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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-sixth Meeting
Montreal, 2-6 November 2020
Postponed to 8-12 March 2021¹

PROJECT PROPOSAL: ECUADOR

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) UNIDO and UNEP

¹ 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

ECUADOR

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

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2019	14.03 (ODP tonnes)
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(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2019	
Chemical	Aerosol	Foam	Fire-fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22					13.27				13.27
HCFC-123					0.01				0.01
HCFC-141b					0.74				0.74
HCFC-141b in imported pre-blended polyols		11.20							11.20

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	23.49	Starting point for sustained aggregate reductions:	44.16
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	28.03	Remaining:	16.13

(V) BUSINESS PLAN		2020	2021	2022	After 2022	Total
UNIDO	ODS phase-out (ODP tonnes)	2.00	0.0	2.00	0.60	4.60
	Funding (US \$)	120,000	0	120,000	73,957	313,957
UNEP	ODS phase-out (ODP tonnes)	1.50	0.0	0.0	1.55	3.05
	Funding (US \$)	56,366	0	0	152,858	209,224

(VI) PROJECT DATA			2020	2021-2023	2024	2025-2026	2027	2028-2029	2030	Total
Montreal Protocol consumption limits			15.27	15.27	15.27	7.63	7.63	7.63	0	n/a
Maximum allowable consumption (ODP tonnes)			15.27	15.27	15.27	7.63	7.63	7.63	0	n/a
Projects costs requested in principle (US \$)	UNIDO	Project costs	268,750	0	376,250	0	234,500	0	195,500	1,075,000
		Support costs	18,813	0	26,338	0	16,415	0	13,685	75,250
	UNEP	Project costs	24,000	0	31,000	0	21,000	0	19,000	95,000
		Support costs	3,120	0	4,030	0	2,730	0	2,470	12,350
Total project costs requested in principle (US \$)			292,750	0	407,250	0	255,500	0	214,500	1,170,000
Total support costs requested in principle (US \$)			21,933	0	30,368	0	19,145	0	16,155	87,600
Total funds requested in principle (US \$)			314,683	0	437,618	0	274,645	0	230,655	1,257,600

(VII) Request for approval of funding for the first tranche (2020)		
Agency	Funds requested (US \$)	Support costs (US \$)
UNIDO	268,750	18,813
UNEP	24,000	3,120
Total	292,750	21,933

Secretariat's recommendation:	Individual consideration
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PROJECT DESCRIPTION

Background

1. On behalf of the Government of Ecuador, UNIDO 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 \$1,257,100, consisting of US \$1,075,000 plus agency support costs of US \$75,250 for UNIDO, and US \$95,000 plus agency support costs of US \$12,350 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 \$403,279, consisting of US \$351,550 plus agency support costs of US \$24,609 for UNIDO, and US \$24,000 plus agency support costs of US \$3,120 for UNEP, as originally submitted.

Status of implementation of stage I of the HPMP

3. Stage I of the HPMP for Ecuador was originally approved at the 65th meeting,³ updated at the 70th meeting⁴ and revised again at the 81st meeting⁵ to achieve the 35 per cent reduction from the baseline by 2020, at a total cost of US \$2,393,159, plus agency support costs, to phase out 28.03 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing and in the foam manufacturing sectors. Stage I of the HPMP will be completed by December 2021.

HCFC consumption

4. The Government of Ecuador reported a consumption of 14.02 ODP tonnes of HCFC in 2019, which is 40.3 per cent below the HCFC baseline for compliance. The 2015-2019 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Ecuador (2015-2019 Article 7 data)

HCFC	2015	2016	2017	2018	2019	Baseline
Metric tonnes (mt)						
HCFC-22	347.10	310.21	288.95	243.00	241.21	382.27
HCFC-123	1.27	4.43	1.74	0.00	0.47	9.18
HCFC-124	0.44	0.30	0.54	0.26	0.00	9.99
HCFC-141b	8.70	9.91	19.73	19.06	6.70	7.84
HCFC-142b	0.27	0.18	0.33	0.15	0.00	18.45
Sub-total (mt)	357.78	325.03	311.29	262.47	248.38	427.73
HCFC-141b in imported pre-blended polyols*	142.56	181.07	118.09	131.29	101.79	187.91**
ODP tonnes						
HCFC-22	19.09	17.06	15.89	13.37	13.27	21.02
HCFC-123	0.03	0.09	0.03	0.00	0.01	0.18
HCFC-124	0.01	0.01	0.01	0.01	0.00	0.22
HCFC-141b	0.96	1.09	2.17	2.10	0.74	0.86
HCFC-142b	0.02	0.01	0.02	0.01	0.00	1.20
Sub-total (ODP tonnes)	20.10	18.26	18.13	15.49	14.02	23.49
HCFC-141b in imported pre-blended polyols*	15.68	19.92	12.99	14.44	11.20	20.67**

*Country programme (CP) data.

