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Report No: 20679

IMPLEMENTATION COMPLETION REPORT  
(28307)  
ON A  
GRANT  
FROM THE GLOBAL ENVIRONMENT FACILITY  
IN THE AMOUNT OF SDR 7.1 MILLION  
TO THE  
REPUBLIC OF BULGARIA  
FOR AN  
OZONE DEPLETING SUBSTANCES PHASEOUT PROJECT

June 28, 2000

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective September 15, 1995)

Currency Unit = Bulgarian Leva (BL)

BL 1 = US\$ 0.014

US\$ 1.00 = 68.095 BL

(Exchange Rate Effective June 9, 2000)

Currency Unit = Bulgarian Leva (BGN)

BGN = US\$ 0.49

US\$ 1.00 = 2.035 BGN

FISCAL YEAR

January 1- December 31

## ABBREVIATIONS AND ACRONYMS

CFC	=	Chlorofluorocarbon
OTF	=	Ozone Task Force
ODS	=	Ozone Depleting Substances
GEF	=	Global Environment Facility
MoEW	=	Ministry of Environment and Water
LFA	=	Local Financial Agent
STAP	=	Scientific and Technical Advisory Panel
QAG	=	Quality Assurance Group
MP	=	Montreal Protocol
NGO	=	Non-governmental Organization
EU	=	European Union
GDP	=	Gross Domestic Product

Vice President:	Johannes Linn, (ECAVP)
Country Manager/Director:	Andrew Vorkink, (ECC05)
Sector Director:	Kevin M. Cleaver, (ECSSD)
Task Team Leader/Task Manager:	Sudipto Sarkar, (ECSIN)

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## Republic of Bulgaria Ozone Depleting Substances Phaseout Project

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<i>Project ID:</i> P039376	<i>Project Name:</i> ODS PHASEOUT
<i>Team Leader:</i> Sudipto Sarkar	<i>TL Unit:</i> ECSIN
<i>ICR Type:</i> Core ICR	<i>Report Date:</i> June 28, 2000

## 1. Project Data

*Name:* ODS PHASEOUT  
*Country/Department:* BULGARIA

*L/C/TF Number:* 28307  
*Region:* Europe and Central Asia Region

*Sector/subsector:* II - Industrial Adjustment; VP - Pollution Control / Waste Management

### KEY DATES

<i>PCD:</i> 09/15/94	<i>Effective:</i> 12/29/95	<i>Original</i>	<i>Revised/Actual</i>
<i>Appraisal:</i> 04/15/95	<i>MTR:</i>		05/14/96
<i>Approval:</i> 11/09/95	<i>Closing:</i> 10/31/98		04/30/2000

*Borrower/Implementing Agency:* Government of Bulgaria/Ministry of Environment and Water  
*Other Partners:*

STAFF	Current	At Appraisal
<i>Vice President:</i>	Johannes F. Linn	Johannes F. Linn
<i>Country Manager:</i>	Andrew Vorkink	Rachel Lomax
<i>Sector Manager:</i>	Kevin Cleaver	James Goering
<i>Team Leader at ICR:</i>	Sudipto Sarkar	Sudipto Sarkar
<i>ICR Primary Author:</i>	Sudipto Sarkar; Paola Meta; Krisztina Kiss	

## 2. Principal Performance Ratings

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

*Outcome:* S

*Sustainability:* HL

*Institutional Development Impact:* SU

*Bank Performance:* S

*Borrower Performance:* S

	QAG (if available)	ICR
<i>Quality at Entry:</i> S		S
<i>Project at Risk at Any Time:</i> Yes		

### **3. Assessment of Development Objective and Design, and of Quality at Entry**

#### *3.1 Original Objective:*

##### **Background**

Bulgaria has committed itself to phase-out Ozone Depleting Substances (ODS) as per the Vienna Convention and the Montreal Protocol (MP) and their subsequent amendments. To this effect, in 1994 Bulgaria, with assistance from the Danish Government, prepared a Country Program which outlined a ODS phase-out strategy and defined priority sub-projects. To help implement the Country Program, the Bulgarian Government requested financial assistance in the form of grants from the Global Environment Facility (GEF). The Bank, as an implementing agency for GEF, assisted in the preparation and implementation of the ODS phase-out project which comprised a number of sub-projects. The key milestones of the project are presented below:

Project Preparation Begins (first mission)	-	September 1994
Project Appraised	-	April 1995
GEF Council Approval	-	May 1995
GEF Secretariat Endorsement	-	September 1995
Negotiations	-	September 1995
Board Approval	-	November 1995
Grant Signed	-	December 1995
Grant Effectiveness	-	May 1996
Original Closing Date	-	October 31, 1998
Revised Closing Date (first extension)	-	October 31, 1999
Revised Closing Date (second extension)	-	April 30, 2000

The project objectives were defined to assist Bulgaria to effectively meet its obligations towards the Montreal Protocol. The design of the project and implementation arrangements took into account the capacity to effectively execute the project. Technical Assistance was provided to ensure that the objectives of the project were met. Also, the sustainability of the investments was a significant factor in the project design considerations.

##### **Objective**

The objective of the project was to assist Bulgaria's transition into non chlorofluorocarbon (CFC) technology which will not harm the earth's ozone layer. This objective would be met by: (a) supporting priority sub-projects identified in the Country Program for technology conversion to non-CFC materials; (b) initiating CFC recovery, reclamation, and recycling operations; and (c) strengthening the institutional capacity of the Ozone Task Force (OTF) in the Ministry of Environment and Water (MoEW).

Currently, there is no consumption of CFC in the country making Bulgaria fully compliant with its obligation towards the Montreal Protocol.

#### *3.2 Revised Objective:*

The original project objective was not revised.

### 3.3 Original Components:

At appraisal, the project comprised of technology conversion, technical assistance, and an institutional strengthening component. In addition to the sub-projects described below, the Country Program included sub-projects in enterprises DZU, Opticoelectron, and a compressor sub-project in enterprise VMZ. At appraisal, enterprises DZU and Opticoelectron were excluded because of poor financial standing and uncertain future. The compressor sub-project in VMZ was not included since there was no production prior to appraisal and thus did not meet the Montreal Protocol criteria for phasing out existing ODS consumption.

