreement for stage II at lower levels (i.e., from 20 ODP tonnes in 2021 to zero consumption in 2030) than those allowed by the Montreal Protocol. In reviewing the phase-out schedule proposed by the Government, the Secretariat noted that through the implementation of stage I, the Government was able to reduce its baseline consumption by 70 per cent, and discussed with UNDP on considering a more stringent phase-out schedule for stage II. After several discussions, UNDP indicated that the Government agreed on an accelerated phase-out schedule as shown in Table 4.

Table 4. Maximum allowable consumption targets in stage II of the HPMP for Ghana

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Maximum allowable level under the Montreal Protocol	37.21	37.21	37.21	37.21	18.61	18.61	18.61	18.61	18.61	0.00
As originally proposed by the Government	20.00	20.00	15.00	15.00	15.00	12.00	12.00	12.00	8.00	0.00
As agreed	20.00	16.98	15.00	15.00	12.00	8.50	8.50	8.50	5.00	0.00
Percentage of baseline (%)	65	70	74	74	79	85	85	85	91	100

27. Ghana will completely phase out HCFCs by 2030 with a servicing tail up to 2040, but the ban on imports of HCFC-based equipment will only be implemented from 1 January 2026. The Secretariat enquired about how the servicing demand after 2030 will be met given that the usual lifespan of RAC equipment is 10 years. UNDP explained that the Government will apply a quota control on the imports of HCFC-22-based equipment no later than 1 January 2023 to gradually reduce their imports. Specifically, the Government will freeze the import quota for HCFC-22-based split ACs at 11,450 units in 2022 (2019 level), and reduce it to 5,725 units in 2023 and zero in 2025. After taking into consideration the Secretariat's comments, the Government adjusted the timeline for the ban on imports of HCFC-based equipment from 1 January 2026 to 1 January 2025. The servicing demand in the period from 2030 to 2040 will be met with the allowance for the servicing tail consistent with Article 5, paragraph 8 ter(e)(i) of the Montreal Protocol.[7]

28. In line with decision 86/51 on the matter of servicing tail, to allow for consideration of the final tranche of its HPMP, the Government of Ghana agreed to submit a detailed description of the regulatory and policy framework in place to implement measures to ensure that HCFC consumption would be in compliance with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol for the 2030-2040 period. The Government also agreed to submit the expected annual HCFC consumption in Ghana for the 2030-2040 period.

Technical and cost-related issues

Retrofitting from HCFC-22-based ACs to R-290

29. The Secretariat noted that retrofitting HCFC-22-based ACs to R-290 was proposed in stage II. Further noting that the Executive Committee had provided clear policy guidance[8] on retrofitting issues in decision 72/41, the Secretariat reiterated that the promotion of HC technology should be through the introduction of new R-290-based units rather than retrofitting. UNDP responded that new R-290-based equipment is still not widely and easily available in Ghana. It is the Government's policy to use retrofitting as one of the pillars of HCFC phase-out to complement the promotion of new R-290 imports. The conversion conducted in stage I and the certification system for technicians provide assurance to manufacturers of R-290 equipment to introduce new R-290-based equipment into Ghana.

30. The Secretariat further noted that as Ghana has not yet put in place import controls on HCFC-based equipment, retrofitting HCFC-22-based ACs to R-290 would not necessarily result in a reduction in the total population of HCFC-22 ACs in the country at this stage. Although retrofitting was implemented in stage I, the penetration of R-290 in the country is still very limited. Given the clear policy guidance from the Executive Committee on this issue, and in order to achieve better use of the funding available, it was agreed that the retrofitting component should be completely removed. Instead, stage II will focus on, *inter alia*, training in the safety aspects of adopting R-290 technologies, the provision of tools and equipment to enable training in the safe handling of flammable refrigerants, and the certification of technicians.

[7] HCFC consumption may exceed zero in any year so long as the sum of its calculated levels of consumption over the ten-year period from 1 January 2030 to 1 January 2040 divided by 10, does not exceed 2.5 per cent of the HCFC baseline.

[8] Decisions 72/41, 73/34, 84/84.

