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Executive Committee of
the Multilateral Fund for the
Implementation of the Montreal Protocol

Twentieth Meeting
Montreal, 16-18 October 1996

PROJECT PROPOSAL: MOROCCO

This document includes the Comments and Recommendations from the Fund Secretariat on the following project:

Foam

- Phase out of CFCs in the manufacture of integral skin and cold cured molded PUF products at Magheb Elastoplast

UNDP

SECTOR:	FOAM	ODS use in sector (1994):	417 ODP tonnes
Sub-sector cost-effectiveness thresholds:	Integral Skin Polyurethane		US \$16.86/kg

Phase-out of CFCs in the manufacture of integral skin and cold cured molded PUF products at Maghreb Elastoplast.

Project Data	Integral Skin
	Maghreb Elastoplast
ODS phase-out (ODP tonnes)	13
Proposed project duration (Yrs)	1.5
Incremental capital cost (US\$)	226,000
Contingency (%)	10
Incremental operational cost (US\$)	(9,000)
Total project cost (US\$)	217,000
Local ownership (%)	100
Export component (%)	0
Amount requested (US\$) { Original	217,000
{ Revised	120,000
Cost effectiveness (US\$/kg)	16.69
National Coordinating Agency	MTIC
Implementing Agency	UNDP
Technical review completed?	Yes

<i>Secretariat's Recommendations</i>	
Amount recommended (US \$)	120,000
Project impact (ODP tonnes)	13
Cost effectiveness (US \$/kg)	9.23
Implementing Agency support cost (US\$)	15,600
Total cost to Multilateral Fund	135,600

PROJECT DESCRIPTION

Phase-out of CFCs in the manufacture of integral skin and cold cured molded PUF products at Maghreb Elastoplast.

1. Maghreb Elastoplast manufactures integral skin products and cold cured molded polyurethane foam seat cushions and complete seat assemblies for the automobile industry. The company operates four high pressure machines. It consumed 2 tonnes and 11 tonnes of CFC-11 for its integral skin and cold cured molded foam operations respectively.
2. For the conversion of the integral skin foam production, the company selected water-based technology, while for the cold cured molded foams, it selected the emerging liquid carbon dioxide (LCD) technology. For the integral skin foam the conversion would involve change of the epoxy molds (US \$10,500) and technology transfer (US \$5,000).
3. For the cold cured molded foams conversion to LCD technology would incur a capital cost of US \$209,000 including US \$141,000 for the LCD system, US \$24,000 for CO₂ storage, US \$5,000 for installation, US \$20,000 for technology transfer, start up, trials and training. There will be incremental operational savings of US \$9,000.
4. The requirements for water-blown technology as an alternative technology were considered in the project document. It indicated that if water-blown technology were used for the project there would be the need to replace the mixing head and to install a new heating system and molds. It would also attract some incremental operational cost due to extra cost of raw material. Beside the change of mixing head of the high pressure machine, which is done on a case by case basis, the other items of cost have been standard items for the water-blown technology in all approved projects.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. For the integral skin foam component the conversion is straight forward and costs were agreed between the Secretariat and implementing agency. Therefore, the cost of that component (US \$17,000) was endorsed.
2. For the cold cured molded foam production the enterprise selected liquid carbon dioxide technology due to "the promising continuing development of the technology". However, currently for the cold cured molded foam production, the phase out of CFC-11 world wide has converged on water-blown technology as the most cost-effective and efficient option. This technology has been applied in all the Multilateral Fund projects, so far approved and those submitted for funding at the 20th Meeting, except this project.

2. Since this emerging technology has been applied by very few plants in the developed countries, the implementing agency and the Fund Secretariat have not had the opportunity to review and consider important aspects of the technology, including its costing (incremental and operating costs), the benefits to be derived vis-à-vis the water-blown technology, etc. It was therefore, not possible to assess and make recommendations on its approval based on the LCD technology. The total project cost of the LCD component of the project was US \$200,000 with cost-effectiveness of US \$18.2/kg (cost-effectiveness threshold US \$16.86/kg).

3. The implementing agency agreed that the project would be recommended for approval on the basis of the all water-based technology, using the cost elements identified in the project description for water-based technology, including calculation of incremental operational cost. Based on this approach the amount of US \$103,000 is recommended for this component of the project.

4. The total project cost as adjusted is as follows:

Cost of integral skin foam component	US \$ 17,000
Cost of cold cured molded foam component	<u>US \$103,000</u>
Total Project Cost	US \$120,000

Hence the cost-effectiveness $US \$120,000/13 =$ US \$9.23/kg

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the project with associated support cost at the funding level as indicated below.

	Project Cost US \$	Support Cost US \$	Implementing Agency
Phase-out of CFCs in the manufacture of integral skin and cold cured molded PUF products at Maghreb Elastoplast.	120,000	15,600	UNDP