#### Technology Conversion

The project financed twelve technology conversion sub-projects in the refrigeration, foam, and solvent sectors for the following seven enterprises:

- **MRAZ** - There were three sub-projects in the enterprise designed to eliminate the annual ODS consumption by 128 Tons: i) Sub-project NR-1 where an annual consumption of 14 Tons of CFC-12 would be replaced by HFC-134a as a refrigerant in domestic refrigerators; ii) Sub-project NR-2 where an annual consumption of 44 Tons of CFC-11 would be replaced by cyclopentane to produce insulation foam for refrigerators; and iii) Sub-project NR-3 where an annual consumption of 70 Tons of CFC-12 and CFC-502 would be replaced with HFC-134a and HFC-404a in the production of compressors and condensing units for commercial refrigerators.
- **Frigo** - There were two sub-projects in the enterprise designed to eliminate the annual ODS consumption by 17 Tons: i) Sub-project NR-4 where an annual consumption of 5 Tons of CFC-12 would be replaced by HFC-134a in commercial refrigerators; and ii) Sub-project NR-5 where an annual consumption of 12 Tons of CFC-11 would be replaced with cyclopentane to produce insulation foam for refrigerators.
- **Brist** - There were two sub-projects in the enterprise designed to eliminate the annual ODS consumption by 10 Tons: i) Sub-project NR-6 where an annual consumption of 3 Tons of CFC-12 would be replaced by HFC-134a as a refrigerant in commercial refrigerators; and ii) Sub-project NR-7 where an annual consumption of 7 Tons of CFC-11 would be replaced by cyclopentane for the manufacture of insulation foam for refrigerators.
- **Zem** - The sub-project NR-8 designed to eliminate the annual ODS consumption by 16 Tons where CFC-11 would be replaced by cyclopentane to produce foam for insulation of refrigerators.
- **Klimat** - There were two sub-projects in the enterprise designed to eliminate the annual ODS consumption by 19 Tons: i) Sub-project NR-9 where an annual consumption of 8 Tons of CFC-12 would be replaced by HFC-134a in the production of commercial refrigerators; and ii) Sub-project NR-10 where an annual consumption of 11 Tons of CFC-11 would be replaced by cyclopentane for insulation foam for commercial refrigerators.
- **Vazhod** - The sub-project NF-1 designed to eliminate the annual ODS consumption by 25 Tons. In this sub-project, CFC-11 would be replaced by cyclopentane to produce foam for a number of different industries.

- **VMZ (Ball Bearings)** - The sub-project NS-2 designed to eliminate the annual ODS consumption by 50 Tons where CFC-113 and methyl chloroform would be replaced by aqueous or chlorinated solvents in the cleaning operations of ball bearings.

#### Technical Assistance

The technical assistance and training sub-projects in the Institute of Refrigeration comprised: i) Sub-project NR-12 which included the establishment of a training center in the Institute to train 1,200 refrigeration technicians in handling non-ODS substances for new equipment and recovery of CFCs from existing refrigerators; ii) Sub-Project NR-13 which included the production of 1,000 portable recycling units to be used by refrigeration technicians; and iii) Sub-project NR-14 which included the developing of capacity in the Institute to test compressors and condensing units for reliability and safety certification. The combined estimated ODS phase-out for sub-projects NR-12 and NR-13 was 100 tons.

#### Institutional Strengthening

The Institutional Strengthening sub-project included assistance to the OTF to effectively implement the project, ensure that the Country Program was being implemented as intended, and to report Bulgaria's compliance on ODS phase-out to the Montreal Protocol on a regular basis.

The Grant funds were intended to be channeled through First Private Bank as a Local Financial Agent. The bank's role was to monitor the financial performance of the enterprises, manage the Special Account on behalf of the OTF, pay suppliers and contractors, monitor sub-project expenditures, and employ and pay private auditors for the project. The bank would not take any credit risk and it was agreed that the service fee for the bank would be 3% of disbursements.

#### *3.4 Revised Components:*

The changes on the above project components were as follows:

- The enterprise Vazhod was purchased by an international firm and as a result became ineligible for GEF financing. Thus, the sub-project NF-1 was not carried out under the project. However, the firm that bought Vazhod financed the technology conversion to ensure that Bulgaria met its objective towards the Montreal Protocol.
- The enterprise Zem privatized and moved its core business from refrigerators to non-ODS consuming products. As a result, the GEF financing was not required and the sub-project NR-8 was not carried out
- A new private enterprise, Lucky Polyus, was included in the technology conversion program in December 1998. The company was established in 1993 and was not a major ODS consumer when the Country Program was prepared in 1994. Thus, the Country Program did not identify the enterprise. However, during project implementation Lucky Polyus ODS consumption increased and the Ministry of Environment requested the Bank to review the eligibility of the company to receive GEF Grant financing. A Sub-project NR-15 was prepared and submitted to the GEF's Scientific and Technical Advisory Panel (STAP) which confirmed the eligibility of the project. The Sub-project was implemented and eliminated an annual consumption of 27 Tons of CFC-11 and CFC-12 with HCFC 141b and HFC 134a, respectively. The CFC-11 was being used for the manufacture of insulation



foams for refrigerators and CFC-12 was being used as a refrigerant. The GEF Grant savings from sub-projects NF-1 and NR-10 were used to finance Sub-project NR-15.

- Sub-project NR-12 (refrigeration technician training) was highly successful and the training was extended from 1,200 to 1,500 refrigeration technicians which covered the entire country.
- A public awareness campaign on the importance of phasing-out ODS was completed during the project.
- Due to the financial sector difficulties in the early stages of project implementation, the Local Financial Agent - First Private Bank - went out of business. Bulbank was chosen as a replacement bank that carried out the role of the financial intermediary.

### *3.5 Quality at Entry:*

This project was not subject to a quality at entry review, and therefore ratings or reporting on the QAG process are not available.

There were no technical risks associated with the project. The main project risk at entry was the uncertain macroeconomic conditions and slow pace of privatization which resulted in a decline in industrial production raising concerns on the viability of enterprises under the project. The Bank, having a fiduciary responsibility towards the GEF, wanted to ensure that only viable enterprises, preferably privatized, received the Grant. As a result, during the early stages of supervision, procurement activities were suspended in enterprises undergoing the privatization process. Although this resulted in a longer implementation period, the ultimate objective of the project was met. While enterprises Klimat and Lucky Polyus were private when the project started, MRAZ, Brist, Frigo were privatized during project implementation. Currently, all enterprises under the project have successfully converted to non-ODS technology and are meeting the non-ODS technology demands of the market.

## **4. Achievement of Objective and Outputs**

### *4.1 Outcome/achievement of objective:*

The objectives set forth for the project have been achieved in full. For this reason, the ICR rates the project as being satisfactorily implemented. Explanation of this rating is presented below.

### **Achievement of Country Program Objectives**

With assistance from the Danish Government, Bulgaria prepared a Country Program to develop the ODS phase-out strategy. The Country Program which included key policy actions and identified priority investments received wide support from the Government, primarily the Ministry of Environment and Water, the Customs Office, enterprises consuming ODS, and non-governmental organizations (NGOs). The phase-out strategy was reiterated as a Government objective in Bulgaria's Environment Strategy. The Government created an Ozone Task Force (OTF) in the Ministry of Environment and Water for the implementation, management, and monitoring of the phase-out program. The target of phasing out 437 tons of ODS, as outlined in the Country Program, has been fully met.

## **Achievement of Project Objectives**

The project objective was to assist Bulgaria's phase-out of ODS consumption, as required under the Montreal Protocol and its amendments. At appraisal, the objective was to phase-out 365 tons of ODS with the remaining 72 tons of consumption, distributed over multiple small companies, to be addressed outside the scope of the project. With the inclusion of enterprise Lucky Polyus an additional 27 tons of ODS was to be phased-out.