Establishment of R-290 bank

31. With regard to establishing a bank for R-290 refrigerant, UNDP clarified that the establishment of a R-290 bank was intended to support the conversion/retrofitting to R-290 equipment. Due to the lower charge ratio and lower demand for R-290 refrigerant, its import has currently not been commercially attractive for importers as a business venture. The conversion/retrofitting from HCFC-22 to R-290 suffered as a result of lack of supply of R-290. The Secretariat considers that this activity supports retrofitting HCFC-22 ACs to R-290, and therefore is not consistent with the existing guidelines of the Executive Committee. It was agreed to remove it from stage II. Instead, funding would be used for training custom officers and technicians and provision of equipment and tools.

End-user incentive programme

32. With regard to the end-user incentive/demonstration programme, it was intended to support entrepreneurs to attend international seminars/trade fairs, visit similar enterprises so that they could familiarize themselves with the emerging technologies; provide seed money to catalyze the adoption of alternatives; and attend technical seminars/workshops for exchanging technical information. After further exploring the details, the Government modified the plan and decided to focus on R-290 replacement activity to promote its uptake in the stationary AC sector, and on organizing seminars and disseminating information on critical RAC alternative technologies. The plan includes purchasing 71 units of R-290 ACs to replace HCFC-22-based units at a hostel facility, evaluating the energy efficiency performance (co-funding by the Government of Ghana), preparing awareness-raising materials based on the result of the evaluation, and conducting workshops/seminars and awareness-raising activities to disseminate the outcomes. The demonstration is expected to showcase the R-290 technology to end-users, provide data demonstrating its advantage in energy saving, increase awareness about and adoption of R-290 technologies and avoid a growth in imports of R-410A-based ACs.

33. The Secretariat noted that 94 per cent of the HCFC consumption in Ghana is in the stationary AC sector and it appears reasonable to have an incentive/demonstration activity to promote R-290 technology in this sector. However, currently the situation in Ghana does not meet some of the conditions required in decisions 28/44 and 84/84 for conducting the end-user incentive/demonstration project, as import controls for HCFC-based equipment have yet to be put in place and the price of HCFC-22 (US $4.6/kg) is still much lower than R-290 (US $10.4/kg). UNDP clarified that the Government planned several regulatory measures to create an enabling environment for the adoption of low-GWP technologies, including reducing tariffs on imports of refrigerant and products based on R-290 and increasing the relevant tariff for HCFC-22 and high-GWP refrigerants (R-404A, R-407C, R-410A, R-507C); reducing import quotas for HCFC-22-based ACs; and banning imports of HCFC-22-based ACs from 1 January 2025. The detailed plan for the end-user incentive project will be submitted in the second tranche when all the conditions in decisions 28/44 and 84/84(b) have been met.

<u>Total project cost and the revised plan</u>

34. The total funding originally requested for the implementation of stage II of the HPMP was calculated based on the 2019 consumption of 17.14 ODP tonnes, which is less than the remaining eligible consumption of 31.03 ODP tonnes for Ghana after the implementation of stage I. The 2020 consumption data was reported as 15.97 ODP tonnes under Article 7 of the Montreal Protocol. UNDP emphasized that the consumption in 2020 might not reflect the actual demand for HCFCs due to the COVID-19 pandemic and that HCFC consumption could increase when the economy starts to recover.

35. The Secretariat noted that HCFC consumption in Ghana has been gradually decreasing; the consumption in 2019 is only 30 per cent of the baseline and largely reflects the actual demand in the country. Considering the possible impact of the COVID-19 pandemic on the consumption level in 2020, it was agreed to use the average consumption from 2018 to 2020 as a basis for establishing the funding eligibility

of stage II of the HPMP. Accordingly, funding was calculated at US $1,618,725, based on a consumption of 306.40 mt (16.98 ODP tonnes) of HCFC-22 (at US $4.8/kg), plus US $148,005 for the PMU.

36. The Secretariat further noted that a few funding items related to NARWOA (e.g., provision of computers and internet access) and RAAG (to upgrading office facilities) were included as project costs as these institutions will provide assistance to the NOU in the implementation of the certification programme for technicians and other activities under the HPMP. The Secretariat considers that the support to NARWOA and RAAG, as institutions that will play a key role in the implementation of the HPMP, should be included under the PMU budget (US $18,000).

