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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-first Meeting
Montreal, 18-22 June 2018

PROJECT PROPOSAL: GHANA

This document consists of the comments and recommendation of the Secretariat with regard to the following project proposal:

Phase-out

- HCFC phase-out management plan (stage I, fifth tranche)

UNDP and the
Government of Italy

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Ghana

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out management plan (stage I)	UNDP (lead), Government of Italy	61 st	35% by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2017	19.53 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2017	
Chemical	Aerosol	Foam	Fire-fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Serviceing				
HCFC-22					17.14				17.14
HCFC-142b					2.39				2.39

(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		2018	2019	Total
UNDP	ODS phase-out (ODP tonnes)	2.42	2.35	4.77
	Funding (US \$)	134,375	130,409	264,784
Government of Italy	ODS phase-out (ODP tonnes)	1.16	0	1.16
	Funding (US \$)	67,800	0	67,800

(VI) PROJECT DATA		2010	2012	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits		n/a	n/a	57.30	51.57	51.57	51.57	51.57	51.57	37.25	n/a
Maximum allowable consumption (ODP tonnes)		n/a	n/a	57.30	51.57	51.57	51.57	51.57	51.57	37.25	n/a
Agreed funding (US \$)	UNDP										
	Project costs	200,000	200,000	190,000	0	195,000	0	125,000	121,311	0	1,031,311
	Support costs	15,000	15,000	14,250	0	14,625	0	9,375	9,098	0	77,348
	Government of Italy										
	Project costs	70,000	60,000	70,000	0	65,000	0	60,000	0	0	325,000
	Support costs	9,100	7,800	9,100	0	8,450	0	7,800	0	0	42,250
Funds approved by ExCom (US \$)	Project costs	270,000	260,000	260,000	0	260,000	0	0			1,050,000
	Support costs	24,100	22,800	23,350	0	23,075	0	0			93,325
Total funds requested for approval at this meeting (US \$)	Project costs							185,000			185,000
	Support costs							17,175			17,175

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Ghana, UNDP, as lead implementing agency, has submitted a request for funding for the fifth tranche of stage I of the HCFC phase-out management plan (HPMP), at a total cost of US \$202,175, consisting of US \$125,000, plus agency support costs of US \$9,375 for UNDP, and US \$60,000, plus agency support costs of US \$7,800, for the Government of Italy.¹ The submission includes a progress report on implementation of the fourth tranche, the verification report on HCFC consumption for 2016 to 2017 and the tranche implementation plan for 2018 to 2019.

Report on HCFC consumption

2. The Government of Ghana reported consumption of 19.53 ODP tonnes of HCFC in 2017, which is 66 per cent below the HCFC baseline for compliance. HCFC consumption for 2013–2017 is shown in Table 1.

Table 1. HCFC consumption in Ghana (2013–2017 Article 7 data)

HCFC	2013	2014	2015	2016	2017	Baseline
Metric tonnes						
HCFC-22	418.29	384.70	384.70	318.37	311.6	774.90
HCFC-142b*	36.72	33.58	33.58	15.9	36.7	225.05
Total (mt)	455.01	418.28	418.28	334.27	348.30	999.95
ODP tonnes						
HCFC-22	23.00	21.16	21.16	17.51	17.14	42.62
HCFC-142b*	2.39	2.18	2.18	1.03	2.39	14.63
Total (ODP tonnes)	25.39	23.34	23.34	18.54	19.53	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.

3. The country uses HCFC solely for servicing refrigeration and air-conditioning (RAC) equipment. HCFC-142b has been used in the blend R-406A to replace CFC-12. Reduction in HCFC consumption is associated with the enforcement of the licensing and quota system and the activities implemented under the HPMP. In addition, as HFC and more hydrocarbon (HC)-based RAC equipment are being introduced into the country, HCFC consumption has been gradually decreasing.