**Starting point established in the Agreement with the Executive Committee.

5. Consumption of HCFC-22 has gradually decreased since 2015 as a result of the activities implemented under the HPMP, including the enforcement of the HCFC import/export licensing and quota system, training of technicians and the promotion of alternative technologies in the RAC sector;

² As per the letter of 13 July 2020 from the Ministry of Production, Foreign Trade, Investment, and Fisheries (MPCEIP) of Ecuador to UNIDO.

³ Decision 65/25, preparatory document UNEP/OzL.Pro/ExCom/65/31.

⁴ Annex XV of UNEP/OzL.Pro/ExCom/70/59.

⁵ Annex XI of UNEP/OzL.Pro/ExCom/81/58.

introduction of non-HCFC-based RAC equipment into the market; and an economic slowdown. During 2017 and 2018, HCFC-141b consumption for flushing refrigeration circuits during servicing increased; however, this practice was discontinued as of 1 January 2020, following the ban on imports of pure HCFC-141b, with the use of nitrogen promoted as an alternative.

CP implementation report

6. The Government of Ecuador reported HCFC sector consumption data under the 2019 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. Through the implementation of stage I, the Government of Ecuador established a comprehensive regulatory system to control HCFCs, including an operational HCFC import licensing and quota system, and since August 2017 established an import licensing (no quota) system for HFC. The Government has also introduced the licensing information system in the i-PIC⁶ electronic portal developed by UNEP; established a ban on the manufacturing and import of HCFC-based air conditioners as of 1 June 2018; a ban on the manufacturing and import of domestic refrigeration equipment using HCFCs or HFCs in thermal insulation or as refrigerants, which came fully into force on 1 August 2020; and a ban on the import of HCFC-141b as a pure substance as of 1 January 2020. The Government is also committed to not issuing any import quotas for HCFC-141b contained in pre-blended polyols as of 1 January 2021, except for a maximum of 0.86 ODP tonnes (7.78 mt) for the spray foam sector for 2021. A total of 350 customs officers were trained between 2013 and 2020 and the National Customs Service of Ecuador (SENAE) has received three portable refrigerant identifiers with the capacity to identify multiple blends.

Manufacturing sector

8. During stage I, the largest domestic refrigeration enterprise (Induglob) converted from the use of 136 mt (14.96 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols as insulation foam to cyclopentane. It also converted from the use of HFC-134a for the refrigeration system to R-600a with its own funding.

9. The polyurethane (PU) foam sector plan to phase out 44.10 mt (4.85 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols, approved at the 81st meeting as part of stage I of the HPMP, is ongoing. One domestic refrigeration enterprise (Ecasa) has already completed the conversion of the foam insulation of panels to pre-blended hydrocarbon (HC) systems. The remaining assisted manufacturers of continuous and discontinuous foam panels and other commercial foam applications, except spray, will complete their conversions to low-global-warming-potential (GWP) alternatives (i.e., HFO, CO₂, pre-blended HC or water-based technologies) by the end of 2020. The PU spray foam sector (0.86 ODP tonnes) will phase out HCFC-141b by 1 January 2022.

Refrigeration servicing sector

10. Eighteen training centres from the Ecuadorian Professional Training Service (SECAP)⁷ and one additional technical institute were provided with equipment and tool kits. SECAP instructors and close to 1,000 technicians received training in good practices during the installation and maintenance of RAC systems and in the safe handling of flammable refrigerants. A RAC technician certification scheme was developed and will become operational during the second half of 2020. Twelve tool kits were distributed

⁶ Informal Prior Informed Consent online system provides member countries with a standardised and personalised access to key licensing system data.

⁷ The largest vocational training institute in Ecuador.

to assist the Government in declaring the Galapagos Islands free of ODS by 2020. A “Zero Leaks” pilot project was implemented to provide technical assistance to two large consumers in reducing HCFC-22 leaks, and in monitoring system performance and energy consumption associated with leakage control and good maintenance service.

11. Through a pilot project to demonstrate the safe use of R-290 in cold storage, a flower producer (Hilsea) replaced an HCFC-22-based system located in a cold room with an R-290-based system,⁸ resulting in an increase of around 20 per cent of the coefficient of performance and a reduction in energy consumption of 36 per cent; an estimated operational savings of US \$95,500 during the lifetime of the equipment (i.e., 15 years); and an estimated emission reduction of 41 per cent (1,501 tonnes of CO₂-equivalent) over the same period.

12. Since the approval of the fifth tranche in June 2020, UNIDO has obligated funds for the procurement of tools for training centres; the tools are being delivered and will be distributed. UNIDO has also held online meetings with SECAP to develop questionnaires, formats and checklists to evaluate and certify RAC technicians; a self-learning manual for technicians is being prepared and is expected to be completed by September 2020. E-training on good servicing practices is planned for technicians in Galapagos once the tools are available; and the second round of trials based on low-GWP blowing agents for the PU foam sector will be conducted during 2020.

Level of fund disbursement

13. As of August 2020, of the US \$2,393,159 approved under stage I (including US \$431,719 from the PU foam sector plan approved at the 81st meeting), US \$1,999,948 had been disbursed (US \$1,900,554 for UNIDO and US \$99,394 for UNEP). The balance of US \$393,211 (including US \$65,000 approved for the fifth (final) tranche) will be disbursed in 2020 and 2021.

