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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Thirty-seventh Meeting  
Montreal, 17-19 July 2002

### **PROJECT PROPOSAL: YUGOSLAVIA**

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

#### Refrigeration

- Umbrella refrigeration project 2, replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration equipment at three enterprises UNIDO

**PROJECT EVALUATION SHEET  
YUGOSLAVIA**

SECTOR: Refrigeration ODS use in sector (1996): 449 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial US \$15.21/kg  
(Rigid Foam) US \$7.83/kg

**Project Titles:**

- (a) Umbrella refrigeration project 2, replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration equipment at three enterprises

Project Data	Commercial
	Three enterprises
Enterprise consumption (ODP tonnes)	11.14
Project impact (ODP tonnes)	10.90
Project duration (months)	28
Initial amount requested (US \$)	150,109
Final project cost (US \$):	
Incremental capital cost (a)	131,500
Contingency cost (b)	10,130
Incremental operating cost (c)	8,479
Total project cost (a+b+c)	150,109
Local ownership (%)	100%
Export component (%)	0%
<b>Amount requested (US \$)</b>	150,109
Cost effectiveness (US \$/kg.)	13.80
Counterpart funding confirmed?	Yes
National coordinating agency	Federal Ministry Development Science & Environment
Implementing agency	UNIDO

<b>Secretariat's Recommendations</b>	
Amount recommended (US \$)	150,109
Project impact (ODP tonnes)	10.90
Cost effectiveness (US \$/kg)	13.80
Implementing agency support cost (US \$)	19,514
Total cost to Multilateral Fund (US \$)	169,623

## PROJECT DESCRIPTION

### Sector Background

- Latest available total ODS consumption (1999)	568.10 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	849.20 ODP tonnes
- Consumption of Annex A Group I substances for the year 1999	548.60 ODP tonnes
- Baseline consumption of CFCs in refrigeration sector	Not Available ODP tonnes
- Consumption of CFCs in refrigeration sector in 1996	449.00 ODP tonnes
- Funds approved for investment projects in refrigeration sector as of March 2002	US \$2,438,297.00
- Quantity of CFC to be phased out in investment projects in refrigeration sector as of March 2002	154.50 ODP tonnes
- Quantity of CFC phased out from approved projects in the refrigeration sector	0.00 ODP tonnes
- Quantity of CFC to be phased out in projects submitted to the 37 <sup>th</sup> Meeting	10.90 ODP tonnes

1. The refrigeration sector in Yugoslavia is comprised of one manufacturer of domestic appliances (Obod) and seven major manufacturers of commercial refrigeration equipment which received assistance from the Multilateral Fund. There remains seven smaller commercial refrigeration enterprises. The total consumption of CFCs in Yugoslavia in 2000 was estimated at 996 ODP tonnes. According to information from the Government of Yugoslavia, the major part of this consumption is attributed to the refrigeration sector.

### Three enterprises

2. The current project will phase-out 7.6 ODP tonnes of CFC-11 and 3.8 ODP tonnes of CFC-12 in the manufacture of commercial refrigeration equipment at three enterprises (AD Thermoplastica, Frigo Jagodina and Electrofrigo). This will be achieved by converting from CFC-11 to HCFC-141b as the foam blowing agent and from CFC-12 to HFC-134a as the refrigerant. The enterprises are involved in the manufacture of various models of commercial refrigerators and walk-in coolers, air-conditioning equipment for buses and trucks and insulation panels for cold storage. The enterprises employ low-pressure dispensers for foaming operations in the baseline, as well as charging, evacuation and leak detection equipment in handling CFC-12 refrigerant.

3. The project includes incremental capital costs requested for modification of low-pressure foaming machines, necessary retrofitting of vacuum pumps and replacement of charging boards and leak detectors. Other costs include allocations for re-design and prototyping. Incremental operating costs are requested for a period of six months at Frigo Jagodina, and three months at Electrofrigo to cover the higher cost of chemicals and components. No incremental operating costs are requested at AD Thermoplastica. The total eligible grant for Frigo Jagodina has been determined applying the cost-effectiveness threshold in the rigid foam sector for production of insulation panels.

