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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-second Meeting
Montreal, 29 November - 3 December 2010

PROJECT PROPOSAL: ALGERIA

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

Foam

• Conversion from HCFC-141b in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at Cristor	UNIDO

PROJECT EVALUATION SHEET – NON-MULTI-YEAR PROJECTS
ALGERIA

PROJECT TITLE	IMPLEMENTING AGENCY
(a) Conversion from HCFC-141b in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at Cristor	UNIDO

NATIONAL CO-ORDINATING AGENCY	Ministere de l'Amenagement du Territoire et de l'Environnement

LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT

A: ARTICLE-7 DATA (ODP TONNES, 2009, AS OF SEPTEMBER 2010)

HCFCs	30.2		

B: COUNTRY PROGRAMME SECTORAL DATA (ODP TONNES 2009, AS OF OCTOBER 2010)

ODS Name	Quantity		Quantity	Totals
HCFC-141b	4.56	HCFC-22	24.55	30.2
HCFC-141b polyols	1.10			

HCFC consumption remaining eligible for funding:	n/a

		Funding US $	Phase-out (ODP tonnes)
CURRENT YEAR BUSINESS PLAN ALLOCATIONS	(a)	169,060	2.0

PROJECT TITLE:

ODS USE AT ENTERPRISE:	ODP tonnes	2.4
ODS TO BE PHASED OUT:	ODP tonnes	2.4
ODS TO BE PHASED IN:	ODP tonnes	0
PROJECT DURATION:	Months	24
INITIAL AMOUNT REQUESTED:	US$	485,604
PROJECT COSTS:		
Incremental Capital Cost	US$	196,405
Contingency (10%)	US$	19,640
Incremental Operating Cost	US$	-665
Total Project Cost	US$	215,380
LOCAL OWNERSHIP:		100 %
EXPORT COMPONENT:		0 %
REQUESTED GRANT:	US$	215,380
COST- EFFECTIVENESS:	US$/kg	9.79
	Applicable threshold	n/a
IMPLEMENTING AGENCY SUPPORT COST:	US $	19,384
TOTAL COST OF PROJECT TO MULTILATERAL FUND:	US $	234,764
STATUS OF COUNTERPART FUNDING:		Yes
PROJECT MONITORING MILESTONES INCLUDED:		Yes

SECRETARIAT'S RECOMMENDATION:	Individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Algeria, UNIDO has submitted to the 62nd Meeting of the Executive Committee a project to phase out the use of 22.0 metric tonnes (2.4 ODP tonnes) of HCFC-141b in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at CRISTOR Company. The total cost of the project as submitted is US $485,604 plus agency support costs of US $36,420. It is scheduled to be completed in 24 months.

2. The HCFC phase-out management plan (HPMP) preparation in Algeria is still in progress and thus the project has been submitted in accordance with decision 54/39(d).

Conversion project for CRISTOR

3. CRISTOR is a locally-owned manufacturer of domestic refrigerators and freezers established in 1997. In 2006, CRISTOR bought a second-hand refrigeration manufacturing plant from a company based in Spain. In 2009, the total production output was 10,083 units; however, it has been increased to 34,475 units and is projected to rise to 150,000 units per year by 2012. The current blowing agent is HCFC-141b.

4. The current CRISTOR production line was designed to use cyclopentane as a blowing agent. It includes a pre-mixing station and a buffer tank for delivering polyurethane chemicals to three foam machines (one for cabinets, one for doors and the third one for freezers). For safety reasons and due to lack of expertise, the enterprise started manufacturing the foam insulation for refrigeration systems using HCFC-141b as a blowing agent.

5. The enterprise has decided to replace HCFC-141b with cyclopentane. The surrounding area of the CRISTOR plant allows for the introduction of a hydrocarbon-based technology without delays in implementation of the project. As the manufacturing equipment is based on cyclopentane technology, the conversion includes completion of the installation of the cyclopentane storage tank, retrofit of the pre-mixing station, retrofit of the three foam lines (US $45,000); ventilation and safety systems for the use of hydrocarbons (US $307,000), civil and electrical works, trials, testing, technical assistance and training (US $65,000); and 10 per cent for contingencies (US $41,700). Incremental operating costs have been estimated at US $26,904 and the cost-effectiveness of the investment project is US$22.07/kg.

