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

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Montreal, 16-18 October 1996

PROJECT PROPOSAL: TURKEY

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

Foam

- Phasing out of CFC-11 at Urosan Kimiya Sanayii A.S. — UNIDO

PROJECT EVALUATION SHEET
TURKEY

SECTOR: FOAM ODS use in sector (1993): 600 ODP tonnes

Sub-sector cost-effectiveness thresholds: Flexible polyurethane slabstock US $6.23/kg

Project Title:
Phasing-out of CFC-11 at Ürosan Kimiya Sanayii A.S.

Project Data	**Flexible Slabstock**
	Ürosan Kimiya Sanayii A.S.
ODS phase-out (ODP tonnes)	135
Proposed project duration (Yrs)	1
Incremental capital cost (US$)	726,000
Contingency (%)	10
Incremental operational cost (US$)	133,200
Total project cost (US$)	859,200
Local ownership (%)	100
Export component (%)	0
Amount requested (US$) {Original	859,200
{Revised	643,500
Cost effectiveness (US$/kg)	6.36
National Coordinating Agency	MOE
Implementing Agency	UNIDO
Technical review completed?	Yes

Secretariat's Recommendations	
Amount recommended (US $)	643,500
Project impact (ODP tonnes)	135
Cost effectiveness (US $/kg)	4.77
Implementing Agency support cost (US$)	83,655
Total cost to Multilateral Fund	727,155

PROJECT DESCRIPTION

Phasing-out of CFC-11 at Ürosan Kimiya Sanayii A.S.

1. Ürosan Kimiya Sanayii (UKS) manufactures flexible slabstock polyurethane foam as well as integral skin foam for the automotive industry. The consumption for the furniture industry of CFC-11 of these two sub-sectors is 135 tonnes for flexible slabstock and 5 tonnes for integral skin. The project is however, for the conversion of the slabstock foam production.

2. UKS operates Viking foam machine as well as Laaderberg Maxfoam machine. Its current output of 5,000 tonnes is 45% of its installed capacity.

3. The company will phase out the use of CFC-11 by the application of Liquid Carbon Dioxide (LCD) technology. In a review of alternative technologies for producing slabstock polyurethane foam, the disadvantages of using alternative blowing agents or alternative technologies have been described. For instance, methylene chloride technology which is used in 95% of the approved Multilateral Fund projects was eliminated because it is "also under environmental pressure for reasons of toxicity and due to the fact it is classified as volatile organic chemical (VOC) has restricted use in industrialized and developing countries including Turkey." Based on the review and "taking into account the respective national rules and regulations" the LCD technology was selected, however, the national rules and regulations are not described.

4. The project is one of two projects being submitted for approval and funding to use the LCD technology. (The other project is Suavestar in Argentina, submitted by UNDP).

5. The items of capital cost included CO_2 bulk storage system (US $25,000), the LCD system (US $350,000), polyol and TDI boost pump bypass and manually operated blocking valves (US $180,000), CO_2 transfer/pressure control system (US $65,000), support platform for LCD system (US $25,000) and license (US $75,000), high pressure water metering unit (US $12,000), general consulting (US $25,000) and training (US $10,000). The capital cost was assessed to be US $726,000. The incremental operational cost amounted to US $133,200. Thus, the total project cost amounted to US $859,200 and cost-effectiveness US $6.36/kg. However, an amount equivalent to cost-effectiveness of US $6.13/kg was requested.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The selected LCD technology has recently progressed in its development and it is now being used in several flexible polyurethane slabstock foam manufacturing plants in Europe and USA. The implementing agencies and the Secretariat had an opportunity during a technology assessment tour of plants in an Article 2 country, to visit plants which were applying this technology. Analysis showed that with inherently high capital cost, funding of enterprises with ODS consumption less than 80 tonnes would not be appropriate. The Fund Secretariat consulted with two of the three companies currently supplying the liquid carbon dioxide (LCD) technology as proprietary technology for manufacturing low density polyurethane flexible slabstock foam, in order to clarify some of the issues relating to the technology and its costs. The Secretariat also discussed with the implementing agencies as part of the ongoing process to determine appropriate costs of the technology.

2. On the basis of the discussions and consultations the capital costs were agreed. However, with regard to incremental operational costs the implementing agencies and the Secretariat agreed that further examination of the issues involved was needed.

3. The cost of the project was agreed. It included the cost of CO_2 bulk storage system (US $25,000), LCD system (US $350,000), Polyol and TDI transfer boost pump bypass (US $5,000), carbon dioxide transfer and pressure control unit (US $45,000), support frame (US $25,000), license (US $50,000), high pressure water metering unit (US $10,000), general consultancy (US $20,000). The total capital cost including contingency amounted to US $643,500. The incremental operational costs were not considered.

RECOMMENDATIONS

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

	Project Cost US $	Support Cost US $	Implementing Agency
Phasing-out of CFC-11 at Ürosan Kimiya Sanayii A.S.	643,500	83,655	UNIDO

2. The approval of the project does not constitute a precedent for treatment of similar projects in the sub-sector.