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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: NICARAGUA**

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 and UNIDO

**PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS**

**Nicaragua**

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out management plan (stage I)	UNEP (lead), UNIDO	66 <sup>th</sup>	35 per cent by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2016	4.89 (ODP tonnes)
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(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-22					4.22				4.22
HCFC-141b in imported pre-blended polyols		0.02							0.02

(IV) CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline:	6.8	Starting point for sustained aggregate reductions:	7.11
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	2.69	Remaining:	4.42

(V) BUSINESS PLAN		2018	2019	2020	Total
UNEP	ODS phase-out (ODP tonnes)	0.24	0	0.08	0.32
	Funding (US \$)	33,900	0	11,300	79,100
UNIDO	ODS phase-out (ODP tonnes)	0.41	0	0.21	0.62
	Funding (US \$)	54,500	0	27,795	136,795

(VI) PROJECT DATA			2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			n/a	6.80	6.80	6.12	6.12	6.12	6.12	6.12	4.42	n/a
Maximum allowable consumption (ODP tonnes)			n/a	6.80	6.80	6.12	6.12	6.12	6.12	6.12	4.42	n/a
Agreed funding (US \$)	UNEP	Project costs	38,000	0	0	30,000	0	0	30,000	0	10,000	108,000
		Support costs	4,940	0	0	3,900	0	0	3,900	0	1,300	14,040
	UNIDO	Project costs	96,500	0	0	50,000	0	0	50,000	0	25,500	222,000
		Support costs	8,685	0	0	4,500	0	0	4,500	0	2,295	19,980
Funds approved by ExCom (US \$)		Project costs	134,500	0	0	80,000	0	0				214,500
		Support costs	13,625	0	0	8,400	0	0				
Total funds requested for approval at this meeting (US \$)		Project costs							80,000			80,000
		Support costs							8,400			8,400

<b>Secretariat's recommendation:</b>	For blanket approval
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## PROJECT DESCRIPTION

1. On behalf of the Government of Nicaragua, UNEP, as the lead implementing agency, has submitted 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 \$88,400, consisting of US \$30,000, plus agency support costs of US \$3,900 for UNEP, and US \$50,000, plus agency support costs of US \$4,500 for UNIDO.<sup>1</sup> The submission includes a progress report on implementation of the second tranche and the tranche implementation plan for 2018 to 2020.

### Report on HCFC consumption

2. The Government of Nicaragua reported consumption of 4.89 ODP tonnes of HCFC in 2016 and estimated consumption of 4.24 ODP tonnes for 2017, which is 38 per cent below the HCFC baseline for compliance. The HCFC consumption for 2013–2017 is shown in Table 1.

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

HCFC	2013	2014	2015	2016	2017*	Baseline
<b>Metric tonnes</b>						
HCFC-22	53.86	80.67	79.35	85.55	76.69	111.18
HCFC-124	1.61	0.36	0.94	0.54	0.00	1.36
HCFC-141b	5.12	8.70	11.92	1.56	0.00	5.36
<b>Total (mt)</b>	<b>60.59</b>	<b>89.73</b>	<b>92.21</b>	<b>87.65</b>	<b>76.69</b>	<b>118.39</b>
HCFC-141b in imported pre-blended polyols	0.14	5.61	2.49	0.61	0.22	2.81**
<b>ODP tonnes</b>						
HCFC-22	2.96	4.44	4.36	4.71	4.22	6.11
HCFC-124	0.04	0.01	0.02	0.01	0.00	0.03
HCFC-141b	0.56	0.96	1.31	0.17	0.00	0.59
<b>Total (ODP tonnes)</b>	<b>3.56</b>	<b>5.41</b>	<b>5.69</b>	<b>4.89</b>	<b>4.22</b>	<b>6.80</b>
HCFC-141b in imported pre-blended polyols	0.02	0.62	0.27	0.07	0.02	0.31**

\*Country programme data submitted on 18 May 2018.

\*\*Average consumption between 2007 and 2009.

3. Since the approval of stage I of the HPMP, HCFC consumption has been below the targets established by the Montreal Protocol and the Agreement between the Government and the Executive Committee. The fluctuations on HCFC consumption are due to market forces, but overall consumption is controlled through the import quota system. Import quotas have always been issued at levels below the allowable HCFC consumption; the quotas for 2017 was established at 90.20 mt (4.96 ODP tonnes).

