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

PROJECT PROPOSAL: CHILE

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

Phase-out

- HCFC phase-out management plan (stage I) (annual progress report) UNDP and UNEP
- HCFC phase-out management plan (stage II, second tranche) UNDP, UNIDO and UNEP

Stage I of the HPMP for Chile (annual progress report)

Background

1. The date of completion of stage I of the HPMP established in the Agreement between the Government and the Executive Committee was December 2016. However, at the 76th meeting, the Government of Chile through UNDP requested an extension of the date of completion to December 2017 and proposed a revised plan of action and a disbursement schedule for the remaining funds. In approving the last funding tranche, the Executive Committee also approved the extension of the completion date of stage I (decision 76/45(b)).¹

2. On behalf of the Government of Chile, UNDP as the lead implementing agency, has submitted the annual progress report on the implementation of the work programme associated with the last (combined fourth and fifth tranches) tranche of the HCFC phase-out management plan (HPMP) in line with decision 76/45(b).

Progress report

3. The following activities have been implemented:

- (a) Thirty-two customs officers were trained in three workshops on ODS control and identification; two Laboratory customs officers participated in a workshop to check the performance of the identification equipment for analysis of refrigerant gases; 112 customs officers were trained on the updated National Customs Code which included information on new tariff headings and descriptions for HCFC, HFC as pure substances, blends and those contained in products and equipment; and three officers from the National Customs Service were trained on enforcement mechanisms (detection of illegal products), sampling techniques and chemical analysis at the Central Laboratory of the Mexican Customs where they also learned about import quotas, management procedures of seized products and its destruction;
- (b) Two hundred and ninety-nine technicians were trained in eleven training courses on best refrigeration practices; 217 technicians were certified following the technician certification system designed and implemented in collaboration with the Chilean Chamber of Refrigeration and Air-conditioning (RAC); financial support for certifying service technicians has been put in place covering 90 per cent of the certification costs of independent technicians, and has resulted in 94 technicians certified for commercial AC and industrial AC systems;
- (c) One supermarket has installed and is operating its transcritical CO₂ system; five seminars and a field course on conversion of refrigeration equipment in supermarkets to CO₂ technology were conducted for 178 participants between May 2016 and November 2017;
- (d) The pilot centre for recovery and recycling was established (Regener Chile) and provided with one set of recycling machine and cylinders; and

¹ To request the Government of Chile, UNDP and UNEP to submit the 2015 verification report by the 77th meeting, progress reports on the implementation of the work programmes associated with stage I on a yearly basis until the completion of the project, verification reports on a yearly basis until the first meeting of 2018, and the project completion report to the last meeting of the Executive Committee in 2018.

- (e) An e-learning training course on flushing of RAC systems has been developed at the Academy of Environmental Training; the course will be available for technicians by second trimester of 2018.

Financial report

4. Of the total US \$1,786,455 approved for stage I of the HPMP, US \$ 1,391,449 had been disbursed (US \$1,214,987 for UNDP and US \$176,462 for UNEP); US \$372,264 had been committed (US \$282,978 for UNDP and US \$89,285 for UNEP), leaving a balance of US \$22,742 to be returned to the 82nd meeting as shown in Table 1.

Table 1. Financial report of stage I of the HPMP for Chile

Tranche		UNDP	UNEP	Total	Disbursement rate (%)
First tranche	Approved	465,566	153,217	618,783	100
	Disbursed	465,566	153,217	618,783	
Second tranche	Approved	537,357	40,127	577,484	100
	Disbursed	537,357	40,127	577,484	
Third tranche	Approved	295,744	27,022	322,767	100
	Disbursed	295,744	27,022	322,767	
Fourth and fifth tranches	Approved	199,299	68,123	267,422	91.5
	Disbursed/Committed	199,299	45,381	244,680	
Total	Approved	1,497,966	288,489	1,786,455	98.7
	Disbursed/Committed	1,497,966	265,747	1,763,713	

Comments

5. The Secretariat noted the joint efforts by the Government of Chile, UNDP and UNEP in ensuring that the revised work programme for the remaining activities for stage I be completed as planned.

