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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-sixth Meeting
Montreal, 9-13 May 2016

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 I, third tranche) UNEP/UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Ecuador

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase out plan (Stage I)	UNEP, UNIDO (lead)	65th	35% by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2015	20.10 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2015
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123					0.03				0.03
HCFC-124					0.01				0.01
HCFC-141b					0.96				0.96
HCFC-141b in Imported Pre-blended Polyol		15.68							15.68
HCFC-142b					0.02				0.02
HCFC-22					19.09				19.09

(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:	23.18	Remaining:	20.98

(V) BUSINESS PLAN		2016	2017	2018	2019	2020	Total
UNEP	ODS phase-out (ODP tonnes)	0.4		0.3		0.1	0.8
	Funding (US $)	33,900		28,250		11,300	73,450
UNIDO	ODS phase-out (ODP tonnes)	1.0	0.0	1.0	0.0	0.7	2.7
	Funding (US $)	92,988	0	92,988	0	59,125	245,100

(VI) PROJECT DATA			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			n/a	n/a	23.5	23.5	21.1	21.1	21.1	21.1	21.1	15.3	n/a
Maximum allowable consumption (ODP tonnes)			n/a	n/a	23.5	23.5	21.1	21.1	21.1	21.1	21.1	15.3	n/a
Agreed funding (US$)	UNEP	Project costs	30,000	0	20,000	0	0	30,000	0	25,000	0	10,000	115,000
		Support costs	3,900	0	2,600	0	0	3,900	0	3,250	0	1,300	14,950
	UNIDO	Project costs	1,531,940	0	86,500	0	0	86,500	0	86,500	0	55,000	1,846,440
		Support costs	114,896	0	6,488	0	0	6,487	0	6,487	0	4,125	138,483
Funds approved by ExCom (US$)		Project costs	1,561,940	0	106,500	0	0	0.0	0.0	0.0	0.0	0.0	1,668,440
		Support costs	118,796	0	9,088	0	0	0.0	0.0	0.0	0.0	0.0	127,884
Total funds requested for approval at this meeting (US$)		Project costs						**116,500**					116,500
		Support costs						**10,387**					10,387

Secretariat's recommendation:	Blanket approval

PROJECT DESCRIPTION

1. On behalf of the Government of Ecuador, UNIDO as the lead implementing agency, has submitted to the 76th meeting a request for funding for the third tranche of stage I of the HCFC phase-out management plan (HPMP), at a total cost of US $126,887, consisting of US $86,500, plus agency support costs of US $6,487 for UNIDO, and US $30,000, plus agency support costs of US $3,900 for UNEP. The submission includes a progress report on the implementation of the second tranche and the tranche implementation plan for 2016 to 2018.

Report on HCFC consumption

HCFC consumption

2. The Government of Ecuador reported a consumption of 20.10 ODP tonnes of HCFC in 2015. The 2011-2015 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Ecuador (2011-2015 Article 7 data)

HCFC	2011	2012	2013	2014	2015	Baseline
Metric tonnes (mt)						
HCFC-22	541.85	557.02	346.18	356.97	347.10	382.27
HCFC-123	3.73	3.45	3.36	6.27	1.27	9.18
HCFC-124	13.80	14.79	5.40	0	0.44	9.98
HCFC-141b	2.90	11.40	22.15	14.80	8.70	7.84
HCFC-142b	27.36	22.66	5.58	1.41	0.27	18.45
Sub-total (mt)	**589.64**	**609.32**	**382.67**	**379.45**	**357.78**	**427.73**
HCFC-141b in imported pre-blended polyols*	264.82	150.82	95.64	140.73	142.56	
ODP tonnes						
HCFC-22	29.80	30.64	19.04	19.63	19.09	21.02
HCFC-123	0.07	0.07	0.07	0.13	0.03	0.18
HCFC-124	0.30	0.33	0.12	0.00	0.01	0.22
HCFC-141b	0.32	1.25	2.44	1.63	0.96	0.86
HCFC-142b	1.78	1.47	0.36	0.09	0.02	1.20
Sub-total (ODP tonnes)	**32.28**	**33.76**	**22.03**	**21.48**	**20.10**	**23.49**
HCFC-141b in imported pre-blended polyols*	29.13	16.59	10.52	15.48	15.68	

*CP implementation report.

