

# Global Environment Facility

GEF/C.14/Inf.6  
November 19, 1999

---

GEF Council  
December 8-10, 1999

## STUDY OF IMPACTS OF GEF ACTIVITIES ON PHASE-OUT OF OZONE DEPLETING SUBSTANCES

# **Study of Impacts of GEF Activities on Phase-Out of Ozone Depleting Substances**

***GEF Evaluation Report***

***November 1999***

Responsible for Content: Dr. Sebastian Oberthür

Input by: Annette Kalnieva and Vladimir Demkin

Assistance by: Jan Peter Schemmel and Dennis Tänzler



## Contents

<b>GEF Evaluation Report.....</b>	<b>1</b>
<b>Contents .....</b>	<b>2</b>
<b>Glossary of Terms and Abbreviations.....</b>	<b>4</b>
<b>1. Background.....</b>	<b>5</b>
<b>2. Purpose of the Study.....</b>	<b>7</b>
<b>3. ODS Phase-out in CEITs: Achievements .....</b>	<b>8</b>
<b>4. Policies and Measures for ODS Phase-out.....</b>	<b>11</b>
<b>5. The Contribution of the GEF.....</b>	<b>13</b>
<b>6. Problems and Challenges .....</b>	<b>17</b>
<b>7. Lessons Learned for Future GEF Activities .....</b>	<b>20</b>
<b>ANNEX I Country Review Summaries.....</b>	<b>23</b>
1. Azerbaijan .....	23
2. Belarus.....	25
3. Bulgaria.....	27
4. Czech Republic.....	29
5. Hungary .....	31
6. Latvia .....	33
7. Lithuania .....	35
8. Poland.....	37
9. Russian Federation.....	39
10. Slovakia .....	43
11. Slovenia .....	45
12. Turkmenistan .....	47
13. Ukraine.....	49
14. Uzbekistan .....	51
15. Estonia .....	53

*The views expressed in this report do not necessarily represent the views of the GEF.*

## List of Figures and Tables

Figure A:	Consumption of Annex A and B Substances in CEITs from 1986/1989 to 1997.....	9
Figure B:	Consumption of Annex C and E Substances in CEITs from 1989/91 to 1997.....	19
Table 1:	Information on CEITs Receiving GEF Support .....	10
Table 2:	Policies and Measures in CEITs .....	12
Table 3:	Summary and Status of GEF Projects in CEITs .....	14
Figure 1:	Consumption of Annex A and B Substances and the GEF Project in Azerbaijan from 1996 to 2002.....	23
Figure 2:	Consumption of Annex A and B Substances and the GEF Project in Belarus from 1994 to 2000 .....	25
Figure 3:	Consumption of Annex A and B Substances and the GEF Project in Bulgaria from 1992 to 1999 .....	27
Figure 4:	Consumption of Annex A and B Substances and the GEF Project in the Czech Republic from 1991 to 1998 .....	29
Figure 5:	Consumption of Annex A and B Substances and the GEF Project in Hungary from 1993 to 1998.....	31
Figure 6:	Consumption of Annex A and B Substances and the GEF Project in Latvia from 1995 to 2002.....	33
Figure 7:	Consumption of Annex A and B Substances and the GEF Project in Lithuania from 1995 to 2002.....	35
Figure 8:	Consumption of Annex A and B Substances and the GEF Project in Poland from 1994 to 2000 .....	37
Figure 9.1:	Consumption of Annex A and B Substances and the GEF Project in the Russian Federation from 1992 to 2001 .....	39
Figure 9.2:	Production of Annex A and B Substances in the Russian Federation from 1992 to 2001 .....	39
Figure 10:	Consumption of Annex A and B Substances and the GEF Project in Slovakia from 1991 to 1999.....	43
Figure 11:	Consumption of Annex A and B Substances and the GEF Project in Slovenia from 1992 to 1998.....	45
Figure 12:	Consumption of Annex A and B Substances and the GEF Project in Turkmenistan from 1996 to 2003.....	47
Figure 13:	Consumption of Annex A and B Substances and the GEF Project in Ukraine from 1994 to 2002 .....	49
Figure 14:	Consumption of Annex A and B Substances and the GEF Project in Uzbekistan from 1996 to 2002.....	51
Figure 15:	Consumption of Annex A and B Substances and the GEF Project in Estonia from 1996 to 2002.....	53

## Glossary of Terms and Abbreviations

Annex A and B substances	Ozone depleting substances included in Annexes A and B of the Montreal Protocol
A I/A II (substances)	Ozone depleting substances included in groups I (CFCs) or II (halons) of Annex A of the Montreal Protocol
Appraised Phase-out	ODP tons to be phased out by GEF subprojects and the GEF project in total as envisaged in projects documents as the basis of planning
B I/B II/B III (substances)	Ozone depleting substances included in groups I (other fully halogenated CFCs), II (carbon tetrachloride) or III (methyl chloroform) of Annex B of the Montreal Protocol
CEIT	Countries with Economies in Transition
CEO	Chief Executive Officer (of the GEF)
CFCs	Chlorofluorocarbons
Consumption	Consumption as defined by the Montreal Protocol equals production minus exports plus imports
CP	Country Program (for the phase-out of ODS)
CTC	Carbon tetrachloride
GEF	Global Environment Facility
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
MOP	Meeting of the Parties to the Montreal Protocol
ODP tons	Metric tons weighted according to the ODP of the respective ODS
ODP	Ozone depleting potential
ODS	Ozone depleting substances
Ozone Secretariat	Secretariat for the Vienna Convention for the Protection of the Ozone Layer and Its Montreal Protocol on Substances That Deplete the Ozone Layer
POPs	Persistent organic pollutants
R&R	Recovery and recycling
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

## 1. Background

Countries with economies in transition (CEITs) have faced difficulties in meeting the industrialized countries' phase-out schedules agreed under the Montreal Protocol. As a result, a number of CEITs have been in non-compliance with the control measures under the Protocol. This has been a continuous concern of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol as well as the Meeting of the Parties to the Montreal Protocol (MOP).

To address the challenge of phasing out ozone depleting substances (ODS), most CEITs have not been able to draw on the Multilateral Fund for the Implementation of the Montreal Protocol. Only developing country Parties operating under Article 5 of the Protocol are eligible for assistance from this source. Most CEITs have not been classified as operating under Article 5 of the Protocol, since they are traditional industrialized countries in central and eastern Europe or have succeeded the former Soviet Union.

**Beneficiaries of GEF support.** Since 1992, the Global Environment Facility (GEF) has thus offered assistance to CEITs for phasing out ODS, as mandated by the Montreal Protocol. To date, 19 CEITs have received assistance from the GEF for the preparation and implementation of their ODS phase-out programs.<sup>1</sup> Two of these countries (Estonia and Kazakhstan) are still finalizing their national country programs. They along with Tajikistan, whose country program has been submitted to the GEF council for approval, are expected to start implementation in 1999/2000. Two other CEITs (Georgia and Moldova) received support for the preparation of projects, but as the projects were being considered, the countries were reclassified as Article 5 countries under the Montreal Protocol. Thus, when their phase-out activities were subsequently implemented, they were funded by the Multilateral Fund for the Implementation of the Montreal Protocol. Slovenia is the only CEIT country that has been so reclassified after approval of GEF support for the implementation of its phase-out activities and has thus received GEF support for its phase-out subprojects.

**Cooperation with the Implementation Committee.** In assisting CEITs, the GEF has cooperated closely with the Implementation Committee of the Montreal Protocol by making support dependent on approval by the Committee. As a consequence, ratification of the London Amendment to the Protocol demanding phase-out of all major ODS<sup>2</sup> has become a precondition for receiving GEF assistance for the implementation of phase-out programs in the GEF Operational Strategy adopted in October 1995. Also, the Implementation Committee has asked non-compliant CEITs to commit to clear phase-out schedules for bringing them in compliance with the Protocol and to provide benchmarks for measuring progress in the phase-out process. On that basis, the tenth Meeting of the Parties to the Montreal Protocol (MOP 10) has, upon recommendation by the Implementation Committee, determined a number of related benchmarks in 1998.

---

<sup>1</sup> Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Poland, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan

<sup>2</sup> Annex A and B substances are considered major ODS.

**The GEF project cycle.** Receiving GEF assistance has involved going through a certain project cycle, including the following steps:

- Preparation of a national country program for the phase-out of ODS;
- Preparation of the “GEF project”;
- Project appraisal; and
- Project implementation.

**The country program.** A country program for the phase-out of ODS (CP), *inter alia*, includes data on production and consumption of ODS in the base year of the CP and identifies various subprojects proposed for implementation. Frequently, country programs have been prepared with external assistance, including from the GEF. National country programs have usually only been related to *consumption* of ODS because only four CEITs were producers. Of the four ODS producers among CEITs (Czech Republic, Poland, Russia and Ukraine), support for production phase-out was only envisaged in the Czech Republic in the form of a study. In Russia, some of the resources have eventually been reallocated to production phase-out.

