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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Sixty-first Meeting  
Montreal, 5-9 July 2010

**PROJECT PROPOSAL: DOMINICAN REPUBLIC**

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

Foam

- Conversion from HCFC-141b in the manufacture of polyurethane rigid insulation foam for commercial refrigerators

UNDP

**PROJECT EVALUATION SHEET – NON-MULTI-YEAR PROJECT  
DOMINICAN REPUBLIC**

**PROJECT TITLE(S)****BILATERAL/IMPLEMENTING AGENCY**

(a) Conversion from HCFC-141b in the manufacture of polyurethane rigid insulation foam for commercial refrigerators	UNDP
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**NATIONAL CO-ORDINATING AGENCY**

Programa Nacional de Ozono (PRONAOZ) Subsecretaría de Gestión Ambiental

**LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT****A: ARTICLE-7 DATA (ODP TONNES, 2008, AS OF MAY 2010)**

HCFCs	48.9		

**B: COUNTRY PROGRAMME SECTORAL DATA (ODP TONNES, 2008, AS OF MAY 2010)**

ODS			
HCFC-22	48.1	HCFC-123	0.3
HCFC-141b	0.5		

**CFC consumption remaining eligible for funding (ODP tonnes)**

0.0

**CURRENT YEAR BUSINESS PLAN  
ALLOCATIONS**

Funding US \$

Phase-out ODP tonnes

(a)

178,867

0.2

<b>PROJECT TITLE:</b>	
ODS use at enterprise (ODP tonnes):	3.74
ODS to be phased out (ODP tonnes):	3.74
Project duration (months):	18
Initial amount requested (US \$):	395,500
Final project costs (US \$):	
Incremental Capital Cost:	345,000
Contingency (10 %):	34,500
Incremental Operating Cost:	16,000
Total Project Cost:	395,500
Local ownership (%):	100
Export component (%):	N/A
Requested grant (US \$):	332,775
Cost-effectiveness (US \$/kg):	9.79
Implementing agency support cost (US \$):	24,958
Total cost of project to Multilateral Fund (US \$):	357,733
Status of counterpart funding (Y/N):	Y
Project monitoring milestones included (Y/N):	Y
<b>SECRETARIAT'S RECOMMENDATION</b>	For individual consideration

## **PROJECT DESCRIPTION**

1. On behalf of the Government of Dominican Republic, UNDP has submitted to the 61<sup>st</sup> Meeting of the Executive Committee a project to phase out the use of 3.74 ODP tonnes (34.0 metric tonnes) of HCFC-141b used by Fábrica de Refrigeradores Comerciales (FARCO) in the manufacture of polyurethane rigid insulation foam for commercial refrigerators. The cost of the project as submitted is US \$332,775 plus agency support costs of US \$24,958. It is scheduled to be completed in 18 months.
2. FARCO will convert its HCFC-141b foam manufacturing operations to the use of cyclopentane as blowing agent, as other alternative technologies were not technically feasible (water-based or methyl formate technologies) or economically viable (HFC). The introduction of cyclopentane technology will require replacing the existing high pressure and low pressure dispensers with one new dispenser with two mixing heads, and installing a premixing station. It will also require an extraction station in which moulds and fixtures can be moved during filling; safety-related equipment (including gas sensing, alarm systems and other measures to ensure safe use of cyclopentane); trials, training and safety audits. The total incremental capital cost of the project is US \$379,500 (including 10 per cent contingency). Implementation of the project will result in incremental operating cost of US \$16,000 for a two-year period. The company is requesting US \$332,775 from the Multilateral Fund (US \$9.79/kg).
3. It is stated in the project proposal that the company is forced to submit the project for accelerated HCFC phase-out by the fact that one of its main customers, who wishes immediate conversion to zero ODP/low GWP gases, will otherwise remove FARCO from the approved supplier list, with major economic consequences for the plant, including job losses.

## **SECRETARIAT'S COMMENTS AND RECOMMENDATION**

### **COMMENTS**

4. The project proposal was first considered by the Executive Committee at its 59<sup>th</sup> Meeting. The main issue in relation to the project was the lower level of HCFC-141b consumption reported under Article 7 of the Protocol (0.5 ODP tonnes) as compared to the amount of HCFCs to be phased out through the project (2.6 ODP tonnes). The difference was due to the fact that the Government had not included the consumption of HCFCs contained in imported pre-blended polyol systems and used by the foam enterprise. Following a discussion, the Committee deferred consideration of the project to a future Meeting (decision 59/33). The issue of consumption arising from HCFC-141b contained in imported pre-blended polyol systems has been presented for consideration by the 61<sup>st</sup> Meeting in document UNEP/OzL.Pro/ExCom/61/53.
5. On 11 May 2010, through an official communication submitted to the Executive Secretary of the Ozone Secretariat, the Government of Dominican Republic requested a review of its HCFC-141b consumption data for 2008, to add 150 metric tonnes (16.5 ODP tonnes) contained in imported formulated polyol systems and 8.9 metric tonnes (1.0 ODP tonnes) used for flushing refrigeration systems. The Ozone Secretariat has issued a note to the 30<sup>th</sup> Meeting of the Open-Ended Working Group (OEWG) highlighting the issue of treatment of polyols for further consideration by the Parties. In the interim, the Ozone Secretariat has not taken any action on the request by Dominican Republic (and other Parties) for changing its HCFC-141b consumption data.
6. The Secretariat reviewed the project in the context of the policy paper on the revised analysis of relevant cost considerations surrounding the financing of HCFC phase-out, submitted to the 55<sup>th</sup> Meeting (UNEP/OzL.Pro/ExCom/55/47), and the criteria for funding HCFC phase-out in the consumption sector agreed by the Executive Committee at its 60<sup>th</sup> Meeting (decision 60/44).