Justification for the use of HCFC-141b

4. Justification for the use of HCFC-141b based on technological and economic analysis of each enterprise's operations is provided in the project document. UNIDO indicated that the choice of HCFC-141b as interim technology was made by the enterprises following a discussion with them on available alternatives and relevant decisions of the Executive Committee regarding the use of HCFC-141b as interim substitute foam blowing agent.

5. In accordance with relevant decisions of the Executive Committee on the use of HCFCs, a letter of transmittal from the Government of Yugoslavia endorsing the use of HCFC-141b by the companies has been submitted and is attached.

**SECRETARIAT'S COMMENTS AND RECOMMENDATIONS**

**COMMENTS**

6. The Fund Secretariat and UNIDO have discussed and agreed on the costs of the projects.

**RECOMMENDATIONS**

7. The Fund Secretariat recommends blanket approval of the project for the Three Enterprises with the levels of funding and associated support costs as indicated in the table below.

	<b>Project Title</b>	<b>Project Funding (US\$)</b>	<b>Support Cost (US\$)</b>	<b>Implementing Agency</b>
(a)	Umbrella refrigeration project 2, replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration equipment at three enterprises	150,109	19,514	UNIDO

8. The 10.9 ODP tonnes to be phased out by the project should be deducted from Yugoslavia's national aggregate consumption. As of writing of this document, the level of Yugoslavia's starting point consumption for determining its national aggregate consumption was still under discussion.

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**GOVERNMENT NOTE OF TRANSMITTAL OF INVESTMENT PROJECTS TO THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL**

**PROJECT OF THE GOVERNMENT OF FEDERAL REPUBLIC OF YUGOSLAVIA**

The Government of Federal Republic of Yugoslavia requests UNIDO to submit the project listed in Table 1 below to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol for consideration at its 37<sup>th</sup> Meeting.

**Section I: ODS Consumption Data**

1. The ODS consumption figure of the project has been validated by the National Ozone Unit (NOU).
2. The consumption data have been retained in the records of the NOU for reference and/or future verification.
3. The Government has been advised by the NOU that the agreement to the project indicates a commitment to ensure that the validated phase-out figure was realized and yielded a sustained reduction from the 2000 consumption of 548.6 ODP tones for all the sector.

**Table 1: Projects Submitted to the .....Meeting of the Executive Committee**

Project Title/Sector	Type of ODS	Consumption (ODP Tonnes), (Year)	Amount to be Phased Out (ODP Tonnes), (Year)	Implementing Agency
Umbrella refrigeration project 2, replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration equipment at three enterprises in Yugoslavia/ Refrigeration sector	CFC-11 CFC-12	7.6 (2001) 3.8 (2001)	10.9 (2003)	UNIDO
<b>Total</b>		11.4 (2001)	10,9 (2003)	

**Section II: Other Relevant Actions Arising from Decision 33/2**

4. It is understood that, in accordance with the relevant guidelines, the funding received for a project would be partly or fully returned to the Multilateral Fund in cases where technology was changed during implementation of the project without informing the Fund Secretariat and without approval by the Executive Committee;

*Projects of the Government of FR Yugoslavia*

*Date: 20 May 2002*

5. The National Ozone Unit undertakes to monitor closely, in cooperation with customs authorities and the environmental protection authorities, the importation and use of CFCs and to combine this monitoring with occasional unscheduled visits to importers and recipient manufacturing companies to check invoices and storage areas for unauthorized use of CFCs.
6. The National Ozone Unit will cooperate with the relevant implementing agencies to conduct safety inspections where applicable and keep reports on incidences of fires resulting from conversion projects.

**Section III: Projects Requiring the Use of HCFCs for Conversion**

7. In line with Decision 27/13 of the Executive Committee and in recognition of Article 2F of the Montreal Protocol, the Government
  - (a) has reviewed the specific situations involved with the project at Frigo Jagodina, AD Termoplastika, Arctic, Electrofrigo, Starov, and AS Frigo as well as its HCFC commitments under Article 2F; and
  - (b) has nonetheless determined that, at the present time, the projects needed to use HCFCs for an interim period with the understanding that no funding would be available for the future conversion from HCFCs for the company/companies involved.

Name and signature of responsible Officer:

Miroslav Spasojevic

Designation: Senior Counsellor

Date: 9 May 2002

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Projects of the Government of FR Yugoslavia

Date: 20 May 2002