**The GEF project.** The so-called “GEF project” usually defines in more detail the activities (“subprojects”) to be carried out. This builds the basis of approval by the GEF Council that includes the GEF Project in its work program. Project appraisal with exact definitions and subproject planning are the next steps in this process, which is complete once endorsement of the GEF Chief Executive Officer (CEO) is received. Afterwards, implementation can start once the respective grant agreements have been signed between the CEIT and the Implementing Agency.

**Scope of GEF support.** GEF support has not only aimed to implement sector-specific ODS phase-out projects, it has also been instrumental in securing the recipient country's commitment to phase out all ODS use in accordance with the schedules elaborated in cooperation with the Implementation Committee of the Montreal Protocol. The GEF impact has thus gone beyond the immediate appraised phase-out of GEF-funded investment projects. The GEF has generally aimed to enable recipient countries to come into compliance with the Montreal Protocol and has granted financial and technological support only for the most difficult parts of the phase-out process to catalyze action in the remaining areas as well.

**Implementing Agencies.** GEF has provided resources with which UNDP, UNEP and the World Bank as Implementing Agencies prepare GEF projects (based on the national country programs) and implement the approved subprojects contained therein. UNDP and UNEP jointly provide assistance with GEF funding to eight CEITs (of which five already implement GEF projects). UNDP is responsible for investment subprojects and UNEP has the lead on country program preparation, institutional strengthening and capacity building, and information and training activities. Since UNDP and UNEP act jointly, the respective GEF projects are also sometimes referred to as “GEF umbrella projects.” The World Bank has acted as the sole Implementing Agency for nine CEITs. After GEF approval/CEO endorsement, the GEF projects go through the respective approval procedure of each Implementing Agency. The approach of the Implementing Agencies during implementation also varies: While UNDP and UNEP are assisted by the UNDP country offices, the World Bank acts through financial intermediaries, i.e., the national banks.

**Project criteria.** Generally, procedures and project criteria applied in the GEF context have mirrored those of the Multilateral Fund. On the basis of the cost-effectiveness thresholds applied

under the Multilateral Fund, GEF has thus provided the “incremental costs” of projects to phase out ODS contained in Annexes A and B of the Montreal Protocol (CFCs: A I; halons: A II; other fully halogenated CFCs: B I; carbon tetrachloride: B II; methyl chloroform; B III). Since 1997, funding of methyl bromide (Annex E I) projects has also become possible.

The GEF Operational Strategy of 1995, however, also reflects a number of differences between GEF and the Multilateral Fund. Among the most important is that GEF provides funding to subprojects converting to HFC technology only if more climate-friendly alternatives (such as hydrocarbons) are shown to be technically unfeasible or economically unacceptable. Furthermore, retroactive financing is only possible within strict limits and any operational costs are ineligible for GEF financing.

## 2. Purpose of the Study

**Objective and methodology.** In response to concerns about the continuing non-compliance of a number of CEITs with the Montreal Protocol, the GEF Secretariat, supported by UNEP’s Division of Technology, Industry and Economics, commissioned Ecologic in early 1999 to conduct a study on the current state of implementation of the Montreal Protocol in those CEITs that are implementing ODS phase-out programs with financial support by the GEF. The objective of the study was to collect available data on the production and consumption of ODS in each CEIT recipient of GEF support, including sectoral data and data on ODS use by the various enterprises that have implemented subprojects within the framework of GEF projects. By comparing the actual trends in ODS production and consumption with the original implementation and phase-out schedules as contained in the different national country programs and GEF project documents, the progress and any remaining problems were to be highlighted. Based on past development and updated information on the planning of the respective CEITs, and in cooperation with the countries concerned, future benchmarks and milestones on the way to total phase-out of Annex A and B substances were to be defined in the relevant cases.

Consequently, Ecologic engaged in a comprehensive data collection effort based on available national country programs, GEF project documents, production and consumption data as reported under Article 7 of the Montreal Protocol to the Ozone Secretariat in Nairobi, and input and information provided by the Implementing Agencies. Drafts of the country analyses were sent to the national ozone units of the CEITs for comments and additions in the spring of 1999. Upon receipt of their comments, final drafts were prepared and submitted once more to national ozone units in July 1999 for their endorsement. The report takes into account all comments received by October 10, 1999. The data can thus be considered endorsed by national ozone units.

The study is not based on empirical field studies but summarizes the data officially available and provided by the ozone offices of recipient governments. It reviews the state of implementation of the Montreal Protocol in each CEIT that has received GEF support for the implementation of its ODS phase-out program. A detailed analysis of progress achieved and problems encountered in each recipient country in phasing out ODS since the base year of the respective CP is presented in the full report. This analysis addresses the overall consumption of Annex A and B substances, the groups of controlled substances as well as the various user sectors. Supportive policy and legal measures in each of the CEITs are also presented. A special focus is put on the GEF-funded



elements associated with investment subprojects as well as non-investment activities (e.g., capacity building, institutional strengthening and training).

**Content of the Executive Summary.** This Executive Summary presents the main conclusions of the full report and summarizes its results. Country review summaries are provided in the Annex. They contain information on the status of ratification, the country program, the GEF assistance, the policies and measures taken, and the status of ODS phase-out and of the GEF project. In addition to the 14 countries that have received financial support for the implementation of the ODS phase-out, information on Estonia is included because implementation should start soon and the Implementation Committee of the Montreal Protocol has already dealt with that case. The summaries also contain an outlook for the future. For those countries requiring several years before the completion of the phase-out of Annex A and B substances, this involves presenting benchmarks for measuring progress towards this phase-out. These benchmarks have been developed in cooperation with the countries concerned and incorporate the Decisions of the Meeting of the Parties of the Montreal Protocol.

### 3. ODS Phase-out in CEITs: Achievements

**Non-compliance of CEITs.** Most of the CEITs receiving GEF support have faced considerable difficulties in fulfilling their obligations under the Montreal Protocol phase out ODS contained in Annexes A and B of the Protocol. Except for Hungary, Slovakia and Slovenia (which was reclassified as an Article 5 country after 1995), all other CEITs studied have at times been in non-compliance with the control measures of the Montreal Protocol. By 1997/1998, Bulgaria and Poland achieved compliance and the Czech Republic had nearly achieved compliance. Non-compliance has prevailed in the other eight CEITs that have implemented GEF Projects as well as Estonia, which is likely to implement its phase-out program with GEF support in the near future.

**Progress in ODS phase-out.** According to official data reports under Article 7 of the Montreal Protocol, total consumption of Annex A and B substances in the countries reviewed decreased from about 190,000 ODP tons in the second half of the 1980s to less than 15,000 ODP tons by 1997, a drop of more than 90% (see Figure A and Table 1). Production has been reduced accordingly. Of the four original ODS producers among CEITs, only Russia has sustained a considerable production capacity and that is set to be scrapped/converted by mid-2000. Russia has continually accounted for over two-thirds of ODS production and consumption of CEITs receiving GEF support.

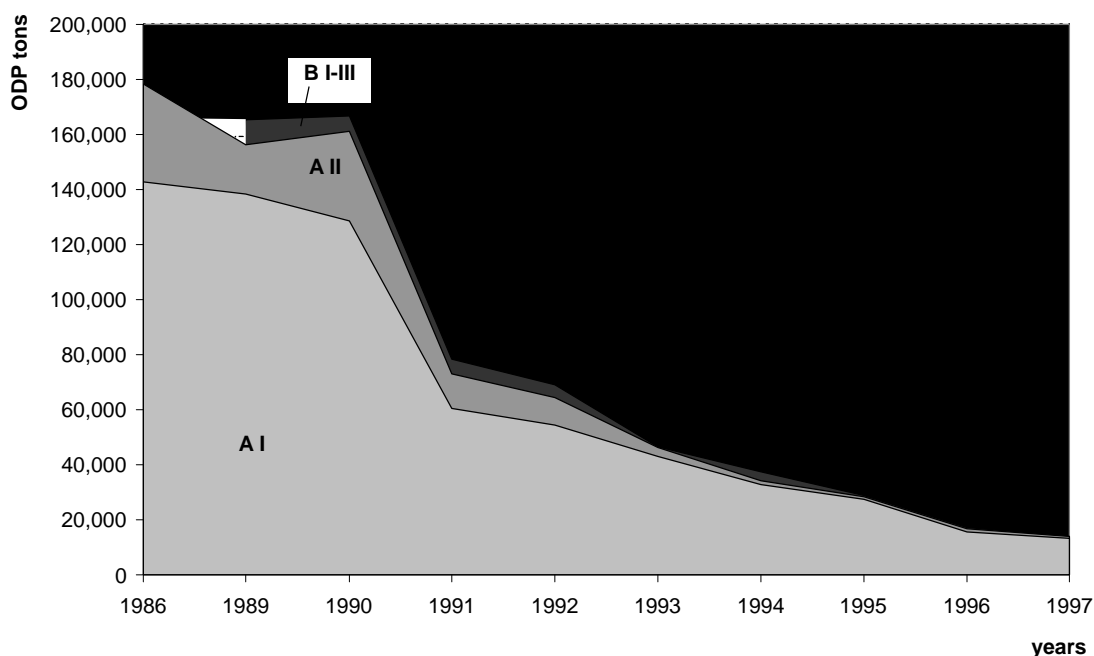
---

<sup>1</sup> Georgia and Moldova were also reclassified as operating under Article 5 after they received GEF support for country program preparation. They are not covered by this study, as the implementation of their country programs was supported, after reclassification, by the Multilateral Fund.