The project's objective has been fully met (Section 4.2). The GEF Grant financed the technology conversion that allowed the enterprises participating in the project to conform to international standards and retain their domestic and export markets. The project contributed to global efforts on protection of the ozone layer and helped Bulgaria to meet its obligations towards the Montreal Protocol.

There were no major environmental concerns associated with the installation or operation of non-ODS technologies and the Bank classified the project as category B project, requiring limited environmental analysis. Only modest environmental risks were associated with the use of cyclopentane, a flammable substance, in the foam sector, and with the potential increase in wastewater in the solvents sector. In order to mitigate and manage these risks, all sub-projects followed industrial safety guidelines. In addition, an Environmental Impact Assessments including health and safety plans were carried out for all sub-projects according to the Bulgarian Environmental Protection Act. The MoEW approved these assessments prior to sub-project implementation and ensured that regulations on industrial health and safety were enforced prior to equipment operation and installation.

## **Legal and Regulatory Framework Development**

The key policy elements of the phase-out strategy that have been implemented are as follows:

- A Government Decree banned the imports of ODS in Bulgaria from January 1, 1996;
- A Government Decree now regulates the use of existing CFCs present in old refrigerators and machines. This decree stipulates strict penalties for deliberate venting or abuse of CFCs. Since Bulgaria does not have CFC incineration facilities, the decree allows the export of CFCs for incineration purposes only with approval from MoEW;
- To prevent illegal imports of ODS in the country, Customs officers at border crossings have been trained and have the necessary equipment to identify ODS; and
- To monitor ODS use in the country, officers in all the fifteen Regional Environmental Inspectorates under the MoEW have received training and have the equipment to detect the use of ODS. In addition officials in the Institute for Refrigeration and Air Conditioning and the National Center for Environment and Sustainable Development have also been trained to monitor the use of ODS.

## **Public Awareness Campaign**

An NGO called "Borrowed Nature" was selected through a competitive process to carry out a public awareness program on the importance to phase-out ODS and the need to protect the earth's ozone layer. The Public Awareness Program helped strengthen the project's sustainability by fostering a wider public awareness on the importance of ODS phaseout and the measures taken in Bulgaria for the phase-out.

The six month campaign was innovative and successful. In large gatherings and in public events, information highlighting the need to protect the earth's ozone layer was disseminated. Short movies,

including interviews with experts and Government officials, were shown on television. Press conferences and media workshops were carried out calling attention to prevent further depletion of the ozone layer. There was special emphasis on informing the young and a drawing competition was held for children. A seminar was held for the representatives of industries, media, Government institutions explaining national programs, policies and future measures regarding the phase-out and management of ODS. The seminars were held in twenty five towns in the country.

#### 4.2 Outputs by components:

Sub-project		Objective at Appraisal	Status at Completion
Enterprise MRAZ	NR-1	phase-out 14 tons of ODS	The enterprise was privatized during project implementation. The ODS phase-out has been completed and the production in the enterprise is increasing.
	NR-2	phase-out 44 tons of ODS	
	NR-3	phase-out 70 tons of ODS	
Enterprise Frigo	NR-4	phase-out 5 tons of ODS	The enterprise was privatized during project implementation. The ODS phase-out has been completed and the production in the enterprise is increasing.
	NR-5	phase-out 12 tons of ODS	
Enterprise Brist	NR-6	phase-out 3 tons of ODS	The enterprise was privatized during project implementation. The ODS phase-out has been completed and the production in the enterprise is increasing.
	NR-7	phase-out 7 tons of ODS	
Enterprise Zem	NR-8	phase-out 16 tons of ODS	The enterprise has moved its core business from refrigerators to non-ODS consuming products. As a result, GEF financing was not required as intended.
Enterprise Klimat	NR-9	phase-out 8 tons of ODS	At appraisal, the enterprise was privately owned. The ODS phase-out has been completed and the production is increasing.
	NR-10	phase-out 11 tons of ODS	
Institute of Refrigeration	NR-12	train 1,200 technicians in the use of non-ODS	1,500 refrigeration technicians trained
	NR-13	produce portable ODS recycling unit for existing refrigerators	1,000 portable recycling units produced and distributed in Bulgaria
	NR-14	Sub-projects NR-12 and 13 combined would reduce ODS consumption by 100 tons developing capacity to certify non-ODS equipment	certification capacity developed
Enterprise Vazhod	NF-1	phase-out 25 tons of ODS	The enterprise was purchased by an international firm. The ODS phase-out has been completed and financed from company's own resources. The GEF Grant was not required as intended.
Enterprise VMZ - Ball Bearings	NS-2	phase-out 50 tons of ODS	The phase-out has been completed as planned.
	Institutional Strengthening	assist the OTF to implement the project, ensure that Country Program is being implemented, report Bulgaria's compliance on ODS phase-out to the Montreal Protocol	The OTF has successfully met its objectives. In addition, it has been instrumental in developing and implementing the policy environment to phase-out ODS.
Lucky Polyus	NR-15	phase-out 27 tons of ODS	The private enterprise joined the project during implementation. The phase-out in the enterprise is complete.

#### 4.3 Net Present Value/Economic rate of return:

An economic analysis was not performed, since it would have been difficult to quantify the environmental benefits of each sub-project. The project clearly has global environmental benefits since it contributed towards preventing the depletion of the earth's ozone layer. The thinning of the earth's ozone layer would change the global climate leading to a wide range of adverse environmental effects.

Cost-effectiveness criteria of the Montreal Protocol were applied to the technology conversion sub-project reduction process thus ensuring most appropriate targeting of GEF funds. The approved and actual cost-effectiveness for each sub-project is shown below. The actual cost of phase-out per unit ODS ton (\$26.51) was in line with the estimated cost (\$27.57).

Subproject		Approved Grant Cost	Actual Grant Cost
No.	Company	Effectiveness US\$/kg ODP	Effectiveness US\$/kg ODP
NR-1	MRAZ	16.37	10.29
NR-2	MRAZ	22.99	27.36
NR-3	MRAZ	34.17	28.42
NR-4	FRIGO	85.15	56.30
NR-5	FRIGO	59.24	66.19
NR-6	BRIST	73.48	48.99
NR-7	BRIST	93.84	117.64
NR-8	ZEM	44.25	Grant not used
NR-9	KLIMAT INKOM	33.49	20.94
NR-10	KLIMAT INKOM	78.55	76.73
NR-12	INST. OF REFRIGERATION	17.27	7.93
NR-13	INST. OF REFRIGERATION	23.91	12.93
NR-14	INST. OF REFRIGERATION	N/A	N/A
NF-1	VAZHOD	25.78	Grant not used
NS-2	VMZ-BALL BEARINGS	13.45	12.49
NR-15	LUCKY POLYUS	15.21	19.73
ISC	MoEW	N/A	N/A
<b>Total:</b>		<b>27.51</b>	<b>26.51</b>

Another benefit of the project was the revival of the enterprises after they were privatized. As these enterprises expand, more jobs are being created. The job creation outside Sofia (enterprises Brist, Frigo, VMZ, Lucky Polyus) is especially important since unemployment in these areas are high. Currently, about 760 people are employed in these enterprises that participated in the project and it is likely that the number of employees will increase as production increases. The training of the refrigeration technicians also helped to develop their skills so that they can retain their jobs as Bulgaria moves to the non-ODS technology.