Country programme (CP) implementation report

4. In its 2017 CP implementation report, the Government of Ghana reported HCFC sector consumption data consistent with the data reported under Article 7 of the Montreal Protocol.

Verification report

5. The verification report confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total HCFC consumption in 2016 and 2017 was 18.56 and 19.52 ODP tonnes, respectively. The very small difference between the verification data and the reported data is due to rounding. The verification concluded that Ghana is in compliance with the Montreal Protocol control targets.

¹ As per the letter of 19 April 2018 from the Environmental Protection Agency of Ghana to the Secretariat.

Progress report on the implementation of the fourth tranche of the HPMP

Legal framework

6. Ghana has established a licensing and quota system for HCFCs. In 2008, it also banned the import of used appliances based on all refrigerants, including refrigerators, freezers and air-conditioners, under the Energy Efficiency Act. In 2016, the Environment Protection Agency issued guidelines on the use of HC refrigerants that deal with the safe introduction of HC technologies in the country. Ghana also follows the Harmonized Regulation on ODS management of the Economic Commission of West African States, collaborating with other countries to control HCFC imports and exports.

Refrigeration servicing sector

7. The following activities were implemented during the fourth tranche:

- (a) Establishment of a panel of experts to review the existing legal framework for a technician certification scheme (work is in progress);
- (b) Training of 14 trainers and 210 customs officers in the control and identification of HCFCs and HCFC-based equipment in seven customs stations, and distribution of 13 refrigerant identifiers;
- (c) Training of 160 inspectors, fire-fighting officials, distributors, importers and sales personnel in the safe handling of HCs;
- (d) Upgrading of two technical institutes into training centres through the provision of equipment (e.g. refrigerant circuit board, servicing tools for demonstration); the training centres will be used to conduct training courses for technicians, engineers and students;
- (e) Training of 120 technicians in good servicing practices and safe use of HC refrigerants; development of a technician certification system for servicing with HCs and other natural refrigerants, in collaboration with the Council for Technical and Vocational Education and Training (COTVET);
- (f) Safe retrofit of 4,009 residential air-conditioners to HC-290 and recovery of approximately 6.94 mt of HCFC-22; this brings the total for stage I to 8,980 units safely retrofitted to R-290 and 17.92 mt of HCFC-22 recovered; and
- (g) Implementation of an end-user incentive programme for the retrofit of 20 pieces of commercial and industrial refrigeration equipment (condensing units) to R-407C.

Project implementation and monitoring unit

8. Two consultants have been employed to monitor and support the HPMP implementation. UNDP has coordinated activities to ensure implementation efficiency.

Level of fund disbursement

9. As at April 2018, of the US \$1,050,000 approved so far, US \$956,860 had been disbursed (US \$754,002 for UNDP and US \$202,858 for the Government of Italy) as shown in Table 2. The balance of US \$93,140 will be disbursed during implementation of the fifth tranche.

Table 2. Financial report of stage I of the HPMP for Ghana (US \$)

Tranche		UNDP	Italy	Total	Disbursement rate (%)
First tranche	Approved	200,000	70,000	270,000	100
	Disbursed	200,000	70,000	270,000	
Second tranche	Approved	200,000	60,000	260,000	100
	Disbursed	200,000	60,000	260,000	
Third tranche	Approved	190,000	70,000	260,000	94
	Disbursed	190,000	53,828	243,828	
Fourth tranche	Approved	195,000	65,000	260,000	70
	Disbursed	164,002	19,031	183,033	
Total	Approved	785,000	265,000	1,050,000	91
	Disbursed	754,002	202,858	956,860	