Different base years have been defined in the respective country programs. These range from 1991 for the Czech Republic and Slovakia to 1996 for Azerbaijan, Turkmenistan and Uzbekistan. These country program base years generally indicate the start of planning for ODS phase-out with GEF support. On average, consumption of Annex A and B substances in GEF recipient countries has declined by more than 75% from such base year levels (from more than 66,000 ODP tons to less than 15,000 ODP tons in 1997) (see Tables 1 and 3).

**Figure A: Consumption of Annex A and B Substances in CEITs from 1986/1989 to 1997**

Note: The time series was included only when data for at least half of the years was available. The figure is thus



based on incomplete data.

**Conclusion.** Short of compliance, significant overall progress has nevertheless been attained towards full phase-out of Annex A and B substances. Considerable efforts will be needed, however, to complete and sustain the phase-out of CFCs and other Annex A and B substances. The central and eastern European countries by and large appear to have completed the transition to ozone-friendly technologies successfully. The major remaining consumers of Annex A and B substances are the Newly Independent States (NIS) and the Baltic States.

**Outlook.** With the completion of the phase-out in Russia in 2000, the major source for supply of virgin ODS to other NIS will dry out (save to the extent that stockpiled material may be exported). This is bound to increase pressure on the countries consuming lower volumes to proceed with their phase-out programs. Smaller countries with limited economic capabilities (the central Asian countries in particular) may face special difficulties. The transition to ozone-friendly technologies in all remaining CEITs that still consume Annex A and B substances and receive

GEF support are currently expected to come into compliance with the Montreal Protocol between 2000 and 2003 (see Table 1).

**Table 1: Information on CEITs Receiving GEF Support**

Country	GNP per Capita (US \$ in 1997)	Population (Mio. in 1997)	Status of Ratification*	Annex A and B consumption 1986/89 (ODP tons)	Annex A and B consumption in 1997 (ODP tons)	Compliance (expected)
Azerbaijan	510	8	MP,LA,CA	3,759.7	348.7	(2001)
Belarus	2,150	10	MP,LA	2,811.8	403.2	(2000)
Bulgaria	1,140	8	MP,LA	3,290.0	1.6	✓
Czech Republic	5,200	10	MP,LA,CA	8,654.6	11.7	(✓)
Estonia	3,300	1	MP,LA,CA	311.9	45.2	(2002)
Hungary	4,430	10	MP,LA,CA, MA	8,254.2	3.9	✓
Kazakhstan	1,340	16	MP	n.a.	n.a.	n.a.
Latvia	2,430	2	MP,LA,CA	6,183.0	107.2	(2000)
Lithuania	2,230	4	MP,LA,CA	5,595.2	120.2	(2001)
Poland	3,590	39	MP,LA,CA	9,880.5	312.5	✓
Russian Federation	2,740	147	MP,LA,CA	132,532.0	11,773.8	(2001)
Slovakia	3,700	5	MP,LA,CA	1,873.6	1.5	✓
Slovenia	9,680	2	MP,LA,CA	2,838.2	0.4	✓
Tajikistan	330	6	MP,LA	n.a.	n.a.	n.a.
Turkmenistan	630	5	MP,LA,	n.a.	26.4	(2003)
Ukraine	1,040	50	MP,LA,	4,493.2	1,406.7 (-2,178.6 CTC)	(2002)
Uzbekistan	1,010	24	MP,LA,CA	1,888.1	55.8	(2002)
<b>Total</b>		<b>347</b>		<b>192,366.0</b>	<b>14,618.8</b>	

Source: World Bank, World Development Report 1998/99; official data reports to the Ozone Secretariat in Nairobi. The table includes Estonia, Kazakhstan and Tajikistan which are preparing for implementation of GEF projects.

\*MP: Montreal Protocol; LA: London Amendment; CA: Copenhagen Amendment; MA: Montreal Amendment.

Some CEITs (Estonia, Tajikistan and Kazakhstan) are only in the initial stages of preparing and implementing their country programs for ODS phase-out. Given the experience with the time required to reach full effectiveness of related GEF projects, these countries will face difficulties achieving a timely transition. In this respect, the increasing awareness of and interest in the Montreal Protocol over recent years constitutes a sign of hope. A strenuous effort will nevertheless be required to bring these and other CEITs into compliance and avoid unnecessary economic disturbances.

#### 4. Policies and Measures for ODS Phase-out

CEITs have implemented various supportive and innovative policies and measures (see Table 2) which have usually been accompanied by institutional strengthening subprojects and UNEPs regional activities implemented with GEF assistance.

**Import/export licensing systems.** All recipient countries including Estonia have already established import/export licensing systems or are planning to do so in the near future (Azerbaijan, Estonia, Turkmenistan and Uzbekistan). Latvia and Turkmenistan have designed their licensing systems to cover only imports, which is not yet sufficient for fulfilling the requirements of the Montreal Amendment to the Montreal Protocol of 1997. Most other countries, however, appear to fulfill these requirements or plan to fulfill them in the near future (although only Hungary had ratified this Amendment as of October 19, 1999). The design of licensing systems among countries varies somewhat. Four countries are known (to plan) to license not only ODS but also related products containing these substances (Belarus, Russia, Ukraine and Uzbekistan). These countries are going beyond international requirements mainly to control the entry into the country of equipment requiring ODS for its functioning because ODS demand created in this way could endanger the phase-out process.

**Import quotas.** Nine of the 14 recipient countries (15 including Estonia) have complemented their import/export licensing systems with import quotas or plan to do so to foster an orderly phase-out process and closely control remaining ODS consumption. Again, these policies vary between CEITs. While the Czech Republic applies import quotas to ODS and products containing them, Poland and Azerbaijan have only CFC import quotas in place. Lithuania applies quotas for imports of certain ODS-related products. Some CEITs that have not yet applied import quotas may feel little reason to do so because imports of major ODS are banned (Bulgaria and Slovenia) or because domestic production supplies domestic demand (Russia). However, even in these cases, establishing import quotas might help control consumption of remaining allowed ODS (HCFCs and methyl bromide) and ODS-based products or import of ODS not produced domestically (as in Russia).

**Import bans.** Consequently, a number of CEITs have implemented selective import bans as well as import quotas (e.g., Czech Republic and Slovakia; see Table 2). There is a wide variance among existing import bans and those expected to be established in the recipient countries. The scope of such bans appears to depend first of all on the respective phase of the phase-out process in each country. Countries that have already completed phase-out of Annex A and B substances have also banned the import of these substances. Others have only banned the import of certain ODS (like halons in the case of Azerbaijan and Latvia) depending on whether and to what extent they have been successful in eliminating demand for these substances.

**Use bans.** In comparison with the other policy instruments listed in Table 2, use bans have been established relatively rarely. Such use bans on certain substances and/or certain sectors have proven instrumental in phasing out ODS and reducing sectoral demand (and thus demand for illegal imports) in a number of western European countries in particular. However, only five CEITs reviewed here have used this instrument (Belarus is planning to implement it in pursuing its total phase-out of Annex A and B substances.) Furthermore, some of the use bans in effect are very limited in scope. For example, the Czech Republic and Hungary banned ODS use in aerosols and Poland banned the use of certain relevant products.

**Economic instruments.** Perhaps most notably, ten of the 14 recipient countries have either already implemented some kind of economic instruments or are planning to do so. These economic instruments take different forms, ranging from import taxes, import duties or import fees on ODS to charges for ODS waste disposal. In the case of some countries that plan to introduce economic instruments, these have not been specified yet (Russia, Turkmenistan and Uzbekistan).

**Table 2: Policies and Measures in CEITs**

	economic instruments	import / export licensing system	import quotas	import ban	use ban
Azerbaijan	(✓)	(✓)	✓ for CFCs	✓ on halons (✓ on products)	
Belarus	✓	✓ ODS and products	✓		(✓ on Annex A and B substances)
Bulgaria		✓		✓ on Annex A and B substances and products	
Czech Republic		✓	✓ ODS and products	✓ on CFCs and related products	✓ on CFC and HCFC aerosols
Estonia		(✓)			
Hungary	✓	✓	✓		✓ on ODS as aerosols
Latvia	✓	✓ imports only	✓	✓ on halons	
Lithuania		✓	(✓ for certain products)	(✓ on certain products)	✓ on ODS in certain sectors (+ certain ODS)
Poland	✓	✓	✓ for CFCs	✓ on certain products	✓ on certain products
Russian Federation	(✓)	✓ ODS and products			
Slovakia	✓	✓	✓	✓ except for HCFCs and methyl bromide	✓ except for HCFCs and methyl bromide
Slovenia		✓		✓ except for HCFCs and methyl bromide	
Turkmenistan	(✓)	(✓ imports only)		(✓ on products)	
Ukraine	(✓)	✓ ODS and products			
Uzbekistan	(✓)	(✓ ODS and products)	(✓ for CFCs and B substances)	(✓ on halons and certain CFCs/products)	

Note: Measures listed in brackets are planned/in preparation; for details see country sections. Estonia is not yet implementing a GEF project, but is included for information.