Stage II of the HPMP

Remaining consumption eligible for funding

14. After deducting 28.03 ODP tonnes of HCFCs associated with stage I of the HPMP, the remaining consumption eligible for funding in stage II amounts to 16.13 ODP tonnes of HCFCs (i.e., 13.66 ODP tonnes of HCFC-22, 0.18 ODP tonnes of HCFC-123, 1.20 ODP tonnes of HCFC-142b, 0.22 ODP tonnes of HCFC-124 and 0.86 ODP tonnes of HCFC-141b contained in imported pre-blended polyols).

Sector distribution of HCFCs

15. There are approximately 2,700 technicians and 238 workshops consuming HCFCs (mostly HCFC-22) to service commercial refrigeration equipment (stand-alone units, condensers, centralized systems), industrial refrigeration equipment, residential and commercial air-conditioning (AC), chillers and other equipment (milk tanks and industrial AC), as shown in Table 2. HCFC-22 represents 23 per cent of the refrigerants used in the servicing sector, while HFC-134a and R-410A account for 28 and 23 per cent, respectively, of consumption in the sector.

⁸ Flammability risk assessment was performed in accordance with refrigeration safety standard EN-378 and hazardous areas standard EN-1127-1.

Table 2. Estimation of demand for HCFC-22 in the RAC servicing sector in Ecuador

Sector/applications	Equipment inventory	Refrigerant charged (mt)	Leakage rate (%)	Consumption (mt)
Commercial refrigeration (mostly condenser units)	8,040	120.60	20	24.12
Industrial refrigeration	3,446	241.20	20	48.24
Residential AC	1,378,286	964.80	10	96.48
Commercial AC	160,800	482.40	10	48.24
Chillers	804	60.30	20	12.06
Others (milk tanks and industrial AC)	22,440	60.30	20	12.06
Total	1,573,816	1,929.60		241.20

16. During stage II, spray foam users with a maximum eligible consumption of 0.86 ODP tonnes (7.78 mt) of HCFC-141b contained in imported pre-blended polyols will be converted.

Phase-out strategy in stage II of the HPMP

17. Stage II of the HPMP aims to achieve a 67.5 per cent reduction from its HCFC baseline consumption by 2025 and 100 per cent reduction by 2030, without servicing tail, which is envisaged to be supplied through recovered and recycled refrigerants. The infrastructure established during the implementation of stage I of the HPMP and the lessons learnt will be utilized in stage II.

Proposed activities and total cost of stage II of the HPMP

18. In order to minimize the introduction of high-GWP HFC-based RAC equipment, the Government of Ecuador proposes to strengthen current regulations, reinforce training institutions and programmes with a focus on refrigerant containment, leak reduction and safe handling of flammable refrigerants, and promoting the introduction of refrigerants with low GWP and high energy efficiency when HCFC-based equipment reaches end-of-life. Stage II of the HPMP will focus on the following four areas: strengthening of the legal and institutional framework; complete phase-out of HCFC consumption in the RAC servicing sector; a public awareness programme to support the HCFC phase-out; and project monitoring, as summarized in Table 3. The total cost of stage II of the HPMP amounts to US \$1,170,000 (plus agency support costs), as originally submitted.

Table 3. Activities to be implemented in stage II of the HPMP

Project component	Planned activities	Agency	Cost (US \$)
<i>Strengthening of the legal and institutional framework</i>			
Technical assistance for strengthening ODS traffic control	• Training of 800 customs officers in preventing illegal trade in HCFCs (i.e., use of gas identifier, sample testing of containers, physical analysis of HCFC in pre-blended polyols) • Two updated training courses for importers, brokers and customs officers on harmonized systems and reporting tools • Design of an online customs training course • Design of a model to prevent illegal trade in HCFCs and other controlled substances⁹	UNEP	37,000
Adoption and implementation of guidelines for alternative	• Adoption of a standard for safety measures in the installation and servicing of RAC equipment	UNEP	30,000

⁹ A statistical model that could identify potential illegal import movements based on an analysis of estimated values of different variables and their behaviour. If the characteristics of an import movement do not fit with the designed matrix of variables, the system requests an inspection.