6. Upon a request for clarification on some of the activities reported, UNDP clarified that under the supermarket demonstration project, one supermarket completed the installation of the transcritical CO₂ system, and the second supermarket is in the process of installing the same system to be fully operational by July 2018. A report on the results of these pilot projects will be provided as part of stage II of the HPMP.

7. UNDP also reported that the recovery and recycling centre has collected and recycled more than 20 mt of HCFC-22 since its opening in October 2017, and it is expected that such recovery and recycling activities will continue in stage II, where an evaluation of the performance of the centre will be undertaken.

8. With regard to the awareness raising activity for flushing activities, UNDP clarified that the contract for this activity was signed in 2017. The finalisation of the report will be in mid-2018 because the timetable was adapted to the schedule of the training academy (part of the University of Santiago), which will only be able to complete it at that time.

Recommendation

9. The Executive Committee may wish:

- (a) To take note of the 2017 progress report on the implementation of the HCFC phase-out management plan (stage I) for Chile, submitted by UNDP; and

- (b) To request:
- (i) The Government of Chile, UNDP and UNEP in line with decision 76/45(b) to submit the project completion report for stage I of the HPMP; and
 - (ii) UNEP to return the remaining balance of US \$22,742, plus agency support cost of US \$2,956, to the 82nd meeting of the Executive Committee.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Chile

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase out plan (Stage II)	UNDP (lead), UNIDO, UNEP	76 th	65% by 2021

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2017	66.2 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2017	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123					0.02				0.02
HCFC-124									
HCFC-141b		24.86			2.06				26.92
HCFC-142b					0.21				0.21
HCFC-22					39.05				39.05
HCFC-225									
HCFC-141b in Imported Pre-blended Polyol		3.17							3.17

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	87.5	Starting point for sustained aggregate reductions:	87.5
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	71.52	Remaining:	15.98

(V) BUSINESS PLAN		2018	2019	2020	Total
UNDP	ODS phase-out (ODP tonnes)	20.5	0	0.6	21.1
	Funding (US \$)	1,500,045	0	45,133	1,545,178
UNEP	ODS phase-out (ODP tonnes)	1.9	0	0.3	2.2
	Funding (US \$)	147,987	0	24,664	172,651
UNIDO	ODS phase-out (ODP tonnes)	9.0	0	1.5	10.5
	Funding (US \$)	661,709	0	110,285	771,994

(VI) PROJECT DATA			2016	2017	2018	2019	2020	2021	Total
Montreal Protocol consumption limits			78.75	78.75	78.75	78.75	56.88	56.88	n/a
Maximum allowable consumption (ODP tonnes)			78.75	78.75	78.75	78.75	48.12	30.62	n/a
Agreed* funding (US \$)	UNDP	Project costs	700,955	0	1,401,911	0	42,181	0	2,145,047
		Support costs	49,067	0	98,134	0	2,952	0	150,153
	UNEP	Project costs	65,481	0	130,962	0	21,827	0	218,270
		Support costs	8,513	0	17,025	0	2,837	0	28,375
	UNIDO	Project costs	309,210	0	618,420	0	103,070	0	1,030,700
		Support costs	21,645	0	43,289	0	7,215	0	72,149
Funds approved by ExCom (US\$)	Project costs	1,075,646	0	0	0	0	0	0	1,075,646
	Support costs	79,225	0	0	0	0	0	0	79,225
Total funds requested for approval at this meeting (US\$)	Project costs			2,151,293					2,151,293
	Support costs			158,448					158,448

Secretariat's recommendation:	Blanket approval
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PROJECT DESCRIPTION

10. On behalf of the Government of Chile, UNDP as the lead implementing agency, has submitted a request for funding for the second tranche of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US \$2,151,293, consisting of US \$1,401,911, plus agency support costs of US \$98,134 for UNDP, US \$130,962, plus agency support costs of US \$17,025 for UNEP, and US \$618,420, plus agency support costs of US \$43,289 for UNIDO.² The submission includes a progress report on the implementation of the first tranche, the verification report on HCFC consumption for 2017 and the tranche implementation plan for 2018 to 2019.