In a few cases, the economic burden placed on importers and/or wholesalers by such economic instruments has been found to impede flexible implementation of the ODS phase-out and early coming into compliance with the Montreal Protocol. For example, the import fee on CFCs in Belarus has discouraged importers/wholesalers from stockpiling. But stockpiling might be a tool for achieving compliance with the Montreal Protocol while meeting demand, especially for servicing existing equipment in a transitional period (see below).

In general, however, these types of economic instruments have been effective not only in controlling and discouraging the import and use of ODS, but in helping demonstrate the functioning of such instruments. They have thus paved the way for the application of innovative market-based instruments in other areas of environmental policy. As evidence, a number of CEITs have developed economic instruments as part of their climate policies. Additionally, it has been found that the environmental benefit of such instruments can be enhanced significantly if the proceeds are channelled to provide support for further ODS phase-out efforts or for reaching other environmental objectives.

**Conclusion.** It is the mix of policies and measures that is decisive for achieving ODS phase-out. Separately, they cannot be meaningfully ranked according to their effectiveness in achieving ODS phase-out. CEITs are well-advanced with respect to implementing controls on trade in ODS. The degree to which they have made use of economic instruments is noteworthy and is likely to help establish economic instruments in other areas of environmental policy, most notably climate policy. In contrast, use restrictions related to certain substances and sectors (an instrument that reduces demand for ODS and thus illegal ODS imports) are less developed still.

## 5. The Contribution of the GEF

**Scope of GEF assistance.** The GEF has approved projects for the ODS phase-out in 14 CEITs. Through its Implementing Agencies (UNDP, UNEP and the World Bank), it has played a crucial role in the phase-out process in these countries not only by providing much needed financial assistance, but by making available technical expertise, supporting learning and dissemination of project lessons within countries and regionally, and assisting in establishing suitable legal frameworks. An overview of the status of the GEF projects in the 14 CEITs receiving GEF support, including key data, is presented in Table 3.

**Resources and subprojects.** GEF has committed a total amount of more than US\$ 138 million to the mentioned phase-out projects. Thereby, an average of 66% has been (or will be) provided to the total costs of 121 subprojects of about US\$ 205 million. Russia has the biggest number of subprojects (23), while Slovakia has implemented only two subprojects. The majority of countries has implemented between six and 15 subprojects.

GEF support covers a wide range in that it may provide the full costs of some subprojects, while it has contributed a few percent of total cost in other cases. On a country-wide basis, GEF is set to cover close to all costs of the phase-out of Annex A and B substances in low-volume consuming countries like Turkmenistan and Uzbekistan. In contrast, it has only contributed slightly more than 30% in the case of Poland. GEF funding amounts to US \$ 2-10 million per country for the majority of recipients (see Table 3). Given Russia's dominant position in ODS production and consumption, the Russian GEF Project amounts to US \$ 60 million. At the other end of the spectrum, the GEF contribution to the Turkmenistan ODS phase-out is some US \$ 360,000.

**Table 3: Summary and Status of GEF Projects in CEITs**

Country	Base year consumption* (ODP tons) [base year]	Appraised ODS phase-out (ODP tons)	Total cost (US\$ )	Contribution by GEF (% of total)	No. of subprojects	Start of implementation	Time lag between finalization of CP and start of implementation
<b>Azerbaijan</b>	960.6 (1996)	307.4	8.98	6.75 (75.2%)	6	2/1999	1 year
<b>Belarus</b>	1,005.8 (1994)	619.7	15.72	6.89 (43.8%)	8	8/1997	2 years
<b>Bulgaria</b>	1,360.0 (1992)	334.4	13.27	10.55 (79.6%)	15	5/1996	2 years
<b>Czech Republic</b>	2,466.1 (1991)	390.0	4.12	2.41 (58.5%)	5	12/1994	2 ½ years
<b>Hungary</b>	1,854.1 (1993)	1,156.4	8.21	6.50 (79.2%)	14	end 1995	1 year
<b>Latvia</b>	711.3 (1995)	223.6	1.86	1.66 (88.9%)	6	early 1999	2 years
<b>Lithuania</b>	371.5 (1995)	387.0	8.04	4.46 (55.5%)	7	5/1998	1 year
<b>Poland</b>	4,147.8 (1994)	1,054.0	20.17	6.21 (30.8%)	9	early 1997	2 year
<b>Russian Federation</b>	48,662.6 (1992)	11,842.0	71.97**	59.96 (83.3%)	23	mid 1996	½ year
<b>Slovakia</b>	832.2 (1991)	283.0	5.95	3.50 (58.8%)	2	1996	3 years
<b>Slovenia</b>	1,205.9 (1992)	338.2	8.84	5.88 (66.6%)	7	end 1995	1 ½ year
<b>Turkmenistan</b>	29.6 (1996)	14.1	.38	.36 (94%)	3	2/1999	½ year
<b>Ukraine</b>	2,460.5 (1994)	1,299.8	32.74	23.27 (71.1%)	12	3/1999	3 ½ year (2 ½ fr govt.. approval)
<b>Uzbekistan</b>	272.2 (1996)	142.0	3.36	3.20 (95%)	4	early 1999	½ year
<b>Total</b>	66,340.2	18,391.6	203.61	138.41 (68.0%)	121		Ø 1 ½ year

Source of ODS consumption data: Official data reports to the Ozone Secretariat in Nairobi.

\* Base year as given in the respective country program

\*\* Total cost incomplete

\*\*\* Finalization of CP denotes completion of the CP document (prior to government approval)

**Impact of projects.** The Russian GEF project also accounts for more than 60% of the total direct GEF impact in terms of ODP tons of Annex A and B substances to be phased out by the subprojects (11,800 ODP tons). In total, the 14 GEF projects have had an *appraised direct ODS phase-out of 18,600 ODP tons* (Table 3). On a country basis, roughly 20–60% of total ODS consumption in the CP base years has been phased out directly with the assistance of the various GEF projects. Exact figures are difficult to obtain because the basis for assessing appraised phase-out may vary from subproject to subproject. For example, the base years of appraised phase-out in the three tranches of the Russian GEF project cover the range of 1992–1998. The appraised phase-out of the GEF subprojects in Russia of 11,800 ODP tons may thus represent an estimated 25–60% of total consumption.

Five countries have completed their GEF projects (Czech Republic, Hungary and Slovenia) or are scheduled to complete them in 1999 (Bulgaria and Slovakia). In addition, Poland's GEF project is scheduled for completion in early 2000. In all these countries, full or nearly full (Czech Republic) compliance with the Montreal Protocol has been achieved, thus the main objective of GEF involvement has been realized. Similarly, the eight non-compliant CEITs where project implementation will not be completed until the next century (by 2003) as well as those countries where implementation has not yet started (Estonia, Kazakhstan and Tajikistan) may be expected to come into compliance eventually.

**Impact of subprojects.** The completed *subprojects* have generally resulted in the total phase-out of Annex A and B substances. However, in most cases, ODS consumption had been reduced significantly prior to the start of implementation. Several subprojects had even phased out completely the use of Annex A and B substances in advance of implementation of the GEF project. This is due to a number of factors. For example, a number of subprojects have been funded retroactively, i.e., ozone-friendly technology was introduced in anticipation of forthcoming GEF funding. Furthermore, domestic policies and measures partially prohibited the import of Annex A and B substances prior to subproject implementation, causing the enterprises to basically close down business (and thus stop using ODS) or to use stockpiled material instead of importing virgin ODS until implementation. To some extent, ODS consumption also dropped as a result of public awareness of the ozone depletion issue, while enterprises relying on ODS-based technology still required financial support to successfully convert to sustainable non-ODS technologies. Finally, in a number of instances it has been reported that enterprises switched to interim technological solutions prior to subproject implementation. For example, in several foam projects, HCFC-141b was used prior to conversion to the ultimate solution (e.g., cyclopentane).

**Phasing out demand.** In all these cases, official data might show full implementation of the phase-out while *demand* for ODS still exists and needs to be phased out to ensure a stable situation. Under these circumstances, GEF support has been crucial to produce a sustainable, environmentally benign and economically acceptable solution. The GEF projects have been most helpful in realizing phase-out of Annex A and B substances and sustaining this phase-out by reducing the demand for these ODS. Denial of crucial GEF support might have amounted to a penalty for early domestic action and commitment to ODS phase-out by recipient countries. The same may hold for those countries that are still finalizing their country programs. If sufficient funds do not become available for them, there is a danger that outdated technology that not only



relies on ODS but also has other environmental drawbacks (e.g., low energy efficiency) will continue to be used, despite the willingness to complete ODS phase-out.

