

**GLOBAL  
ENVIRONMENT  
FACILITY**

**Slovenia**

**Technical Support and Investment Credit for the  
Phaseout of Ozone Depleting Substances**

Project Document  
October 1995



THE WORLD BANK

## **GEF Documentation**

**The Global Environment Facility (GEF)** assists developing countries to protect the global environment in four areas: global warming, pollution of international waters, destruction of biodiversity, and depletion of the ozone layer. The GEF is jointly implemented by the United Nations Development Programme, the United Nations Environment Programme, and the World Bank.

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# **Slovenia**

## **Technical Support and Investment Project for the Phaseout of Ozone Depleting Substances**

**Project Document  
October 1995**

Agriculture and Urban Operations Division  
Country Department II  
Europe and Central Asia Regional Office



**CURRENCY EQUIVALENT**  
(August 1995)  
Slovenian Tollar 112.00 = US\$1.00

**WEIGHTS AND MEASURES**  
The metric system is used throughout this report.

**GLOSSARY OF ABBREVIATIONS**

CEE	Central and Eastern Europe
CFC	Chlorofluorocarbon
COE	Chamber of Economy of Slovenia
CTC	Carbon Tetrachloride
DME	Dimethyl Ether
FA	Financial Agent
FSU	Former Soviet Union
GEF	Global Environment Facility
GIS	Geographic Information System
GOS	Government of Slovenia
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
ICB	International Competitive Bidding
IS	International Shopping Procedures
LIB	Limited International Bidding
MEPP	Ministry of Environment and Physical Planning
MFMP	Multilateral Fund for the Implementation of the Montreal Protocol
MP	Montreal Protocol on Substances that Deplete the Ozone Layer
NBF	Not Bank-Financed
NCB	National Competitive Bidding
NS	National Shopping Procedures
OD	Operational Directive
ODP	Ozone-Depleting-Potential
ODS	Ozone Depleting Substances
OORG	Ozone Operations Resource Group
PAA	Project Administration Agreement
PCE	Perchloroethylene
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PU	Polyurethane
SDR	Special Drawing Right
SEF	Slovenian EcoFund
SOE	Statement of Expenditures
ST	Slovenian Tollar
STAP	Scientific and Technical Advisory Panel
TAG	Technical Advisory Group
TCE	1,1,1-Trichloroethane
UNEP	United Nations Environment Program
USD	United States Dollar

**SLOVENIA: FISCAL YEAR (FY)**  
January 1 to December 31



## **Part I: Project Summary**





**SLOVENIA**  
**TECHNICAL SUPPORT AND INVESTMENT PROJECT**  
**FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

**GRANT AND PROJECT SUMMARY**

**Recipient:** Slovenia

**Beneficiary:** Ministry of Environment and Physical Planning and  
Investment Sub-Project Beneficiaries

**Grant Amount:** US\$6.2 million

**Terms:** Grant

**Financing Plan:**

	Local	Foreign	Total
Source	(US\$ Million)		
GET Grant	3.750	2.450	6.200
Participating Enterprises	3.518	0.000	3.518
TOTAL	7.268	2.450	9.718

**Economic Rate of Return:** Not calculated, though substantial economic and environmental benefits

## Slovenia ODS Phaseout - Summary of Sub-Project Data and Costs

Sub-Project	Sector	Types of ODS Used	Annual ODS Use (Tons of ODS)	Annual ODP Phaseout <sup>1</sup>	Share of Exports to Non-GEF Countries	Incremental Capital Cost <sup>2</sup>	Incremental Operating Cost <sup>2</sup>	Total Project Cost	Requested GEF Grant
Project Implementation Unit	Institutional	-	-	-	-	\$32,600	\$187,090	\$219,690	\$219,690
LTH	Refrigeration and Foam	CFC-12 CFC-502 CFC-11	68.9	67.4	45.0	\$2,838,065	\$1,193,959	\$4,032,024	\$1,496,230
Gorenje Servis	Heat Pumps and Refrigeration	CFC-12	11.4	11.4	0.0	\$125,460	\$341,309	\$466,769	\$125,460
Krka	Aerosols	CFC-11 CFC-12	79.0	79.0	0.0	\$1,068,452	(\$393,140)	\$675,312	\$354,000
Lek	Aerosols	CFC-11 CFC-12	157.0	157.0	0.0	\$1,992,600	\$192,380	\$2,184,980	\$1,992,600
Trimo	Foam	CFC-11	27.7	27.7	13.0	\$1,053,000	\$95,200	\$1,148,200	\$1,021,410
Labod	Solvent	CFC-113	3.5	2.8	0.0	\$217,677	(\$38,577)	\$179,100	\$179,100
<b>Subtotal</b>	-	-	-	<b>345.3</b>	-	<b>\$7,327,854</b>	<b>\$1,578,221</b>	<b>\$8,906,075</b>	<b>\$5,388,490</b>
Financial Agent Fee (3.00% of Grant Request for Sub-Projects 2-7)	-	-	-	-	-	-	\$155,064	\$155,064	\$155,064
Contingency (12.18% of Grant Request for Sub-Projects 1-7)	-	-	-	-	-	-	\$656,446	\$656,446	\$656,446
<b>Total</b>	-	-	-	<b>345.3</b>	-	<b>\$7,327,854</b>	<b>\$2,389,731</b>	<b>\$9,717,585</b>	<b>\$6,200,000</b>

1/ Ozone-Depleting-Potential (ODP) is a concept which has been developed to aggregate the impacts of all ozone depleting substances (ODS) on the ozone layer. Since not all ODS are equally damaging to the ozone layer, their effects on the ozone layer must be weighted by the appropriate damage factor. For example, CFCs are ten times as damaging as 1,1,1-Trichloroethane (TCE), so TCE only receives a weight of 0.10.

2/ Incremental costs are defined as those costs of ODS phaseout which would not have been incurred in the absence of the Montreal Protocol. Estimates of incremental capital and operating costs are based on the methodology developed by the Montreal Protocol and Global Environment Facility.

## **SLOVENIA**

### **TECHNICAL SUPPORT AND INVESTMENT PROJECT FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

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#### **INTRODUCTION**

1. The Vienna Convention for the Protection of the Ozone Layer (1985) and the Montreal Protocol on Substances that Deplete the Ozone Layer (1987) (MP) are international environmental agreements which call for the phaseout of substances that deplete the stratospheric ozone layer. More than 100 countries representing over 95 percent of world consumption of these substances have ratified the Montreal Protocol and Vienna Convention. The Montreal Protocol with its amendments and adjustments now mandates the complete phaseout of production and consumption of a number of ozone depleting substances (ODS) in developed and developing countries by January 1, 1996.
2. All industrialized countries in the world have undertaken comprehensive national programs to develop cost-effective strategies to phase out the use of these substances in the various end-user sectors. The largest family of ODS is chlorofluorocarbons (CFCs) which are widely used in various industrial applications including: domestic, commercial and industrial refrigeration and air conditioning, flexible and rigid insulation foam, and in numerous applications such as aerosol propellants and solvents, among others.
3. Slovenia is fully committed to the complete phaseout of the consumption of regulated substances by 1996 as mandated by the Montreal Protocol and its amendments. In July of 1992, Slovenia succeeded to the ratification of the former Yugoslavia of the Montreal Protocol which initially ratified the Protocol on December 26, 1990. In December of 1992, Slovenia ratified the London Amendments to the Montreal Protocol, but it has yet to formally ratify the Copenhagen Amendments. Slovenia has not been designated as an Article V country under the Montreal Protocol, and is therefore ineligible for financial assistance from the Multilateral Fund for the Implementation of the Montreal Protocol (MFMP). GEF resources will therefore be required to finance the Project under the Reduction of the Ozone Layer Depletion component.
4. Slovenia has been actively planning its ODS phaseout strategy since 1992. A comprehensive Country Program for the Phaseout of Ozone Depleting Substances in Slovenia was undertaken, with Bank support, and completed in June 1994. This study served as the basis for establishing the priorities for the Slovenian Government, and for identifying key policy and regulatory measures which would be required to support a cost effective phaseout, which would also minimize disruptions to the industrial sectors which utilize ODS. The activities proposed for funding under this Project are among those priorities identified in the Country Program.

#### **ODS SECTOR BACKGROUND**

5. All ODS in Slovenia are imported from the European Union, mainly the United Kingdom, Germany, France, the Netherlands, and Italy. In addition, approximately 38 percent of ODS used in Slovenia were exported in final products in 1993, and thus the export market has effectively dictated the phaseout of ODS in some enterprises in advance of national legislation. The decline in ODS consumption

from 1986-1992 was greatest in aerosols (62%) and foams (65%). In refrigeration, technology advances have not been so rapid with a phaseout over the same period of 37 percent.

6. In 1993, usage of regulated ODS was approximately 1,936 metric tons. Compared to 1990, total annual ODS use fell by 35 percent, and was equivalent to 952.5 ozone-depleting-potential (ODP) in weighted tons in 1993. In terms of ozone-depleting-potential, 89 percent is accounted for by Chlorofluorocarbons (CFCs), 10 percent by 1,1,1-Trichloroethane (TCE), and the remaining 1 percent by Hydrochlorofluorocarbons (HCFCs). Consequently, the focus of the project should be on phasing out the use of CFCs. Aerosols and foams account for 42 percent and 37 percent of CFC use, while refrigerants and solvents account for 17 percent and 4 percent, respectively. For TCE, solvents account for 95 percent of consumption.