Project component	Planned activities	Agency	Cost (US \$)
refrigerants	- containing flammable, toxic or high-pressure refrigerants - Development of a guideline for end-users and RAC technicians on methods of risk assessment and mitigation in the installation and servicing of RAC equipment with flammable refrigerants		
<i>Elimination of HCFC consumption in the RAC servicing sector</i>			
Strengthening of the training programme on good practices in the maintenance of RAC systems	- Training for 15 instructors and 500 technicians on refrigerant recovery, recycling and reclaiming (RRR), leak detection and control, energy efficiency and good servicing practices - Four training courses for at least 80 female RAC technicians - Development of an online training programme - Reissuance of an updated technical manual on best practices in maintenance in the RAC sector	UNIDO	64,500
Strengthening of the certification system for RAC technicians	Formulation and validation of a labour competence standard for handling flammable refrigerants; design of a registration and licensing (carnet) system for the identification of technicians; and certification of at least 1,000 RAC technicians	UNEP	48,000
Application of good refrigeration practices in the use of HC and other low-GWP refrigerants	- Establishment of a training centre for the safe handling of HCs - Standard training programme on the safe handling of HCs and a risk assessment guideline for RAC servicing with HCs, addressed to 15 instructors and around 900 technicians - Delivery of 80 basic tool kits¹⁰ to technicians, two of them destined for female technicians	UNIDO	287,000
Development of a network of technical institutes to upgrade the training programme for RAC technicians	- Provision of tool kits and basic equipment¹¹ for the laboratories of six technical institutes, including training on alternative refrigerants, their environmental impact and energy efficiency - Formal agreements for the inclusion of good practices in the curriculum of the technical institutes¹²	UNIDO	195,000
Strengthening of the refrigerant RRR network	- Equipment and supplies provided for two reclamation centres¹³ - Ten workshops for 200 technicians on good RRR practices - A study tour to a country in the region with established RRR centres	UNIDO	279,820
Pilot projects for HCFC conversions to zero-ODP,	Four pilot conversions/replacements of HCFC-based RAC systems to systems operating	UNIDO	105,000

¹⁰ Including manifold gauge, electronic leak detector for HC, safety-related tools, brazing unit, compression fitting tool, personal protection and miscellaneous tubing tools at a cost of US \$2,000 per kit.

¹¹ In accordance with the certification scheme, these institutes require the introduction of the new technologies, equipment, simulators, tools to handle flammable refrigerants, and updates of electronics (e.g., vacuum pumps, scales, expander tools, capillary tube cutters, pliers, hoses, recovery cylinders, and tools to handle HCs at a cost of US \$30,000 per institute).

¹² They are committed to incorporating Montreal Protocol and ODS-related information into its training curricula, training modules and practical training, ensuring sustainability of the training programmes.

¹³ Including reclaim units, recovery and storage tanks of different capacities, transfer pumps, scales for storage tanks, refrigerant identifiers, moisture testers, lab equipment, hot water dispensers, racks for washing and drying cylinders, valve removal tools, inspection cameras, air compressors, vacuum pumps, recovery units with filters, spare parts, installation, freight transportation and contingencies at a cost of US \$93,100 per centre.

Project component	Planned activities	Agency	Cost (US \$)
low-GWP alternatives and technical assistance for large RAC end-users	with HC or CO ₂ in large end-users in the dairy processing, beef storage, fruit and vegetable storage, flowers and fisheries sectors Four training workshops for end-users on the technical and environmental benefits of using HC or CO₂ refrigerants		
<i>Public awareness of the importance of HCFC phase-out</i>			
Awareness-building campaigns for end-users, technicians and the general public		UNEP	28,000
<i>Project implementation and monitoring</i>			
As in stage I, the National Ozone Unit and UNIDO will monitor activities, report progress, and work with stakeholders to phase out HCFCs. The cost of those activities includes local consultants (between one and three experts based on needs) (US \$50,000) and implementation and monitoring visits to stakeholders and partner institutions to ensure the sustainability of the activities implemented (US \$45,680)		UNIDO	95,680
Total			1,170,000

19. In addition to the four main areas of the phase-out strategy described in Table 3 above, the Government of Ecuador will phase out the consumption of 0.86 ODP tonnes of HCFC-141b contained in imported pre-blended polyols used in spray foam applications. Given that economically feasible technologies for such application are not currently available in Ecuador,¹⁴ a funding request was not included. In line with decision 81/47(c)(iii), the Government of Ecuador would submit during implementation of stage II of the HPMP a project proposal for the phase-out of HCFC-141b contained in imported pre-blended polyols for spray foam.

Gender policy implementation

20. In line with UNIDO's gender mainstreaming policies and decision 84/92(d), the Government of Ecuador has included as one of its targets when implementing stage II of the HPMP the creation of a favorable environment for gender mainstreaming, with access to opportunities, with the following expected results: gender-responsive knowledge management and dissemination, gender-responsive capacity building and enhanced understanding of gender equality and women's empowerment among project staff, stakeholders and beneficiaries. These results will be measured through the applicable indicators in the Multilateral Fund policy on gender.¹⁵

Activities planned for the first tranche of stage II

21. The first funding tranche of stage II of the HPMP at the total amount of US \$375,550 will be implemented between January 2021 and June 2024 and will include the following activities:

- (a) *Technical assistance for the strengthening of controls in ODS traffic:* one training course for at least 20 participants from customs and other institutions concerned with the prevention of illegal trade in HCFCs, and one training course (update) for importers, brokers and customs officers on the harmonized systems and reporting tools (UNEP) (US \$7,000);
- (b) *Adoption and implementation of safety standards/guidelines for alternative refrigerants:* development and implementation of a standard on safety measures and good refrigeration

¹⁴ The Technology and Economic Assessment Panel (TEAP) reports do not recommend the use of this flammable technology in spray foam.