Implementation plan for the fifth tranche of the HPMP

10. The following activities will be implemented between July 2018 and July 2019:
- (a) Training of 200 customs officers in the identification and control of HCFC imports; and provision of five refrigerant identifiers (Government of Italy) (US \$31,630);
 - (b) Provision of a circuit board to one training centre; upgrade of the quick reference guide; and development of a certification scheme (UNDP) (US \$16,800);
 - (c) Training and certification of 400 technicians in good serving practices, refrigerant recovery and reuse through nine workshops in collaboration with COTVET (Government of Italy) (US \$18,226);
 - (d) Subcontracting to retrofitting centres of retrofits of HCFC-based equipment to HC-290 technology (UNDP) (US \$7,883);
 - (e) Implementation of the end-user incentive programme to replace HCFC-22-based RAC equipment with alternative technologies (UNDP) (US \$72,000); and
 - (f) Monitoring and coordination (Government of Italy and UNDP) (US \$10,144 and US \$28,317, respectively).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

11. The HPMP for Ghana was approved at the 61st meeting when limited information was available to determine accurate consumption levels for baseline years. The Government reported consumption of 77.3 ODP tonnes for 2009 and forecast 10 per cent growth thereafter. Nevertheless, it agreed to set the starting point at 49.5 ODP tonnes (861.1 mt) using the average of 21.6 ODP tonnes and 77.3 ODP tonnes reported for 2008 and 2009, respectively. The funding level for stage I was calculated on that basis. When the HPMP was approved, the Government agreed² not to seek more funding if the starting point is adjusted upwards using the actual import data for 2010. At the 67th meeting, the starting point and baseline were further adjusted to 57.3 ODP tonnes using the actual reported consumption of 37.2 ODP tonnes for 2010, without a change to the funding level.³

12. During review of the request for the fifth tranche, the Secretariat noted that HCFC consumption has been between 20 and 30 ODP tonnes for every year between 2006 and 2017, except 2009 and 2010 when much higher amounts were imported. HCFC consumption decreased substantially between 2009 and 2010, further dropped to 30.7 ODP tonnes in 2011, then gradually decreased over the following years, reaching 19.52 ODP tonnes in 2017. UNDP has explained that it is owing to the lower quota enforced since 2011. Moreover the actual imports from 2011 to 2017 (30.70 to 19.53 ODP tonnes) were significantly lower than the quota issued (900 mt), indicating that HCFC demand was lower than the quota.

13. UNDP has explained that HCFC consumption is made up of HCFC-22 and an HCFC blend (R-406A). Increasing use of R-406A as a drop-in replacement for CFC-12 began in 2007 and in 2009, there was a speculative import of a large consignment of R-406A, which led the Government to take measures to control its import. However, import of R-406A continued to grow until the end of 2012. The Secretariat notes, however that during the implementation of CFC phase-out programme, CFC consumption decreased to 4.2, 0.0 and 3.4 ODP tonnes in 2007, 2008 and 2009, respectively.

14. After further discussions, it was agreed that the analysis of HCFC consumption in baseline years and its relationship to the starting point will be addressed during preparation of stage II of the HPMP. UNDP will ensure that the issue is analysed fully during the preparatory process.

Progress report on the implementation of the fourth tranche of the HPMP

Legal framework

15. The Secretariat noted that Ghana had banned imports of second-hand HCFC-based RAC equipment and enquired whether the Government would consider banning the import of new HCFC-based equipment. UNDP explained that used HCFC-based ACs account for more than 90 per cent of total imports. The Government considers a ban on new HCFC-based ACs to be premature at present, as stage I of the HPMP has yet to be completed and such a ban could lead to a surge in imports of HFC-based ACs. The Government will further consider this matter during the preparation of stage II in order to make an informed decision about a ban as part of the revised legal framework, particularly within the implementation of the Kigali Amendment.

² Project evaluation sheet and paragraphs 13 to 15 of document UNEP/OzL.Pro/ExCom/61/39.

³ Decision 67/25.

16. The Government of Ghana has already issued an HCFC import quota for 2018 of 45.4 ODP tonnes (810 mt), which is lower than the Montreal Protocol control targets.