## **RATIONALE FOR GEF INVOLVEMENT AND PROJECT ELIGIBILITY**

7. Most countries in Central and Eastern Europe (CEE) and the former Soviet Union (FSU) are not eligible for assistance from the Multilateral Fund for the Implementation of the Montreal Protocol (MFMP). Nevertheless, the total production and consumption of ODS in the CEE and FSU countries is equal to that of all the developing countries (including China, India, Brazil, and Thailand) which are eligible for MFMP assistance, and therefore ODS phaseout projects in Central and Eastern Europe represent an opportunity to achieve significant global environment benefits through the adoption of cost-effective technological interventions.

8. This Project has been developed and structured based on specific ODS phaseout requirements in Slovenia (as outlined in the Country Program) and the general project eligibility criteria guidelines of the Montreal Protocol and the GEF Scientific and Technical Advisory Panel (STAP). Funding for this stratospheric ozone layer protection project is requested from the Global Environment Facility (GEF) on the basis that Slovenia:

- (a) is eligible for GEF assistance;
- (b) is not classified as a developing country according to the Montreal Protocol, is ineligible for funding from the MFMP, and is eligible for funding from the Global Environment Facility;
- (c) has completed the preparation of a Country Program; and
- (d) has ratified the Vienna Convention and Montreal Protocol.

9. The Project consists of two components as follows: (i) an Institutional Strengthening Component; and (ii) an Investment Component comprising six Sub-Projects. It is consistent with international efforts in the field of ODS phaseout. The Sub-Projects are deemed to be effective and are essential interventions in order to quickly and successfully phase out the use of the regulated substances. This project will be among the first comprehensive and planned ODS phaseout program to be implemented in Central and Eastern Europe (the Czech Republic project is currently under implementation, and the Hungarian one under preparation).

## PROJECT OBJECTIVES

10. The principal objective of the Project is to assist Slovenia in the phaseout of ODS consumption in a cost effective manner as mandated by the Montreal Protocol and its amendments and adjustments. Specifically this Project will assist Slovenia to:

- (a) support the phaseout of the consumption of chlorofluorocarbons (CFCs) through adoption of new cost-effective CFC-free technologies; and
- (b) through institutional strengthening improve the capability of the Ministry of Environment and Physical Planning (MEPP) to manage and oversee the phaseout of ODS in Slovenia.

GEF support will provide an incentive for the early adoption of ODS phaseout activities and capture additional environmental and economic benefits which would otherwise either be lost or delayed. By focussing on the key sectors and enterprises, the project will phase out 345 tons of ODP per year or roughly 36 percent of ODP weighted annual ODS consumption in Slovenia.

## PROJECT ELIGIBILITY AND DETERMINATION OF SUB-PROJECT INCREMENTAL COSTS

11. For all GEF-funded ozone phaseout projects, the specific eligibility criteria developed for projects to be funded by the Multilateral Fund for the Implementation of the Montreal Protocol (MFMP) are used. The GEF Participants, which approved the funding of this Project, are also Parties to the Montreal Protocol and most of GEF contributors are contributors to the MFMP. The application of the project eligibility criteria assured a fair and consistent assessment of the nature of activities which could be funded and of the maximum level of funding which could be allocated (i.e., the incremental costs of ODS phaseout). Incremental costs, as defined by the Parties to the Montreal Protocol, are the capital and operating costs incurred by the Participating Enterprise which they would otherwise not have incurred in the absence of the Montreal Protocol. The investment Sub-Projects proposed in this Project meet the project eligibility criteria established by the Parties to the Montreal Protocol, and were subject to the technical review and approval of the Ozone Operations Resource Group (OORG) which reviews all Sub-Projects financed by the GEF and the Montreal Protocol.

12. The level of funding for each Sub-Project was determined on the basis of the incremental costs at the Sub-Project level. The grant amount requested for each Sub-Project may be less than the incremental costs of the Sub-Project for several reasons: (i) operating savings are projected to accrue to the Participating Enterprise during Sub-Project implementation; (ii) the Participating Enterprise may be less than 100% Slovenian owned, so the grant amount must be pro-rated to the percentage of local ownership; (iii) the grant amount for any Participating Enterprise which exports a portion of its production to non-GEF eligible countries must be reduced based on the percentage of exports<sup>1</sup>. Other factors which must be considered in determining the Sub-Project incremental cost include, but are not limited to, the level of technology upgrade achieved by the Sub-Project, the impact on production capacity, and the cost of substitute materials. For all the Sub-Projects proposed as part of this Project, counterpart contributions have been made by the Participating Enterprises in terms of time for the

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<sup>1</sup> The grant amount for Participating Enterprises which export to non-GEF eligible countries is calculated as follows: (i) Participating Enterprises which export more than 70% of their production are ineligible for GEF support; (ii) companies which export less than 10% of their production are eligible for 100% financing of incremental costs; and (iii) companies which export between 10% and 70% of their production are eligible for financing of incremental costs based on the following formula -- Grant Amount = Incremental Costs \* (1.10 - Percentage of production which is exported to non-GEF eligible countries).

preparation of the project documents and, in most cases, in the implementation of the Sub-Project, either through management time or through direct investment. Incremental operating costs will not be funded by the GEF for Slovenia, but instead will be borne by the Participating Enterprises.

13. The Sub-Projects were selected on the basis of eligibility criteria from the list of potential Sub-Projects which had been identified during the preparation of the Country Program. The Sub-Projects were selected on the basis of their impact on ODS consumption, their potential for minimizing the impact of ODS phaseout on the economy. The Participating Enterprises were selected on the basis of their capacity to undertake the Sub-Projects, their technological leadership positions, or their special situation within the context of ODS consumption (e.g., a sufficiently low level of production exports). From a review of the financial situation of the participating enterprises and discussions with the Slovenian authorities it is clear that some enterprises are experiencing what appears to be short-term financial difficulty based on 1994 data, but the firms are about average by Slovenian standards and appear to have acceptable medium-term prospects. On balance, the financial status of the selected project enterprises is adequate to justify project participation.

14. Additional counterpart contributions are expected during the implementation phase of the Project, and these are estimated at \$3.5 million for the six investment Sub-Projects of the Investment Component. The proposed level of funding represents a conservative but fair estimate of the incremental costs which will be incurred by the Participating Enterprises.

15. It is therefore proposed that the Project cost of US\$9.7 million be funded by the Global Environment Trust Fund (GEF) in the amount of \$6.2 million. Of this amount, \$1.2 million (19%) will be in the form of retroactive financing, beginning from August 1993 when project preparation was initiated, since many of the Participating Enterprises already had to undertake substantial investments in order to be able to comply with the terms of the Montreal Protocol by 1996 (see Schedule B and Summary Table of Technical Report). Funds would be provided as a grant from the GEF to the Government of Slovenia and channelled to the Participating Enterprises under the Investment Component through the Slovenian EcoFund. The estimated costs are to be considered incremental capital costs net of any potential savings. Proceeds of the grant will not be utilized for transfer payments, such as taxes and duties.

## **PROJECT DESCRIPTION AND COSTS**

16. The project consists of (i) an Institutional Strengthening Component (Sub-Project 1); and (ii) an Investment Component comprising six Sub-Projects (Sub-Projects 2-7). Below is a description of each of these components. Comprehensive Sub-Project descriptions are provided in the Technical Report.

### **I. Institutional Strengthening Component**

17. **Sub-Project 1 -- Project Implementation Unit for the Phaseout of Ozone Depleting Substances.** Together with the Chamber of Economy and Slovenian EcoFund (SEF), the MEPP will set up an ODS Phaseout Project Implementation Unit (PIU) to be supported by a Technical Advisory Group (TAG). The PIU was established in the SEF and will coordinate the implementation of the Project, oversee procurement and disbursement for Sub-Projects 1-7 in compliance with World Bank guidelines, and supervise project activities according to the requirements of the World Bank and the MEPP. As necessary, the PIU will arrange for technical assistance and consultants to assist in project implementation, and provide support to facilitate cooperation among government institutions and the consumers of ODS. Finally, the PIU will be responsible for calling meetings of the TAG, which will be responsible for assisting small users not covered under the Project, and advising the PIU and

Participating Enterprises concerning any changes in ODS Phaseout technologies and their implications for Sub-Project implementation and training of staff at the Participating Enterprises. The TAG will not, however, identify new investment Sub-Projects. Funding for this Sub-Project amounts to US\$219,690 to cover salaries (i.e., for additional staff who are not civil service employees), office equipment, ODS monitoring, and the cost of hiring international consultants for supervision and review during implementation of the Sub-Projects.

## II. Investment Component

18. **Sub-Project 2 -- Project for Conversion and Phaseout of Ozone Depleting Substances at LTH.** LTH is the largest producer of commercial refrigeration appliances in Slovenia. The objectives of the project are: (i) substitution of CFC refrigerant with HFC-134a and HFC blends; and (ii) substitution of CFC-11 blowing agent with Cyclopentane. The project started in July 1992, and will be finished by December 1996. The substitution of CFC will be realized as follows: (i) replacement of CFCs as refrigerant by August 1996; and (ii) replacement of CFCs as blowing agent with Cyclopentane by December 1996. In the interim, the enterprise has decided to substitute CFC with HCFC-141b. Costs strictly associated with the conversion to HCFC are being borne by the enterprise; costs associated with the conversion to cyclopentane will be financed by the GEF grant. The total incremental cost of the refrigeration component is US\$ 1,607,258, while the total incremental cost of the foams component is US\$ 2,424,766. The total incremental cost of the project is US\$4,032,024, of which it is proposed that US\$ 1,496,230 is financed by the GEF grant. The result of the project will be the annual phaseout of 26.0 tons of ODP-weighted consumption of CFC-12 and CFC-502 in refrigeration, and 41.4 tons of CFC-11 in foam.