4. Until 2017, HCFC-141b was imported for flushing refrigeration systems during servicing, and HCFC-141b contained in pre-blended polyols was imported to produce polyurethane foam in small commercial equipment and spray applications. In 2017, the consumption of HCFC-141b pure was zero and the consumption of HCFC-141b contained in imported pre-blended polyols was minimal due to a ban on imports of HCFC-141b pure or in pre-blended polyols that entered into force in December 2017.

### *Country programme (CP) implementation report*

5. In its 2016 CP implementation report, the Government of Nicaragua reported HCFC sector consumption data consistent with the data reported under Article 7 of the Montreal Protocol.

<sup>1</sup> As per the letter of 12 May 2018 from the Ministry of Environment and Natural Resources of Nicaragua to UNEP.

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

*Legal framework*

6. During implementation of the HPMP, the HCFC licensing and quota system has been revised to include allocation of quotas by type of substance measured in both metric and ODP tonnes; the import permit format has been improved to facilitate HCFCs imports control, and the customs code has been revised to better identify the refrigerants imported into the country.

7. In December 2016, the Ministries of the Environment and Natural Resources and of Energy and Mines approved a mandatory plan to recover HCFC-22 during servicing of refrigeration and air-conditioning (RAC) equipment. A guide and technical standards for the procurement of new RAC equipment by the public sector following established environmental parameters, were agreed in October 2017.

8. The Government has also issued a ban on imports of HCFC-141b (pure and in pre-blended polyols), effective as of December 2017, and is currently considering banning imports of HCFC-22-based RAC equipment for a date still to be decided. Thirty-five customs officers have been familiarized with the revisions to legal instruments to control ODS, and additional workshops are scheduled for June 2018 at six different customs entry points.

*Refrigeration servicing sector*

9. The following activities were conducted:

- (a) One hundred and forty technicians in three cities were trained in good refrigeration service practices and handling hydrocarbon (HC) refrigerants while servicing HC-based refrigeration equipment. In addition, the National Technology Institute certified 300 technicians;
- (b) A refrigerant reclamation centre was established in the capital city (Managua) at the Nicaraguan-German Training Centre (CECNA) and 50 technicians were trained in the use of the reclamation unit, which can operate with multiple refrigerants (e.g., HCFC-22, HFC-134a and R-407C). The centre is intended to serve mainly large end-users handling a variety of refrigerants and independent technicians. The refrigerant will be stored and processed only when certain amount has been collected. CECNA will charge a fee for the reclamation service in order to operate in a self-sustaining manner;
- (c) Refrigeration tool kits (e.g., vacuum pumps, hand-held electronic leak detectors, service manifolds for R-600 and R-290, cylinders, and filter driers) were purchased and delivered to the reclamation centre; and
- (d) Public-awareness activities included promotion of the technician certification programme, promotion of good RAC servicing practices, and the reproduction and distribution of technical data sheets on, *inter alia*, domestic cooling and safe use of alternatives.

*Project implementation and monitoring unit (PMU)*

10. The main activities included: stakeholder coordination; monitoring of project activities and results, of technology development and emerging alternatives and of market trends in HCFC use; and preparation of annual progress reports.

Level of fund disbursement

11. As at May 2018, of the US \$214,500 approved so far, US \$177,962 had been disbursed (US \$43,500 for UNEP and US \$134,462 for UNIDO) as shown in Table 2. The balance of US \$36,538 will be disbursed in 2018.

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

Agency	First tranche		Second tranche		Total approved	
	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed
UNEP	38,000	38,000	30,000	5,500	68,000	43,500
UNIDO	96,500	94,776	50,000	39,686	146,500	134,462
<b>Total</b>	134,500	132,776	80,000	45,186	214,500	177,962
<b>Disbursement rate (%)</b>	99		57		83	