Report on HCFC consumption

11. The Government of Chile reported a consumption of 66.20 ODP tonnes of HCFC in 2017, which is 24 per cent below the HCFC baseline for compliance. The 2013-2017 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Chile (2013-2017 Article 7 data)

HCFC	2013	2014	2015	2016	2017	Baseline
Metric tonnes (mt)						
HCFC-22	606.96	758.56	661.06	915.63	710.09	859.19
HCFC-123	1.54	2.00	2.26	3.77	0.91	1.41
HCFC-124	0.07	0.68	1.09	0.27	0	0.52
HCFC-141b	383.66	292.34	282.36	116.98	244.74	357.14
HCFC-142b	2.86	3.98	2.23	0.28	3.24	9.66
HCFC-225	2.70	0.60	0.00	0.00	0.00	4.2
Sub-total (mt)	997.79	1,058.16	949.00	1,036.93	958.98	1,232.12
HCFC-141b in imported pre-blended polyols*	301.82	58.45	3.18	59.55	28.82	n/a
Total (mt)	1,299.61	1,113.34	952.18	1,096.48	987.80	1,232.12
ODP tonnes						
HCFC-22	33.38	41.72	36.36	50.36	39.05	47.26
HCFC-123	0.03	0.04	0.05	0.08	0.02	0.03
HCFC-124	0.00	0.01	0.02	0.01	0	0.01
HCFC-141b	42.20	32.16	31.06	12.87	26.92	39.29
HCFC-142b	0.19	0.26	0.14	0.02	0.21	0.63
HCFC-225	0.19	0.04	0.00	0.00	0.00	0.29
Sub-total (ODP tonnes)	75.99	74.23	67.63	63.33	66.20	87.50
HCFC-141b in imported pre-blended polyols*	33.20	6.43	0.35	6.55	3.17	n/a
Total (ODP tonnes)	109.19	80.66	67.98	69.88	69.37	87.50

*Country programme (CP) data

12. The HCFC consumption in 2017 increased by about five per cent from the 2016 consumption measured in ODP tonnes, which is attributed to the fact that in 2016, one licensed importer of HCFC-141b did not use all its quota and was given to other importers of HCFC-22, within the allowed overall annual quota for the year. In 2017, the importer of HCFC-14b used all its quota allocation therefore resulting in an increase in the imports of HCFC-141b. The policy to ban the import of HCFC-141b is currently under preparation for implementation in 2020, in support of the phase-out in the foam sector.

Country programme (CP) implementation report

13. The Government of Chile reported HCFC sector consumption data under the 2017 CP implementation report which is consistent with the data reported under Article 7 of the Montreal Protocol.

² As per the letter of 23 April 2018 from the Ministry of Environment of Chile to UNDP.

Verification report

14. 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 2017 was 66.20 ODP tonnes. The verification concluded that Chile is in compliance with its Montreal Protocol obligations.

Progress report on the implementation of the first tranche of stage II*Legal framework*

15. The National Ozone Unit (NOU) conducted several meetings regarding projects included in stage II of the HPMP with National Customs Service to define activities and arrangements from Customs counterparts. A training workshop about HCFC regulations, the new tariff headings and descriptors for HCFCs, HFCs, and products/equipment containing these substances, and future activities to be implemented were conducted for 60 Customs officers.

16. Meetings were conducted among the NOU, National Customs Services and the Legal Division of the Ministry of Environment to discuss compliance with the Agreement between the Government and the Executive Committee, including the ban of HCFC-141b in 2020 and HCFC quota reductions in 2020 (45 per cent) and 2021 (65 per cent). The NOU is preparing the Terms of Reference for a legal consultant to prepare the draft regulation that would allow the country to comply with its commitments contained in the Agreement.

Polyurethane foam (PU) manufacturing sector

17. Stage II of the HPMP included a foam sector plan to phase out 12.43 ODP tonnes of HCFC-141b used as a blowing agent in five PU discontinuous panel foam enterprises and 10.49 ODP tonnes of HCFC-141b used by 36 small and medium-sized downstream users through a systems house and a chemical distributor at a funding cost of US \$1,938,134.

Conversion of five individual PU foam enterprises

18. Project implementation was initiated in August 2016 through a workshop with an international expert; the first meeting of the Project Directive Board was held in December 2017; and meetings with all beneficiary enterprises to discuss of project-related administrative issues were conducted.