19. **Sub-Project 3 -- Servicing of Refrigerators and Freezers, and Substitution of CFC-12 Refrigerant in Heat Pumps with HFC134-a at Gorenje Servis.** Gorenje Servis is the largest service organization in Slovenia and has exclusive rights for servicing Gorenje appliances during the warranty period. The service network of Gorenje Servis consists of 10 service stations with 29 qualified service technicians. In 1993, there were 25,500 service repairs on refrigeration appliances. Service repairs of Gorenje Servis represent about 30 percent of the Slovenian market. The objectives of the project are: (i) servicing the refrigerating-freezing appliances and heat pumps which contain CFC-12 as refrigerant; (ii) servicing the refrigerating-freezing appliances which contain HFC-134a as refrigerant and its recovery; and (iii) substitution of CFC-12 with HFC-134a in the production of heat pumps. The total incremental cost of the refrigeration component is US\$ 342,487, while the total incremental cost of the heat pumps component is US\$ 124,282. The total incremental cost of the project is US\$ 466,769, of which it is proposed that US\$ 125,460 is financed by the GEF grant. The result of the project will be the annual phaseout of 10.2 tons of ODP-weighted consumption of CFC-12 in refrigeration, and 1.2 tons of CFC-12 in heat pumps.

20. **Sub-Project 4 -- Conversion of Aerosol Production to CFC-Free Propellants at Krka Kozmetika.** Krka is a major producer of aerosols for cosmetic and technical applications in Slovenia. The average number of aerosols produced from 1986 to 1990 was 6 million units per year, of which about one third was perfume in glass bottles. The consumption of CFCs in 1992 was 123 tons, representing 28.2 percent of the CFC consumption in the aerosol sector. The objective of the project is to phase out the use of 79 tons (1993) of CFCs aerosol propellants and substitute them with Dimethyl Ether (DME) in perfumes and colognes, and hydrocarbon aerosol propellants in all other products. The project started in 1993, and will be finished in July 1996. Operational savings of US\$ 393,140 will be realized over the life of the project, and the incremental capital cost of the project is US\$ 1,068,452. The total incremental cost of the project is US\$ 675,312, of which it is proposed that US\$ 354,000 is financed by the GEF grant. The result of the project will be the annual phaseout of 79.0 tons of ODP-weighted consumption of CFC-11 and CFC-12.

21. **Sub-Project 5 -- Substitution for CFC Propellants in the Production of Pharmaceuticals at Lek Chemical and Pharmaceutical Company.** Lek Chemical and Pharmaceutical Company is one of the largest aerosol manufacturers in Slovenia. It is the only one that manufactures drugs in aerosol form, in addition to cosmetic aerosols. In 1990 Lek started to use propane-butane gas as a propellant for cosmetic aerosols, and in 1993 the use of CFCs was excluded from the production of cosmetic aerosols. The mixture of CFC-11 and CFC-12 in a ratio 1:1 is still used as propellant for pharmaceuticals. The consumption of CFCs in 1992 was 157 tons, representing 36 percent of the CFC consumption in the aerosol sector. The proposed program involves the substitution for CFCs with propane-butane. The objective of the project is to phase out the use of 157 tons of CFCs aerosol propellants and substitute them with hydrocarbon aerosol propellants in the production of pharmaceuticals. The project started in the fourth quarter of 1994, and will be finished by mid-1996. The total incremental cost of the project is US\$ 2,184,980, of which it is proposed that US\$ 1,992,600 is financed by the GEF grant. The result of the project will be the annual phaseout of 157.0 tons of ODP-weighted consumption of CFC-11 and CFC-12.

22. **Sub-Project 6 -- Elimination of CFC-11 in the Production of Light Building Panels at Trimo.** Trimo, with its annual production capacity of 600,000 m<sup>2</sup>, is the Europe's largest manufacturer of light building panels filled with mineral wool. Trimo panels are metal sandwich filled with mineral wool and glued with a polyurethane (PU) foam. About 50 percent of its production is exported, mainly to countries in the European Union (13%) and the former Soviet Union (37%). It consumed 22 tons of CFC-11 in 1992 in the production of light building panels. The objective of the project is to permanently eliminate the CFC-11 consumption in Trimo's production process by replacing the CFC-11 with CO<sub>2</sub> based foaming agent for its polyurethane adhesives. The conversion must assure the equivalent physical and mechanical properties and quality of Trimo sandwich panels. The scheduled completion time for equipping the warehouse with a panel transportation and storage system is four months, and for modifications and upgrades on the double belt line it is seven months. The total project duration is scheduled at eleven months including the training, start-up, and trial production runs. The total incremental cost of the project is US\$ 1,148,200 of which it is proposed that US\$ 1,021,410 is financed by the GEF grant. The result of the project will be the annual phaseout of 27.7 tons of ODP-weighted consumption of CFC-11.

23. **Sub-Project 7 -- Substitution for CFCs with Aliphatic Hydrocarbons in Dry Cleaning at the Labod Company.** The Labod Company is the biggest dry-cleaning company in Slovenia. Leather clothes (30 tons/year), and silk clothes and similar fine materials (25 tons/year) are cleaned by CFC procedures. Labod uses 3.5 tons of CFC-113 per year, thus representing about 72 percent of CFC use in dry cleaning. Labod represents 8 percent of CFC use in the solvent sector. The objective of the project is to phase out 3.5 tons of CFCs by replacing CFC procedures with aliphatic hydrocarbons. Operational savings of US\$ 38,577 will be realized over the life of the project, and the incremental capital cost of the project is US\$ 217,677. The total incremental cost of US\$ 179,100 is proposed to be financed by the GEF grant. The result of the project will be the annual phaseout of 2.8 tons of ODP-weighted consumption of CFCs.

24. The incremental cost of the Project has been determined to be US\$9.7 million, which represents about 27 percent of the national incremental costs which will be assumed by Slovenia economy in phasing out ODS. Of this total \$7.3 million (75%) is incremental capital costs, and \$2.4 million (25%) is incremental operating costs. The national incremental costs were estimated in the Country Program for the phaseout of ozone-depleting-substances.



## PROJECT IMPLEMENTATION ARRANGEMENTS

25. The Ministry of Environment and Physical Planning (MEPP), through the Project Implementation Unit (PIU), will act as general program coordinator for the Project. The MEPP will liaise with other ministries on policies and industrial strategy issues, and, through its PIU, be responsible for day-to-day management of project implementation. The PIU was established by the MEPP in the Slovenian EcoFund in mid-1995, and the appointment of the PIU staff will be a condition of effectiveness. The Slovenian EcoFund (SEF) will work with strong and continuous support from the Chamber of Economy (COE) which was the lead organization in project preparation and design, and has the most extensive contacts with the Participating Enterprises. Moreover, since the PIU has been established in the SEF, the SEF will not be responsible for disbursement to the PIU under Sub-Project 1. Instead, disbursement for this Sub-Project will be made directly to an account to be opened by the SEF. No formal Financial Agent will be selected for the Project.

26. The Slovenian EcoFund (SEF) was selected to manage the local funds administration for the Investment Component. The emphasis in selection of the SEF was based on its ability to disburse and administrate project funds, as demonstrated by the fact that several of its staff formerly worked in the commercial banking sector in Slovenia, and have worked on procurement and disbursement in previous World Bank projects with the former Yugoslavia. The SEF is being supported by the World Bank-financed Slovenia Environment Project, and thus its role as a PIU for the ODS Phaseout Project was seen as an opportunity to strengthen the implementation and coordination of both projects, and to help develop the Slovenian EcoFund's capabilities in financial management. To ensure smooth disbursement, early involvement of the SEF in supervision will be required. The Slovenian EcoFund will assume the day-to-day responsibilities related to procurement and disbursement, and it will assist through its staff in the PIU in the supervision of implementation for Sub-Projects 2-7. The SEF will provide at least one staff person with experience in procurement in World Bank projects.

27. A Project Administration Agreement (subject to Bank review), which clearly spells out the responsibilities of each organization, will be established between the COE, the SEF, and the MEPP. Agreement on the Project Administration Agreement will be a condition for negotiations, and its signature a condition for effectiveness. For those services which would normally be performed by a Financial Agent, the SEF will be paid a fee of 3.00 percent on Sub-Projects 2-7. For each Sub-Project a Sub-Grant Agreement between the SEF and each of the Participating Enterprises will be prepared. Each Participating Enterprise has prepared a Sub-Project Document which will form the basis of a Sub-Grant Agreement between the SEF and the Participating Enterprise. The Sub-Grant Agreements will include reporting provisions, annexes on disbursement, and provisions related to environmental protection and worker safety. Signed Sub-Grant Agreements will be a condition of disbursement for each investment Sub-Project, and preparation of a pro-forma draft Sub-Grant Agreement will be a condition of negotiations.

28. Standard Bank disbursement procedures will be followed, with established limits on initial deposit and replenishment levels, statements of expenditures and Bank procurement review levels. The PIU will review the progress of the Sub-Projects and make recommendations on disbursements to suppliers and consultants. The Special Account will be opened by the SEF either in the Bank of Slovenia or in a commercial bank. Though the Multilateral Fund procedures allow for complete retroactive financing of ODS-phaseout expenditures incurred in a country after the Montreal Protocol comes into force, more restrictive IBRD rules limiting retroactive financing have been applied to this project. Project expenditures incurred after August 1993 are eligible for retroactive financing, provided the procurement procedures outlined in Schedule B are followed. Retroactive financing shall be limited to no more than 40% of total project expenditures financed by the GEF grant. It is expected that, by October 1995, the enterprises will have incurred expenses worth \$ 1.2 million, or about 19% of the total GEF grant financing, which will

be financed retroactively. For expenditures to be retroactively financed, the procurement process should be consistent with Bank procedures, and all records should be available to the Bank for review.

