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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-fourth Meeting
Montreal, 16–20 December 2019

PROJECT PROPOSAL: COLOMBIA

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, third tranche)

UNDP, UNEP and
Government of
Germany

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Colombia

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

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2018	79.51 (ODP tonnes)
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(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2018	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22				0.78	41.53				42.31
HCFC-123			0.58		0.07				0.65
HCFC-141b		28.01	1.82		5.36				35.19
HCFC-141b in imported pre-blended polyol		1.36							1.36

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	225.6	Starting point for sustained aggregate reductions:	225.6
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	201.21	Remaining:	24.32

(V) BUSINESS PLAN		2019	2020	2021	Total
UNDP	ODS phase-out (ODP tonnes)	14.89	0	6.02	20.91
	Funding (US \$)	680,251	0	275,133	955,384
UNEP	ODS phase-out (ODP tonnes)	1.17	0	0.59	1.76
	Funding (US \$)	56,500	0	28,250	84,750
Germany	ODS phase-out (ODP tonnes)	0	0	1.27	1.27
	Funding (US \$)	0	0	61,273	61,273

(VI) PROJECT DATA			2015	2016	2017	2018	2019	2020	2021	Total
Montreal Protocol consumption limits			203.01	203.01	203.01	203.01	203.01	146.62	146.62	n/a
Maximum allowable consumption (ODP tonnes)			203.01	203.01	203.01	203.01	203.01	90.24	78.96	n/a
Agreed funding (US \$)	UNDP	Project costs	2,342,591	0	0	1,268,007	635,749	0	257,134	4,503,481
		Support costs	163,981	0	0	88,761	44,502	0	17,999	315,244
	UNEP	Project costs	50,000	0	0	50,000	50,000	0	25,000	175,000
		Support costs	6,500	0	0	6,500	6,500	0	3,250	22,750
	Germany	Project costs	325,800	0	0	162,900	0	0	54,300	543,000
		Support costs	41,838	0	0	20,919	0	0	6,973	69,730
Funds approved by ExCom (US \$)		Project costs	2,718,391	0	0	1,480,907	0			4,199,298
		Support costs	212,319	0	0	116,180	0			328,499
Total funds requested for approval at this meeting (US \$)		Project costs					685,749			685,749
		Support costs					51,002			51,002

Secretariat's recommendation:	For blanket approval
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PROJECT DESCRIPTION

1. On behalf of the Government of Colombia, UNDP as the lead implementing agency, has submitted a request for funding for the third tranche of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US \$736,751, consisting of US \$635,749, plus agency support costs of US \$44,502 for UNDP, and US \$50,000, plus agency support costs of US \$6,500 for UNEP.¹ The submission includes a progress report on the implementation of the second tranche, the verification report on HCFC consumption for 2018 and the tranche implementation plan for 2019 to 2021.

Report on HCFC consumption

2. The Government of Colombia reported a consumption of 78.15 ODP tonnes of HCFC in 2018, which is 65 per cent below the HCFC baseline for compliance, plus 1.36 ODP tonnes of HCFC-141b in imported pre-blended polyols. The 2014-2018 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Colombia (2014-2018 Article 7 data)

HCFC	2014	2015	2016	2017	2018	Baseline
Metric tonnes						
HCFC-22	1,226.16	1,081.54	947.44	806.21	769.29	1,292.6
HCFC-123	103.58	93.91	78.81	8.31	32.50	110.4
HCFC-124	0.70	0.40	0.00	0.00	0.00	1.8
HCFC-141b	783.83	938.40	753.26	944.75	319.91	1,379.5
HCFC-142b	4.35	0.10	0	1.25	0	7.5
Total (mt)	2,118.62	2,114.35	1,779.51	1,760.52	1,121.7	2,791.7
HCFC-141b in imported pre-blended polyols*	0.03	6.30	7.94	7.75	12.37	n/a
ODP tonnes						
HCFC-22	67.44	59.48	52.11	44.34	42.31	71.1
HCFC-123	2.07	1.88	1.58	0.17	0.65	2.2
HCFC-124	0.02	0.01	0.00	0.00	0.00	0.0
HCFC-141b	86.22	103.22	82.86	103.92	35.19	151.7
HCFC-142b	0.28	0.01	0	0.08	0	0.5
Total (ODP tonnes)	156.03	164.60	136.54	148.51	78.15	225.6
HCFC-141b in imported pre-blended polyols*	0.003	0.69	0.87	0.85	1.36	n/a

*Country programme data.