3. The peak in consumption of pure HCFC-141b in 2013 was due to its use in the servicing sector for cleaning refrigeration systems. Consumption of HCFC-141b contained in imported pre-blended polyols decreased in 2013 with the completion of a large conversion project in the polyurethane (PU) foam sector. However, it has increased again in the last two years due to growth in the construction and refrigerated-transport sectors. The 2015 HCFC consumption is below the 10 per cent reduction target (21.14 ODP tonnes) and the maximum allowable consumption established in the Agreement between the Government of Ecuador and the Executive Committee.

Country programme (CP) implementation report

4. The Government of Ecuador reported HCFC sector consumption data under the 2015 CP implementation report that is consistent with the data reported under Article 7.

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

Strengthening of the legal framework (UNEP)

5. The licensing and quota system for HCFC imports was included on a portal shared by the National Customs Service of Ecuador (SENAE) and the National Ozone Unit (NOU). The NOU monitored import licenses issued against shipments arriving in the country, and shared information with SENAE and importers. The NOU also introduced the licensing system data into the i-PIC electronic portal developed by UNEP; through this system a non-authorized shipment of 125 mt of HCFC-22 was avoided.

6. Training on control of HCFC imports and detection of illegal trade was provided to 180 customs officers, SENAE received one portable refrigerant identifier, and additional identifiers are being procured. The ban on imports of HCFC-based air-conditioning equipment was established through a technical standard on the energy efficiency of ductless air-conditioners, and the ban on HCFCs in the thermal insulation of domestic refrigeration appliances was included in a technical standard that will be approved in the first half of 2016.

Technical assistance for the refrigeration servicing sector (UNIDO)

7. Three trainers from SECAP (Servicio Ecuatoriano de Capacitación Profesional) received training on the certification scheme, operation of reclaiming facilities and alternatives to HCFC, in Colombia. Experts also visited refrigerator producers using hydrocarbon (HC), as well as a refrigeration fair in Mexico. A total of 232 technicians have been trained in good refrigeration practices. Basic tools, alternative refrigerants and equipment were delivered for the training course, and the first reclaiming machine was installed and commissioned. Sixty kilograms of HCFC-22 have been reclaimed so far. A manual for HC as alternative refrigerant is also being prepared.

8. Activities being implemented in the refrigeration servicing sector included the recovery of more than 2.5 mt of CFC-12 and 175 kg of HFC-134a from 49,500 domestic refrigerators collected and stored under an energy efficiency programme implemented by the Government. So far 120 kg of CFC have been destroyed. The remaining recovered refrigerant is planned to be reclaimed or destroyed.

Investment project to phase out HCFC-141b contained in imported pre-blended polyols in Indurama (UNIDO)

9. Equipment was installed on Indurama's premises and the safety certification was completed in April 2014. All the funds have been disbursed and the project has been completed, phasing out 136 mt (14.96 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols. The enterprise is using cyclopentane in the polyurethane (PU) foam panels and has committed to replace the HFC-134a, used for the refrigeration system, with HC-600a.

10. In 2015 UNIDO completed a new survey of the PU foam sector to prepare a proposal to phase out the remaining consumption of HCFC-141b contained in imported pre-blended polyols. The proposal will be resubmitted to a future meeting.

Level of fund disbursement

11. As of February 2016, of the US $1,668,440 approved so far, US $1,663,439 (99.7 per cent) had been disbursed (US $45,000 for UNEP and US $1,618,439 for UNIDO). The balance of US $5,001 will be disbursed in 2016 (Table 2).

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

Agency	First tranche		Second tranche		Total approved	
	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed
UNIDO	1,531,940	1,531,939	86,500	86,500	1,618,440	1,618,439
UNEP	30,000	30,000	20,000	15,000	50,000	45,000
Total	**1,561,940**	**1,561,939**	**106,500**	**101,500**	**1,668,440**	**1,663,439**
Disbursement rate (%)		100%		95.3%		99.7%

Implementation plan for the third tranche of the HPMP

12. The main activities to be implemented during the third tranche of stage I of the HPMP include:

(a) *Strengthening of the ODS legal framework (UNEP) (US $30,000):* Continue the application and monitoring of the licensing and quota system; update the technical standard to include safety issues linked to the handling, transport, recovery, recycling and storage of flammable refrigerants and provide training to 150 customs officers;

(b) *Technical assistance for the refrigeration servicing sector (UNIDO) (US $86,500)*: Continue with the training and certification programme, including handling of flammable refrigerants, for 400 refrigeration technicians; develop an on-line training programme; and implement a pilot project to replace an HCFC-22-based condensing unit by equipment designed to operate with HC-290 and HC-600a. The following activities will be performed, with the aim to declare the Galapagos islands free of ODS before 2020: quality control of refrigerant supplied, certification and tools for local technicians, a leak-reduction programme for end-users, a ban on installation of new refrigeration equipment containing ODS and distribution recovery and recycling equipment; and