29. Monitoring and evaluation of the Project will require that the PIU prepare quarterly reports to be submitted to the World Bank for the duration of project supervision. A standard format for these quarterly supervision reports is being developed by the GEF, and will be explained to and agreed upon with the PIU. The quarterly reports will summarize issues related to procurement, disbursement, technical aspects of project implementation, accounting and auditing information, environmental and safety issues, and any changes in the legal and regulatory framework. Inputs will be provided by the SEF and the Participating Enterprises. The quarterly reports will be reviewed by the World Bank task manager, and discussed during supervision missions.<sup>2</sup>

30. The SEF and COE have undergone basic training on World Bank procurement and disbursement procedures and will be further assisted by the Bank to successfully launch the Project. A Project Implementation Manual (PIM) has been provided, and includes the relevant Bank guidelines on procurement, disbursements, use of consultants, financial reporting, auditing, sample bidding documents, and other project-specific documents. In addition, detailed Project Implementation Plans were prepared by each of the Participating Enterprises during Appraisal. Finally, a one week training course on project implementation and management was held in Budapest in mid-January 1995, and was attended by staff of the COE and the SEF.

## **PROJECT BENEFITS**

31. The project's major benefit will be to assist Slovenia to achieve its objective of completely phasing out the use of ODS as early as is technically feasible. The project will help the Government implement an accelerated ODS phaseout program by providing financing for priority Sub-Projects which will result in the phase out of 345 tons of ODP annually (or about 36 percent of Slovenia's total ODP-weighted annual consumption of ODS).

32. The project consists of Sub-Projects which will contribute to maximizing the useful life of equipment which currently rely on the availability of CFC for their continued use. This will contribute to reducing the country's economic cost of phasing out the use of the regulated substances, and minimizing the economic dislocation associated with ODS phaseout. In addition, the project will enable firms with exports to adjust in a timely manner to non-ODS products as requested by importers from industrialized countries. These companies export around 38 percent of their annual ODS consumption.

## **PROJECT RISKS AND MITIGATION MEASURES**

33. Management structure and ownership of most of the companies which would be assisted under this project could change in the future. Nevertheless, the risks associated with any future financial problems of some companies would be mitigated through a review of the financial status of each Participating Enterprise during supervision. The Participating Enterprises have good prospects for increased profitability based on their position within their respective industrial sectors, and the fact that they will be undertaking these necessary new investments for the phaseout of ODS technologies.

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<sup>2</sup> The first supervision mission is scheduled for October 1995, and 12 staff weeks per year have been allocated for World Bank Supervision of the Project.

Implementation of the new technologies will also make any state enterprises more attractive candidates for privatization.

34. The risk associated with insufficient institutional capacity should be adequately offset by the establishment of the Project Implementation Unit (PIU) and Technical Advisory Group (TAG) to assist in the implementation of the Sub-Projects and Country Program for ODS Phaseout. The work of the PIU and TAG will be essential to help industry make the transition to ODS substitutes instead of continued use of ODS. Monitoring of compliance with ODS regulations will also be of paramount importance for project success. Under the Institutional Strengthening Component, the MEPP will be responsible for monitoring the compliance with ODS regulations.

## **REGULATORY FRAMEWORK**

35. Stratospheric Ozone Layer protection has been accorded high priority by the Government of Slovenia as an important global environmental issue. The requirements of the Montreal Protocol, which enables the monitoring of ODS usage (and imports), were incorporated into national law in 1992. The regulations, which include deadlines for ODS phaseout in each sector of consumption, bans on new equipment which used controlled substances, obligatory reporting on the use of controlled substances, and penalties for violating regulations, have been prepared and have yet to be adopted. Slovenian regulations will adopt the ODS phaseout schedule of the Montreal Protocol and its amendments and adjustments, and will be consistent with the provisions of the Montreal Protocol on limitations on trade in the regulated substances. The MEPP and the Ministry for Economic Relations and Development will be responsible for its implementation.

## **ENVIRONMENTAL ASSESSMENT**

36. Sub-Projects 2-7 were prepared on the basis of, and will be subject to, local environmental regulations and the Bank's project environmental review procedures. The Sub-Projects consist of light industrial projects which have been classified as category B on the basis of the Bank's project environmental classification system (OD 4.01), and based on previous classification of similar projects.

37. The MEPP has provided its environmental clearance of all the proposed activities to be implemented under the Project. The Project provides for resources to retain the services of international consultants for supervision of project implementation, including health and safety considerations, and these will be addressed during the first supervision mission planned for September 1995. International health and safety standards should be observed, with particular emphasis on the design and operation of cyclopentane tanks. Adequate safeguards for worker health and safety will be a condition of disbursement for any Sub-Project, and project supervision will include guidance to ensure that safety and environmental conditions in the Participating Enterprises are consistent with international practices for the new technologies which will be employed to phase out ODS.

## **AGREEMENTS REACHED AND RECOMMENDATIONS**

38. During negotiations the following assurances were obtained from Government:

- (a) a part of the proceeds of the grant will be made available to SEF, under terms acceptable to the Bank, including a financial agency fee of 3 % of the amount disbursed to finance Sub-project 2-7 (para. 27);

- (b) all measures necessary to ensure that each Participating Enterprise complies with the relevant requirements for ODS phaseout activity will be taken (para. 36);
- (c) PIU and SEF will maintain reporting and accounting practices acceptable to the Bank (para. 29 and 30).

39. Conditions of effectiveness would be:

- (a) the execution of the Project Administration Agreement between SEF, COE and MEPP (para 27);
- (b) the appointment of the PIU staff acceptable to the Bank (para. 25).

40. Conditions of disbursement would be:

- (a) signing of a Sub-Grant Agreement between the SEF and the Participating Enterprise(s) responsible for the corresponding Sub-Project (para. 27);
- (b) Government's certification to the Bank that adequate environmental and safety precautions are in place for any Sub-Project (para. 37).

**SLOVENIA**  
**TECHNICAL SUPPORT AND INVESTMENT PROJECT**  
**FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

**PROJECT COSTS AND FINANCING PLAN**

<b>Sub-Project Title and Description</b>	<b>Financed by Slovenia</b>	<b>Local (by GEF)</b>	<b>Foreign (by GEF)</b>	<b>Sub-Project Costs (US\$ Million)</b>	<b>Proposed GEF Grant (US\$ Million)</b>
1. Project Implementation Unit for the Phaseout of Ozone Depleting Substances	0.000	0.220	0.000	0.220	0.220
2. Project for Conversion and Phaseout of Ozone Depleting Substances at LTH	2.536	0.412	1.084	4.032	1.496
3. Servicing of Refrigerators and Freezers, and Substitution of CFC-12 Refrigerant in Heat Pumps with HFC134-a at Gorenje Servis	0.342	0.016	0.109	0.467	0.125
4. Conversion of Aerosol Production to CFC-Free Propellants at Krka Kozmetika	0.321	0.187	0.167	0.675	0.354
5. Substitution for CFC Propellants in the Production of Pharmaceuticals at Lek Chemical and Pharmaceutical Company	0.192	1.557	0.436	2.185	1.993
6. Elimination of CFC-11 in the Production of Light Building Panels at Trimo	0.127	0.546	0.475	1.148	1.021
7. Substitution for CFCs with Aliphatic Hydrocarbons in Dry Cleaning at the Labod Company	0.000	0.000	0.179	0.179	0.179
<b>Subtotal for Component 1 -- Sub-Project 1</b>	<b>0.000</b>	<b>0.220</b>	<b>0.000</b>	<b>0.220</b>	<b>0.220</b>
<b>Subtotal for Component 2 -- Sub-Projects 2-7</b>	<b>3.518</b>	<b>2.718</b>	<b>2.450</b>	<b>8.686</b>	<b>5.168</b>
<b>Subtotal for Components 1-2</b>	<b>3.518</b>	<b>2.938</b>	<b>2.450</b>	<b>8.906</b>	<b>5.388</b>
Other: Financial Agent Fee (3.00% of Grant Request for Sub-Projects 2-7)	0.000	0.155	0.000	0.155	0.155
Other: Contingency (12.18% of Grant Request for Sub-Projects 1-7)	0.000	0.657	0.000	0.657	0.657
<b>Total</b>	<b>3.518</b>	<b>3.750</b>	<b>2.450</b>	<b>9.718</b>	<b>6.200</b>



**SLOVENIA**  
**TECHNICAL SUPPORT AND INVESTMENT PROJECT**  
**FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**  
**PROCUREMENT AND DISBURSEMENT ARRANGEMENTS**

**A. Procurement**

1. Procurement of goods, works, and services will be in accordance with relevant Bank Guidelines. The Project Implementation Unit (PIU), which was established by the Ministry for Environment and Physical Planning (MEPP) within the Slovenian EcoFund (SEF) in mid-1995, will be responsible for day-to-day management of project implementation. SEF will work with support from the Chamber of Economy (COE) which was the lead organization in project preparation and design. The PIU will consist of staff from SEF, COE and MEPP. The PIU will provide support to the enterprises participating in the project and, by providing a link between them and the World Bank, will ensure that the project will be carried out in a timely and efficient manner. SEF was selected to manage the funds administration for the Investment Component of the project based on its ability to disburse and administrate project funds and its familiarity with the World Bank procurement procedures. The SEF will be responsible for ensuring that the procurement methods proposed by the Participating Enterprises are in accordance with World Bank Guidelines (January 1995).

**(a) Works**

- (i) Contracts for civil works up to US\$500,000 equivalent would be awarded on the basis of national shopping (NS) procedures, where quotations would be obtained from at least three qualified suppliers<sup>1</sup>.