3. Consumption of HCFC-22 continues to decline, with reductions both in servicing and in manufacturing, due both to implementation of activities under the HPMP as well as increased entry into the market of R-410A and R-410A-based equipment. Consumption of HCFC-141b increased in 2017, returning to approximately the same level as the 2015 consumption, and subsequently decreased substantially with the successful implementation of polyurethane (PU) foam manufacturing conversions. Since 2015, the combined consumption of HCFC-123 and HCFC-141b in the fire fighting sector has decreased steadily. Between 2017 and 2018 the consumption of HCFC-141b in the sector dropped substantially; in contrast, consumption of HCFC-123 increased, suggesting that the decreased consumption of HCFC-141b in the sector is due to a combination of improved practices and increased consumption of HCFC-123.

Country programme (CP) implementation report

4. The Government of Colombia reported HCFC sector consumption data under the 2018 CP implementation report which is consistent with the data reported under Article 7 of the Montreal Protocol.

¹ As per the letter of 4 September 2019 from the Ministry of Environment and Sustainable Development of Colombia to UNDP.

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 consumption of HCFCs for 2018 was 78.15 ODP tonnes of HCFCs, with an additional 1.36 ODP tonnes of HCFC-141b in imported pre-blended polyols. The verification concluded that Colombia fully met all the targets specified in the Agreement between the country and the Executive Committee and was in compliance with the Montreal Protocol. All imports of ODS and HFCs, including controlled substances contained in pre-blended polyols, are physically inspected and their documentation checked; in addition, refrigerant identifiers may be used on a random sample of imports. To date, no suspicious shipments have been found, nor has CFC-11 or CFC-12 been detected in any imports. Several countries in the region (Ecuador, Bolivarian Republic of Venezuela) have visited Colombia to exchange information and strengthen cooperation on monitoring illegal trade of ODS.

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

Legal framework

6. The Government modified the quota system for HCFCs imports to achieve the reduction of HCFC consumption by 65 per cent of the baseline by 2021, consistent with its Agreement with the Executive Committee; in 2013, banned the manufacture and import of HCFC-based refrigeration equipment; and effective 31 December 2020, issued the ban on the imports of HCFC-141b in bulk and contained in pre-blended polyols. As of 2018, Decree 1496 came into affect by which the globally harmonized system (GHS) of classification and labelling of chemicals was adopted in the country, which will help enhance the control of trade of HCFC-based substances and equipment.

Technical assistance for regulatory activities

7. The following activities were undertaken:

- (a) A pollutant release and transfer registry (PRTR) designed for importers, manufacturers and end-users is progressing. Set up of the digital platform (hardware and software) was completed and pilot testing with some enterprises was initiated;
- (b) Monitoring the application of the licensing, permits and quotas system for HCFCs imports and exports to detect and prevent illegal trade. Data were collected and analysed, including through comparisons between the database of environmental licenses and authorizations issued by the National Authority of Environmental Licenses (known as ANLA in Spanish) and the import/export declarations submitted to the Ministry of Commerce, Industry and Tourism and the Directorate of National Taxes and Customs (DIAN); information reported by 18 ODS importers in their compliance report of environmental licenses were analysed; 79 follow-up visits were made to refrigerant trading shops in 10 cities; and Colombia participated in the informal Prior Informed Consent (iPIC) mechanism;
- (c) Coordination meetings were held on better control and monitoring of the trade of ODS and ODS-based equipment and products, including with the DIAN, the National Institute of Food and Drugs Monitoring and the Ministry of Commerce, Industry and Tourism; eight workshops for 128 customs officers on the updated regulatory framework and training on the use of refrigerant identifiers;
- (d) Measures to prevent illegal trade by distributing 103 guidelines for marketers, 32 bulletins and 54 manuals to importers, traders of refrigerant gases, and customs officers; informing manufacturers and importers of refrigerants on the responsibility regarding the labeling and generation of the respective Material Safety Data Sheet, in line with the GHS requirements;