37. UNDP subsequently reduced the funding requested from the Fund to US $1,618,677. The total cost of stage II of the HPMP was adjusted to US $1,633,677 including co-funding of US $15,000 for the implementation of stage II of the HPMP, as shown in Table 5.

Table 5. Revised cost and plan of stage II of the HPMP for Ghana

No.	Description of activity	Agency	Revised
1.0	**Establishment of the regulatory environment**		
1.1	Establishing policy and regulations, updating safety guidelines for the use of HC refrigerants	UNEP	25,000
2.0	**Focused awareness-raising/capacity-building of target groups**		
2.1	Training of 20 trainers and 600 customs officers in ODS import control and the prevention of illegal trade	UNEP	75,000
2.2	Purchasing 13 refrigerant identifiers	UNDP	62,150
2.3	Strengthening the capacity of NARWOA by conducting professional workshops/seminars to encourage its members to conduct good servicing practices	UNEP	20,000
		UNDP	130,000
2.4	Awareness-raising and training activities on alternative technologies to HCFCs, low-GWP cooling systems, and maintaining/improving the energy efficiency of RAC systems	UNEP	100,000
2.5	Awareness creation and information dissemination on alternative technologies for importers, distributors and retailers of controlled substance and equipment	UNEP	90,000
3.0	**Training and certification of technicians in RAC servicing**		
3.1	Providing support for four centres of excellence in the training of 1,400 technicians in good servicing practices and the safe handling of flammable refrigerants through the provision of equipment and tools;	UNDP	100,000
3.2	Providing support for five universities by training trainers and providing equipment and tools to facilitate the inclusion in the curriculum of safe handling of flammable refrigerants and the training of 1,500 technicians	UNDP	239,315
3.3	Implementing the certification of RAC technicians	UNEP	58,707
4.0	**Recovery, recycling and training programme**		
4.1	Providing equipment and tools to 50 workshops and training of 450 technicians in refrigerant recovery and recycling, and retrofitting to HC refrigerants	UNDP	230,500
		UNEP	50,000
4.2	Supporting the RAAG in participating in international meetings, subscribing to technical literature and organizing national workshops and seminars	UNDP	50,000
		UNEP	10,000
4.3	Establishing two refrigerant reclamation centers	UNDP	140,000
5.0	**Facilitating the adoption of R-290 technology and environmentally sound alternative technologies**		
5.1	Demonstrating R-290 AC technology by replacing 71 units of HCFC-22 AC with R-290-based ACs in a hostel, communicating and disseminating the results and raising awareness on R-290 technology	UNDP	60,000
		UNEP	30,000
6.0	**Project management, monitoring and reporting**	**UNDP**	**148,005**
	Total		**1,618,677**

38. The plan for the first tranche of stage II was revised as follows:

(a) Upgrading the safety guidelines for the use of HC refrigerants to an enforceable standard to improve safety in the handling of flammable refrigerant (UNEP) (US $25,000);

(b) Employing a consultant to prepare the customs training manuals; and printing 50 copies of the training manuals (UNEP) (US $5,000);

(c) Strengthening the capacity of NARWOA to encourage its members to conduct good servicing practice: employing consultants to prepare seminars, checklists and inspection manuals; and printing 100 copies of the inspection manuals (UNEP, US $10,000) (UNDP, US $10,000);

(d) Conducting workshops for stakeholders, importers, distributers and retailers on proposed policy measures including quotas and bans on imports of split ACs (HCFC-22-based and R-410-based) (UNEP) (US $25,000);

(e) Procuring tools and equipment for four centres of excellence and five technical universities (e.g., recovery station, leak detector, charging machine, brazing equipment, service tools, identifiers and portable recycling machines) (UNDP) (US $254,758);

(f) Implementing certification of technicians: employing an international consultant to train 25 trainers for certification programme; conducting one workshop for 60 participants on certification process; coordinating and engaging stakeholders (UNEP) (US $37,569);

(g) Preparing a servicing and training manual for the apprenticeship training programme to be conducted by 50 workshops; printing 1,000 copies of the manuals (UNEP) (US $10,000); purchasing 15 servicing kits (five full servicing kits including servicing HC refrigerants) for training workshops (UNDP) (US $60,250);

(h) Supporting the RAAG's participation in international conferences related to alternative technologies and its membership in professional organizations (UNDP) (US $10,000);

(i) Establishing and operating a refrigerant reclaim centre to support a refrigerant recovery, recycling and training programme (UNDP) (US $70,000); and

(j) Project implementation and monitoring (UNDP) (US $54,812): consultants (US $33,000); domestic travel (US $3,812); office equipment for NARWOA (US $9,000) and RAAG (US $9,000).