**(b) Goods**

- (i) Contracts for goods with limited suppliers up to an aggregate of US\$ 1.5 million equivalent (\$1.1 million financed by the Grant) would be awarded on the basis of the Bank's limited international bidding (LIB) procedures<sup>2</sup>
- (ii) Contracts between US\$50,000 and US\$400,000 equivalent would be awarded on the basis of the Bank's international shopping (IS) procedures where price quotations would be obtained from at least three qualified suppliers from at least two countries
- (iii) Contracts below US\$50,000 equivalent would be awarded on the basis of national shopping (NS) procedures where quotations would be obtained from at least three qualified suppliers

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<sup>1</sup> The use of National Shopping procedures for works is justified on the ground that: a) the project must be completed by a certain date for the country to fulfill the Montreal Protocol mandate; and b) the country has a very strong construction industry which can perform at very competitive prices.

<sup>2</sup> This method of procurement is justified by the limited number of suppliers and the time constraints of the project.

- (iv) Direct contracts (DC) would be awarded on the basis of negotiations with the technology supplier. The Bank's prior approval for each case of direct contracting would be necessary.

**(c) Consultants**

- (i) Consultant services for engineering studies, technical assistance, study tours and training programs would be procured in accordance with the "Guidelines for the Use of Consultants by World Bank" published by the World Bank in August 1981<sup>3</sup>

2. The following contracts and bid packages will be subject to the Bank's prior review:

- (i) LIB packages
- (ii) The first two NS contracts for works; the first two IS contracts for goods; and all DC procurement
- (iii) Terms of References for all consulting services; short list, terms of reference, letter of invitation and award decisions for consultant contract over US\$100,000 equivalent for firms and US\$50,000 equivalent for individuals.

3. All other contracts for goods, works and consultant services which are financed through this grant will be subject to ex-post review by the Bank in order to verify compliance with Bank procurement guidelines. Information on procurement would be periodically provided to the World Bank task manager by the PIU.

4. Retroactive Financing. Project expenditures incurred after August 1993 are eligible for retroactive financing, provided the above procurement was carried out in accordance with Bank Guidelines (January 1995). Retroactive financing shall be limited to no more than 40% of total project expenditures financed by the GEF grant. It is expected that, by October 1995, the enterprises will have incurred expenses worth \$ 1.2 million, or about 19% of the total GEF grant financing, which will be financed retroactively. For expenditures to be retroactively financed, the procurement process should be consistent with Bank procedures, and all records should be available to the Bank for review.

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<sup>3</sup> Short-term contracts for highly specialized assignments will be carried out by individual consultants; major assignments will be contracted through short listing of consulting firms.



**Summary of Proposed Procurement Arrangements  
(US\$ Equivalent)**

<i>Project Element</i>	<i>Procurement Method</i>			<i>NBF</i>	<i>Total</i>
	<i>ICB</i>	<i>LIB</i>	<i>Other</i>		<i>Cost</i>
<b>1. Works</b>					
1.1 Minor building and facility services retrofit			1,591,580 (1,591,580) <sup>a</sup>	219,363	1,810,943 (1,591,580)
<b>2. Goods</b>					
2.1 Equipment (including installation costs)	- (-)	1,083,820 (1,083,820)	1,867,600 (1,867,600) <sup>b</sup>	3,178,822	6,130,242 (2,951,420)
<b>3. Consultancies</b>					
3.1 Engineering Studies/design work	- (-)	- (-)	600,000 (600,000) <sup>c</sup>	117,990	717,990 (600,000)
3.2 Technical Assistance (including consultants and additional staff required)	- (-)	- (-)	25,800 (25,800) <sup>c</sup>	1,200	27,000 (25,800)
<b>4. Miscellaneous</b>					
4.1 Budget of the PIU	- (-)	- (-)	219,690 (219,690) <sup>d</sup>	-	219,690 (219,690)
4.2 Financial Agent Fee	- (-)	- (-)	155,064 (155,064) <sup>e</sup>	-	155,064 (155,064)
<b>Sub-Total</b>	- (-)	1,083,820 (1,083,820)	4,459,734 (4,459,734)	3,517,375	9,060,929 (5,543,554)
4.3 Contingency	- (-)	- (-)	656,446 (656,446) <sup>f</sup>	-	656,446 (656,446)
<b>Total</b>	- (-)	1,083,820 (1,083,820)	5,116,180 (5,116,80)	3,517,75	9,717,375 (6,200,000)

Note: Figures in parentheses are the respective amounts financed by the GEF Grant.

NBF: Not Bank-Financed, to be financed by Participating Enterprises.

- a - Funds will cover the costs of construction and civil works required to retrofit existing facilities (building reconstruction, foundation and mounting works, plumbing, wiring works, etc.), to be procured by national shopping. 11 procurement packages ranging between US\$10,000-500,000
- b - To be procured in accordance with procurement limits agreed upon in Schedule B. It consists of International Shopping: US\$ 1.6 million; National Shopping US\$250,000; Direct Contracts US\$150,000. 13 procurement packages ranging from US\$50,000-300,000; 18 procurement packages ranging between US\$5,000-50,000.
- c - Consultants' services (engineering support, material compatibility studies, on-site installation assistance, training in the operation and safety of new equipment, study tour abroad, etc.) to be procured in accordance with World Bank guidelines: "Use of Consultants by World Bank Borrowers and by the World Bank as Executing Agency Washington, D.C., August 1981". 14 procurement packages ranging from US\$ 10,000-100,000; 1 package above US\$100,000.
- d - Funds will cover the costs of office equipment (US\$33,000), salaries (US\$ 110,000), and other operational expenses of the Project Implementation Unit (PIU) for a period of three years. Disbursements will be made on the basis of an agreed budget between the PIU and the World Bank.
- e - Fee for services provided by the Financial Agent (3.00 percent of the value of Sub-Projects 2-7) will be paid in accordance with agreed schedule: 0.50 percent upon Sub-Grant Agreement signature, 2.00 percent pro-rata to disbursements, and 0.50 percent upon project completion.
- f - Physical and price contingencies for the Project are estimated at 10.5% of the Grant Request for Sub-Projects 1-7.

**B. Disbursement**

5. The table below sets forth the categories of items to be financed out of the proceeds of the Global Environment Trust Fund Grant, the allocation of the amounts of the Global Environment Trust Fund Grant to each category, and the percentage of expenditures for items so to be financed in each category:

Category	Amount of the Grant Allocated (Expressed in Special Drawing Right (SDR) Equivalent)	Percentage of Expenditures to be Financed
Works	1,070,000	85%
Goods	1,980,000	100% of foreign expenditures; 100% of local expenditures (ex-factory cost); and 85% of local expenditures for other items procured locally
Consultants' Services	420,000	100%
Operating Costs of PIU	250,000	100%
Unallocated	480,000	
<b>Total</b>	<b>4,200,000</b>	

6. The Project is expected to be disbursed within a period of two calendar years. The Trustee will disburse against 100% of eligible foreign expenditures; 100% of eligible local expenditures (ex-factory cost); and 85% percent of other eligible local expenditures for grant financed goods and services contracts. The SEF will assume the day-to-day responsibilities related to disbursement for the Investment Components (Sub-Projects 2-7). Disbursement to the PIU under Sub-Project 1 will be made directly through a direct account to be opened by the SEF. Standard Bank disbursement procedures will be followed, with established limits on initial deposit and replenishment levels, statements of expenditures, and Bank procurement review levels. Funds will be deposited in a Special Account which will be held with either the Bank of Slovenia or a commercial bank. Disbursement procedures have been established as follows:

- (a) **Between the World Bank, the Ministry of Environment and Physical Planning, and the Slovenian EcoFund:** The Trustee will deposit an initial amount up to US\$800,000 to a Special Account which the SEF will open in either the Bank of Slovenia or a commercial bank. Requests for reimbursement will be based on Statement of Expenditures (SOEs) for contracts with a value of up to US\$500,000 for works, US\$400,000 for goods, US\$100,000 for consulting firms' services, and US\$50,000 for individual consultants' services. The minimum application size for payments directly from the Loan Account or for issuance of Special Commitments is 20% of the Special Account Authorized Allocation. Terms, conditions, and schedule for disbursement for Sub-Projects under the Investment Component must be included in the Sub-Grant Agreements between the Slovenian EcoFund and each Participating Enterprise; and

- (b) **The Slovenian EcoFund and the Sub-Grant Recipient:** For contracts up to US\$500,000 for works, US\$400,000 for goods, US\$100,000 for consulting firms and US\$ 50,000 for individual consultants, the Slovenian EcoFund will disburse to the Sub-Grant recipient for eligible expenses without prior review by the World Bank. Disbursement will follow the guidelines established in the Disbursement Handbook published by the World Bank. Details of the disbursement procedures will be included in the initial Disbursement Letter to be issued by the World Bank.
7. Expenses incurred for activities of the SEF will be covered through the Special Account.
8. The conditions of disbursement are that (i) a Sub-Grant Agreement must be signed between the Slovenian EcoFund and the Participating Enterprise responsible for the corresponding Sub-Project before disbursement can begin for that Sub-Project; and (ii) the Government must certify that adequate environmental and safety precautions are in place for any Sub-Project before disbursement for that Sub-Project can begin.