19. Agreements have been signed with two PU discontinuous panel foam enterprises to convert to cyclopentane technology (INEMA) and HFO technology (Refricentro) as of December 2017 and conversion activities are on-going. The other three enterprises are finalizing their agreements and these are expected to be signed by July 2018.

Conversion of a systems house and chemical distributor with 36 downstream users

20. Conversion of 36 small and medium-sized downstream users to HFO blowing technology through a systems house (Ixom) and a chemical distributor (Austral Chemicals) is on-going; the agreements with these two enterprises are expected to be signed in October 2018, and the conversion of the downstream users will commence after receiving letters from the individual beneficiary enterprises on their participation in the project.

Refrigeration servicing sector

21. Two train-the-trainers workshops on uses of HCFC, HFC and alternatives refrigerants, safety classification based on American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 34 standard³ flammable refrigerants (characteristics, uses, safety measures), CO₂ as refrigerant (characteristics, uses, safety measures), were conducted for 46 teachers from 20 educational institutions to support vocational training of technicians; eight training courses on introduction to natural refrigerants including practical exercise covering the same topics were conducted for 154 technicians; 26 technicians received basic training on good refrigeration practices; and the training programme was updated to include the new national standards and the draft proposal for training curriculum is under review.

22. The NOU participated in semi-annual reviews on matters related to the implementation of the certification programme for technicians in the RAC sector; the national project coordinator for this initiative was certified in the United States of America.

23. The NOU participated in meetings and workshops as technical counterpart in Climate Technology Centre and Network (CTCN)/UNIDO/Chilean Agency of Sustainability and Climate Change project related to the identification of alternatives to HFCs for agroindustry installations.

24. A technical and economic assessment of the reclamation pilot centre implemented in stage I is ongoing to assess the feasibility of establishing three regional centres in the country; and a stakeholders meeting was held in Concepción City to introduce the project of regional reclaiming centres and the interest to implement one in that city due to its high demand of refrigeration services.

Awareness programme

25. A consultant was hired to design the information campaign to promote HCFC-free technologies and products; news and educational tips on RAC including proper operation and maintenance of RAC systems, transcritical CO₂ projects in supermarkets, training courses on good servicing practices, reclaiming centre, regional training courses, lectures, and international activities are posted online at the Ministry of Environment webpage; information materials on refrigerant gases and the HPMP including timetable related to RAC matters have been distributed; a video campaign about responsible use and management of refrigerants was developed; and lectures about the ozone layer and the Montreal Protocol are carried out by the NOU across the country.

Project implementation and monitoring unit (PMU)

26. The NOU continues to work with the advisory committee consisting of representatives from the Chilean Chamber of Refrigeration and Air-conditioning Chamber, Government and academia, on activities to reduce or eliminate HCFC use in RAC sector.

Level of fund disbursement

27. As of April 2018, of the US \$1,075,646 approved so far (US \$700,955 for UNDP, US \$65,481 for UNEP, and US \$309,210 for UNIDO), US \$745,438 (69 per cent) had been disbursed as shown in Table 2. The balance of US \$330,208 will be disbursed in 2018.

³ Standard 34 describes a shorthand way of naming refrigerants and assigns safety classification based on toxicity and flammability data.

Table 2. Expenditure for stage II of the HPMP for Chile

Agency	First tranche		Total approved	
	Approved	Disbursed	Approved	Disbursed
UNDP	700,955	487,590	700,955	487,590
UNEP	65,481	30,551	65,481	30,551
UNIDO	309,210	227,297	309,210	227,297
Total	1,075,646	745,438	1,075,646	745,438
Disbursement rate (%)		69.3		69.3