Impact on the climate

39. The proposed activities in the servicing sector, which include better containment of refrigerants through training and the provision of equipment, will reduce the amount of HCFC-22 used for RAC servicing. Each kilogramme of HCFC-22 not emitted due to better refrigeration practices results in savings of approximately 1.8 CO_2-equivalent tonnes. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Ghana, including its efforts to train and certify technicians in refrigerant recovery, recycling and reuse, as well as the promotion of low-GWP alternatives, indicate that the implementation of the HPMP will reduce the emission of refrigerants into the atmosphere, resulting in climate benefits.

Co-financing

40. The Government will provide co-funding of US $15,000 for the implementation of stage II. Several projects implemented by other international agencies, including the Kigali Cooling Efficiency programme, Green Climate Fund, Kigali First Movers, Basel Agency for sustainable Energy and the Millennium Development Authority, targeted at improving the energy efficiency of RAC appliances and replacing inefficient RAC appliances, have had an indirect impact on HCFC phase-out.

2021-2023 draft business plan of the Multilateral Fund

41. UNDP and UNEP are requesting US $1,618,677, plus agency support costs, for the implementation of stage II of the HPMP for Ghana. The total requested value of US $619,210, including agency support costs for the 2021-2023 period, is US $11,088 below the amount in the business plan.

Draft Agreement

42. A draft Agreement between the Government of Ghana and the Executive Committee for the phase-out of HCFCs in stage II of the HPMP is contained in Annex I to the present document.

RECOMMENDATION

43. The Executive Committee may wish to consider:

(a) Approving the request for extension of the implementation of stage I of the HPMP to 30 June 2022 noting that no further extension would be requested;

(b) Requesting the Government of Ghana to submit an updated progress report for stage I of the HPMP, as well as a verification report on HCFC consumption to the 88th meeting and a project completion report to the second meeting of 2022;

(c) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for Ghana for the period from 2021 to 2030 for the complete phase-out of HCFC consumption, in the amount of US $1,759,507, consisting of US $1,159,970, plus agency support costs of US $81,198 for UNDP, and US $458,707, plus agency support costs of US $59,632 for UNEP, on the understanding that no more funding would be provided from the Multilateral Fund for the phase-out of HCFCs;

(d) To note the commitment of the Government of Ghana:

(i) To reduce HCFC consumption by 70 per cent of the country's baseline by 2022, 74 per cent by 2023, 79 per cent by 2025, 85 per cent by 2026, 91 per cent by 2029 and to phase out HCFCs completely by 1 January 2030, and that HCFC would not be imported after that date, except for those allowed for a servicing tail between 2030 and 2040 where required, consistent with the provisions of the Montreal Protocol;

(ii) To ban the import of HCFC-based equipment by 1 January 2025;

(iii) To ban the import of all HCFCs by 1 January 2033;

(e) Deducting 31.03 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;

(f) Approving the draft Agreement between the Government of Ghana and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage II of the HPMP, contained in Annex I to the present document;

(e) That, to allow for consideration of the final tranche of its HPMP, the Government of Ghana should submit:

(i) A detailed description of the regulatory and policy framework in place to implement measures to ensure that HCFC consumption was in compliance with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol for the period 2030-2040; and

(ii) The expected annual HCFC consumption in Ghana for the period 2030-2040; and

(f) Approving the first tranche of stage II of the HPMP for Ghana, and the corresponding tranche implementation plans, in the amount of US $619,210, consisting of US $459,820, plus agency support costs of US $32,187 for UNDP, and US $112,569, plus agency support costs of US $14,634 for UNEP.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF GHANA AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS IN ACCORDANCE WITH STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN

Purpose

1. This Agreement represents the understanding of the Government of Ghana (the "Country") and the Executive Committee with respect to the reduction of controlled use of the ozone depleting substances (ODS) set out in Appendix 1-A ("The Substances") to a sustained level of zero ODP tonnes by 1 January 2030 in compliance with Montreal Protocol schedule.