¹⁵ It will include number of women and men that received/accessed information; number and percentage of male and female participants; number and percentage of training initiatives that include targeted sessions on gender; number and percentage of training initiatives undertaken in collaboration with gender focal points/gender experts/gender departments; number and percentage of women presenting in trainings; data presented in training sessions that is disaggregated by sex; and training/information material that is gender sensitive.

practices for the installation and servicing of RAC equipment containing flammable, toxic or high-pressure refrigerants; development of a guideline for end-users and RAC technicians on applying methods of risk assessment and eliminating sources of ignition in the installation and servicing of RAC equipment with flammable refrigerants (UNEP) (US \$10,000);

- (c) *Strengthening of the existing programme and development of an online training programme on good practices in the maintenance of RAC systems to ensure the phase-out of HCFC-22*: one study tour to a Latin-American or Caribbean country with an operational model of RRR centres; one training course for at least 20 female technicians and experts; reprinting of the technical manual for best practices in RAC maintenance; one train-the-trainers course and four training courses for RAC servicing technicians on recovery and reclaiming processes, leak detection and control, energy efficiency, flushing, and good servicing practices (UNIDO) (US \$28,800);
- (d) *Application of good refrigeration practices and procedures in the use of HC and other refrigerants with zero ODP and low GWP*: development of a training programme and risk assessment guidelines for RAC servicing with HC refrigerant; one train-the-trainers workshop on the safe handling of HC; establishment of a training centre for the safe handling of HC; seven on-site training courses in the safe handling of HC for RAC technicians (UNIDO) (US \$92,500);
- (e) *Development and strengthening of a network of technical institutes to upgrade the training programme for RAC technicians*: signing of agreements with six Ecuadorian training institutions for the inclusion of the subjects contained in the training programme set out in the HPMP in their academic curricula; and provision of basic equipment and tools to six training laboratories (UNIDO) (US \$191,250);
- (f) *Strengthening of the certification system for RAC technicians*: design and implementation of an awareness campaign for the RAC servicing sector about the certification system of RAC technicians; support for 150 RAC technicians certified in any labour competency standard; design and development of a registration and licensing (carnet) system for certified RAC technicians (UNIDO) (US \$8,500);
- (g) *Pilot projects for HCFC conversions to zero-ODP, low-GWP alternatives and technical assistance for large RAC end-users*: technical review and planning of the approach to follow to implement the pilot projects, and identification of potential beneficiaries (UNIDO) (US \$6,000);
- (h) *Three public awareness campaigns to promote the phase-out of HCFCs*: for end-users, technicians and students (UNEP) (US \$7,000); and
- (i) Project implementation and monitoring (UNIDO) (US \$24,500).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

22. The Secretariat reviewed stage II of the HPMP in light of stage I, 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 2020-2022 business plan of the Multilateral Fund.

HCFC phase-out and duration of stage II

23. During the preparation of stage II the Government of Ecuador, after extensive consultations with stakeholders, decided to maintain the consumption targets under the Montreal Protocol as the current HCFC consumption is not markedly low, the reduction in 2018 and 2019 was partially due to economic slowdown, and the economic recovery in a post-COVID-19 scenario could be associated with an increased HCFC consumption. For this reason, HCFC import quotas for 2020 and 2021 had already been established in line with the Montreal Protocol control targets and were not based on the latest consumption level.

24. The Government also decided to prepare stage II of the HPMP for the total HCFC phase-out in 2030 rather than the 67.5 per cent reduction in 2025, based on the positive experience implementing stage I between 2011 and 2020, which allowed it to focus on developing and implementing activities ensuring their long-term sustainability, such as the certification scheme for refrigeration technicians. A single final stage will also give sufficient time to increase availability of alternative refrigerants and allow the implementation of activities over a long period of time so as to avoid losing momentum by splitting the plan in two.

25. The Government of Ecuador indicated that it will not require any HCFC for servicing needs after 2030. While noting the commitment with appreciation, the Secretariat recalled the provisions of Article 5, paragraph 8 ter(e)(i)¹⁶ of the Montreal Protocol and paragraph 13 of decision XIX/6 and, in order to be equitable across Article 5 countries, recommended noting the commitment of the Government to completely phase out HCFCs by 1 January 2030, and that HCFCs would not be imported after that date, except for the allowance for a servicing tail between 2030-2040 where required, and consistent with the provisions of the Montreal Protocol.

26. Based on the comprehensive strategy for stage II of the HPMP which was developed through extensive discussions with stakeholders, and supported by the strengthening of the regulatory framework and the certification scheme established during stage I, the enhanced training capabilities for customs officers and refrigeration technicians, the strengthened RRR network established during stage I, and the justification provided by the Government, the Secretariat supports the total HCFC phase-out approach for stage II of the HPMP for Ecuador.