and a consultancy was carried out to design a national strategy on refillable cylinders in local commerce with a view to establishing a system for collection and handling of HCFC containers and the waste of these containers within the national regulatory framework; and

- (e) Several awareness-raising projects were organized, including an alliance for education on the depletion of the ozone layer; the development of an educational guide on ozone depletion; a teaching toolkit; and dissemination of three bulletins on consumption, health, environment, and management of ODS.

Activities in the foam sector

8. The conversion of the foam enterprises Olaflex (rigid sheets) and Rojas Hermanos (discontinuous panels) to cyclopentane was completed in October and February of 2019, respectively, resulting in the phase-out of 65.76 mt (7.23 ODP tonnes) of HCFC-141b. The conversion of Espumlatex (rigid sheets) to hydrofluoro-olefins (HFOs) is on-going given continued testing of reduced HFO formulations. Three systems houses (Espumlatex, Olaflex, and QIC) signed agreements in 2018, and initiated activities on the development of polyol/system formulations using HFOs and preliminary laboratory tests of foam properties, purchased laboratory equipment, and initiated the verification of downstream foam enterprise consumption. The agreement with the fourth systems house, GMP, has not yet been finalized.

Activities in the servicing sector

9. The following activities were undertaken:

- (a) Development of a best practice handbook with focus on leak control, sealed system design and planned preventive maintenance. Training on this will be executed in conjunction with training in the use of natural refrigerants in 2020;
- (b) One natural refrigerants training centre was established and a train the trainers programme is scheduled for November 2019; and one training of the National Apprenticeship Service (known as SENA in Spanish) trainers' workshops was executed by local experts in November 2018. Forty-four trainers were trained on the safe use of hydrocarbons (HC) as refrigerants;
- (c) International standard ISO 5149:2014 "Refrigerating systems and heat pumps — Safety and environmental requirements" was adopted in part, with adoption of the remaining three parts in progress;
- (d) New version of the Sectorial Standard for Labour Competence for the refrigeration and air-conditioning (RAC) sector was approved by SENA, after public consultation and methodological verification. This new standard includes measures for the safe handling of HC, CO₂, and ammonia; and two groups of technicians, in two cities, are currently in the process of certification in the use of flammable refrigerants, using the standard;
- (e) Capacity-building of the Colombian Air-Conditioning and Refrigeration Association (known as ACAIRE in Spanish) to certify labour competences for technicians in the servicing sector; 1,813 technicians certified in the standard for "Environmental handling of refrigerants in accordance with the national and international legislation"; 29 awareness-raising meetings carried out in 24 cities for 1,213 technicians and enterprises in the RAC sector; and two workshops for 52 technicians were held on the safe use of HC refrigerants;
- (f) Two hundred sixty-three recovery equipment and 520 (13.6 lb) cylinders have been

delivered and will be distributed to technicians and companies in the RAC servicing sector; six technical workshops to train technicians and reclaim and collections centres on how to use the recovery equipment and storage cylinders; two meetings to evaluate the recovery, recycle and reclamation (RRR) network; 2,857 kg of refrigerants were recovered in 2018;