2. The Country agrees to meet the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A ("The Targets, and Funding") in this Agreement as well as in the Montreal Protocol reduction schedule for all Substances mentioned in Appendix 1-A. The Country accepts that, by its acceptance of this Agreement and performance by the Executive Committee of its funding obligations described in paragraph 3, it is precluded from applying for or receiving further funding from the Multilateral Fund in respect to any consumption of the Substances that exceeds the level defined in row 1.2 of Appendix 2-A as the final reduction step under this Agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances that exceeds the level defined in rows 4.1.3 and 4.2.3 (remaining consumption eligible for funding).

3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees, in principle, to provide the funding set out in row 3.1 of Appendix 2-A to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A ("Funding Approval Schedule").

4. The Country agrees to implement this Agreement in accordance with the stage II of the HCFC phase-out management plan (HPMP) approved ("the Plan"). In accordance with sub-paragraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A of this Agreement. The aforementioned verification will be commissioned by the relevant bilateral or implementing agency.

Conditions for funding release

5. The Executive Committee will only provide the Funding in accordance with the Funding Approval Schedule when the Country satisfies the following conditions at least eight weeks in advance of the applicable Executive Committee meeting set out in the Funding Approval Schedule:

(a) That the Country has met the Targets set out in row 1.2 of Appendix 2-A for all relevant years. Relevant years are all years since the year in which this Agreement was approved. Years for which there are no due country programme implementation reports at the date of the Executive Committee meeting at which the funding request is being presented are exempted;

(b) That the meeting of these Targets has been independently verified for all relevant years, unless the Executive Committee decided that such verification would not be required;

(c) That the Country had submitted a Tranche Implementation Report in the form of Appendix 4-A ("Format of Tranche Implementation Reports and Plans") covering each previous calendar year; that it had achieved a significant level of implementation of

activities initiated with previously approved tranches; and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent; and

(d) That the Country has submitted a Tranche Implementation Plan in the form of Appendix 4-A covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen.

Monitoring

6. The Country will ensure that it conducts accurate monitoring of its activities under this Agreement. The institutions set out in Appendix 5-A ("Monitoring Institutions and Roles") will monitor and report on implementation of the activities in the previous Tranche Implementation Plans in accordance with their roles and responsibilities set out in the same appendix.

Flexibility in the reallocation of funds

7. The Executive Committee agrees that the Country may have the flexibility to reallocate part or all of the approved funds, according to the evolving circumstances to achieve the smoothest reduction of consumption and phase-out of the Substances specified in Appendix 1-A:

(a) Reallocations categorized as major changes must be documented in advance either in a Tranche Implementation Plan as foreseen in sub-paragraph 5(d) above, or as a revision to an existing Tranche Implementation Plan to be submitted eight weeks prior to any meeting of the Executive Committee, for its approval. Major changes would relate to:

(i) Issues potentially concerning the rules and policies of the Multilateral Fund;

(ii) Changes which would modify any clause of this Agreement;

(iii) Changes in the annual levels of funding allocated to individual bilateral or implementing agencies for the different tranches;

(iv) Provision of funding for activities not included in the current endorsed Tranche Implementation Plan, or removal of an activity in the Tranche Implementation Plan, with a cost greater than 30 per cent of the total cost of the last approved tranche; and

(v) Changes in alternative technologies, on the understanding that any submission for such a request would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable, as well as confirm that the Country agrees that potential savings related to the change of technology would decrease the overall funding level under this Agreement accordingly;

(b) Reallocations not categorized as major changes may be incorporated in the approved Tranche Implementation Plan, under implementation at the time, and reported to the Executive Committee in the subsequent Tranche Implementation Report; and

(c) Any remaining funds held by the bilateral or implementing agencies or the Country under the Plan will be returned to the Multilateral Fund upon completion of the last tranche foreseen under this Agreement.