#### *4.4 Financial rate of return:*

Not applicable. A financial analysis for the project was not performed. However, an enterprise financial viability analysis was carried out during preparation to determine the prospects of each enterprise to remain in business. The Bank, having a fiduciary responsibility towards the GEF, performed this analysis to ensure that the Grant was being allocated to enterprises that had prospects to survive in the transitional economy of Bulgaria. The financial position of the enterprises were reported on a quarterly basis throughout the project implementation period by the local bank acting as financial intermediary for the project. The enterprises that have received the GEF Grant are in business today and with the technology conversion are showing prospects of growth.

#### *4.5 Institutional development impact:*

The project had a significant institutional development impact. In the public sector, the creation of the OTF was instrumental in building capacity to develop and implement the policies required to switch to non-ODS technology in the country. The change in technology has been complete and Bulgaria is fully meeting the requirements of the Montreal Protocol. In addition, the technical assistance provided to the Institute of Refrigeration has helped to develop capacity to provide non-ODS certification, in line with EU norms, for equipment manufactured in Bulgaria. The training of 1,500 refrigeration technicians in the use of non-ODS substance has also a wide ranging impact in preparing the country for the new technology.

In the private sector, the project helped the enterprises meet the demand of ODS free products both in the domestic and the export markets. Through the project, officials in the beneficiary enterprises became fully acquainted with the modern technology that does not use ODS. This has helped the enterprises to remain competitive. The Bank's procurement procedures also helped the enterprises appreciate the benefits of transparent and competitive bidding procedures.

### **5. Major Factors Affecting Implementation and Outcome**

#### *5.1 Factors outside the control of government or implementing agency:*

While the project objectives were fully met, there were delays in implementation. The Grant Agreement between Bulgaria and the Bank became effective on May 14, 1996 and the project was initially expected to close on October 31, 1998. However, the Grant was extended twice, the first extension was until October 31, 1999 while the second extended the closing date of the Grant to April 30, 2000. The main reason for the delay was the macroeconomic conditions in the country which resulted in a slow start of the project. After the Currency Board was put in place in July 1997 and as the economy stabilized, project implementation began in earnest. Essentially, the project implementation gathered momentum from early 1998 and the reasons for delays are outlined below.

## **Macroeconomic Conditions**

In the early stage of project implementation the enterprises under the project faced problems related to the transitional economy. The GDP declined about 30% between 1989 and 1996, and the industrial sector's contribution to the GDP dropped from 59% in 1989 to 28% in 1996. While privatization efforts were underway, enterprises MRAZ, Frigo, Brist, Zem, and Vazhod were all public companies with an uncertain future. To ensure that the GEF Grant funds were allocated to companies with prospects for survival and growth, the Bank and the Government agreed to temporarily suspend project implementation in enterprises undergoing privatization. It was also agreed that GEF funds could be released to these enterprises after the privatization process was complete. Project implementation, however, continued in the Institute of Refrigeration private enterprise Klimat and public enterprise VMZ which did not show an uncertain future.

Although, the decision to not implement certain sub-projects led to delays, the final outcome was positive and the GEF Grants have been allocated to enterprises that are fully functional today. Enterprises MRAZ, Frigo, Brist were privatized before they received GEF assistance. Enterprise Zem has privatized and it changed its business to non-refrigeration products which did not consume ODS and as a result the sub-project (NR-8) was not required. The enterprise Vazhod was purchased by an international firm and as a result became ineligible for the GEF Grant. A private enterprise Lucky Polyus was included in the project in December 1998.

## **Change in Local Financial Intermediary**

The financial sector was also going through a difficult period when implementation began, due to the macroeconomic situation in the country. The Local Financial Agent (LFA) originally selected for the project was the First Private Bank. However, after the Grant became effective, the bank went out of business in 1996. Bulbank was designated as the new LFA in February 1997. After First Private Bank went out of business and before Bulbank was selected, project implementation had ceased.

## **Procurement**

While project implementation gathered speed in early 1998, the performance of suppliers in certain projects delayed implementation which required the second extension of the Grant Agreement. The suppliers for non-ODS technology equipment are limited in number and are extremely busy with worldwide ODS phase-out demands. This resulted in suppliers requesting extensions for quotation submission, delay in deliveries, and sometimes supply of equipment that did not perform as expected requiring additional supplies to meet contract conditions. The enterprises could have utilized the penalty clauses in their contracts with the suppliers. However, to prevent protracted legal procedures the enterprises preferred to re-negotiate their contract with the suppliers until fully functional goods were delivered.

### *5.2 Factors generally subject to government control:*

The Government fully supported the project and successfully accomplished their tasks. The development of appropriate policy and its implementation (Section 4.1) is due to the pro-active role played by the Government to meet Bulgaria's need towards the Montreal Protocol.

### *5.3 Factors generally subject to implementing agency control:*

Overall the performance of the OTF has been satisfactory and it has contributed to the achievement of project objectives. In the initial period of project implementation the OTF was not pro-active in co-ordinating activities. The situation changed after June 1997 when the OTF was restructured with the inclusion of new staff. The restructured OTF, assisted by consultants, ably performed its functions and deserves credit for the success of the project. Bulk of the project activities were completed in fiscal year 1999 (July 1, 1998 to June 30, 1999) after the OTF was restructured. GEF Grant disbursements are shown below as an index of project progress during the implementation period.

<b>Period</b>	<b>Percent of Grant Disbursed</b>	<b>Cumulative Percent Disbursed</b>
July 1, '96 to June 30, '97	6.4%	6.4%
July 1, '97 to June 30, '98	10.5%	16.9%
July 1, '98 to June 30, '99	76.7%	93.6%
July 1, '99 to June 30, '00	6.4%	100%

### *5.4 Costs and financing:*

The appraisal estimate for total project cost was US\$ 13.5 million. The financing plan was that the GEF Grant would provide US\$ 10.5 million while the enterprises would contribute US\$ 3 million. The GEF Grant was awarded to finance only items and activities included in the Indicative List of Eligible Incremental Costs adopted by the Meeting Parties to the Montreal Protocol. The GEF Grant was denominated in SDR's (SDR 7.1 million corresponding to US\$ 10.5 million) while the expenditures were mainly in US\$ or major European currencies. Due to the fluctuating exchange rate, at project closing, the US\$ dollar equivalent of the utilized GEF Grant was US\$ 9.6 million. Details of the actual expenditures are presented below.