Implementation plan for the second tranche of the HPMP

28. The following activities will be implemented between July 2018 and December 2019:
- PU foam sector:* Finalise the conversion of five manufacturers of discontinuous PU foam panels to cyclopentane and HFO technology; and the conversion of downstream foam enterprises to HFO blowing technology through a group project with a systems house and a chemical distributor (UNDP) (US \$1,300,902);
 - Refrigeration servicing sector:* Train 240 technicians on good refrigeration practices, 120 technicians on handling of alternative refrigerants and leak prevention programme; develop training manuals on good refrigeration practices and management of flammable refrigerants; evaluation of the performance of the established recovery and recycling centre during stage I and identification of two potential regional centres; and, two workshops on alternatives for cold room assembly and the air-conditioning sector for 40 service technicians (UNIDO) (US \$562,200);
 - Regulations and awareness raising:* Train 60 Customs officers on HCFC-related regulations; develop awareness raising programme to promote participation of large users and refrigeration technicians and consumption shift towards HCFC-free technologies and products, and train students on ozone layer protection (UNEP) (US \$130,962);
 - Monitoring programme:* Conduct verification of HCFC consumption, monitor activities and specific actions to be conducted (UNDP and UNIDO) (US \$157,229).

SECRETARIAT'S COMMENTS AND RECOMMENDATION**COMMENTS**Progress report on the implementation of the first tranche of the HPMP*Legal framework*

29. The Government of Chile has already issued HCFC import quotas for 2018 at 76.0 ODP tonnes, which is 2.75 ODP tonnes lower than the Montreal Protocol control target for that year.

PU foam manufacturing sector

30. Activities initiated in the PU foam sector for both the individual and group projects are progressing well, noting that all agreements have been drafted, two had been signed, and the rest are being finalised. UNDP also reconfirmed that the NOU has been in contact with HFO suppliers through different meetings regarding the availability of HFO in Chile. So far, a local office of a systems house affiliated with Spain has offered samples of HFO-based systems in the country, although the prices are still high. One enterprise

(Refricentro) is already testing these samples. The local systems house (Ixom), one of the beneficiaries of the foam project, has received samples of HFO from the manufacturers and is working to develop formulations for the use of its downstream users; and Austral Chemicals has also imported samples of HFO-based PU foam systems, from South Korea, which have been distributed among its clients for initial testing.

31. UNDP has also confirmed that the foam enterprise (Inema) converting to cyclopentane should be completed by the end of 2019, as planned.

Refrigeration servicing sector

32. UNDP explained that the training for natural refrigerants was designed as part of stage II of the HPMP because of the increased availability of refrigerators with hydrocarbon refrigerants in the market, ammonia has been used for a long time, and projects introducing the use of CO₂ in supermarkets, are highlighting the need for technicians to also be aware of the use of natural refrigerants, and service equipment using these. However, HCFC-22-based equipment is not being retrofitted with flammable refrigerants.

33. In responding to the query on the progress of the technical assistance to be provided to small and medium-sized enterprises particularly to assemblers of cold rooms, UNDP clarified that this will be initiated by the end of 2018 once additional progress is achieved in the training programme.

Project implementation and monitoring unit (PMU)

34. The Secretariat noted that in the work plan as submitted, the PMU costs were over programmed; accordingly UNDP adjusted the costs in a revised work plan. Overall, the PMU in close cooperation with the NOU continues to provide coordination for the various activities for stage II of the HPMP.

Conclusion

35. Chile continues to be in compliance with the Montreal Protocol and the HCFC consumption targets in its Agreement with the Executive Committee. The country's HCFC consumption in 2017 is 24 per cent below the HCFC baseline for compliance and the limit established in the Agreement. Planned activities of stage I of the HPMP have been completed. During the first tranche of stage II, two agreements have been signed for the PU foam sector, and conversion of these enterprises are on-going. All agreements for the other beneficiary enterprises in the foam sector have been completed, and currently under finalisation. Activities in the refrigeration servicing sector are also proceeding well. Fund disbursement for the first tranche has reached 69 per cent.

RECOMMENDATION

36. The Fund Secretariat recommends that the Executive Committee takes note of the progress report on the implementation of the first tranche of stage II of the HCFC phase-out management plan of (HPMP) for Chile; and further recommends blanket approval of the second tranche of stage II of the HPMP for Chile, and the corresponding 2018-2019 tranche implementation plan, at the funding levels shown in the table below.

	Project title	Project funding (US \$)	Support cost (US \$)	Implementing agency
(a)	HCFC phase-out management plan (stage II, second tranche)	1,401,911	98,134	UNDP
(b)	HCFC phase-out management plan (stage II, second tranche)	130,962	17,025	UNEP
(c)	HCFC phase-out management plan (stage II, second tranche)	618,420	43,289	UNIDO