6. The project implementation time frame is two years.

COMMENTS

HCFC consumption

7. The Government of Algeria reported under Article 7 of the Montreal Protocol a consumption of 120 metric tonnes (6.6 ODP tonnes) of HCFCs for each year between 2002 and 2006. In 2007 and 2008 HCFC consumption increased to 170 metric tonnes (12.1 ODP tonnes) and 180 metric tonnes (13.2 ODP tonnes) and to 497.8 metric tonnes (30.2 ODP tonnes) in 2009. Based on the survey conducted for the preparation of the HPMP, 497.8 metric tonnes (30.2 ODP tonnes) of HCFCs were consumed in Algeria, as shown in Table 1. About 19 per cent of the total HCFC consumption (measured in ODP tonnes) was HCFC-141b used in the foam sector.

Table 1. HCFC consumption in Algeria (2009)

HCFC	Foam	Refrigeration	Total
Metric tonnes			
HCFC-22	-	446.3	446.3
HCFC-141b	41.3	10.2	51.5
Total metric tonnes	41.3	456.5	497.8
ODP tonnes			
HCFC-22	-	24.5	24.5
HCFC-141b	4.5	1.1	5.7
Total ODP tonnes	4.5	25.6	30.2

8. UNIDO explained that the results of the survey conducted for the preparation of the HPMP showed an increase in the consumption of HCFC-22 due to an increase in the local production of HCFC-based refrigeration systems between 2008 and 2009.

HPMP strategy

9. Based on 2009 (reported) and 2010 (estimated) consumption, the HCFC baseline for compliance has been estimated at 31.0 ODP tonnes. UNIDO reported that the Government of Algeria has selected its HCFC baseline for compliance as the starting point for aggregate reductions in HCFC consumption. The Government of Algeria is expecting to submit its HPMP no later than the 64th Meeting.

10. The project to convert CRISTOR was selected for implementation during stage I of the HPMP since it is the only enterprise blending polyol with HCFC-141b *in situ*. The other 12 foam enterprises, including those previously converted from CFC-11, all use imported pre-blended polyol systems with HCFC-141b (75.0 metric tonnes or 8.3 ODP tonnes). The other large manufacturing enterprise (CONDOR), which produces refrigeration and air conditioning systems (using HCFC-22 in the refrigeration circuit), will be converted at a future stage. The HCFC consumption at CRISTOR (2.4 ODP tonnes), represents 7.7 per cent of the HCFC baseline for Algeria.

Technical and cost issues

11. The Secretariat and UNIDO discussed several technical and cost-related issues. Subsequently it was agreed that all funding requested for retrofitting the equipment in the baseline was not eligible, as it operates adequately with cyclopentane. The request for safety-related equipment was adjusted to cover the enclosure of only one foam machine (instead of three) and the installation of safety-related equipment for the use of hydrocarbon technology, which was not in the baseline. This resulted in a cost of US $241,335 after deducting US $665 in operating savings. The final cost of the project recommended for approval is US $215,380 compared to US $485,604 as submitted (cost-effectiveness of US $9.79/kg).

Climate impact

12. A preliminary calculation of the impact on the climate of HCFC consumption through the foam project in Algeria based solely on the global warming potential (GWP) values of the blowing agents and their level of consumption before and after conversion is as follows: 22.0 metric tonnes of HCFC-141b will be phased out, 13.8 tonnes of cyclopentane will be phased in, and 15,341 tonnes of CO_2- equivalent that would have been emitted into the atmosphere will have been avoided (Table 2).

Table 2. Calculation of the impact on the climate

Substance	GWP	Metric tonnes/year	CO2-eq (tonnes/year)
Before conversion			
HCFC-141b	713	22.0	15,686
After conversion			
Cyclopentane	25	13.8	345
Net impact			(15,341)

RECOMMENDATION

13. The Executive Committee may wish to consider:

(a) Approving the project proposal for the conversion from HCFC-141b in the manufacture of polyurethane rigid insulation foam for domestic refrigeration at CRISTOR Company at a total cost of US $215,380 and agency support costs of US $19,384 for UNIDO;

(b) Noting that the Government of Algeria has agreed at the 62nd Meeting to establish as its starting point for sustained aggregate reductions in HCFC consumption the average level of consumption in 2009 and 2010 (estimated at 31.0 ODP tonnes);

(c) Deducting 2.4 ODP tonnes of HCFCs from the starting point for sustained aggregate reductions in HCFC; and

(d) Requesting UNIDO to provide to the Secretariat, at the end of each year of the projects' implementation period, progress reports that address the issues pertaining to the collection of accurate data in line with the objectives of decision 55/43(b), and to include these reports in the implementation reports of the HPMP, once it is approved.

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