**Supporting non-investment activities and their effects.** GEF support has not only had a direct appraised impact of 18,600 ODP tons on ODS phase-out by implementing investment subprojects. In addition, GEF support has produced desirable effects that support phase-out efforts through non-investment activities. These non-investment contributions to the reductions since the base years of the CP documents (from 66,000 ODP tons to less than 15,000 ODP tons in 1997; see Tables 1 and 3) come about in at least two ways:

1. Institutional strengthening and other supporting activities have been part of GEF support in virtually all recipient countries. Institutional strengthening and training activities including the related regional activities of UNEP, have assisted countries in developing legislative frameworks for implementing the phase-out adapted to their specific circumstances (see section 3 above) and in overcoming informational barriers hindering the phase-out process (not least in the servicing sector). These components have been essential to make the investment subprojects part of an overall strategy for ODS phase-out. The build up of institutional capacity and the establishment of information exchange has also enhanced some of the positive side effects, such as the dissemination of project lessons and mutual learning. Overall, the effectiveness of GEF support must be measured not only in ODP tons phased out by investment subprojects, but in supporting activities related to creating suitable policy frameworks (see also section 7 below).
2. GEF support also has enhanced the commitment by recipient countries. GEF support has only covered the most difficult part of the ODS phase-out that could not have been implemented without assistance. The remaining parts of the national phase-out strategy as developed by the CEITs themselves had to be implemented by domestic means. In this way, GEF activities spurred domestic action and had a catalytic effect. As one result, countries that completed their GEF projects have been enabled to design and implement follow-up activities ensuring that ODS phase-out is continued and sustained. This has included public awareness campaigns, specific legislation and further development of recovery and recycling schemes (for example, in Hungary, the Czech Republic and Bulgaria).

**Limits to quantifying non-investment activities and their effects.** Both abovementioned effects are interrelated in that institutional strengthening also contributes to enhancing commitment. The combined impact of these effects cannot be quantified because suitable methodology is lacking. Related efforts to evaluate the effect of supporting activities have been initiated under the Multilateral Fund for the implementation of the Montreal Protocol, but have not yet led to tangible results that would allow for a quantification. It also should be noted that a certain amount of the reductions achieved since the initiation of GEF's support for ODS phase-out in CEITs has been the result of the economic transition in the recipient countries and cannot be attributed to GEF assistance. On the basis of available data, none of these effects can be quantified.

**The case of recovery and recycling.** The learning process supported by GEF activities has been especially relevant to recovery and recycling (R&R) efforts, where hard lessons had to be learned about the necessary conditions for success. Later activities in this area have without doubt benefited from the experiences in some of the early GEF projects (e.g., the Czech Republic). This has resulted in UNDP requiring recipient countries to have legislation in place for controlling the import of ODS and ODS-based equipment before any R&R schemes are implemented. In this

area, the interdependence between subproject implementation and supporting activities (legislation) becomes most obvious.

Preparation and implementation of Refrigerant Management Plans as is done in Article 5 countries under the Multilateral Fund to develop a sectoral strategy at the national level, should provide an option to be pursued further. Such an integrated approach implies training in good practices, recovery and recycling and selective retrofitting combined with implementing appropriate policies and measures including economic instruments.

## 6. Problems and Challenges

**The main problems.** CEITs, the GEF Secretariat and Implementing Agencies have faced various problems in implementing the respective projects for ODS phase-out:

1. Delays of different lengths have been faced in the implementation of country programs.
2. The refrigeration servicing sector has posed special problems that the implementation of R&R schemes has addressed with only partial success.
3. CEITs still have to address the phase-out of HCFCs and methyl bromide following the schedules that apply to industrialized countries under the Montreal Protocol.

These problems have been addressed and resolved to varying degrees.

**Problem no. 1 – Delays.** The shortest *time lag* between the finalization of a CEIT country program document and the start of implementation of the corresponding GEF Project that has been achieved was less than one year in some of the more recent cases (e.g., Azerbaijan and Uzbekistan). In other cases, the time lag was several years (see Table 3). There are various reasons for these delays in the different cases:

- Especially in the early phase of GEF assistance in the first half of the 1990s, experience had to be gained and regular procedures for project preparation, approval and implementation had to be developed. This necessitated some amount of re-planning in some cases.
- Several steps are required in the usual project cycle before implementation can begin. At a minimum (not including time required for country program preparation), this has included finalization of the country program document, adoption of the country program by the recipient country's government, adoption of the GEF project by the GEF Council, CEO endorsement and signature of the grant agreement. The World Bank has additional procedures for internal approval (i.e., presentation of the project to its Board). These steps require time that should be accounted for in the planning.
- Furthermore, the special transitory and economically unstable circumstances in many CEITs have contributed to the delays experienced, as projects needed to be adapted to the changing circumstances. Financial viability of the enterprises involved in investment subprojects has been a particular concern. This problem has at times delayed not only the start of GEF project implementation (because of the continual need for re-planning), but project completion (as some re-planning has been necessitated even in the implementation phase).
- Since the mid-1990s, the GEF also has required that recipient countries ratify the London Amendment of the Montreal Protocol as a necessary precondition for receiving support (see

GEF Operational Strategy of 1995). This has taken additional time in the case of some countries.

The delays have contributed to slowing down the phase-out as anticipated at the time of finalization of the country program document. For example, the consultants preparing the Ukraine country program in 1995 anticipated completing its phase-out by the end of 1997. The Ukraine government, upon adopting the country program a year later, envisaged completing the phase-out by the end of 1999. However, due to the large delay in the implementation of the Ukraine GEF Project, phase-out was ultimately rescheduled to 2002.

**Problem no. 2 – Refrigeration servicing.** The major sector posing problems in completing and sustaining the phase-out of Annex A and B substances in virtually all CEITs is *refrigeration servicing*. This is also evident from the fact that the dominant part of consumption of Annex A and B substances increasingly consists of CFCs (A I) used as refrigerant (see Figure A). As drop-in substitutes for the relevant applications are rarely available, demand persists for the lifetime of existing ODS-based equipment.

Anticipating the challenge, most GEF projects for ODS phase-out in CEITs include R&R sub-projects to ensure limited supply of refrigerant for residual demand. Experience with the implementation of R&R sub-projects is, however, mixed at best.

- Various problems have been faced. For example, in the Czech Republic refrigerant has been recovered but not delivered to reclamation centers, because the free-market price of the refrigerant was higher than the redemption rate paid to technicians. In other cases, the price of virgin material has been so low that refrigeration technicians had no incentive to recover the refrigerant, even when well-trained and equipped with GEF assistance.
  - ⇒ As mentioned, UNDP now requires that CEITs implement legislation to control imports of ODS and ODS-based equipment as a precondition for the implementation of R&R sub-projects. Also, preparation and implementation of integrated Refrigerant Management Plans can provide a suitable instrument. Finally, UNEP (with GEF funding) has worked with CEITs in a regional context to improve the legislative framework conditions. These and other supporting activities (including regular monitoring and evaluation after completion of R&R training and supply of equipment) are expected to improve the situation.
- In various cases, this will not suffice for meeting the residual demand after the officially committed phase-out date.
  - ⇒ One solution to this problem might be *stockpiling* of limited amounts of CFCs prior to official phase-out. This is a strategy already pursued by the Russian Federation in meeting its commitment to phase-out production and consumption of Annex A and B substances by mid-2000 despite the delays and problems faced in the implementation of its GEF Project. Obviously, such stockpiling might enable further, and may thus prolong, ODS consumption/use. At the same time, it could enable CEITs that are still in the phase-out process to come into compliance. Limited stockpiling might thus avoid economic disruption and at the same time create certainty both domestically and internationally with respect to future ODS use. While some amounts would be available for future use, these would be clearly limited and any further increase (by way of imports) would be prohibited. This might also represent an attractive alternative to continued CFC imports for many of the CEITs concerned given that Russian CFC production (the major source of imports in

many CEITs) is set to close down in 2000. Stockpiling has also been a common practice in most OECD countries in the ODS phase-out process.

**Figure B: Consumption of Annex C and E Substances in CEITs from 1989/91 to 1997**



Note: The time series was included only when data for at least half of the years was available. The figure is thus based on incomplete data.

**Problem no. 3 – HCFCs and methyl bromide.** Looking beyond the phase-out of Annex A and B substances, CEITs have also committed, in most parts, to limit and reduce production and consumption of HCFCs (Annex C I) and methyl bromide (Annex E I) in line with the phase-out schedules applicable to industrialized countries under the Montreal Protocol. Many of these countries have already achieved significant progress. As Figure B indicates, consumption of these substances has increased modestly. (The large peak in methyl bromide consumption in 1994/95 is due to large imports reported by Russia.) In contrast, HCFC consumption especially has increased significantly in most other industrialized countries in the 1990s. There can be little doubt that continued effort will be needed to achieve eventual phase-out of these substances in CEITs.

## 7. Lessons Learned for Future GEF Activities

Despite the problems described, the GEF's ozone-related activities have been generally successful to date in achieving their objective, i.e., enabling compliance with the Montreal Protocol by CEITs. With a reasonable degree of certainty, this achieving this objective can also be expected in non-compliant CEITs where GEF projects are currently under implementation. The success of GEF's ozone program is largely the result of its special design features, which might serve as examples and blueprints for future GEF activities (in the ozone area or others). Two common

themes, *domestic commitment* and *an integrative approach*, provide a "red thread" across the four design features that have enabled a successful operation of GEF's ozone program:

1. Creation and enhancement of *domestic commitment* to the environmental goals pursued, which has been furthered by ensuring active involvement of the country in project development and implementation and by creating relevant institutional capacity;
2. Integration of subprojects in a sectoral strategy that is itself integrated into a country-wide approach;
3. Integration of problem-specific activities in a broader effort to build capacity and develop a suitable policy framework; and
4. Integration of problem-specific solutions in a comprehensive approach that considers the further environmental externalities potential solutions might have.