**ESTIMATED DISBURSEMENT**  
(US\$ )

	<b>FY96</b>	<b>FY97</b>	<b>FY98</b>
Annual	4,200,000	1,500,000	500,000
Cumulative	4,200,000	5,700,000	6,200,000



**SLOVENIA**  
**TECHNICAL SUPPORT AND INVESTMENT PROJECT**  
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**TIMETABLE OF KEY PROJECT PROCESSING EVENTS**

(a)	Time Taken to Prepare:	20 months
(b)	Prepared By:	MEPP, COE and World Bank
(c)	First Presentation to the Bank:	November 1993
(d)	Appraisal Mission Departure:	May 1995
(c)	Negotiations:	September 1995
(d)	Board Approval	October 1995
(e)	Signature of Grant Agreement	November 1995
(f)	Planned Date of Effectiveness:	November 1995
(g)	Expected Date of Completion:	June 1997
(h)	Expected Date of Closing:	December 1997

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The Bank project team was led by Mark Kosmo (Environmental Economist/Task Manager, EC2AU) and included David Gibson and Camerun Murdoch (consultants from WS Atkins, England). The peer reviewers were Bilal Rahill, Jessica Poppele and Ajay Mathur (ENVGC). The external reviewers were Mike Jeffs (ICI Polyurethane), Harry McCain (Aeropres Corporation (Aerosols)), Lambert Kuijpers (Technical University of The Netherlands), Bryan Baxter (British Aerospace) and Ivar Isaakson (Scientific and Technical Advisory Panel Reviewer)



**SLOVENIA  
TECHNICAL SUPPORT AND INVESTMENT PROJECT  
FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

**PROJECT IMPLEMENTATION SCHEDULE AND SUPERVISION PLAN**

**PROJECT IMPLEMENTATION SCHEDULE**

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Planned Date of Signature:	November 1995
Planned Date of Effectiveness:	November 1995
Expected Date of Completion:	June 1997

**I. Institutional Strengthening Component**

Sub-Project 1	Project Implementation Unit for the Phaseout of Ozone Depleting Substances	1994-1997
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**II. Investment Component**

Sub-Project 2	Project for Conversion and Phaseout of Ozone Depleting Substances at LTH	
	Component for Substitution of CFC Refrigerant with HFC-134a and HFC Blends	August 1996
	Component for Substitution of CFC Blowing Agent with Cyclopentane	December 1996
Sub-Project 3	Servicing of Refrigerators and Freezers, and Substitution of CFC-12 Refrigerant in Heat Pumps with HFC134-a at Gorenje Servis	
	Component for Servicing of Refrigerators, Freezers, and Heat Pumps in which CFC-12 is used as Refrigerant (Includes Recovery)	December 1995
	Component for Servicing of CFC-free Refrigerators and Freezers (HFC-134a used as Refrigerant)	December 1995
	Component for Substitution of CFC-12 as Refrigerant with HFC-134a in the Production of Heat Pumps	December 1995
Sub-Project 4	Conversion of Aerosol Production to CFC-Free Propellants at Krka Kozmetika	
	Phase 1 -- Installing Explosion Proof Aerosol Filling Machine and Safe Room for Filling Hazardous Propellants	May 1993

	Phase 2 -- Storage for Flammable Propellants and Reconstruction of Finished Goods Warehouse	July 1996
Sub-Project 5	Substitution for CFC Propellants in the Production of Pharmaceuticals at Lek Chemical and Pharmaceutical Company	
	Provision of Technical Information and Documentation	August 1995
	Civil Engineering and Installation of Works	December 1995
	Installation of Equipment	November 1995
	Training in Operation of Equipment	February 1996
Sub-Project 6	Elimination of CFC-11 in the Production of Light Building Panels at Trimco	
	Modification and Upgrading the Double Belt Line	July 1996
	Equipping the Warehouse with a Panel Transportation System	September 1996
Sub-Project 7	Substitution for CFCs with Aliphatic Hydrocarbons in Dry Cleaning at the Labod Company	
	Installation of Equipment	December 1995

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## PROJECT SUPERVISION PLAN

Approximate Date	Activity	Skill Requirements	Estimated Staff-weeks
FY 96	<b>Project Launch Mission (11/1995)</b> - Review workplan and budget - Project effectiveness	Operations	2
	<b>Supervision Missions (2/1996, 6/1996)</b> - Review project implementation systems (PMU and SEF's activity) - Review progress in ODS phaseout - Review ODS phaseout monitoring system - Review safety measures - Review training component - Review status of procurement - Review status of disbursement	Operations Procurement ODS Technical	6
FY 97	<b>Supervision Mission (12/1996)</b> - Review project implementation progress (ODS phaseout, training, etc.) - Review accounting, procurement and disbursement - Auditing	Operations ODS Technical	2
	<b>Supervision Mission (6/1997)</b> - Accounting, disbursement - Auditing - Project impact assessment - Preparation of ICR	Operations	2



## **Part II: Technical Annexes**



**SLOVENIA**  
**TECHNICAL SUPPORT AND INVESTMENT PROJECT**  
**FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

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**SLOVENIA**  
**TECHNICAL SUPPORT AND INVESTMENT PROJECT**  
**FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

**TECHNICAL REPORT**  
**SUMMARY TABLE**

Sub-Project Title and Description	Participating Enterprises	Sub-Project Impact and Benefits	Type of ODS Used	Sub-Project Costs (US\$ Million)	Proposed GEF Grant (US\$ Million)	Retroactive Financing (US\$ Million)
1. Project Implementation Unit for the Phaseout of Ozone Depleting Substances	Project Implementation Unit, MEPP	-	-	0.220	0.220	0.045
2. Project for Conversion and Phaseout of Ozone Depleting Substances at LTH	LTH	Phaseout of 67.4 tons of ODP	CFC-12 CFC-502 CFC-11	4.032	1.496	0.294
3. Servicing of Refrigerators and Freezers, and Substitution of CFC-12 Refrigerant in Heat Pumps with HFC134-a at Gorenje Servis	Gorenje Servis	Phaseout of 11.4 tons of ODP	CFC-12	0.467	0.125	0.026
4. Conversion of Aerosol Production to CFC-Free Propellants at Krka Kozmetika	Krka	Phaseout of 79.0 tons of ODP	CFC-11 CFC-12	0.675	0.354	0.003
5. Substitution for CFC Propellants in the Production of Pharmaceuticals at Lek Chemical and Pharmaceutical Company	Lek	Phaseout of 157.0 tons of ODP	CFC-11 CFC-12	2.185	1.993	0.740
6. Elimination of CFC-11 in the Production of Light Building Panels at Trimco	Trimco	Phaseout of 27.7 tons of ODP	CFC-11	1.148	1.021	0.060
7. Substitution for CFCs with Aliphatic Hydrocarbons in Dry Cleaning at the Labod Company	Labod	Phaseout of 2.8 tons of ODP	CFC-113	0.179	0.179	0.000
<b>Subtotal for Component 1 – Sub-Project 1</b>	-	-	-	<b>0.220</b>	<b>0.220</b>	<b>0.045</b>
<b>Subtotal for Component 2 – Sub-Projects 2-7</b>	-	-	-	<b>8.686</b>	<b>5.168</b>	<b>1.123</b>
<b>Subtotal for Components 1-2</b>	-	-	-	<b>8.906</b>	<b>5.388</b>	<b>1.168</b>
Other: Financial Agent Fee (3.00 percent of Grant Request for Sub-Projects 2-7)	-	-	-	0.155	0.155	0.000
Other: Contingency (12.10 percent of Grant Request for Sub-Projects 1-7)	-	-	-	0.657	0.657	0.000
<b>TOTAL</b>	-	<b>Phaseout of 345.3 tons of ODP</b>	-	<b>9.718</b>	<b>6.200</b>	<b>1.168</b>





**SLOVENIA  
TECHNICAL SUPPORT AND INVESTMENT PROJECT  
FOR THE PHASEOUT OF OZONE DEPLETING SUBSTANCES**

**TECHNICAL REPORT**

**INTRODUCTION**

The Project consists of (i) an Institutional Strengthening Component; and (ii) an Investment Component comprising six Sub-Projects in a number of sectors. Below is a description of each of these components. The Institutional Strengthening Component comprises Sub-Project 1 and, the Investment Component comprises Sub-Projects 2-7.

**Sub-Project No. 1 - Sub-Project Implementation Unit for the Phaseout of  
Ozone Depleting Substances**

**INSTITUTIONAL STRENGTHENING**

***A. SUB-PROJECT DESCRIPTION***

**Background**

1.1 The PIU was established by the MEPP in mid-1995 within the Slovenian EcoFund (SEF). The PIU will consist of staff from the SEF, Chamber of Economy (COE), and Ministry of Environment and Physical Planning (MEPP). The COE was the lead organization in project preparation and design, working with the Participating Enterprises, the Government of Slovenia, the World Bank, and consultants, while the SEF was established in December 1994 on the basis of the Environmental Protection Act. A staff of 2-3 persons is expected to be employed by mid-1995, including one half-time staff person from the Chamber of Economy, two half-time staff from the Slovenian EcoFund, and one Project Director to be appointed by the MEPP.

**Project Objectives**

1.2 The PIU will provide support to the Participating Enterprises and the MEPP by overseeing all aspects of day-to-day project management. By serving as a link between the World Bank and the Participating Enterprises, the PIU will ensure that the Project will be carried out in a timely and more efficient manner. Its efforts will help to promote the phaseout of 345 tons of ODS in ODP equivalent. Based on the advice of the Chamber of Economy, a Technical Advisory Group (TAG) will be appointed by the MEPP to provide guidance to ODS users on the technical aspects of investment Sub-Project implementation.

***B. SUB-PROJECT EXECUTION***

1.3 The PIU will be formed within the Slovenian EcoFund to coordinate the implementation of the Project, and supervise project activities according to the requirements of the World Bank and the MEPP. The SEF will oversee procurement and disbursement for Sub-Projects 2-7 in compliance with World Bank

guidelines. As necessary, the PIU will arrange for technical assistance and consultants to assist in project implementation, and provide support to facilitate cooperation among government institutions and the consumers of ODS.