Remaining consumption of 0.86 ODP tonnes of HCFC-141b in the spray PU foam sector

27. During the discussions, the Secretariat noted that while a project proposal for the conversion of a spray foam user could be submitted during stage II once cost-effective, non-flammable technologies were available, the Government had issued an import ban of HCFC-141b for spray foam as of 1 January 2022. Given the limited time available, the Secretariat suggested that UNIDO discuss with the Government of Ecuador deferring the ban by two years (i.e., to 1 January 2024) for spray foam users only, thus reducing the possibility of these enterprises adopting HFC-based technologies (as the only technologies currently available). During this period, the Government would submit a project proposal for the phase-out of HCFC-141b contained in imported pre-blended polyols for spray foam, provided that economically feasible technologies would become available.

Technical and cost-related issues

28. The Secretariat noted that during implementation of stage I the existing RRR network had been strengthened and questioned the request for the additional activities being proposed. The Secretariat also asked about the basis of the business model that would allow for the sale of reclaimed refrigerant at a competitive price, noting that the current price of HCFC-22 price is US \$3.17/kg. In response, UNIDO

¹⁶ Other applications where HCFCs can be used include the servicing of fire suppression and fire protection equipment existing on 1 January 2030; solvent applications in rocket engine manufacturing; and topical medical aerosol applications for the specialized treatment of burns.

explained that there was only one reclaiming unit installed at SECAP, and that it was only used for training purposes as it could not reprocess large amounts of refrigerant. The Government has identified potential institutions (i.e., refrigerant importers, the refrigeration association and technical training centres) interested in participating in the bidding process to operate the two potential reclaiming centres in Quito and Guayaquil. With regard to the business model for the RRR scheme, end-users and technicians will be offered the service to reclaim their own refrigerant for a price lower than that of virgin refrigerant. While the reclaimed refrigerant will be tested, compliance with the level of purity specified in the air-conditioning, heating and refrigeration (AHRI) standard 700 will not be required, thus reducing the costs of infrastructure and operation.

29. The Secretariat also highlighted the importance of enforcing refrigerant emission control measures¹⁷ to support the phase-out strategy in the servicing sector. UNIDO reported that during implementation of stage II the Government would commit to establishing this control by the end of 2022, once the infrastructure for RRR had been strengthened.

30. With regard to the pilot projects on HCFC conversions to low-GWP alternatives and technical assistance to end-users, the Secretariat noted that they were intended to replicate the end-users project implemented under stage I, and that funding for the pilot projects would only be requested for the second tranche in 2024. As the project relates to conversions in end-users, information on the enabling conditions (including market and regulatory framework) to ensure a sustained replacement of HCFC technology by low-GWP technology would need to be described, in line with decision 84/84. In response, UNIDO explained that the main barriers for the adoption of low-GWP alternative technologies were: the higher costs involved, lack of confidence in the new technology, lack of local expertise and unavailability of equipment and servicing tools. During stage II these barriers will be removed by providing training and tools to technicians to handle flammable refrigerants; establishing norms, standards and codes of good practices for safe servicing practices using alternative refrigerants; and conducting awareness campaigns on the benefits of introducing low-GWP alternatives for refrigerant and equipment importers, end-users and contractors. Technical assistance and some of the components necessary for the conversion (e.g., compressors and other required equipment and parts of refrigeration systems) will be provided to each end-user; and counterpart funding will be provided to cover most of the cost of the conversions (i.e., electrical installations, manpower, equipment grounding, equipment, supplies and other material, electrical design, area classification, control board adequacy and direct labor used in installation). UNIDO was advised that by the time of submission of the second tranche, detailed information would need to be provided on the planned pilot conversions and their compliance with the requirements of decision 84/84 in order to be considered for funding.

Plan of action for the first tranche and implementation amid COVID-19

31. The Secretariat noted with appreciation efforts made by the Government of Ecuador, UNIDO, UNEP, and other stakeholders to ensure the continued implementation of activities supported by the Multilateral Fund during the COVID-19 emergency. The Secretariat and UNIDO discussed possible changes in implementation due to the pandemic, particularly during the first tranche. UNIDO confirmed that equipment and tool procurement had been conducted during the pandemic; meetings with stakeholders, train-the-trainer sessions and regional trips had been implemented (a two-week e-learning course for trainers and a one-week training for other stakeholders). UNIDO expects to continue this approach for as long as it is required, and will undertake all efforts to meet deadlines; however, delays could be expected. Following a discussion on possible delays, it was agreed to redistribute part of the funds of the first tranche (US \$82,800) to the second (US \$30,050) and third tranche (US \$52,750).

¹⁷ E.g. penalties (for end-users and/or technicians) for intentional venting of HCFC into the atmosphere during installation, operation, servicing and decommissioning of RAC equipment; mandatory leak checking for larger equipment; or mandatory recovery of HCFC from containers and equipment at end-of-life.