Refrigeration servicing sector

17. In line with decision 76/46(b)⁴, UNDP submitted the verification report for 2015, which, *inter alia*, indicated that the guidelines for the use of HC refrigerants had been prepared by the committee for regulatory framework. UNDP further informed that the Environmental Protection Agency of Ghana and national stakeholders had endorsed the guidelines and sent a copy of the Guidelines to the Secretariat. The Guidelines have been enforced ever since to ensure safe conversion to HCs. The national ozone unit carries out regular inspections and closely monitors the retrofitting process conducted by 11 authorized retrofitting centres.

18. The Secretariat notes that, through the end-user incentive programme, HCFC-based commercial refrigeration equipment has been retrofitted to R-407C (global warming potential (GWP) of 1,774), at US \$99.7/kg, owing to the lack of low-GWP technologies for this type of equipment. A similar end-user incentive programme has also been proposed in the fifth tranche. The Secretariat raised with UNDP concerns about the approach adopted for the end-user programme owing to the high GWP HFCs used for retrofitting given that the reported consumption level in the country has been much lower than the HCFC baseline for compliance. UNDP explained that an end-user incentive programme for retrofitting large equipment had been planned and was being implemented as part of the approved HPMP. Retrofitting to R-407C avoids the use of R-404A, which has a GWP of 3,922. After a lengthy discussion, the Government agreed to revise the plan for the fifth tranche. Of the US \$72,000 planned for the end-user incentive programme, US \$20,000 have been reprogrammed for 10 workshops on the introduction of low-GWP alternatives in the industrial refrigeration and commercial AC sectors; US \$10,000 to explore low-GWP alternatives suitable for the end-user programme and to develop strategies to address HCFC consumption in large equipment. The remaining US \$42,000 will be used within the sixth tranche, either for end-user incentive programme when the strategies to address consumption in the industrial refrigeration and commercial AC sector become clear or to fund other HCFC phase-out activities.

Conclusion

19. The Government is enforcing a licensing and quota system for the import and export of HCFCs, and consumption in 2017 is below the control targets of the Montreal Protocol and those stipulated in the Agreement with the Executive Committee. A large number of customs officers have been trained and refrigerant identifiers have been provided to enable close monitoring of imports. Training and equipment have been provided to technicians and the certification of technicians is being implemented. Guidelines for the use of HC refrigerants have been endorsed by the Government and industrial stakeholders to ensure safety, and conversions of residential ACs to R-290 are being safely implemented. The Government has conducted retrofits of large commercial refrigeration equipment to R-407C through an end-user incentive programme, but this has been adjusted in the fifth tranche to promote low-GWP technologies. The disbursement of funding for the fourth tranche reached 70 per cent. The progress achieved so far and the activities implemented under the fourth tranche will ensure the long-term sustainability of the achievements under stage I of the HPMP.

⁴ To approve the fourth tranche for Ghana on the understanding that the funds would not be transferred to UNDP or the Government of Italy until the Secretariat has received the verification report for 2015 confirming that the country was in compliance with the Protocol targets; and that the regulatory environment for the safe use of HC refrigerants was in place.

RECOMMENDATION

20. The Executive Committee may wish to consider:
- (a) Noting the progress report on implementation of the fourth tranche of stage I of the HCFC phase-out management plan (HPMP) in Ghana; and
 - (b) Approving the fifth tranche of stage I of the HPMP for Ghana, and the corresponding 2018–2019 tranche implementation plan, at the amount of US \$202,175 consisting of US \$125,000, plus agency support costs of US \$9,375 for UNDP; and US \$60,000, plus agency support costs of US \$7,800 for the Government of Italy, on the understanding that:
 - (i) The consumption level and starting point will be reviewed when stage II of the HCFC phase-out management plan is submitted; and
 - (ii) US \$42,000 that was originally planned for end-user incentive programme would be used within the sixth tranche for end-user conversion to low-global warming potential (GWP) technologies or other activities to promote HCFC conversion to low-GWP alternatives.
-