1.4 The PIU will provide the following services:

- Coordinating communication between the World Bank, the MEPP, the SEF, the Participating Enterprises, and other government institutions (responsibility of the COE);
- Providing information on ODS substitutes and alternative phaseout technologies, and supervision of technical aspects of investment Sub-Project implementation (responsibility of the COE with input from the TAG);
- Organizing training, workshops, and seminars for Sub-Project managers and small ODS users, arranging for technical consultants to provide advice, and advising Participating Enterprises concerning any changes in ODS Phaseout technologies (responsibility of the COE with input from the TAG);
- Dissemination of information to the general public, design and implementation of the regulatory framework governing ODS use, and monitoring compliance with ODS regulations (responsibility of the MEPP with input from the COE);
- Reviewing procurement practices of Participating Enterprises to ensure that they are in compliance with World Bank guidelines (responsibility of the SEF);
- Preparation of disbursement requests and monitoring of expenditures of Participating Enterprises to ensure that disbursement and use of funds is in compliance with World Bank guidelines (responsibility of the SEF);
- Open and maintain the Special Account, submit audited annual financial statements regarding the use of the GEF Grant funds, and submit quarterly progress reports to the MEPP and COE regarding project procurement and disbursement (responsibility of the SEF);
- Overseeing implementation of investment Sub-Projects to ensure timely implementation of Project Implementation Plans, ensuring adequate environmental protection and safety precautions are being taken by the Participating Enterprises, and establishing a reporting system on project implementation to be followed by each of the Participating Enterprises (responsibility of the COE); and
- Preparation of quarterly reports summarizing the status of Sub-Project implementation, technical issues, procurement methods used for each procurement package, amounts disbursed, accounting and auditing, environmental and safety issues, and any changes in the legal and regulatory framework (responsibility of the COE with input from the SEF and Participating Enterprises).<sup>4</sup>

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<sup>4</sup> The GEF is currently preparing Monitoring and Evaluation Guidelines for ODS Phaseout Projects which will include a standard format for quarterly supervision reports to be prepared by implementing agencies. These guidelines are expected to be finalized by September 1995.

***C. INCREMENTAL COSTS OF THE SUB-PROJECT***

1.5	The incremental investment cost of the phaseout of ODS	US\$ 32,600
	The incremental operating cost of the phaseout of ODS (2 years, discounted)	US\$187,090
	Total incremental cost of the Sub-Project	US\$219,690

**Sub-Project Financing**

Proposed GEF Grant	US\$219,690
To be Financed by Slovenia	US\$ 0

## Sub-Project No. 2 - Sub-Project for Conversion and Phaseout of Ozone Depleting Substances at LTH

### REFRIGERATION AND FOAM SECTOR

#### A. SUB-PROJECT DESCRIPTION

##### Background

2.1 LTH is the largest producer of commercial refrigeration appliances in Slovenia. Approximately 45 percent of production is exported to Western Europe. Besides commercial equipment it produces also domestic cooling-freezing appliances. The main product types are:

- Refrigerators and freezers exceeding 500 liters capacity
- Refrigerators and freezers up to 500 liters capacity (catering)
- Refrigerated counters
- Serveover cabinets, refrigerated multideck cabinets
- Heat exchangers
- Freezer Chests

2.2 In 1992, LTH used (i) 15.4 tons of CFC-12 as refrigerants, or 7.9 percent of the total CFC consumption in refrigeration sector; (ii) 41.4 tons of CFC-11 as blowing agent for cast-in-place production of heat insulating, or 9.6 percent of the total CFC consumption in foam sector; and (iii) 19.6 tons of CFC-12 for servicing purposes, representing about 10 percent of the total CFC consumption in refrigeration sector. LTH consumption of CFCs represents about 7 percent of the total CFC consumption in Slovenia.

##### Sub-Project Objective

2.3 The objectives of the Sub-Project are: (i) substitution of CFC refrigerant with HFC-134a and HFC blends; and (ii) substitution of CFC-11 blowing agent with cyclopentane. Particular concern will also be given to the design and operation of cyclopentane storage tanks in order to ensure that international safety standards are met.

#### B. SUB-PROJECT EXECUTION

##### Time Schedule

2.4 The Sub-Project started in July 1992, and will be finished by December 1996.

2.5 The substitution of CFC will be realized as follows:

- (i) Replacement of CFCs as Refrigerant -- August 1996
- (ii) Replace of CFCs as Blowing Agent with Cyclopentane -- December 1996  
Conversion from CFC to HCFC<sup>5</sup> -- August 1993-August 1995

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<sup>5</sup> The conversion from CFC to Cyclopentane will take place over a 3-year period. In the interim, the enterprise has decided to substitute CFC-11 with HCFC-141b. Costs strictly associated with the conversion to HCFC are being borne by the enterprise. Costs associated with the conversion from CFC to cyclopentane will be financed by the GEF grant.

Sub-Project Duration: 4.5 years

### **Sub-Project Management**

2.6 The Sub-Project will be carried out by LTH. The implementation will be overseen by the MEPP.

### ***C. INCREMENTAL COSTS OF THE SUB-PROJECT***

2.7	The incremental investment cost of the phaseout of ODS in refrigeration	US\$ 836,877
	The incremental operating cost of the phaseout of ODS in refrigeration	US\$ 770,381
	Total incremental cost of the Sub-Project (Refrigeration)	US\$ 1,607,258
	The incremental investment cost of the phaseout of ODS in foams	US\$ 2,001,188
	The incremental operating cost of the phaseout of ODS in foams	US\$ 423,578
	Total incremental cost of the Sub-Project (Foams)	US\$ 2,424,766
	Total incremental cost of the Sub-Project (Refrigeration and Foams)	US\$ 4,032,024

### **Sub-Project Financing**

2.8 The Sub-Project is proposed to be financed on a grant basis.

Proposed GEF Grant	US\$ 1,496,230
Participating Enterprise Contribution	US\$ 2,535,794

### ***D. BENEFIT OF THE SUB-PROJECT***

2.9 The result of the Sub-Project will be the annual phaseout of 26.0 tons of ODP-weighted consumption of CFC-12 and CFC-502 in refrigeration, and 41.4 tons of CFC-11 in foam.

**Sub-Project No. 3 - Servicing of Refrigerators and Freezers, and Substitution  
of CFC-12 Refrigerant in Heat Pumps with HFC134-a at Gorenje Servis**

**REFRIGERATION AND FOAM SECTOR**

**A. SUB-PROJECT DESCRIPTION**

**Background**

3.1 In 1992, 950,000 domestic refrigerators and freezers using CFC-12 refrigerant, were in use in Slovenia. Most of them have been produced by Gorenje, which is the largest producer of domestic appliances in Slovenia.

3.2 Gorenje Servis is the largest service organization in Slovenia and has exclusive rights for servicing Gorenje appliances during the warranty period.

3.3 The service network of Gorenje Servis consists of 10 service stations with 29 qualified service technicians. In 1993 there were 25,500 service repairs on refrigeration appliances. Service repairs of Gorenje Servis represent about 30 percent of the Slovenian market.

3.4 In the group of Gorenje Servis there is also a small amount of production and mounting of heat pumps (960 pieces in 1992) using CFC-12.

3.5 In 1992, the consumption of CFC-12 in Gorenje Servis was 9.6 tons, or 31.3 percent of CFC use for servicing purposes and production of heat pumps (i.e., about 5 percent of CFC consumption in the refrigeration sector or 0.9 percent of the total CFC consumption in Slovenia).

**Sub-Project Objectives**

3.6 The objectives of the Sub-Project are: (i) servicing the refrigerating-freezing appliances and heat pumps which contain CFC-12 as refrigerant; (ii) servicing the refrigerating-freezing appliances which contain HFC-134a as refrigerant and its recovery; and (iii) substitution of CFC-12 with HFC-134a in the production of heat pumps.

**B. SUB-PROJECT EXECUTION**

**Time Schedule**

The Sub-Project will be realized by the end of 1995.

Sub-Project Duration 1 year

**Sub-Project Management**

3.7 The Sub-Project will be carried out at Gorenje Servis. The implementation will be overseen by MEPP.

***C. INCREMENTAL COSTS OF THE SUB-PROJECT***

3.8	The incremental investment cost of the phaseout of ODS in refrigeration	US\$119,860
	The incremental operating cost of the phaseout of ODS in refrigeration	US\$222,627
	Total incremental cost of the Sub-Project (Refrigeration)	US\$342,487
	 The incremental investment cost of the phaseout of ODS in heat pumps	 US\$ 5,600
	The incremental operating cost of the phaseout of ODS in heat pumps	US\$118,682
	Total incremental cost of the Sub-Project (Heat Pumps)	US\$124,282
	 Total incremental cost of the Sub-Project (Refrigeration and Heat Pumps)	 US\$466,769

**Sub-Project Financing**

3.9 The Sub-Project is proposed to be financed on a grant basis.

Proposed GEF Grant	US\$125,460
Participating Enterprise Contribution	US\$341,309

***D. BENEFIT OF THE SUB-PROJECT***

3.10 The result of the Sub-Project will be the annual phaseout of 10.2 tons of ODP-weighted consumption of CFC-12 in refrigeration, and 1.2 tons of CFC-12 in heat pumps.

**Sub-Project No. 4 - Conversion of Aerosol Production to CFC-Free Propellants  
at Krka Kozmetika**

**AEROSOL SECTOR**

**A. SUB-PROJECT DESCRIPTION**

**Background**

4.1 Krka is a major producer of aerosols for cosmetic and technical applications in Slovenia. The average number of aerosols produced from 1986 to 1990 was 6 million units per year, of which about one third was perfume in glass bottles. The consumption of CFCs in 1992 was 123 tons, representing 28.2 percent of the CFC consumption in the aerosol sector, or 11.1 percent of total CFC consumption in Slovenia.