Impact on the climate

32. The proposed activities in the servicing sector, which include better containment of refrigerants through training and provision of equipment, will reduce the amount of HCFC-22 used for RAC servicing. Each kilogram of HCFC-22 not emitted due to better refrigeration practices results in savings of approximately 1.8 CO₂-equivalent tonnes. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Ecuador, including its efforts to promote refrigerant recovery and reuse and to facilitate the adoption 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

33. UNIDO estimates that the level of co-financing provided to ensure the total phase-out of HCFCs is around two times the level of funds requested from the Multilateral Fund. The training programme will reach 1,000 technicians; the estimated additional cost of training for the remaining 1,700 technicians in the country is US \$127,500, and the estimated cost of providing tools to 1,350 technicians is US \$2,700,000 (US \$2,000 per kit). Furthermore, the operation and administrative costs of the RRR centres will be covered by the centres themselves, and the beneficiaries of the four pilot conversions will co-finance a large portion of the cost of the conversions. The rest of the commercial and industrial RAC installations will adopt HCFC-free equipment entirely at their own expense.

2020-2022 draft business plan of the Multilateral Fund

34. UNIDO and UNEP are requesting US \$1,170,000, plus agency support costs, for the implementation of stage II of the HPMP for Ecuador. The total requested amount of US \$314,683, including agency support costs for the period of 2020–2022, is US \$18,317 above the amount in the business plan.

Draft Agreement

35. A draft Agreement between the Government of Ecuador 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

36. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for Ecuador for the period from 2020 to 2030 for the complete phase-out of HCFC consumption, in the amount of US \$1,257,600, consisting of US \$1,075,000 plus agency support costs of US \$75,250 for UNIDO, and US \$95,000 plus agency support costs of US \$12,350 for UNEP, on the understanding that no more funding would be provided from the Multilateral Fund for the phase-out of HCFCs;
- (b) Noting the commitment of the Government of Ecuador:
 - (i) To establish regulatory measures to control intended emissions of refrigerant during installation, servicing and decommissioning by 1 January 2023;
 - (ii) Not to issue any import quota for HCFC-141b contained in pre-blended polyols, except for a maximum of 0.86 ODP tonnes (7.78 metric tonnes) for spray foam for each year between 2021 and 2023;
 - (iii) To completely phase out HCFCs by 1 January 2030, and that HCFCs would not be imported after that date, except for the allowance for a servicing tail between 2030

and 2040 where required, and consistent with the provisions of the Montreal Protocol;

- (c) Deducting 16.13 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;
- (d) Requesting the Government of Ecuador to submit, as part of stage II of the HPMP, a project proposal for the phase-out of HCFC-141b contained in imported pre-blended polyols for spray foam, in line with decision 81/47(c)(iii), noting that the Government of Ecuador has deferred the enforcement of the import ban on HCFC-141b for spray foam from 1 January 2022 to 1 January 2024, in order to allow for the conversion of enterprises;
- (e) Approving the draft Agreement between the Government of Ecuador 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; and
- (f) Approving the first tranche of stage II of the HPMP for Ecuador, and the corresponding tranche implementation plan, in the amount of US \$314,683, consisting of US \$268,750, plus agency support costs of US \$18,813 for UNIDO, and US \$24,000, plus agency support costs of US \$3,120 for UNEP.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF ECUADOR 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 Ecuador (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 , 4.2.3, 4.3.3, 4.4.3, 4.5.3 and 4.6.3 (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;
- (c) Any enterprise to be converted to non-HCFC technology included in the Plan and that would be found to be ineligible under the policies of the Multilateral Fund (i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), would not receive financial assistance. This information would be reported as part of the Tranche

Implementation Plan;

- (d) The Country commits to examining the possibility of using pre-blended systems with low-global warming potential blowing agents instead of blending them in-house, for those foam enterprises covered under the Plan, should this be technically viable, economically feasible and acceptable to the enterprises;
- (e) The Country agrees, in cases where HFC technologies have been chosen as an alternative to HCFCs, and taking into account national circumstances related to health and safety: to monitor the availability of substitutes and alternatives that further minimize impacts on the climate; to consider, in the review of regulations standards and incentives adequate provisions that encourage introduction of such alternatives; and to consider the potential for adoption of cost-effective alternatives that minimize the climate impact in the implementation of the HPMP, as appropriate, and inform the Executive Committee on the progress accordingly in tranche implementation reports; and
- (f) 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. UNIDO 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 coordinated 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	21.02
HCFC-123	C	I	0.18
HCFC-124	C	I	0.22
HCFC-141b	C	I	0.86
HCFC-142b	C	I	1.20
Sub-total			23.49
HCFC-141b contained in imported pre-blended polyols	C	I	20.67
Total	C	I	44.16