Consistent with the November 1994 GEF guidelines used to develop this project, expenditures incurred by enterprises after October 31, 1993 and before the date of Grant signing were eligible for retroactive financing. Retroactive financing was provided for two projects: Sub-project NR-9 for an amount of US \$ 9,639; and sub-project NR-1 for an amount of US \$ 15,275.

SUB-PROJECT	ENTERPRISE	APPROX. ESTIMATE (USD)			ACTUAL (USD)		
		Investment		Cost	Financing		Cost
		GES/Grant	Enterprise		GES/Grant	Enterprise	
NF1	Vazhod	644,475	0	644,475	0	0	0
NR2	MRAZ-dom. Refig.	1,011,728	1,552,922	2,564,650	1,203,974	1,552,922	2,756,896
NR5	Frigo-comm.refrig.	710,893	0	710,893	794,282	105,000	899,282
NR7	Brist-comm.refrig.	656,866	0	656,866	823,488	50,000	873,488
NR8	Zem-comm/dom.refrig.	687,339	0	687,339	0	0	0
NR10	Klimat-comm.refrig.	864,070	11,523	875,593	843,999	141,996	985,995
NR15-02	Lucky -comm.refrig.	0	0	0	423,718	40,000	463,718
<b>Sub-total FOAMS</b>		<b>4,575,371</b>	<b>1,564,445</b>	<b>6,139,816</b>	<b>4,089,461</b>	<b>1,889,918</b>	<b>5,979,379</b>
NR1	MRAZ-dom.refrig.	229,154	915,107	1,144,261	144,092	915,107	1,059,199
NR3	MRAZ-comm.refrig.	2,321,935	497,950	2,819,885	1,989,589	497,950	2,487,539
NR4	Frigo-comm.refrig.	425,774	0	425,774	281,504	60,000	341,504
NR6	Brist-comm.refrig.	220,449	0	220,449	146,971	32,000	178,971
NR9	Klimat-comm.refrig.	267,941	34,581	302,522	167,560	105,030	272,590
NR15-01	Lucky -comm.refrig.	0	0	0	112,924	6,000	118,924
<b>Sub-total REFRIGERATION</b>		<b>3,465,253</b>	<b>1,447,638</b>	<b>4,912,891</b>	<b>2,842,640</b>	<b>1,616,087</b>	<b>4,458,727</b>
NS2	VMZ-ball bearings	699,474	0	699,474	649,354	268,873	918,227
<b>Sub-total SOLVENTS</b>		<b>699,474</b>	<b>0</b>	<b>699,474</b>	<b>649,354</b>	<b>268,873</b>	<b>918,227</b>
NR12	Inst.of Ref-training	310,444	0	310,444	317,258	0	317,258
NR13	Inst.of Ref-recycling	725,638	15,285	740,923	775,780	18,500	794,280
NR14	Inst.of Ref-accreditation	230,935	0	230,935	277,592	0	277,592
ISC	MOE-Inst. Strength	237,852	0	237,852	411,795	0	411,795
<b>Sub-total TA/TRAINING</b>		<b>1,504,869</b>	<b>15,285</b>	<b>1,520,154</b>	<b>1,782,425</b>	<b>18,500</b>	<b>1,800,925</b>
<b>SUB-TOTAL</b>		<b>10,244,967</b>	<b>3,027,368</b>	<b>13,272,335</b>	<b>9,363,880</b>	<b>3,793,378</b>	<b>13,157,258</b>
<b>LFA FEE</b>		<b>307,349</b>		<b>307,349</b>	<b>280,916</b>		<b>280,916</b>
<b>TOTAL</b>		<b>10,552,316</b>	<b>3,027,368</b>	<b>13,579,684</b>	<b>9,644,796</b>	<b>3,793,378</b>	<b>13,438,174</b>

## 6. Sustainability

### 6.1 Rationale for sustainability rating:

The project is highly sustainable due to the following reasons:

- the policies required for Bulgaria to meet Montreal Protocol requirements are in place. These policy measures are being enforced by the Government;
- the domestic and export markets of the participating enterprises require the use of non-ODS substances. As a result, the enterprises will make best use of the technology conversion supported under the project to remain competitive and expand their business;
- from an environmental sustainability standpoint, the alternative substances introduced as replacements of CFCs are approved by the Montreal Protocol. Furthermore, any fire or explosions hazard due to the use of cyclopentane as foaming agent has been minimized by the safety audits. The new installations have been certified by the environmental and fire authorities, as required by Bulgarian legislation, to ensure that industrial health and safety standards are met;
- the public awareness campaign carried out under the project and the successful implementation of the



Country Program has raised awareness in the country on the importance of using non-ODS. The public pressure will ensure that enterprises do not use ODS and minimize deliberate releases of ODS left in older operating equipment;

- the refrigeration and the foam sectors in the country are no longer using ODS for new equipment. Thus, the investments in the Institute of Refrigeration will be used to provide certification for non-ODS equipment to allow Bulgarian enterprises meet the demands of the local and foreign markets;
- the Institute of Refrigeration has taken a leading role in the region in refrigeration servicing and offering study tours and training opportunities to other countries phasing out ODS. The cross-dissemination of information across countries helps to build the knowledge of latest technologies which will ensure that Bulgaria maintains its competitive position in the region with respect to the refrigeration industry; and
- the training and certification program provided to 1,500 refrigeration technicians has allowed the service sector to move towards non-ODS equipment.

#### *6.2 Transition arrangement to regular operations:*

The Country Program has been met and the technology conversion has been complete. Thus, transitional arrangement would not be necessary.

## **7. Bank and Borrower Performance**

### **Bank**

#### *7.1 Lending:*

The Government requested the Bank to be the implementing agency to administer the GEF Grant. The Bank's experience of managing projects worldwide and the knowledge of Bulgaria was useful during project preparation and implementation. While the project was prepared relatively quickly, Board approval was granted eight months after appraisal. Board approval could not be sought until GEF Secretariat's endorsement of the project. The delay was due to the fact that when the project was prepared, there were competing needs of scarce GEF resources from other countries. The GEF funds had to be secured before the Secretariat could endorse the project.

When the project was prepared, the GEF guidelines did not require that a financial viability analysis be performed. However, given the economic conditions in the country at that time, the Bank decided to carry out such an analysis to ensure that only companies with prospects of survival and growth were included in the project. Also, it was agreed between Bulgaria and the Bank that the local financial agent would monitor the financial situation of the participating enterprises before GEF Grants would be released. The decision by the Bank to perform the financial analysis and to monitor the position of the companies prior to Board approval ensured that the GEF funds were used in an efficient manner and it fulfilled the Bank's fiduciary responsibility to the GEF.

#### *7.2 Supervision:*

The project was successfully implemented as a result of the effective co-operation among the OTF, participating enterprises, and the Bank team. The Bank team, including a consultant financed by the Danish Trust Funds, was small and as a result co-ordination within the team was excellent. Further, there were no major changes in the team members throughout the project. The continuity of team members was an important factor in the satisfactory implementation of the project. Supervision was carried out in a

cost-effective manner and within budget.