Implementation plan for the third tranche of the HPMP

12. The following activities will be implemented between July 2018 and June 2020:

- (a) Technical assistance to improve control of ODS trade: further dissemination of the updated legal framework among the relevant institutions and the general public; printing of a booklet on the updated regulations; continued coordination with other national authorities on trade control measures; and training of an additional 100 customs officers; (UNEP) (US \$13,600);
- (b) Technical assistance for the RAC servicing sector and technician certification: continued promotion of and provision of training in the proper use of HC given the presence of HC-based equipment in domestic refrigeration; ongoing development of national expertise in the handling of refrigerants with low global-warming potential (GWP); enhancement of the certification programme for refrigeration servicing technicians and certification of an estimated 300 more technicians; establishment of a new training centre in a second city (Granada) and provision of training in good refrigeration practices to an additional 120 technicians, including the use of nitrogen and other non-ODS flushing agents (UNIDO) (US \$15,800);
- (c) Investment in RAC end-users: conduct of a demonstration programme for supermarkets, melon producers and service providers on reducing refrigerant consumption and maintaining optimal equipment performance; promotion of good refrigeration practices, including refrigerant containment and leak reduction, to extend the life of RAC equipment and reduce electricity use. The programme aims to create awareness of the costs associated with poor servicing practices including leaking and venting of refrigerants, and to promote good servicing practices, which will maintain efficiency and the life expectancy of the equipment, reducing consumption of energy. The plan is to involve one supermarket initially, as a pilot, with the expectation that the concept can be replicated with other facilities (UNIDO) (US \$25,700);
- (d) Technical assistance to the polyurethane foam manufacturing sector: technical support, including the conduct of a workshop to test and provide training in the use of different non-HCFC-141b pre-blended polyols following the established ban on imports of HCFC-141b in pre-blended polyols (UNIDO) (US \$8,500); and
- (e) PMU: continuous monitoring, evaluation and implementation of the HPMP activities and oversight of its outcomes and impact (UNEP) (US \$16,400).

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

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

##### *Legal framework*

13. The Government of Nicaragua has already issued HCFC import quotas for 2018 at 84.47 mt (4.65 ODP tonnes); which is lower than the Montreal Protocol control targets.

14. Given the need to ensure proper conditions for handling flammable refrigerants in the country, the Secretariat has followed up on the status of the proposed standard to govern the import, export, quality, transport, storage and commercialization of flammable alternative refrigerants given the presence of domestic refrigerators containing HCs. UNEP has indicated that the issues are being discussed among the main stakeholders in the country and a proposal for a standard has been reached. The draft standard is being analysed by the Ministry of Industry and the process is expected to be completed by the end of 2018.

##### *Refrigeration servicing sector*

15. The Secretariat enquired about activities underway or planned, to ensure that technicians continue to receive training in a self-sustained manner once the programme has been completed. In this regard, UNEP explained that a local training centre (INTECNA), will be properly equipped with training equipment and tools and trainers from CECNA to become one of the leading training centre on refrigeration. Furthermore, CECNA and the Ministry of Environment and Natural Resources are working to strengthen other small training centres, providing tools and ensuring that their curriculums contain the relevant subjects relating to refrigeration.

16. With regard to the technician certification system, UNEP has indicated that, while certification is being actively promoted, it is not yet compulsory and there are no plans to take steps such as restricting the sale of refrigerants to certified technicians.

17. Concerning the status of introduction of low-GWP alternative refrigerants and equipment based on those refrigerants into the domestic market, and their affordability, UNEP informed that HFC-134a is currently the main refrigerant on the market; R-600a is already being used in domestic refrigerators; the main refrigerants for AC continue to be R-404A and R-410A; and some R-404A is used in the industrial sector.

18. The Secretariat discussed with the agencies the activities for end-users included in the next tranche. In this regard, UNIDO explained that the retrofit of HCFC-based equipment to flammable refrigerants is not being promoted. On the contrary, it is discouraged. Rather than focusing on investment and conversion of RAC equipment to low-GWP alternatives, the project is seeking to ensure the containment of refrigerants in existing equipment and demonstrate the associated advantages.

#### Conclusion

19. Between 2015 and 2017, Nicaragua was in compliance with the Montreal Protocol and the Agreement on stage I. HCFC import quotas for 2017 and 2018 have been set below the control targets and the national system of licensing and quotas for HCFCs has seen improvements in past years. Activities continue to be implemented as planned, including the training of 140 technicians and 35 customs officers and certification of 300 technicians. Rather than focusing on conversion of RAC equipment to low-GWP alternatives, the Government is focusing on ensuring better management of the HCFC-based equipment in

operation. The establishment of a reclamation centre to serve end-users complements this approach. Considering the limited availability of equipment based on low-GWP refrigerants for all applications, this strategy seems prudent, and economically viable for end-users as it will postpone large investments by extending life expectancy of existing equipment.

## RECOMMENDATION

20. 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 Nicaragua; and it further recommends blanket approval of the third tranche of stage I of the HPMP for Nicaragua, and the corresponding 2018–2020 tranche implementation plan, at the funding levels shown in the table below:

	<b>Project title</b>	<b>Project funding (US \$)</b>	<b>Support costs (US \$)</b>	<b>Implementing agency</b>
(a)	HCFC phase-out management plan (stage I, third tranche)	30,000	3,900	UNEP
(b)	HCFC phase-out management plan (stage I, third tranche)	50,000	4,500	UNIDO