**Sub-Project Objectives**

4.2 The objective of the Sub-Project is to phase out the use of 79 tons (1993) of CFCs aerosol propellants and substitute them with Dimethyl Ether (DME) in perfumes and colognes, and hydrocarbon aerosol propellants in all other products.

**B. SUB-PROJECT EXECUTION**

4.3 The Sub-Project started in 1993, and will be finished in July 1996.

Sub-Project Duration: 3 years

**Sub-Project Management**

4.4 The Sub-Project will be carried out at Krka Kozmetika. The implementation will be overseen by MEPP.

**C. INCREMENTAL COSTS OF THE SUB-PROJECT<sup>6</sup>**

4.5	The incremental investment cost of the phaseout of ODS	US\$1,068,452
	The incremental operating savings of the phaseout of ODS	US\$ -393,140
	Total incremental cost of the Sub-Project	US\$ 675,312

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<sup>6</sup> The cost-effectiveness of this project is \$8.55/kg-ODP which is higher than the subsectoral average of \$2.55/kg-ODP. The higher costs are because CFCs are being replaced by both hydrocarbons and DME. In addition, the estimates of equipment provided by vendors are "high due to strategic and political considerations in the Balkans and Slovenia's proximity". However, the equipment will be competitively procured in accordance with the guidelines provided in Schedule B and actual costs will be disbursed.



**Sub-Project Financing**

4.6 The Sub-Project is proposed to be financed on a grant basis.

Proposed GEF Grant	US\$ 354,000
Participating Enterprise Contribution	US\$ 321,312

***D. BENEFIT OF THE SUB-PROJECT***

4.7 The result of the Sub-Project will be the annual phaseout of 79.0 tons of ODP-weighted consumption of CFC-11 and CFC-12.

**Sub-Project No. 5 - Substitution for CFC Propellants in the Production of Pharmaceuticals  
at Lek Chemical and Pharmaceutical Company**

**AEROSOL SECTOR**

***A. SUB-PROJECT DESCRIPTION***

**Background**

5.1 Lek Chemical and Pharmaceutical Company is one of the largest aerosol manufacturers in Slovenia. It is the only one that manufactures drugs in aerosol form, in addition to cosmetic aerosols.

5.2 Over the period from 1986 to 1990, Lek produced over 2 million cans per year. In the later years, the structure of cosmetic products has changed, more and more using modified formulations of the products, due to the limited use of CFCs. In 1990 Lek started to use propane-butane gas as propellant, and in 1993 the use of CFCs was excluded from the production of cosmetic aerosols.

5.3 The production of drugs in aerosol form during this period reached 1.25 million cans in 1986, but fell to 935,000 cans in 1992 and 680,000 cans in 1993, respectively. The mixture of CFC-11 and CFC-12 in a ratio 1:1 is used as propellant. The consumption of CFCs in 1992 was 157 tons, representing 36 percent of the CFC consumption in the aerosol sector, or 14.2 percent of total CFC consumption in Slovenia.

5.4 The process of propellant substitution in pharmaceutical products is a long term process, and is limited to those propellants for which technical data are known concerning their influence on cancerous and tumorous diseases, toxicity, skin irritation degree, and absorption characteristics. Lek has carried out tests on various alternative formulations, but the final decision on which propellant (propane-butane or Dimethyl Ether (DME)) to substitute for CFCs has taken place in the beginning of 1995. The proposed program involves the substitution for CFCs with propane-butane.

**Sub-Project Objectives**

5.5 The objective of the Sub-Project is to phase out the use of 157 tons of CFCs aerosol propellants and substitute them with hydrocarbon aerosol propellants in the production of pharmaceuticals.

***B. SUB-PROJECT EXECUTION***

**Time Schedule**

5.6 The Sub-Project started in the fourth quarter of 1994, and will be finished by mid-1996.

Sub-Project Duration: 1.5 years

**Sub-Project Management**

5.7 The Sub-Project will be carried out at Lek. The implementation will be overseen by the MEPP.

**C. INCREMENTAL COSTS OF THE SUB-PROJECT<sup>7</sup>**

5.8	The incremental investment cost of the phaseout of ODS	US\$1,992,600
	The incremental operating cost of the phaseout of ODS	US\$192,380
	Total incremental cost of the Sub-Project	US\$2,184,980

**Sub-Project Financing**

5.9 The Sub-Project is proposed to be financed on a grant basis.

Proposed GEF Grant	US\$1,992,600
Participating Enterprise Contribution	US\$192,380

**D. BENEFIT OF THE SUB-PROJECT**

5.10 The result of the Sub-Project will be the annual phaseout of 157.0 tons of ODP-weighted consumption of CFC-11 and CFC-12.

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<sup>7</sup> The cost-effectiveness of this project is \$6.12/kg-ODP which is higher than the subsectoral average of \$2.55/kg-ODP. The higher costs are because of the costs associated with the maintenance of sterile and aseptic conditions in the pharmaceutical plant.

**Sub-Project No. 6 - Elimination of CFC-11 in the Production of  
Light Building Panels at Trimo**

**FOAM SECTOR**

***A. SUB-PROJECT DESCRIPTION***

**Background**

6.1 Trimo, with its annual production capacity of 600,000 m<sup>2</sup>, is the Europe's largest manufacturer of light building panels filled with mineral wool. Trimo panels are metal sandwich filled with mineral wool and glued with a polyurethane (PU) foam. About 50 percent of its production is exported, mainly to countries in the European Union (13%) and the former Soviet Union (37%).

6.2 Trimo substantially reduced its CFC consumption over the past few years. However, it still consumed 22 tons of CFC-11 in 1992 in the production of light building panels. This represents 4.6 percent of total CFC consumption in the foam sector, or about 2 percent of total CFC consumption in Slovenia.

**Sub-Project Objectives**

6.3 The objective of the Sub-Project is to permanently eliminate the CFC-11 consumption in Trimo's production process by replacing the CFC-11 with CO<sub>2</sub> based foaming agent for its polyurethane adhesives. The conversion must assure the equivalent physical and mechanical properties, and the quality of Trimo sandwich panels. To overcome the increase in the demoulding time, narrower processing window, and longer PU post-curing time, the double belt production line will be extended to 25 meters, and a setting warehouse with a panel transportation system will be provided to store the panels for 24 hours at monitored temperature (20°C). These two investments will complete the successful reduction (110 tons in 1986 versus 22 tons in 1992) and final elimination of the consumption of CFC-11 in Trimo's production process.

***B. SUB-PROJECT EXECUTION***

6.4 The scheduled completion time for equipping the warehouse with the panel transportation and storage system is four months, and for modifications and upgrades on the double belt line it is seven months. The total Sub-Project duration is scheduled at eleven months including the training, start-up, and trial production runs. The Sub-Project will start in the autumn of 1995 and be completed by September 1996.

Sub-Project Duration    11 months

**Sub-Project Management**

6.5 The Sub-Project will be carried out at Trimo. The implementation will be overseen by the MEPP.

***C. INCREMENTAL COSTS OF THE SUB-PROJECT***

6.6	The incremental investment cost of the phaseout of ODS	US\$1,053,000
	The incremental operating cost of the phaseout of ODS	US\$ 95,200
	Total incremental cost of the Sub-Project	US\$1,148,200

**Sub-Project Financing**

6.7 The Sub-Project is proposed to be financed on a grant basis.

Proposed GEF Grant	US\$1,021,410
Participating Enterprise Contribution	US\$ 126,790

***D. BENEFIT OF THE SUB-PROJECT***

6.8 The result of the Sub-Project will be the annual phaseout of 27.7 tons of ODP-weighted consumption of CFC-11.

**Sub-Project No. 7 - Substitution for CFCs with Aliphatic Hydrocarbons in Dry Cleaning  
at the Labod Company**

**SOLVENT SECTOR**

**A. SUB-PROJECT DESCRIPTION**

**Background**

7.1 The Labod Company is the biggest dry-cleaning company in Slovenia. Leather clothes (30 tons/year), and silk clothes and similar fine materials (25 tons/year) are cleaned by CFC procedures. Labod uses 3.5 tons of CFC-113 per year, thus representing about 72 percent of CFC use in dry cleaning.

7.2 Labod represents 8 percent of CFC use in the solvent sector, or 0.3 percent of total CFC consumption in Slovenia.

**Sub-Project Objectives**

7.3 The objective of the Sub-Project is to phase out 3.5 tons of CFCs by replacing CFC procedures with aliphatic hydrocarbons.

**B. SUB-PROJECT EXECUTION**

**Time Schedule**

7.4 The Sub-Project will be realized by December 1995.

Sub-Project Duration: 6 months

**Sub-Project Management**

7.5 The Sub-Project will be carried out at the Labod Company. The implementation will be overseen by the MEPP.

**C. INCREMENTAL COSTS OF THE SUB-PROJECT**

7.6	The incremental investment cost of the phaseout of ODS	US\$217,677
	The incremental operating savings of the phaseout of ODS	US\$ -38,577
	Total incremental cost of the Sub-Project	US\$179,100

**Sub-Project Financing**

7.7 The Sub-Project is proposed to be financed on a grant basis.

Proposed GEF Grant	US\$179,100
Participating Enterprise Contribution	US\$ 0

***D. BENEFIT OF THE SUB-PROJECT***

7.8 The result of the Sub-Project will be the annual phaseout of 2.8 tons of ODP-weighted consumption of CFC-113. The new technology could also be used as a training or demonstration center for other dry cleaning facilities which will need to phase out ODS.

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