



**United Nations
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Programme**



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

Seventeenth Meeting
Montreal, 26-28 July 1995

PROJECT PROPOSAL: ISLAMIC REPUBLIC OF IRAN

This document includes the Comments and Recommendations from the Fund Secretariat.

PROJECT EVALUATION SHEET

COUNTRY OR REGION: The Islamic Republic of Iran

PROJECT TITLE: Phasing out CFC 11 through conversion of rigid PU-foam manufactured with the technique of continuous lamination

BUDGET: Capital cost: US \$5,068,350
Operating cost: 0

INCREMENTAL COSTS: US \$5,068,350

ODS PHASE-OUT: 1200 MT of CFC 11

COST EFFECTIVENESS¹: US \$4.22. per kg. ODP saved

PROJECT DURATION: 2 years

IMPLEMENTING AGENCY: UNIDO

NATIONAL COORDINATING AGENCY: Department of the Environment (DOE)

TECHNICAL REVIEW COMPLETED: YES X NO

SECRETARIAT'S COMMENTS

1. The proposal covers the five enterprises: Fabis, Iran Steel, Mammoth Teheran, F.M. and Urethane systems. They are all producers of rigid polyurethane foam (PUF).
2. Their reported consumption of CFC-11 for the production of PUF amounts to 1200 metric tonnes. However, Mammoth Teheran, F.M., and Urethane Systems consume additional amount of CFC-11 in the production of other foams.
3. The project document refers to export of up to 15 per cent of the production of Fabis, Mammoth Teheran and Iran Steel to mainly non-Article 5 countries. UNIDO subsequently reported that these percentages could not be ascertained at the present time.
4. All five enterprises have chosen the hydrocarbon n-pentane as the foam blowing agent.

¹ Determined as the ratio of incremental costs to the estimated annual saving of ODP (\$/ODPkg).
For CFC-11, ODS=ODP.

5. All five enterprises are requesting replacement of baseline capital equipment to ensure compatibility with both the formulation and safety associated with n-pentane.
6. A technical review was provided by UNIDO.
7. US \$5,068,350 was requested for capital costs covering: pentane processing, reaction casting machines, safety, training and general consultancy services.
8. UNIDO reported that the enterprises are not requesting incremental operating costs.
9. The Secretariat reviewed the project in light of similar projects approved by the Executive Committee, and discussed with UNIDO the incrementality of all cost components and their amounts.
10. It was agreed that replacement of capital equipment will be eliminated where retrofitting was possible. Consequently, the new project budget was agreed to as recommended in the attached summary.

SECRETARIAT'S RECOMMENDATIONS

11. The Fund Secretariat recommends approval of US \$2,571,250 for the implementation of the project in the five enterprises mentioned above, and recommends US \$334,262 in support costs for UNIDO.
12. The Secretariat further recommends that the percentage of export to non-Article 5 countries should be accurately determined, and that UNIDO recalculate the amount of the grant for the exporting enterprises according to the Committee's guidelines.

Summary

Table A: Equipment Specification and Cost Breakdown

Item	Requested			Recommended
	Quantity	Unit costs \$	Total costs \$	Total costs \$
Pentane processing				
Discharge equipment for drums	5	30,000	150,000	175,000
Pentane tank 30 m3	5	30,000	150,000	
Pentane delivery pumps and pipes	5	40,000	200,000	
Metering unit for pentane	5	150,000	750,000	900,000
Safety cabin for metering unit	5	60,000	300,000	
Exhaust system for the safety cabin	5	40,000	200,000	
Foaming portal	5	120,000	600,000	200,000 ¹
Reaction casting machine				
1. metering unit for the main components (MDI and polyol)	4	87,500	350,000	160,000 ²
2. premixing chamber for activators	4	5,000	20,000	
3. metering unit for activator I	4	22,000	88,000	
4. metering unit for activator II	4	22,000	88,000	
5. on-line gas loading	5	33,500	167,500	167,500
6. flow measuring unit for pol, MDI and activators	5	35,000	175,000	0
Hot air preheating unit for upper and lower facing	5	10,000	50,000	50,000
Antistatic floor	5	5,000	25,000	25,000
Fire protection system	5	30,000	150,000	150,000
Ventilation, gas monitoring and alarm system			0	
Gas detector system with alarm	5	40,000	200,000	250,000
Detectors	60	3,000	180,000	
Extraction hood and fan for foam lay down area	5	25,000	125,000	
Commissioning and start-up of the plant			390,000	200,000
Total			4,358,500	2,277,500

Table B: Project Budget

Budget line	Duration, Work months	Cost, US\$	
11-01 General consultancy services	15	190,000	50,000
21-01 Subcontract		4,358,500	2,277,500
32-01 Study tour on pentane conversion, 2 technicians	3	50,000	10,000
51-00 Miscellaneous:			
contingency fund on capital cost	10%	459,850	233,750
Incremental operating cost			
Preparatory assistance		10,000	0
Total miscellaneous cost		469,850	233,750
99-00 Subtotal		5,068,350	2,571,250
Implementing Agency Overhead	13%	757,340	334,262
PROJECT TOTAL		5,825,690	2,905,512

Table C: Cost-effectiveness

ODS consumption per year	kg	1,200,000	1,200,000
Total investment cost	US\$	5,068,350	2,571,250
Cost-effectiveness	US\$/kg	4.22	2.14

¹ Cost of retrofitting.

² Includes US \$80,000 for Fabis