



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/26/55
15 October 1998

ORIGINAL: ENGLISH

Executive Committee of
the Multilateral Fund for the
Implementation of the Montreal Protocol
Twenty-sixth Meeting
Cairo, 11-13 November 1998

PROJECT PROPOSAL: TURKEY

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

Foam

- Conversion of CFC-12 to isobutane in the manufacture of polyethylene foam tubing at Thermaflex-Form World Bank

PROJECT EVALUATION SHEET TURKEY

SECTOR: FOAM ODS use in sector (1990): 3,608 ODP tonnes

Sub-sector cost-effectiveness thresholds: Polystyrene/Polyethylene US \$8.22/kg

Project Title:

Conversion of CFC-12 to isobutane in the manufacture of polyethylene foam tubing at Thermaflex-Form

Project Data	Polystyrene/Polyethylene
	Thermaflex-Form
ODS phase-out (ODP tonnes)	20
Proposed project duration (months)	24
Incremental capital cost (US \$)	281,230
- including contingency (%)	0
Incremental operational cost (US \$)	(33,192)
Total project cost (US \$)	248,438
Local ownership (%)	50
Export component (%)	0
Amount requested (US \$) {Original}	164,400
{Revised}	124,219
Cost effectiveness (US \$/kg)	3.50
National Coordinating Agency	Undersecretariat of Treasury and Foreign Trade & Ministry of Environment
Implementing Agency	World Bank
Technical review completed?	Yes

Secretariat's Recommendations:	
Amount recommended (US \$)	124,219
Project impact (ODP tonnes)	20
Cost effectiveness (US \$/kg)	3.50
Implementing Agency support cost (US \$)	16,148
Total cost to Multilateral Fund (US \$)	140,367

PROJECT DESCRIPTION

Conversion of CFC-12 to isobutane in the manufacture of polyethylene foam tubing at Thermaflex-Form

1. CFC-11 and CFC-12 are the dominant ODS in Turkey. Consumption of CFC-12 has drastically decreased in the aerosol sector but is still significant in refrigeration and air conditioning applications. Consumption of CFC-11 is mainly used in the manufacture of rigid and flexible polyurethane (PU) foams. These products are enjoying significant, above average growth, specifically in the insulation sector. Dominating the market are four (4) manufacturers of panels on continuous lines, five (5) of panels on discontinuous lines, three (3) producers of sprayfoam and one producer of prepolymer foam (“one component” foam or “canister foam”).
2. Turkey used in 1990 3,607.8 tonnes ODP. It has already submitted 28 projects, accounting for 2,170 tonnes ODP and US \$14.22 million in Multilateral Fund grants. These projects are essentially all still under implementation. In the foam sector, that accounted in 1990 for 1,454 tonnes ODP, four projects, amounting to 932 tonnes ODP were approved up to the end of 1996. More efforts, specifically in the foam industry, where relatively quick implementation can be achieved, is needed to assure that Turkey can meet its obligations under the Montreal Protocol, i.e. the freeze on consumption in 1999 and its stated goal of phaseout in non-essential applications in the year 2000.
3. The World Bank indicates that the project will eliminate 20 tonnes CFC-12 and so will contribute to helping the country meet its obligations with the Montreal Protocol.
4. Thermaflex-Form is a 50% Turkish owned joint venture company, with the partners being Thermaflex International Holding B.V. (Netherlands) and Form of Turkey. The company operates two extruders which were both manufactured by LNP/Italy. One, with 65 mm extrusion diameter, has been installed in 1993. The other, with 30 mm extrusion diameter, was installed in February 1995. The enterprise produces extruded polyethylene pipe and sheet for insulation applications. Originally, CFC-12 was used as blowing agent, but mid-1996, the enterprise converted to isobutane technology provided by its partner, Thermaflex-Holding, the Netherlands. Thermaflex has developed a proprietary technology for the use of isobutane that is applied in its operations in the Netherlands, Poland, Thailand as well in other operations in Brazil and Slovenia. CFC consumption in the last year before conversion – August 1995 through July 1996 was 37.5 tonnes.
5. Project costs include locally purchased equipment for retrofit of the foaming equipment, installation of a metering system for isobutane, detection system and ventilation (US \$241,630), trials (US \$5,000) and technology transfer (US \$35,000). Incremental operating benefits of US \$33,192 have been considered. As the enterprise completed the phaseout process by itself, the requested grant will be applied retroactively, and no contingencies have been included.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The sector data which is based on 1990 figures are obsolete and would not provide accurate reflection of the impact of approved projects on the country's ODS phaseout.
2. The Secretariat and the World Bank discussed the project and agreed to the costs. The recommended grant takes account of the 50% foreign ownership of the company.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the Thermaflex-Form project with the level of funding and associated support costs indicated in the table below.

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
Conversion of CFC-12 to isobutane in the manufacture of polyethylene foam tubing at Thermaflex-Form	124,219	16,148	World Bank