(c) *Implementation, monitoring and control (UNIDO) (funding included in the above components):* Continue implementation of activities within the HPMP; and prepare relevant progress reports.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

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

Legal framework

13. The Government of Ecuador has already issued HCFC import quotas for 2016 in accordance with the Montreal Protocol control targets (21.14 ODP tonnes). During the review of the previous tranche request the Secretariat had noted that, in Ecuador, HCFC import quotas are not allocated to importers by substance. This generated a risk of non-compliance as some HCFCs have greater ozone-depleting potential (ODP) than others. UNIDO confirmed that the amendment to the import quotas from metric kilograms to ODP kilograms was done in 2013. In the case of HCFC-141b contained in imported pre-blended polyols, an import quota is expected to be established in 2016.

Refrigeration servicing sector

14. With regard to the pilot project to replace a condensing unit with an HC-based system, UNIDO explained that an HCFC-22-based condensing unit in one of the cool chambers of the flower-sector association will be replaced with one with the same characteristics but originally designed for HC-290. Good service practices for installation will be implemented, and energy consumption will be collected

before and after the replacement of the equipment to measure the reductions achieved. Recovered refrigerant will be reclaimed and returned to the sector, at the sector's cost. The results of the pilot project will be shared with the sector with the aim to replicate the activity. The HPMP would assist in the selection of condensing units for future replacement and training of service technicians.

15. Given the results in replacing 49,500 old domestic refrigerators with energy-efficient ones and recovering more than 2.5 mt of CFC-12 in the process, the Secretariat inquired whether this model could be applied to HCFC-based air-conditioning units. UNIDO explained that one of the pillars of the programme was to promote the local manufacturing industry (e.g., Indurama) as they supplied the new refrigerators. However, there is no manufacturing of air-conditioners in Ecuador and consumption in the sector is not significant given mild climate conditions. Furthermore, the Government does not plan to subsidise half of the cost of new air-conditioning units as it has done for domestic refrigerators. Instead, UNIDO is planning to promote air-conditioners designed and developed to work with HC-290 as a pilot project. Some units will be procured and installed in training centres to assess performance and train technicians.

16. Considering the emissive nature of the use of HCFC-141b in flushing refrigeration circuits during servicing, the Government of Ecuador intended to achieving, during stage I, total phase-out of HCFC-141b used for this purpose, and to ban the import of HCFC-141b in bulk as of January 2017. UNIDO explained that proper flushing of refrigeration circuits has been one of the main subjects included in the training of technicians, and in the third tranche it will provide specific workshops for technicians on alternatives that have been applied successfully in other countries. Despite this, UNIDO also informed that some importers are promoting the use of HCFC-141b for flushing, as the price of HCFC-141b is still more convenient for technicians. In addition, it has been found that a small portion of it is being used in the PU-foam-manufacturing sector.

17. While the Government of Ecuador is mindful of its intention to ban imports of pure HCFC-141b as of January 2017, it would be difficult to separate the two uses in a ban. Upon discussion it was agreed that given the current circumstances, in particular the fact that there are still eligible PU foam enterprises using HCFC-141b, the Government would be in a better position to commit to a future ban on imports and use of HCFC-141b, pure or contained in polyols by the time the PU foam sector plan is re-submitted. In the meantime, UNIDO will continue providing assistance to eliminate the consumption of HCFC-141b as flushing agent in servicing.

Conclusion

18. Ecuador has been in compliance with the Montreal Protocol and the Agreement since 2013. During the implementation of the second tranche, the HCFC import licensing and quota system was improved, and the conversion of a domestic-refrigeration-manufacturing enterprise was completed with the phase-out of 14.96 ODP tonnes of HCFC-141b contained in imported pre-blended polyols. In the refrigeration servicing sector activities included training of trainers, delivery of tools for training, and reclaiming equipment. The Government of Ecuador has committed to establishing a ban on imports of pure HCFC-141b by the time the PU foam sector plan is submitted.

RECOMMENDATION

19. The Fund Secretariat recommends that the Executive Committee take note of the progress report on the implementation of the second tranche of stage I of the HCFC phase-out management plan (HPMP) for Ecuador; and further recommends blanket approval of the third tranche of stage I of the HPMP for Ecuador, and the corresponding 2016-2018 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 I, third tranche)	86,500	6,487	UNIDO
(b)	HCFC phase-out management plan (stage I, third tranche)	30,000	3,900	UNEP