**Lesson no. 1 – Domestic commitment.** Whereas the country strategy was generally elaborated with GEF support, the country program was to be adopted formally by the respective country. This, in turn, enhanced the commitment by the country to ODS phase-out and activities envisaged to achieve it. This commitment has been needed because GEF has not covered all the costs of implementing the strategy (or country program). GEF support has been granted primarily for the most difficult part of ODS phase-out and has focused on those activities that could not have been pursued without assistance. The recipient country had to take responsibility for implementing the remainder. The GEF grant was thus used to enhance country commitment and catalyze domestic efforts. As a result, relative to *total* consumption of Annex A and B substances in the year of the appraised phase-out, the cost effectiveness of the GEF grant was US\$2.17 per ODP kg. This compares to an overall cost effectiveness of roughly US\$7.5 per ODP kg of appraised phase-out in the subprojects.

**Lesson no. 2 – Integrating subprojects into sector and country strategies.** GEF activities enabling compliance with the Montreal Protocol have started from a country-wide program complemented by sector approaches to ODS phase-out. The approach has thus been both integrated and specific regarding concrete phase-out activities.

**Lesson no. 3 – Integrating the GEF project in general capacity building.** The GEF Projects in CEITs also took an integrated approach to implementation in addressing economic as well as political and legal obstacles. Institutional strengthening and the development of suitable policies and measures has been an integrative part of GEF's activities. The results of this approach are visible in the list of policies and measures implemented and planned to be implemented in CEITs to support ODS phase-out (see Table 2). The importance of suitable policy frameworks has been most obvious with respect to recovery and recycling projects (see above). As many of the problems addressed are of a trans-border character, it has also proven most useful to coordinate such policy development regionally. Such regional policy development has been facilitated and supported effectively by UNEP's regional activities.

Such institutional strengthening has greatly assisted recipient countries in creating capacity for pursuing ODS phase-out and enhancing commitment to this objective. On this basis, sustaining the ODS phase-out after completion of the GEF Project has been facilitated. Countries with completed GEF projects have been enabled to design follow-up activities in order to further ensure that ODS consumption is phased out. Such activities have encompassed public awareness

campaigns, specific legislation and further development of recovery and recycling schemes (see, for example, Hungary, Czech Republic and Bulgaria).

**Lesson no. 4 – Integrating ODS phase-out with other environmental objectives.** The GEF strategy on ODS phase-out has also been innovative in taking an integrative approach towards global environmental problems. In particular, the GEF Operational Strategy of 1995 demanded "the conversion to the technology with the least impact on global warming that is technically feasible, environmentally sound and economically acceptable". The result of this guideline for creating synergy has, however, been mixed. On the one hand, only two investment subprojects were planned to use HCFCs instead of CFCs. On the other hand, according to available project documents, all refrigeration projects foresaw use of HFC refrigerants as substitutes (irrespective of whether they were planned before or after adoption of the GEF Operational Strategy). The integrated approach has thus been implemented in practice only partially at best. This points to the need to closely monitor subproject planning to ensure that clients are aware of the preferred options and applicable guidelines are observed.

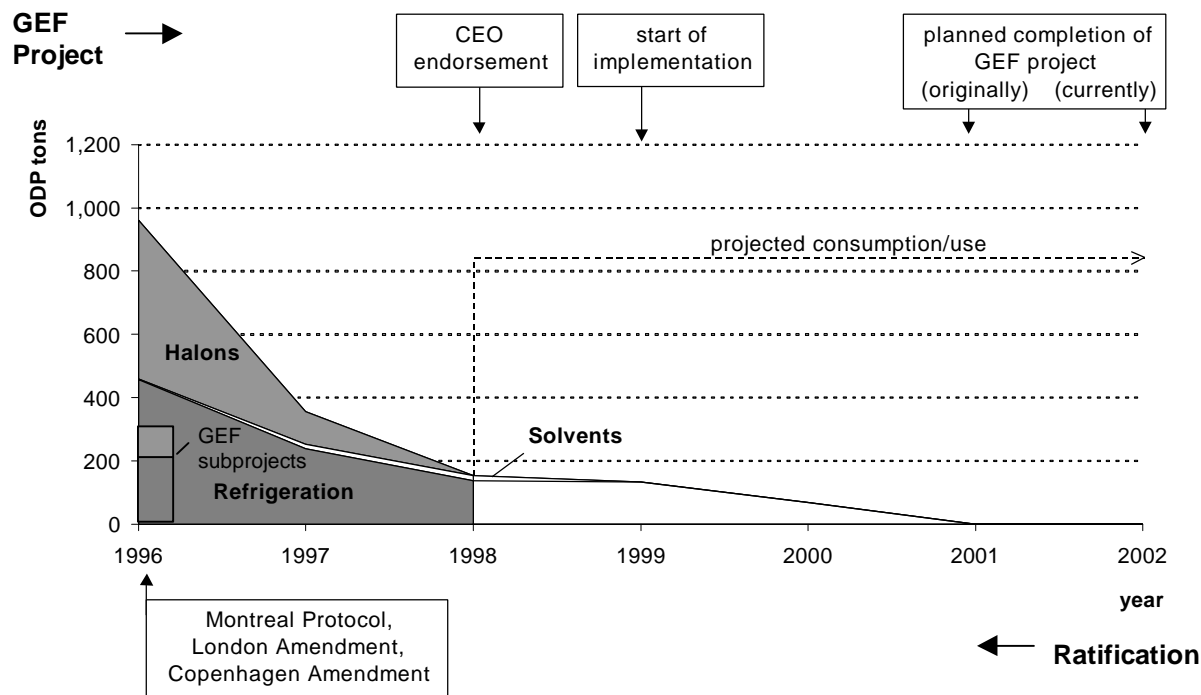
**Conclusion.** The aforementioned design features and common themes of integration and enhancing commitment in recipient countries should be relevant for the development of other existing or upcoming areas of GEF activities. They might inform and provide suitable blueprints for the design of appropriate activities, particularly in areas that share common characteristics with the Montreal Protocol. In this context, it is noteworthy that the problems of using persistent organic pollutants (POPs), for which a global agreement is under negotiation, have broad similarities to problems associated with ODS. As they concern chemicals as well, they might be suitable for similar sectoral strategies as those developed and applied in the context of the Montreal Protocol. At the same time, an integrated approach to phasing out POPs should be beneficial to avoid the negative environmental externalities of implementing potential solutions and to exploit the potential for synergies. Beyond POPs, however, the lessons learned in the context of ODS phase-out should also be relevant to the established areas of GEF's activities, such as climate change and biological diversity. These generally require comprehensive efforts and commitments by recipient countries as well as an integrative and comprehensive approach towards solutions. GEF's ozone program provides important lessons and an example of how to successfully pursue these goals.



## ANNEX I Country Review Summaries

### 1. Azerbaijan

**Figure 1: Consumption of Annex A and B Substances and the GEF Project in Azerbaijan from 1996 to 2002**



**Status of ratification:** The Republic Azerbaijan ratified the Vienna Convention and the Montreal Protocol, including its London and Copenhagen Amendments on June 12, 1996.

**Country program:** The CP, elaborated with the assistance of UNEP and UNDP, was finalized and approved by the government of Azerbaijan in January 1998. Azerbaijan does not produce or export ODS. In 1996 (the base year of the CP), Azerbaijan reported total ODS consumption of 965.7 ODP tons. Of this amount, CFCs and halons accounted for roughly half each. The CP foresees a phase-out of CFCs and halons by 2000, with minor amounts required for servicing until 2005. Implementation is at an early stage, but slight delays have occurred.

**The GEF assistance:** The GEF Council approved of the GEF project in March 1998. CEO endorsement followed in October 1998 and the grant agreement was signed in February 1999. UNDP is the Implementing Agency for the investment subprojects, UNEP is implementing the institutional strengthening and training components. The GEF project is expected to phase out 307.4 ODP tons in total (32% of 1996 consumption). The total cost of the GEF project is expected to be US\$8,975,515 of which US\$6,749,515 (75.2%) would be covered by a GEF grant. The ratio of the GEF grant and ODS consumption in 1996 is US\$7.03/ODP kg. The GEF project consists of six subprojects: One institutional strengthening subproject, four investment



subprojects in the refrigeration sector and one investment subproject addressing fire-fighting. In February 1999, implementation of the GEF project in Azerbaijan has gone in full steam. Implementation of all investment subprojects was originally scheduled to be completed by the end of 2000.

**Policies and measures:** Azerbaijan has established a National Ozone Centre and has banned the import of halons in 1997. Furthermore, quotas for CFC import have been defined. Meanwhile, a framework regulation on import taxes on ODS (based on the ODP of the imported substance), a ban of the import of ODS-based equipment and a licensing system to monitor and control ODS imports are being prepared. Finally, a system for licensing operators in the refrigeration servicing sector is being prepared and is scheduled to be established with a recovery and recycling subproject and with the training in good practices.