Considerations for the refrigeration servicing sector

8. Specific attention will be paid to the execution of the activities in the refrigeration servicing sector included in the Plan, in particular:

(a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation; and

(b) The Country and relevant bilateral and/or implementing agencies would take into consideration relevant decisions on the refrigeration servicing sector during the implementation of the Plan.

Bilateral and implementing agencies

9. The Country agrees to assume overall responsibility for the management and implementation of this Agreement and of all activities undertaken by it or on its behalf to fulfil the obligations under this Agreement. UNDP has agreed to be the lead implementing agency (the "Lead IA") and UNEP has agreed to be the cooperating implementing agency (the "Cooperating IA") under the lead of the Lead IA in respect of the Country's activities under this Agreement. The Country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of the Lead IA and/or Cooperating IA taking part in this Agreement.

10. The Lead IA will be responsible for ensuring co-ordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to independent verification as per sub-paragraph 5(b). The Cooperating IA will support the Lead IA by implementing the Plan under the overall co-ordination of the Lead IA. The roles of the Lead IA and Cooperating IA are contained in Appendix 6-A and Appendix 6-B, respectively. The Executive Committee agrees, in principle, to provide the Lead IA and the Cooperating IA with the fees set out in rows 2.2 and 2.4 of Appendix 2-A.

Non-compliance with the Agreement

11. Should the Country, for any reason, not meet the Targets for the elimination of the Substances set out in row 1.2 of Appendix 2-A or otherwise does not comply with this Agreement, then the Country agrees that it will not be entitled to the Funding in accordance with the Funding Approval Schedule. At the discretion of the Executive Committee, funding will be reinstated according to a revised Funding Approval Schedule determined by the Executive Committee after the Country has demonstrated that it has satisfied all of its obligations that were due to be met prior to receipt of the next tranche of funding under the Funding Approval Schedule. The Country acknowledges that the Executive Committee may reduce the amount of the Funding by the amount set out in Appendix 7-A ("Reductions in Funding for Failure to Comply") in respect of each ODP kg of reductions in consumption not achieved in any one year. The Executive Committee will discuss each specific case in which the Country did not comply with this Agreement, and take related decisions. Once decisions are taken, the specific case of non-compliance with this Agreement will not be an impediment for the provision of funding for future tranches as per paragraph 5 above.

12. The Funding of this Agreement will not be modified on the basis of any future Executive Committee decisions that may affect the funding of any other consumption sector projects or any other related activities in the Country.

13. The Country will comply with any reasonable request of the Executive Committee, the Lead IA and the Cooperating IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating IA with access to the information necessary to verify compliance with this Agreement.

Date of completion

14. The completion of the Plan and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption level has been specified in Appendix 2-A. Should at that time there still be activities that are outstanding, and which were foreseen in the last Tranche Implementation Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion of the Plan will be delayed until the end of the year following the implementation of the remaining activities. The reporting requirements as per sub-paragraphs 1(a), 1(b), 1(d), and 1(e) of Appendix 4-A will continue until the time of the completion of the Plan unless otherwise specified by the Executive Committee.

Validity

15. All of the conditions set out in this Agreement are undertaken solely within the context of the Montreal Protocol and as specified in this Agreement. All terms used in this Agreement have the meaning ascribed to them in the Montreal Protocol unless otherwise defined herein.

16. This Agreement may be modified or terminated only by mutual written agreement of the Country and the Executive Committee of the Multilateral Fund.

APPENDICES

APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reductions in consumption (ODP tonnes)
HCFC-22	C	I	42.6
HCFC-142b	C	I	14.7
Total	C	I	57.3