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2020	2021-2023	2024	2025-2026	2027	2028-2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	15.27	15.27	15.27	7.63	7.63	7.63	0	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	15.27	15.27	15.27	7.63	7.63	7.63	0	n/a
2.1	Lead IA (UNIDO) agreed funding (US \$)	268,750	0	376,250	0	234,500	0	195,500	1,075,000
2.2	Support costs for Lead IA (US \$)	18,813	0	26,338	0	16,415	0	13,685	75,250
2.3	Cooperating IA (UNEP) agreed funding (US \$)	24,000	0	31,000	0	21,000	0	19,000	95,000
2.4	Support costs for Cooperating IA (US \$)	3,120	0	4,030	0	2,730	0	2,470	12,350
3.1	Total agreed funding (US \$)	292,750		407,250		255,500		214,500	1,170,000
3.2	Total support costs (US \$)	21,933		30,368		19,145		16,155	87,600
3.3	Total agreed costs (US \$)	314,683		437,618		274,645		230,655	1,257,600
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)								13.66
4.1.2	Phase-out of HCFC-22 to be achieved in the previous stage (ODP tonnes)								7.36
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)								0
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)								0.18
4.2.2	Phase-out of HCFC-123 to be achieved in the previous stage (ODP tonnes)								0
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)								0
4.35.1	Total phase-out of HFC-124 agreed to be achieved under this Agreement (ODP tonnes)								0.22
4.3.2	Phase-out of HFC-124 to be achieved in the previous stage (ODP tonnes)								0
4.3.3	Remaining eligible consumption for HFC-124 (ODP tonnes)								0
4.4.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)								0
4.4.2	Phase-out of HCFC-141b to be achieved in the previous stage (ODP tonnes)								0.86
4.4.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)								0
4.5.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)								1.20
4.5.2	Phase-out of HCFC-142b to be achieved in the previous stage (ODP tonnes)								0
4.5.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)								0
4.6.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)								0
4.6.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in the previous stage (ODP tonnes)								19.81
4.6.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)								0.86

*Date of completion of stage I as per stage I Agreement: 31 December 2021

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the second 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 Minister of Production, Foreign Trade, Investment and Fishery (MPCEIP) is the Focal Point of the Montreal Protocol in Ecuador. The activities corresponding to the implementation of the Protocol are aligned within the strategies proposals of the Ministry's National Direction of Environment and Technological Reconversion. This Division coordinates with the authorities the National Plan for the Elimination of Ozone Depleting Substances (ODS).

2. The project is implemented through the National Ozone Unit established within the MPCEIP, as part of the National Direction of Environment and Technological Reconversion, and its functions are:

- (a) To coordinate, as focal point, all the activities related to the implementation of the country programme for the ODS phase-out in Ecuador,
- (b) Monitoring and control the Montreal Protocol controlled substances consumption,
- (c) To disseminate data and pertinent information to all the interested parties, and to inform on the requirements of the Montreal Protocol,
- (d) To promote awareness on the ODS and alternatives issues,
- (e) To receive, evaluate and submit reports, to be considered by the Executive Committee of the Multilateral Fund, for additional projects that have not been included in the country programme,
- (f) To report to the Ozone Secretariat, Multilateral Fund, and to the Implementation Agencies about the consumption and phase-out of the Montreal Protocol controlled substances in Ecuador, and
- (g) Coordination and implementation of projects for the substances controlled by the Montreal Protocol in the country.

3. The MPCEIP will be responsible for the monitoring of the phase-out implementation plan, of making the follow up of the promulgation, and the enforcement of the policies and legislation, the procedures the procedures to carry out these activities are:

- (a) Implementation of all the activities of the components within the HPMP, including a detailed activity design, audit of the involved parties, identification and selection of the beneficiaries, contracting of goods and services, continuous technical assistance to the project beneficiaries, etc.;
- (b) Regular monitoring of the trends and attitudes in the local private sector related to the HCFC use and its possible substitutes;
- (c) Design, organization and implementation (annual) of the project monitoring activities, including the design of the data gathering and analysis instruments;

- (d) Analysis and report of results of the monitoring, including the design of the implementation of the corrective measures and/or activities of technical assistance, and organization of the corresponding meetings for review and management of the monitoring;
- (e) Design and implementation of the corrective measures;
- (f) Regular implementation of activities of technical assistance to the project beneficiaries; and
- (g) Preparation of annual progress reports, biannual reports on the HPMP implementation, and biannual implementation plan for the Multilateral Fund Executive Committee, according to the defined format. It will also include the preparation of any other report necessary for the adequate operation of the HPMP project.

4. The phase-out plan will be managed by a team dedicated to this job that consists of a coordinator that will be designated by the MPCEIP and have the support of the representatives and experts of the implementation agencies and the necessary support infrastructure. The component of support to the management and update of the legal instruments of the phase-out plan will include the following activities:

- (a) Management and coordination of the implementation of the plan;
- (b) Establishment of a policy development and application programme to allow the Government to exercise the required mandates and ensure the industry fulfilment with the obligations of the ODS consumption reduction;
- (c) Development and implementation of training, awareness and capacity building activities to ensure a high-level commitment to the Plan objectives and obligations;
- (d) Preparation of annual implementation plans including the determination of the sequence of participation of the companies in the activities;
- (e) Establishment and operation of a report system on the ODS use /substitutes by the users;
- (f) Report on the progress of the plan implementation for the annual disbursement based on performance; and
- (g) Establishment and operation of the decentralized mechanism to monitor and evaluate the plan results, in association with local environmental regulatory entities to ensure sustainability.

5. 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 any of the agencies taking part in this Agreement.

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-coordinating 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 coordinated 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 \$180 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.