**Status:** Azerbaijan has submitted all data required under Article 7 of the Protocol. These data and preliminary data for 1998 provided by Azerbaijan indicate that Azerbaijan significantly reduced its consumption of CFCs in 1997 and 1998 (see graph). By 1998, it appears to have phased out halons and methyl chloroform. CFCs continue to be used in refrigeration (about 90%) and as solvents (about 10%). Furthermore, a large part of CFC consumption is devoted to refrigeration servicing, which is an area particularly difficult to control. Demand in this area might persist beyond 2001. The total phase-out of CFC imports already by the end of 2000 will thus pose a considerable challenge to Azerbaijan. Illegal trade in ODS has been estimated at approximately 6 tons in 1998. The subprojects of the GEF Project are currently scheduled to be completed in 2001 (institutional strengthening: early 2002).

**Future benchmarks:** Based on Decision X/20 of the tenth Meeting of the Parties to the Montreal Protocol (MOP 10), the following benchmarks and phase-down steps (as developed with input from Azerbaijan) could help ensure an orderly phase out until 2001. The proposed import limits are supposed to leave some room for stockpiling:

January 1, 2000: Import/export licensing system in place; tax on the import of ODS introduced; system for licensing of refrigeration servicing technicians established; ban on import of ODS-based equipment; import quota for CFCs not exceeding 90.7 ODP tons.

January 1, 2001: CFC import quota for 2001 zero ODP tons; effective system for monitoring and controlling ODS trade in place and working.

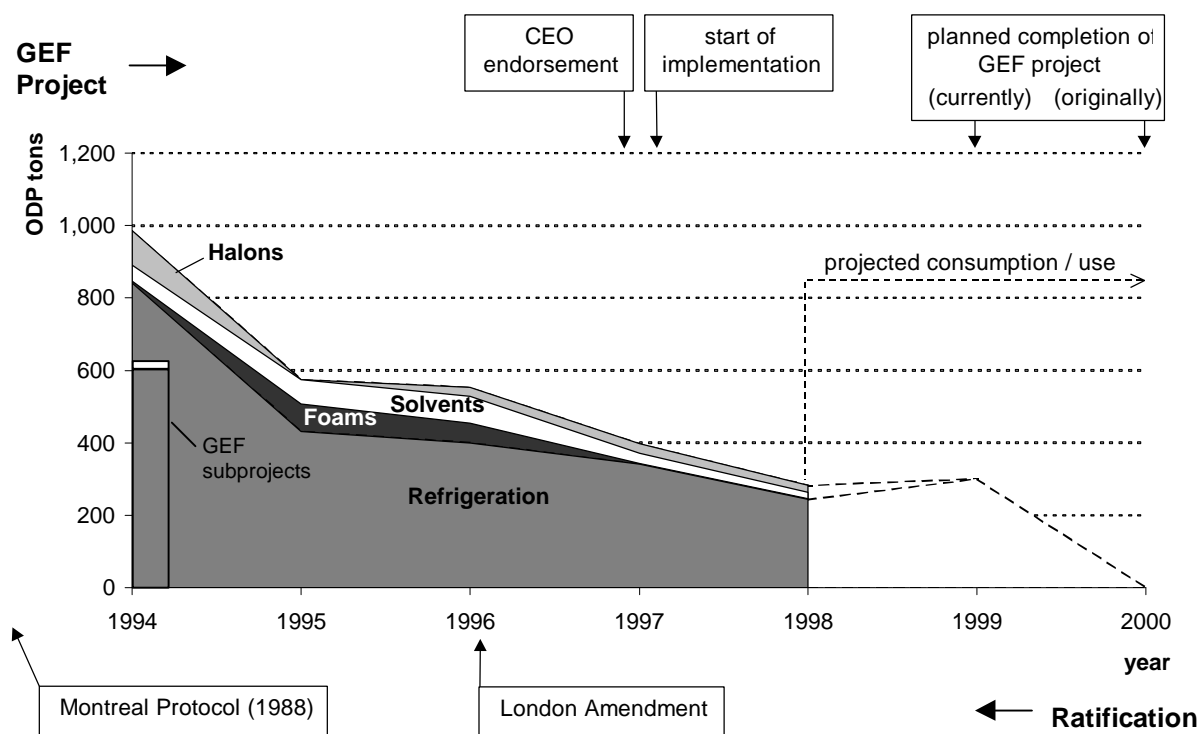
July 1, 2001: All investment subprojects (incl. recovery and recycling) completed.

July 1, 2002: GEF project completed.

Decision X/20 had recommended introduction of an ODS import and export licensing system by 1 January 1999 and consideration of a ban on the import of ODS-based equipment by 1999. To address the problems in the refrigeration sector, the government could aim at stockpiling a certain amount of CFCs for use after the year 2000.

## 2. Belarus

**Figure 2: Consumption of Annex A and B Substances and the GEF Project in Belarus from 1994 to 2000**



**Status of ratification:** Belarus ratified the Vienna Convention on June 20, 1986 and the Montreal Protocol on October 31, 1988, both as part of the former Soviet Union. On June 10, 1996, it also ratified the London Amendment. It has yet to ratify the Copenhagen Amendment.

**Country program:** With assistance from the Danish government (plus a GEF project preparation advance) Belarus' CP was finalized in May 1995 and the government approved the resulting national program on ODS on February 19, 1996. Belarus does not produce ODS, but is dependent on imports from Russia for its own supplies. In 1994 (the base year of the CP), Belarus consumed about 1,000 ODP tons of ODS, whereof about 90% were CFCs (A I and B I). ODS were consumed in Belarus in all known user sectors. The refrigeration sector was dominant, accounting for approximately 84%. Under the assumption that financial assistance would be forthcoming in mid-1995, the CP planned the ODS phase-out to be achieved by the end of 1997. Carbon tetrachloride, methyl chloroform and halons were even to be phased out one year in advance to that schedule. Since the GEF project got only operational in mid-1997, the CP phase-out schedule was postponed for two years.

**GEF assistance:** The GEF Council approved the GEF project in April/May 1996 and CEO endorsement was granted in April 1997. The World Bank as the responsible Implementation Agency approved the projects in May 1997 and grant effectiveness was achieved in August 1997. The GEF project is thought to have phased out 619.7 ODP tons in total (62% of 1994 consumption) at an expected total cost of US\$15,727,658 of which US\$6,893,154 (43.8%) would be

provided by a GEF grant. The ratio of the GEF grant and ODS consumption in 1994 is US\$6.85/ODP kg. The GEF project in Belarus entails a total of eight subprojects. The investment component consists of six sub-projects, of which four belong to the solvents sector and two to the refrigeration sector. The technical assistance component comprises two sub-projects (transfer of technology and training, institutional strengthening). One subproject in the refrigeration sector accounts for more than half of the total appraised phase-out of 620 ODP tons. The GEF Project envisages the following sectoral phase-out dates: 1/1999: refrigeration manufacturing; 12/1999: refrigeration servicing and fire protection; and 12/1998: solvents.

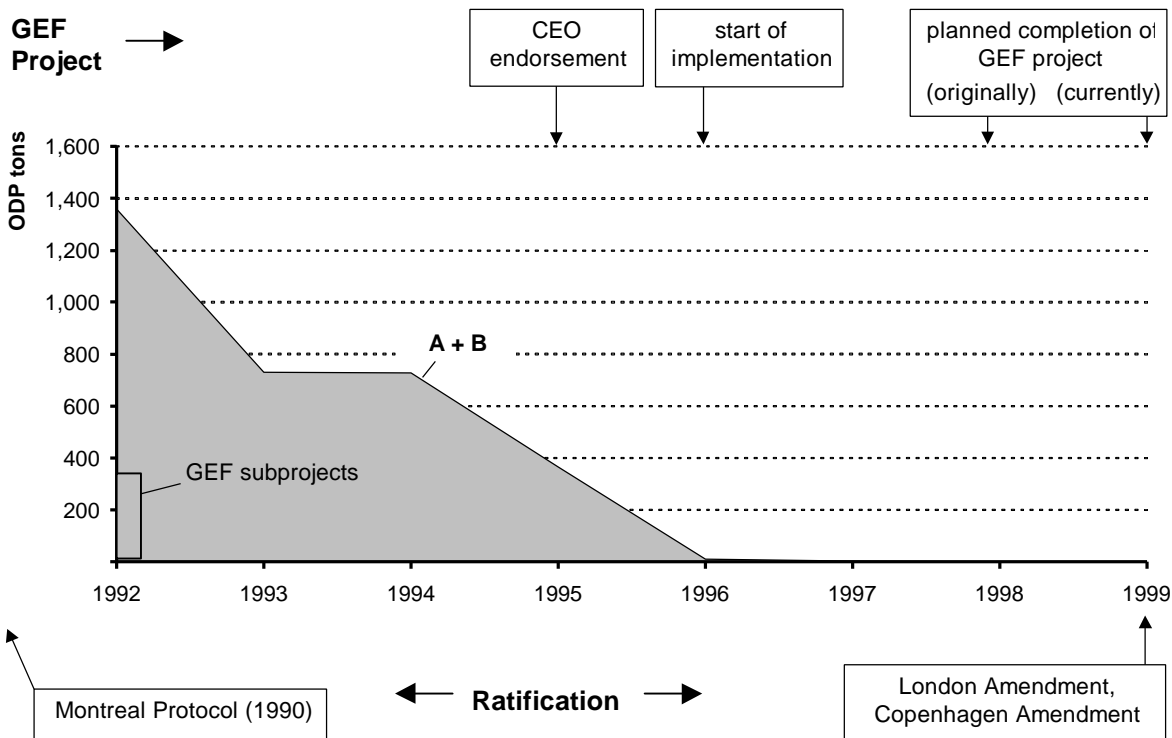
**Policies and measures:** In July 1997, a National Ozone Office was established within the Ministry of Environment. In August 1997, Belarus established an import and export licensing system for ODS and products containing ODS. It has banned the ODS export, introduced import quotas and also set up an import fee of US\$1.5 per kg of CFCs imported. The establishment of an Interagency Commission on ODS is envisaged.