### *7.3 Overall Bank performance:*

The Bank's performance in preparation, appraisal and implementation was satisfactory. The Bank's missions were staffed with qualified professionals in environmental, procurement, technical and financial fields. An added advantage to the Bank team was the continuity of Task Management, a function performed by the same individual from project preparation to completion. The Bank as an implementing agency ensured that GEF procedures were followed. The co-ordination between the Bank and its counterparts in the Ministry of Environment and Water, the enterprises, and the Local Financial Agent was excellent. The Bank team provided guidance, as necessary, on technical issues, GEF financing eligibility, procurement, financial reporting, and project management.

### **Borrower**

#### *7.4 Preparation:*

The Bulgarian authorities were fully supportive of the project and as a result it was possible to prepare multiple sub-projects in a short period of time. The technical experts in the country provided valuable inputs. The Government also committed itself to implement the Country Program and as a result, the project preparation received full attention from staff and management in the MoEW.

#### *7.5 Government implementation performance:*

Ratification of the Grant Agreement by Parliament was a condition of effectiveness as per Bulgarian legislation. The ratification process lasted for six months. However, this delay can be explained by the fact that Bulgaria was going through a difficult economic situation which pre-occupied the Parliament with other proceedings.

The Borrower was overall responsive and managed to find workable solutions to problems as they arose during implementation. The credit goes to the Government in developing a number policies and successfully implementing them in a short period of time (Section 4.1). The Government has followed the requirements of the Montreal Protocol closely. The public awareness campaign carried out by an NGO under the project was an innovative and cost-effective initiative which resulted in a wide dissemination of information on the importance to phase-out ODS.

#### *7.6 Implementing Agency:*

The OTF within the MoEW had overall responsibility for project implementation. The project is complex with 15 sub-projects, but due to the high quality performance of the OTF all sub-projects were successfully completed. The OTF was established in 1992 for the development of the Country Program for ODS phaseout and project preparation management in Bulgaria. It was supported by the experts of the Refrigeration Institute and the Regional Offices of the Ministry of Environment and Water. The OTF also performed effectively in preparing the GEF project.

After the Grant became effective in May 1996, for a short time the OTF was not pro-active in

implementing the project. The OTF's lack of familiarity with Bank's operational procedures could have been a factor. The situation was however, quickly corrected by the MoEW through personnel changes in June 1997 after which the work of the OTF has been excellent. While a Deputy Minister was ultimately responsible for the OTF, day to day activities were delegated to a Senior Expert in the Ministry who was assisted by technical and financial consultants. The hiring of a part-time procurement consultant familiar with Bank procedures was an important step to increase the pace of project implementation.

The OTF ensured that the Bank's project implementation procedures, including procurement, were followed. Regular reports on project management, procurement, disbursements, and financial status of enterprises were provided to the Bank. The audit reports were also provided on time. After project closure, the OTF will continue to enforce the ODS phase-out regulations and provide reports to Montreal Protocol as required. The OTF also regularly represents Bulgaria in international forums for phase-out of ODS such as the Montreal Protocol Implementation Committee. The OTF also plays an active role in the network of Government agencies in the region responsible for phasing out ODS in their respective countries.

#### *7.7 Overall Borrower performance:*

The overall performance is satisfactory. The staff and the consultants in the OTF were highly committed professionals whose input was critical for effective project preparation and management. While there were delays in early stages of project implementation, the MoEW took a pro-active role and restructured the OTF. The restructured OTF was effective in interacting with the enterprises and using resources as necessary to resolve issues that emerged during implementation. In addition, the improving country conditions in 1998 facilitated the privatization of the participating enterprises which in turn increased the pace of project implementation.

### **8. Lessons Learned**

The lessons learned are elaborated below in italics:

#### **Consider Country Risks**

*If a project has to be prepared or implemented in an environment with a significant country risk, project activities need to be modified to mitigate country risks.*

The technical preparation of the project was not difficult. However, the economic situation in the country was such that it had a direct impact on the project. Enterprises were excluded from the project at appraisal (DZU and Opticoelectron), the ratification of the Grant Agreement was delayed which in turn delayed project effectiveness, the financial intermediary had to be changed, and activities in enterprises that were undergoing privatization had to be temporarily suspended. These were all manifestations of larger problems of an economy in transition.

The Bank was fully aware of the country risks associated with the project. However, it had also made a commitment to assist Bulgaria in meeting its Montreal Protocol requirements. Thus, the Bank and the Government made the conscious decision to delay implementation for certain sub-projects until the risk of inefficient use of GEF funds was minimized. This decision proved to be prudent since the GEF funds are

now being utilized by private companies (excepting VMZ which is in the privatization process) that are meeting the demand of non-ODS equipment in the domestic and foreign markets. The private company owners seized the technology conversion as an opportunity to make their business more competitive. With the recovery of the economy, country risks minimized which in turn helped project implementation. About 75% of the Grant was disbursed between July 1, 1998 and June 30, 1999, a period of which coincides with the improvement in the Bulgarian economy, including the pace of privatization.

#### **Utilize NGOs for Public Awareness**

*NGOs can be effective in determining the development impact of a project, through public outreach*

The use of an NGO, selected on a competitive basis, for the public awareness program was innovative and successful. The NGO was able to reach out to a wide range of the population through various channels. Similar approaches should be considered where an NGO could collect the feedback from the stakeholders and the population before and after a Bank project. The feedback at the beginning, collected through surveys and focus group meetings, could help design the project. The input received from the stakeholders towards the end of the project would help determine the development impact of the Bank's involvement.

#### **Difficult to Manage Multiple Sub-projects**

*Project preparation and implementation with multiple sub-projects is resource intensive and requires qualified staff*

The project had fifteen sub-projects which were distributed over six enterprises and the Institute of Refrigeration, across the country. This could have added to the challenge of effectively managing the project. In this case the OTF's competent management was successful in keeping track of activities and maintaining constant communication with the enterprises. However, for other larger projects, multiple sub-projects should be avoided. For effective management and supervision, the resource requirements are high and it is often difficult to develop the capacity of the implementing agency to carry out all the functions as intended.

#### **Use Penalties Against Suppliers**

*Ensure contract conditions are fully enforced*

The second extension of the project was largely due to suppliers not being able to deliver goods on time as per the contract. There are a limited number of suppliers that produce non-ODS equipment procured under the project. Currently, these suppliers are extremely busy due to global demands to convert to non-ODS technology. The enterprises had the option to use the penalties and performance guarantees specified in their contract with the supplier. This option was not utilized since the costs of a legal proceeding would be high compared to the contract amount. However, to create an incentive for the suppliers to provide the goods on time, especially for larger contract amounts, the Borrower should be encouraged to use the penalty clauses of a contract if it is clear that a supplier is at fault.

## 9. Partner Comments

*(a) Borrower/implementing agency:*

*The section below has been prepared by the OTF.*

The ICR, a coherent, detailed and precise report, provides for a good diagnosis of the current situation of each recipient company, weighing all implications of the specific technology conversion involved.