- (g) In collaboration with the Ministry of Mines and Energy, the process of formulating the regulations for thermal systems and installations is advancing with the aim of guaranteeing standards of service provision, safety, energy efficiency and environmental impact. Five regional meetings to disseminate the scope of the technical regulation; and participation in the ExpoAcaire 2018 and 2019 (national fair of refrigeration and air-conditioning) to raise awareness on the Technical Regulation of Thermal Systems and Installations (known as RETSIT in Spanish) and the National Strategy for Sustainable Cooling;
- (h) Promotion of the value-added tax (VAT) exemption for end-users of cooling systems that apply energy efficiency and low environmental impact criteria (Resolution 2000 of 29 September 2017 and Resolution 463 of 28 August 2018) was done through guilds and sectorial meetings; and
- (i) Agreement to include low-global warming potential (GWP) alternatives and other environmental criteria to be included in the flower industry sector (Florverde) standard; and promotion with several members of the Association of Colombian Flower Exporters to implement new low-GWP alternatives for the flower industry.

Activities in the fire protection sector

10. The following activities were undertaken:

- (a) Thirteen workshops for promotion of good practices in the maintenance and recharge of portable extinguishers using HCFC-123 as extinguisher agent and the phase-out of HCFC-141b for this use were executed in 2018 and 2019;
- (b) A guideline with focus on good practices in the maintenance and recharge of portable extinguishers using HCFC-123 was developed by the Ozone Technical Unit (NOU, known as UTO in Spanish) and its currently in the publishing process; and
- (c) Proposal to ban the import and manufacture of certain products and equipment that use HCFCs (including portable fire extinguishers with HCFC-141b) is in the approval process.

Project implementation and monitoring unit (PMU)

11. During the second tranche, the PMU prepared two annual reports per project, held six meetings to follow-up on the implementation of the projects; and conducted two audits on the implementation of the projects. As of October 2019, of the US \$261,095 approved, 100 per cent had been disbursed as shown in Table 2.

Table 2. PMU disbursement by activity and tranche

Activity	Disbursement (US \$)	
	First tranche	Second tranche
Consultants	185,132	6,088
Monitoring meetings	21,562	0
Travel expenses	30,265	687
Miscellaneous	751	0
Independent verification of consumption	7,615	8,995
Total	245,325	15,770

Level of fund disbursement

12. As of October 2019, of the US \$4,199,298 approved so far, US \$2,240,297 had been disbursed (US \$1,717,152 for UNDP, US \$34,445 for UNEP, and US \$488,700 for the Government of Germany) as shown in Table 3. The balance of US \$1,959,001 will be disbursed in 2019-2021.

Table 3. Financial report of stage II of the HPMP for Colombia (US \$)

Agency	First tranche		Second tranche		Total approved	
	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed
UNDP	2,342,591	1,538,917	1,268,007	178,235	3,610,598	1,717,152
UNEP	50,000	34,445	50,000	0	100,000	34,445
Germany	325,800	325,800	162,900	162,900	488,700	488,700
Total	2,718,391	1,899,162	1,480,907	341,135	4,199,298	2,240,297
Disbursement rate (%)	70		23		53	

Implementation plan for the third tranche of the HPMP

13. The following activities will be implemented between 2019 to 2021:

- (a) Review and comparison of import, quota and license databases, monitoring of trade, participation in iPIC; implementation of a pilot plan on the use of refillable cylinders; participation in the GHS labeling system to improve HCFC labelling (UNEP) (US \$50,000);
- (b) Continued review of regulations, assessment of economic impacts, and support to the Colombian Environmental Information System related to ODS (UNDP) (US \$15,000);
- (c) Development of assessment instruments for new labour competence standards (US \$5,000), local consultant for the promotion of certification on labour competencies (US \$5,000), and procurement of 150 tools for installation and maintenance of HC-based RAC equipment (US \$260,000) (UNDP);
- (d) Feasibility study to develop a low-cost refrigerant recovery machine, including enterprise selection, machine design, and prototype assembly; and continued monitoring of RRR network (UNDP) (US \$30,000);
- (e) Coordination and workshops with end-users (US \$20,000), training to use the VAT exemption (US \$20,000), and technical assistance for the safe use of low-GWP alternatives in one pilot project that is yet to be selected (US \$41,000) (UNDP);
- (f) Awareness-raising and continued collaboration with schools to promote ozone layer protection (UNDP) (US \$20,000); and
- (g) Continued project management and monitoring, including consultants (US \$180,749), monitoring meetings (US \$11,000), travel expenses (US \$15,000), miscellaneous (US \$1,000), and independent verification of consumption (US \$12,000) (UNDP).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