HCFC consumption in the manufacturing sector

7. The Executive Committee approved funding for conversion from CFC-11 to HCFC-141b technology for the following four manufacturing enterprises in Dominican Republic. Except for Industria Continental, all other enterprises are still in production:

Project	Impact* (ODP tonnes)	Funding approved (US \$)	Date	
			Approved	Completed
Elimination of CFC-11 and CFC-12 in the manufacture of unitary commercial refrigeration equipment at Farco	27.0	423,209	May-97	Nov-98
Elimination of CFC-11 and CFC-12 consumption in the manufacture of unitary commercial refrigeration equipment at Metalgas S.A.	19.3	316,368	Mar-98	Dec-99
Elimination of CFC-11 and CFC-12 consumption in the manufacture of unitary commercial refrigeration equipment at Industria Continental, C.A.	14.9	303,200	Jul-98	Dec-99
Phase-out of CFC-11 by conversion to HCFC-141b in the manufacture of rigid polyurethane foam (panels and sprayfoam) at Paredomi	60.7	177,670	Nov-99	Apr-02

(\*) Includes only the amounts of CFC-11 used by the enterprises.

8. In addition, there are three enterprises that did not receive MLF funding for conversion that manufacture HCFC-141b-based foams: Aislantes y Techos (spray foam), and Everlast Door and Ever Door (doors).

9. UNDP indicated that the increase in the level of consumption of the enterprise (FARCO) in the resubmitted proposal (3.74 ODP tonnes) compared to that in the proposal submitted to the 59<sup>th</sup> Meeting (2.6 ODP tonnes), was associated with a revision to the amount of HCFC-141b contained in the formulated polyol system used by the enterprise.

HCFC phase-out strategy

10. The Government of Dominican Republic is proposing to submit its HPMP to the 63<sup>rd</sup> Meeting of the Executive Committee. Based on the surveys conducted so far, the HCFC consumption for each HCFC currently used in Dominican Republic is shown in the table below.

**HCFC consumption in Dominican Republic**

Substance	2008		2009		2010		2011		2012	
	Metric	ODP	Metric	ODP	Metric	ODP	Metric	ODP	Metric	ODP
HCFC-22	874.3	48.1	763.1	42.0	874.4	48.1	979.3	53.9	1,096.8	60.3
HCFC-141b*	158.9	17.5	158.3	17.4	158.9	17.5	178.0	19.6	199.3	21.9
HCFC-123	16.4	0.3	-	-	16.5	0.3	18.5	0.4	20.7	0.4
Total	1,049.6	65.9	921.4	59.4	1,049.8	65.9	1,175.8	73.9	1,316.8	82.6

\* Including amounts contained in formulated polyol systems.

11. Based on the figures presented in the above table, the estimated HCFC baseline for compliance is 62.64 ODP tonnes (which takes into account HCFC-141b in imported formulated polyol systems). The Government of Dominican Republic agreed to use the 2008 HCFC consumption level as its starting point for sustained aggregate reduction in HCFC consumption.

Technical and cost related issues

12. The Secretariat discussed the following technical and cost issues when the project was submitted to the 59<sup>th</sup> Meeting: funding for the second low-pressure dispenser, since only one low-pressure dispenser existed at the time of conversion from CFC-11 to HCFC-141b technology (22<sup>nd</sup> Meeting of the Committee). UNDP responded that the dispenser replaced in the CFC phase-out project (a 1987 Decker DB 30 low-pressure dispenser) was destroyed and the company purchased another 30 kg/min low-pressure dispenser in 1998 for some new products. Accordingly, the current production line was different from the one existing in 1996 when the enterprise was converted to non-CFC technologies. Since the conversion to cyclopentane would require a higher output dispenser for large fixtures, it would be more economical and consistent with the production layout to replace both machines by one double-head with two-phase motors instead of having two high-pressure dispensers.

13. The cost of the project was agreed at US \$395,500 (i.e., US \$379,500 incremental capital cost and US \$16,000 operating cost). However, on the basis of the criteria for funding HCFC phase-out in the consumption sector, the eligible level of funding is US \$332,775 (based on the cost-effectiveness of US \$7.83/kg for rigid insulation foams adjusted by 25 per cent for the introduction of a low global warming (GWP) alternative technology). The enterprise has agreed to pay the funding difference from its own resources.

Impact on the environment

14. The Secretariat attempted to make a preliminary calculation of the impact on the climate of the phase-out of HCFC consumption through the FARCO foam project in Dominican Republic, based only on the GWP values of the blowing agents and their levels of consumption before and after conversion. According to this methodology, once the project is completed, a total of 34.0 metric tonnes of HCFC-141b will be phased out, 13.0 tonnes of cyclopentane will be phased in, and 23,917 tonnes of CO<sub>2</sub> that would have been emitted into the atmosphere will have been avoided.

<b>Substance</b>	<b>GWP</b>	<b>Tonnes/year</b>	<b>CO<sub>2</sub>-eq (tonnes/year)</b>
Before conversion			
HCFC-141b	713	34.00	24,242
After conversion			
HC	25	13.00	325
Net impact			(23,917)

**RECOMMENDATIONS**

15. The Executive Committee may wish to consider this project in light of the above comments by the Secretariat and the policy paper on imported fully formulated polyol systems submitted to the 61<sup>st</sup> Meeting.

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