The Ozone Task Force would like to highlight the following aspects and points of the ICR. Each recipient enterprise was first evaluated in terms of its geographic position, affecting social strata. Unemployment in small country towns has a much higher rate than in larger ones, and often the restoration of the refrigerator producer is the only employment chance, otherwise qualified local people have. Privatization prerequisites include both keeping production spectrum intact and gradually reaching original number of employees. The social connotation is rather strong in the case of BRIST and FRIGO, which are roughly similar in being small town enterprises producing commercial refrigerating appliances, having large, unkempt premises, that needed drastic refurbishing, both having been privatized more or less two, three years ago. The ICR assessed not only the idiosyncrasies, but also the subtle differences, how effective solutions of specific problems were and drew valuable conclusions in terms of lessons learned in order to avoid drawbacks and weak points in other similar projects, which are at an earlier stage, as well as apply good solutions whenever suitable. Legal framework and safety issues, having a lot in common in the region, could also be useful to others, especially the part referring to law enforcement and measures taken to prevent ODS illegal traffic. MRAZ' problem is well described, that the company with the use of the new equipment needs to regain its previous share on the local and foreign market and now its products meet higher ISO and EN standards and are more competitive, enabling the company keep some 60% of the original number of employees. Klimat Inkom and Lucky Polyus situated in large cities and were founded as private enterprises, had to invest into civil works and enlarging the premises. The ICR will help them to attract investments, balance their expansion plans against efforts in upgrading quality and product design, energy efficiency, EC labeling. VMZ Ball Bearings Plant faces full-scale privatization of civil production. The Institute of Refrigeration had satisfactorily trained and issued licenses to 1500 refrigeration technicians, a number quite sufficient for servicing and maintaining existing refrigeration appliances of a country, the size of Bulgaria. The ICR well pointed out that the Institute has the capacity to train technicians from neighboring countries. The results, good timing and special creativity of the extensive public awareness raising campaign are well described, including interesting happenings, which engaged public attention and achieved its main goal to stir up discussions about the ozone layer and global warming.

In general the ICR considers every aspect of the ODS Phaseout Project in Bulgaria, taking into account legal, technical, social, safety and financial issues, and helped recipient enterprises foresee future development.

Two letters from the Minister of Environment and Water are attached below which outlines the Government's position on the project and the Implementation Completion Report.

# *Republic of Bulgaria*

*9.*

## *Ministry of Environment and Water Minister*

*Sofia, 29 May 2000*

*Dear Mr. Vorkink,*

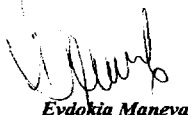
*The Ministry of Environment and Water of Bulgaria has the pleasure of formally informing the World Bank, that on 30<sup>th</sup> April 2000 the implementation of the National Ozone Depleting Substances Phase-out Program was successfully concluded, resulting in the complete phasing-out of mentioned substances use in the country. Having accomplished the above, Bulgaria is in full compliance with its obligation under the Vienna Convention to protect the ozone layer and the Montreal Protocol on Substances, that Deplete the Ozone Layer.*

*National Program, worked out under Montreal Protocol requirements set for the country, was prepared with the exclusive expertise and financial support of the Danish Environment Protection Agency and COWI Consult. The actual implementation of the National Program was financed by the Global Environment Facility, after an Agreement between the Government of Bulgaria and the International Bank for Reconstruction and Development was signed. Recipient companies would not have been able to carry out the technology conversion to non-ODS production without the financial support and guidance of the World Bank.*

*The Ministry of Environment and Water would like to express its deep appreciation and gratitude for the immense support rendered by your highly esteemed Bank, and especially to Mr. Sudipto Sarkar-Operations Officer with the Bank, whose benevolent attitude, managerial skills and very humane and patient approach, as well as all involved highly professional officers made implementation both successful and a pleasure.*

*Hoping, that this wonderful relationship in the field of environment shall not only persist, but further develop in the future, I remain*

*Yours sincerely,*



*Evdokia Maneva*

*To: Mr. Andrew Vorkink  
Country Director  
Bulgaria and Romania Country Unit  
THE WORLD BANK  
To: Mr. Thomas O'Brien  
Resident Representative  
The World Bank Sofia Office*

---

*67, William Gladstone St., Sofia*

*tel.: + 359 2 988-2577; fax: + 359 2 986-2533*

# Republic of Bulgaria



## Ministry of Environment and Water Minister

Sofia, 22 June 2000

**RE:** Comments to the World Bank Implementation Completion Report on the ODS Phase-out Project, No: 28307 BUL

**Dear Mr. Vorkink,**

The Ministry of Environment and Water of the Republic of Bulgaria found that the World Bank ICR is quite enough complete and detailed. The analyses of the situation are very correct and precise.

The principal objective of the Project – to assist Bulgaria in the phase out of ODS consumption in a cost-effective manner, in compliance with the Montreal Protocol and its amendments and adjustments – was achieved.

The consumption of CFC was phased out through the introduction of advanced alternative, non-CFCs technologies.

The training program for technicians, addressing updated techniques of refrigerant recovery, was successfully carried out.

A modern laboratory for testing of compressors was established.

A national network for recovery, reclamation and recycling was established and it is working well.

A Public Awareness Campaign was successfully carried out.

The national ODS regulation was improved.

A great deal of the above results have been achieved through the consultants' assistance and supported by the World Bank and by the missions of its representatives.

As a whole the ICR fully reflects all activities carried out jointly by the MOEW, the World Bank and the consultants.

The Ministry confirms the proposed ICR.

Yours sincerely,

  
**Evdokia Maneva**

**To: Mr. Andrew Vorkink  
Country Director  
Bulgaria and Romania Country Unit  
THE WORLD BANK**

---

67, William Gladstone St., Sofia

tel.: + 359 2 988-2577; fax: + 359 2 986-2533

*(b) Cofinanciers:*

Not applicable. There were no cofinanciers for the project.

*(c) Other partners (NGOs/private sector):*

Not applicable.

## **10. Additional Information**

Not applicable



## Annex 1. Key Performance Indicators/Log Frame Matrix

A log frame analysis was not part of Bank's appraisal documentation when the project was prepared. As a result, a log frame analysis was not performed for this particular project. However, the performance indicators for each component of the project was identified during supervision. The status of each indicator at closure is presented below.