14. Notwithstanding that, in line with decision 68/42(c), the country has a national system for recording the quantity of HCFC-141b contained in exported (and imported) pre-blended polyols, the country does not include such exports under its CP report as the country considers HCFC-141b contained in exported pre-blended polyols a product. UNDP confirmed that Colombia previously exported HCFC-141b in pre-blended polyols, and did so again in 2018.

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

Legal framework

15. The Government of Colombia has already issued HCFC import quotas for 2019 in accordance with the Montreal Protocol control targets.

16. At the 81st meeting, it was reported that a draft resolution to implement the ban on the use of HCFC-141b in the fire protection sector, which in line with decision 75/44(b)(ii) was to be implemented by 31 December 2017, was under review by the Ministry of Environment and Sustainable Development, and was expected to be implemented by the end of 2018. While that review has been completed, the ban has not yet been implemented as the legal instrument to implement the ban is part of a larger encompassing Act that has yet to be adopted. The Act has been prepared, and includes the ban on the use of HCFC-141b in the fire protection sector and on the manufacture and import of packaged type and condensed air-conditioning equipment that used HCFC-22 with a cooling capacity of less than 5 tonnes (which had been expected by 31 December 2020). The Act is under review by several Ministries and will then be placed in public consultation. Given the complexity of the legal instrument, its finalization and implementation may take until 2021. While noting that Colombia would not have met its commitments reflected in decision 75/44, the Secretariat considers the strategy of combining legislative measures into a single Act efficient and, therefore, the delay in implementing the bans reasonable.

Activities in the foam sector

17. While the conversions to cyclopentane have been completed, the implementation of HFO-based conversions had been delayed given the limited commercial availability of HFOs in the market. Accordingly, UNDP proposed to extend the completion date of the conversion of the systems house projects and the project at Espumlatex in the manufacture of rigid foam sheets to 31 July 2021.

18. Noting that the Government had already issued the ban on the imports of HCFC-141b in bulk and contained in pre-blended polyols by 31 December 2020, the Secretariat suggested that this date may be more appropriate. UNDP suggested an extension to 31 July 2021 so that systems houses could use remaining stocks of HCFC-141b by exporting HCFC-141b contained in pre-blended polyols until that time. While it is possible that such exports could hinder the phase-out of HCFC-141b by countries in the region, it is likely that such exports would be small given the ready availability of high-GWP-based systems in the region.

19. Regarding the participation of GMP in the project, UNDP clarified that the systems house is in the process of becoming a distributor of PU systems, in collaboration with a multinational system house that formulates polyols in Colombia. Negotiations with the systems house to participate in the project are continuing, and it is expected that the systems house will sign the agreement in 2020. If during the

negotiation process GMP decides not to participate, other system houses would be able to convert GMP's clients.

20. Given that the conversion to HFOs have not yet taken place, the Secretariat notes that UNDP would report the actual incremental operating cost (IOC) incurred during the conversion to reduced-HFO formulations in the foam sector when requesting the fourth and final tranche of stage II of the HPMP, on the understanding that if the IOC were below US \$2.13/kg the Government of Colombia would return the associated funds to the Multilateral Fund in line with decisions 75/44(b)(vi) and 81/34(a).

Activities in the servicing sector

21. Regarding the promotion of the VAT exemption for low-GWP, energy efficient cooling, UNDP clarified that while a VAT exemption certificate has not been issued, several projects are preparing the required dossier, including two AC projects in buildings with cogeneration and absorption cooling systems.