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	37.21	37.21	37.21	37.21	18.61	18.61	18.61	18.61	18.61	0.00	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	20.00	16.98	15.00	15.00	12.00	8.50	8.50	8.50	5.00	0.00	n/a
2.1	Lead IA (UNDP) agreed funding (US $)	459,820	0	0	236,545	0	0	350,580	0	0	113,025	1,159,970
2.2	Support costs for Lead IA (US $)	32,187	0	0	16,558	0	0	24,541	0	0	7,912	81,198
2.3	Cooperating IA (UNEP) agreed funding (US $)	112,569	0	0	160,569	0	0	135,569	0	0	50,000	458,707
2.4	Support costs for Cooperating IA (US$)	14,634	0	0	20,874	0	0	17,624	0	0	6,500	59,632
3.1	Total agreed funding (US $)	572,389	0	0	397,114	0	0	486,149	0	0	163,025	1,618,677
3.2	Total support costs (US $)	46,821	0	0	37,432	0	0	42,165	0	0	14,412	140,830
3.3	Total agreed costs (US $)	619,210	0	0	434,546	0	0	528,314	0	0	177,437	1,759,507
4.1.1	Total phase-out of HCFC 22 agreed to be achieved under this Agreement (ODP tonnes)											29.41
4.1.2	Phase-out of HCFC 22 to be achieved in the previous stage (ODP tonnes)											13.19
4.1.3	Remaining eligible consumption for HCFC 22 (ODP tonnes)											0
4.2.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)											1.62

Row	Particulars	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
4.2.2	Phase-out of HCFC-142b to be achieved in the previous stage (ODP tonnes)											13.08
4.2.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)											0

*Date of completion of stage I as per stage I Agreement: 30 June 2022.

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the first meeting of the year specified in Appendix 2-A.

APPENDIX 4-A: FORMAT OF TRANCHE IMPLEMENTATION REPORTS AND PLANS

1. The submission of the Tranche Implementation Report and Plans for each tranche request will consist of five parts:

(a) A narrative report, with data provided by tranche, describing the progress achieved since the previous report, reflecting the situation of the Country in regard to phase-out of the Substances, how the different activities contribute to it, and how they relate to each other. The report should include the amount of ODS phased out as a direct result from the implementation of activities, by substance, and the alternative technology used and the related phase-in of alternatives, to allow the Secretariat to provide to the Executive Committee information about the resulting change in climate relevant emissions. The report should further highlight successes, experiences, and challenges related to the different activities included in the Plan, reflecting any changes in the circumstances in the Country, and providing other relevant information. The report should also include information on and justification for any changes vis-à-vis the previously submitted Tranche Implementation Plan(s), such as delays, uses of the flexibility for reallocation of funds during implementation of a tranche, as provided for in paragraph 7 of this Agreement, or other changes;

(b) An independent verification report of the Plan results and the consumption of the Substances, as per sub-paragraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification has to be provided together with each tranche request and will have to provide verification of the consumption for all relevant years as specified in sub-paragraph 5(a) of the Agreement for which a verification report has not yet been acknowledged by the Committee;

(c) A written description of the activities to be undertaken during the period covered by the requested tranche, highlighting implementation milestones, the time of completion and the interdependence of the activities, and taking into account experiences made and progress achieved in the implementation of earlier tranches; the data in the plan will be provided by calendar year. The description should also include a reference to the overall Plan and progress achieved, as well as any possible changes to the overall Plan that are foreseen. The description should also specify and explain in detail such changes to the overall plan. This description of future activities can be submitted as a part of the same document as the narrative report under sub-paragraph (b) above;

(d) A set of quantitative information for all Tranche Implementation Reports and Plans, submitted through an online database; and

(e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).

2. In the event that in a particular year two stages of the HPMP are being implemented in parallel, the following considerations should be taken in preparing the Tranche Implementation Reports and Plans:

(a) The Tranche Implementation Reports and Plans referred to as part of this Agreement, will exclusively refer to activities and funds covered by this Agreement; and

(b) If the stages under implementation have different HCFC consumption targets under Appendix 2-A of each Agreement in a particular year, the lower HCFC consumption target will be used as reference for compliance with these Agreements and will be the basis for the independent verification.

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The monitoring process will be managed by the Environmental Protection Agency of Ghana through the national ozone unit (NOU) with the assistance of the Lead IA.

2. The consumption will be monitored and reported based on official import and export data for the Substances recorded by relevant government departments.

3. The NOU shall compile and report the following data and information on an annual basis:

(a) Annual reports on consumption of the Substances to be submitted to the Ozone Secretariat; and

(b) Annual reports on progress of implementation of the HPMP to be submitted to the Executive Committee of the Multilateral Fund;

4. The Lead IA will engage an independent and qualified entity/consultant to carry out a qualitative and quantitative performance evaluation of the HPMP implementation including the independent verification of the national consumption against the targets set out in the Agreement. The evaluating entity/consultant shall have full access to relevant technical and financial information related to the implementation of the HPMP.