Project Component	Performance Indicator	Status at Closure
Technology Conversion - refrigeration	Phase-out 100 tons of ODS, at appraisal.  During implementation it was agreed that another 27 tons of ODS would be phase-out from the consumption of enterprise Lucky Polyus	The phase-out has been completed  The phase-out has been completed. The sub-project was financed through savings in the Grant due to the fact that enterprises Vazhod and Zem used own resources.
Technology Conversion - foam	Phase-out 115 tons of ODS	The phase-out has been completed. Enterprises Vazhod and Zem were privatized during implementation and financed the technology conversion out of own resources and GEF funds were not required.
Technology Conversion - solvents	Phase out 50 tons of ODS	The phase-out has been completed.
Technical Assistance to Institute of Refrigeration	a) train 1,200 refrigeration technicians in the use of non-ODS  b) produce 1000 portable ODS recycling units for existing refrigerators  c) develop capacity to certify non-ODS equipment	a) 1,500 technicians trained  b) units have been produced and are functional  c) certification capacity has been developed
Institutional Strengthening of MoEW	a) assist OTF to implement the project  b) ensure Country Program is being implemented  c) report Bulgaria's compliance on ODS phase-out to the Montreal Protocol	a) project was implemented successfully  b) Country Program has been implemented satisfactorily  c) Bulgaria regularly reports to Montreal Protocol on the use of ODS in the country

## Annex 2. Project Costs and Financing

Project Cost by Component (in US\$ million equivalent)

Project Cost By Component	Appraisal Estimate US\$ million	Actual/Latest Estimate US\$ million	Percentage of Appraisal
Foam	6.10	6.00	0.98
Refrigeration	5.00	4.50	0.9
Solvents	0.70	0.90	1.29
Institute of Refrigeration	1.30	1.40	1.08
Institutional Strengthening	0.20	0.40	2
Local Financial Agent Fee	0.30	0.30	1
<b>Total Baseline Cost</b>	13.60	13.50	
<b>Total Project Costs</b>	13.60	13.50	
<b>Total Financing Required</b>	13.60	13.50	

Project Costs by Procurement Arrangements (Appraisal Estimate) (US\$ million equivalent)

Expenditure Category	Procurement Method <sup>1</sup>			N.B.F.	Total Cost
	ICB	NCB	Other <sup>2</sup>		
1. Works	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
2. Goods	0.00 (0.00)	0.00 (0.00)	9.60 (9.60)	3.10 (0.00)	12.70 (9.60)
3. Services	0.00 (0.00)	0.00 (0.00)	0.60 (0.60)	0.00 (0.00)	0.60 (0.60)
Technical Assistance and Training					
4. Incremental Operating Costs	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
5. Local Financial Agent Fee	0.00 (0.00)	0.00 (0.00)	0.30 (0.30)	0.00 (0.00)	0.30 (0.30)
<b>Total</b>	0.00 (0.00)	0.00 (0.00)	10.50 (10.50)	3.10 (0.00)	13.60 (10.50)

Note: Works are lumped into the Goods figures

Project Costs by Procurement Arrangements (Actual/Latest Estimate) (US\$ million equivalent)

Expenditure Category	Procurement Method <sup>2</sup>			N.B.F.	Total Cost
	ICB	NCB	Other <sup>2</sup>		
1. Works	0.00 (0.00)	0.00 (0.00)	0.20 (0.20)	0.50 (0.00)	0.70 (0.20)
2. Goods	0.00 (0.00)	0.00 (0.00)	7.60 (7.60)	3.40 (0.00)	11.00 (7.60)

<b>3. Services</b>	0.00	0.00	0.90	0.00	0.90
<b>Technical Assistance and Training</b>	(0.00)	(0.00)	(0.90)	(0.00)	(0.90)
<b>4. Incremental Operating Costs</b>	0.00	0.00	0.60	0.00	0.60
	(0.00)	(0.00)	(0.60)	(0.00)	(0.60)
<b>5. Local Financial Agent Fee</b>	0.00	0.00	0.30	0.00	0.30
	(0.00)	(0.00)	(0.30)	(0.00)	(0.30)
<b>Total</b>	0.00	0.00	9.60	3.90	13.50
	(0.00)	(0.00)	(9.60)	(0.00)	(9.60)

<sup>1/</sup> Figures in parenthesis are the amounts to be financed by the Bank Loan. All costs include contingencies.

<sup>2/</sup> Includes Limited International Bidding, International Shopping, Local Shopping, and Direct Contracting

### **Annex 3: Economic Costs and Benefits**

An economic analysis was not performed for the project since the environmental benefits of the project would be difficult to quantify.

## Annex 4. Bank Inputs

(a) Missions:

Stage of Project Cycle	No. of Persons and Specialty (e.g. 2 Economists, 1 FMS, etc.)		Performance Rating		
	Month/Year	Count	Specialty	Implementation Progress	Development Objective
<b>Identification/Preparation</b> September '94 to April '95		1	Task Team Leader		
		1	Environmental Specialist		
		1	Financial Analyst		
		3	Technical Specialists		
<b>Appraisal/Negotiation</b> April '95 to September '95		1	Task Team Leader		
		1	Environmental Economist		
		1	Project Officer		
		1	Financial Analyst		
		2	Technical Specialists		
<b>Supervision</b>  June '96 June '97 December '97 June '98 November '98 March '99 October '99 November '99 January '00		1	Task Team Leader		
		1	Technical Specialist		
		1	Procurement Officer		
		1	Project Officer		
				S	S
				U	U
				U	U
				S	S
				S	S
				S	S
				S	S
				S	S
<b>ICR</b> May '00		1	Task Team Leader	S	S
		1	Project Officer		
		1	ODS technical Specialist		
		1	Procurement Officer		

(b) Staff:

Stage of Project Cycle	Actual/Latest Estimate	
	No. Staff weeks	US\$ (,000)
Identification/Preparation	54	158
Appraisal/Negotiation	14	28
Supervision	98	180
ICR	5	9
Total	171	375

## Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

*Rating*

<input type="checkbox"/> Macro policies	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> Sector Policies	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> Physical	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> Financial	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> Institutional Development	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> Environmental	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA

### Social

<input type="checkbox"/> Poverty Reduction					
<input type="checkbox"/> Gender					
<input checked="" type="checkbox"/> Other (Please specify)	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA

*Job Creation - The project contributed to the revival of enterprises since it facilitated the technology conversion that would allow the enterprises to meet the demands of non-ODS products in the domestic and foreign markets. This created new jobs (Section 4.3)*

<input checked="" type="checkbox"/> Private sector development	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> Public sector management					
<input type="checkbox"/> Other (Please specify)					

## Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

### 6.1 Bank performance

#### Rating

☒ Lending

☐ HS ☒ S ☐ U ☐ HU

☒ Supervision

☐ HS ☒ S ☐ U ☐ HU

☒ Overall

☐ HS ☒ S ☐ U ☐ HU

### 6.2 Borrower performance

#### Rating

☒ Preparation

☐ HS ☒ S ☐ U ☐ HU

☒ Government implementation performance

☐ HS ☒ S ☐ U ☐ HU

☒ Implementation agency performance

☐ HS ☒ S ☐ U ☐ HU

☒ Overall

☐ HS ☒ S ☐ U ☐ HU



## **Annex 7. List of Supporting Documents**

1. Country Program for Phase-out of ODS in Bulgaria (May 1994)
2. Bulgaria: Ozone Depleting Substances Phase-out Project (Bank's appraisal document, October 1995)
3. Sub-project completion reports