22. At the 81st meeting, UNDP, on behalf of the Government of Colombia, had submitted the final report of the demonstration project for the use of R-290 as an alternative refrigerant in commercial air-conditioning (AC) manufacturing at Industrias Thermotar Ltda. At the time, the Secretariat noted that the enterprise has not yet been able to sell any R-290-based equipment; UNDP had indicated that there were no commercial obstacles, and that the enterprise was waiting for the first stock of R-290-based compressors and to finish the training of service technicians. The first stock of R-290 based compressors has now been sent, and Industrias Thermotar Ltda. expects to start manufacturing once the compressors are delivered at the end of November 2019. Moreover, the enterprise completed the training of service technicians and expects to start selling R-290-based commercial AC systems in January 2020. In addition, the enterprise is developing an R-290 chiller, for which an update will be provided once the enterprise finished the design of that equipment.

Sustainability of the HCFC phase-out

23. The Government of Colombia has an enforceable licensing and quota system, and has implemented bans on the manufacture and import of HCFCs-based domestic refrigerators, freezers and combined refrigerator-freezers and on the imports of HCFC-141b in bulk and contained in pre-blended polyols (effective 31 December 2020). Forthcoming bans, as well as the use of the PRTR, the GHS classification and labelling of chemicals, and the strict control and monitoring of imports, will further strengthen the sustainability of the HCFC phase-out. The project completion report for stage I of the HPMP documented the dismantling and disposal of the 16 HCFC-based foaming machines at the four enterprises converted under stage I.

Conclusion

24. The verified consumption of the country was 65 per cent below the country's baseline for compliance, and the country's import licensing and quota system is operational and will enable HCFC consumption reductions in advance of the Montreal Protocol's phase-out schedule. The conversions in the PU foam manufacturing sector to cyclopentane have been completed resulting in the phase-out of 65.76 mt (7.23 ODP tonnes) of HCFC-141b, while those to HFOs have been delayed given the limited commercial availability of HFOs in market, an issue over which the country has limited control. While the unsafe practice of using HCFC-141b in the fire fighting sector continues well after the expected phase-out of this use, the activities implemented under the HPMP have substantially reduced that consumption. The ban on the imports of HCFC-141b in bulk and contained in pre-blended polyols by 31 December 2020 has been implemented, while other bans that had been expected to be implemented have been delayed given the combining of those bans into a single regulatory Act. The Secretariat considers the strategy of combining legislative measures efficient and, therefore, the delay in implementing the bans reasonable. The level of disbursement for the second tranche is 23 per cent, and 53 per cent of the overall funding approved. The

activities undertaken in the servicing sector are part of a well-planned, coherent framework to strengthen the sector, facilitate the introduction of environmentally friendly, low-GWP alternatives, and are expected to ensure the long-term sustainability of the activities, and continue to help enable the country to meet its compliance obligations under the Protocol.

RECOMMENDATION

25. The Fund Secretariat recommends that the Executive Committee takes note of the progress report on the implementation of the second tranche of stage I of the HCFC phase-out management plan of (HPMP) for Colombia; and further recommends blanket approval of the third tranche of stage I of the HPMP for Colombia, and the corresponding 2019-2021 tranche implementation plan, at the funding levels shown in the table below, on the understanding that UNDP would report the actual incremental operating costs (IOC) incurred during the conversion to reduced hydrofluoro-olefins formulations in the foam sector when requesting the fourth and final tranche of stage II of the HPMP, and that if the IOC were below US \$2.13/kg the Government of Colombia would return the associated funds to the Multilateral Fund in line with decisions 75/44(b)(vi) and 81/34(a):

	Project title	Project funding (US \$)	Support cost (US \$)	Implementing agency
(a)	HCFC phase-out management plan (stage I, third tranche)	635,749	44,502	UNDP
(b)	HCFC phase-out management plan (stage I, third tranche)	50,000	6,500	UNEP