5. The evaluating entity/consultant shall prepare and submit to the NOU and the Lead IA, a consolidated draft report at the end of each annual implementation plan, comprising the findings of the evaluation and recommendations for improvements or adjustments, if any. The draft report shall include the status of the Country's compliance with the provisions of this Agreement.

6. Upon incorporating the comments and explanations, as may be applicable, from the NOU and Lead IA, the evaluating entity/consultant shall finalize the report and submit it to the Lead IA.

7. The Lead IA shall submit the progress report including the independent verification report to the relevant meeting of the Executive Committee along with the annual implementation plan and reports.

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for a range of activities, including at least the following:

(a) Ensuring performance and financial verification in accordance with this Agreement and with its specific internal procedures and requirements as set out in the Country's HPMP;

(b) Assisting the Country in preparation of the Tranche Implementation Reports and Plans as per Appendix 4-A;

(c) Providing independent verification to the Executive Committee that the Targets have been met and associated tranche activities have been completed as indicated in the Tranche Implementation Plan consistent with Appendix 4-A;

(d) Ensuring that the experiences and progress is reflected in updates of the overall plan and in future Tranche Implementation Plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;

(e) Fulfilling the reporting requirements for the Tranche Implementation Reports and Plans and the overall plan as specified in Appendix 4-A for submission to the Executive Committee, and should include the activities implemented by the Cooperating IA;

(f) In the event that the last funding tranche is requested one or more years prior to the last year for which a consumption target had been established, annual tranche implementation reports and, where applicable, verification reports on the current stage of the Plan should be submitted until all activities foreseen had been completed and HCFC consumption targets had been met;

(g) Ensuring that appropriate independent technical experts carry out the technical reviews;

(h) Carrying out required supervision missions;

(i) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;

(j) Co-ordinating the activities of the Cooperating IA, and ensuring appropriate sequence of activities;

(k) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country and the Cooperating IA, the allocation of the reductions to the different budget items and to the funding of the Lead IA and each Cooperating IA;

(l) Ensuring that disbursements made to the Country are based on the use of the indicators;

(m) Providing assistance with policy, management and technical support when required;

(n) Reaching consensus with the Cooperating IA on any planning, co-ordination and reporting arrangements required to facilitate the implementation of the Plan; and

(o) Timely releasing funds to the Country/participating enterprises for completing the activities related to the project.

2. After consultation with the Country and taking into account any views expressed, the Lead IA will select and mandate an independent entity to carry out the verification of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement and sub-paragraph 1(b) of Appendix 4-A.

APPENDIX 6-B: ROLE OF THE COOPERATING IMPLEMENTING AGENCIES

1. The Cooperating IA will be responsible for a range of activities. These activities are specified in the Plan, including at least the following:

(a) Providing assistance for policy development when required;

(b) Assisting the Country in the implementation and assessment of the activities funded by the Cooperating IA, and refer to the Lead IA to ensure a co-ordinated sequence in the activities;

(c) Providing reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A; and

(d) Reaching consensus with the Lead IA on any planning, co-ordination and reporting arrangements required to facilitate the implementation of the Plan.

APPENDIX 7-A: REDUCTIONS IN FUNDING FOR FAILURE TO COMPLY

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US $190.62 per ODP kg of consumption beyond the level defined in row 1.2 of Appendix 2-A for each year in which the target specified in row 1.2 of Appendix 2-A has not been met, on the understanding that the maximum funding reduction would not exceed the funding level of the tranche being requested. Additional measures might be considered in cases where non-compliance extends for two consecutive years.

2. In the event that the penalty needs to be applied for a year in which there are two Agreements in force (two stages of the HPMP being implemented in parallel) with different penalty levels, the application of the penalty will be determined on a case-by-case basis taking into consideration the specific sectors that lead to the non-compliance. If it is not possible to determine a sector, or both stages are addressing the same sector, the penalty level to be applied would be the largest.