**Status:** Belarus has supplied all data required under Article 7 of the Montreal Protocol. Between 1994 and 1998, Belarus reduced its ODS consumption by 71.5% (halons -79%, CFCs -71%). However, the data show non-compliance with its control obligations under the Protocol in 1996, 1997 and 1998. Implementation of the GEF project started in the second half of 1997. All investment subprojects should be completed by the end of 1999. Two years passed between finalisation of the CP document and the start of implementation. As in other CEITs, the refrigeration servicing sector is expected to remain a major challenge even after the envisioned phase-out. Belarus has noted that a demand of about 170 ODP tons per year exists in the agricultural sector for refrigeration servicing (close to half of total CFC imports in 1997). It appears questionable whether this demand can be met by recovery and recycling.

**Outlook:** MOP 10 in 1998 officially took note of the commitment to phase out the consumption of Annex A and B substances by January 1, 2000 (Decision X/21). However, there will be residual demand for CFCs beyond the official phase-out date. To prevent continued non-compliance and avoid economic disturbances, Belarus could import some CFCs beyond demand in 1999 in order to have stocks available after phase-out. As the existing fee on CFC imports constitutes a strong disincentive for importers/wholesalers to engage in such stockpiling, this would require a government initiative. Further measures need to be taken to reduce CFC demand for servicing especially in the agricultural sector. Belarus has indicated that 90% of refrigeration equipment in agriculture need to be converted/replaced. It has asked for further GEF assistance to address the problem. If no solution is found, there will be strong incentives for engaging in illegal imports.

### 3. Bulgaria

**Figure 3: Consumption of Annex A and B Substances and the GEF Project in Bulgaria from 1992 to 1999**



**Status of ratification:** Bulgaria acceded to the Vienna Convention and the Montreal Protocol on November 20, 1990 and ratified the London and Copenhagen Amendments on April 28, 1999.

**Country program:** The CP was finalized in May 1994 and subsequently adopted by the Bulgarian government on August 14, 1995. Bulgaria has neither produced nor exported ODS (although re-exports might have occurred in the past). For its own supplies, it has drawn on imports mainly from the EU. In 1992, the base year of the CP, Bulgaria consumed 1,360 ODP tons of Annex A and B substances. Bulgaria envisaged to comply with the Montreal Protocol phase-out schedule and was thus aiming at a phase-out of Annex A substances by the end of 1995 (1993 in the case of halons). The CP estimated that phase-out in the aerosol and non-refrigeration foam sectors might be achievable by 1995, while the other sectors would follow by the end of 1995.

**GEF assistance:** The GEF Council approved the GEF project in May 1995. CEO endorsement was received in September 1995. The grant agreement was signed in December 1995 and ratified by the Bulgarian Parliament in March 1996. It entered into force on May 14, 1996 with the World Bank as the Implementing Agency. Some 334.4 ODP tons in total are expected to be phased out by the project. The corresponding total cost is estimated at US\$13,272,332 of which US\$10,552,315 (79.6%) will be granted by the GEF. The ratio of the GEF grant and the average of total consumption of ODS in 1993/1994 is US\$14.47/ODP kg. The Bulgarian GEF project consists of 15 subprojects. The project encompasses 11 investment subprojects, five each in the refrigeration and foam sectors and one in the solvent sector. It also includes an institutional

strengthening subproject and a component (3 subprojects) providing for training and recovery and recycling. The appraised ODS phase-out equals little less than half of 1993/94 consumption of Annex A and B substances. Actual use of ODS in the subprojects was about 30% of total reported consumption of Annex A and B substances in 1994. Full implementation was originally foreseen to be reached in early 1998.

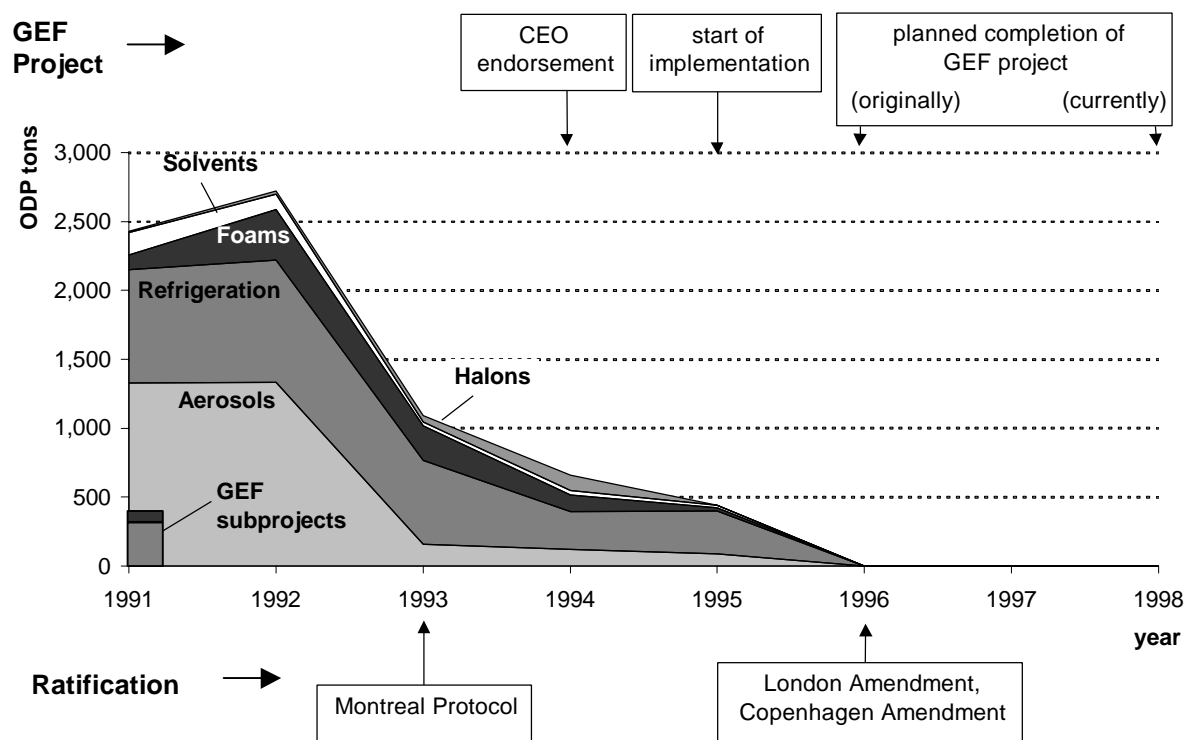
**Policies and measures:** Bulgaria has set up an ODS Task Force and a national ozone unit within the environment ministry. As of January 1996, Bulgaria banned imports of Annex A and B substances as well as the import of products and equipment containing them. The environment ministry operates a permit system for the import of other ODS. It has also established an ODS import and export licensing system. This is being further developed within the framework of UNEP's regional activities. ODS detection and identification equipment is stationed at customs cross-points and regional environmental inspectorates are already established. Starting from January 1, 2000, the entire CFC trade will be allowed only through these cross-points. The ozone office expects this measure, in addition to the fact that CFC-12 is already being recovered and recycled, to stop illegal CFC imports. Bulgaria also conducted a public awareness campaign.

**Status:** Bulgaria has provided all data required under Article 7 of the Montreal Protocol. By 1998, Bulgaria has achieved a complete phase-out of Annex A and B substances. The data show minor imports of halons from 1995-1997 for "essential needs" and CFCs in 1996 representing cases of technical non-compliance. ODS use in the subprojects dropped by 70-80% from 1994 levels, and three of the five subprojects in the foam sector had phased out use of Annex A and B substances before implementation started. Implementation of the GEF Project was delayed due to the serious economic crisis experienced by Bulgaria in 1996/97. Actual implementation started in February 1997. The various subprojects have continued to use ODS beyond 1996 by using stocks built up prior to the enforcement of the CFC import ban of 1996. It is suspected that ODS have been illegally imported, although clear evidence for such activities has not yet been found. Remaining demand for CFCs especially in refrigeration servicing is to be met by recovery and recycling.

**Outlook:** The GEF project has been scheduled to be fully implemented by the end of October 1999. Despite the delay experienced, implementation of the Bulgarian GEF project has been relatively timely. It appears to have been successful in phasing out ODS imports, although there are some indications that demand for ODS continues to exist, which may be supported by illegal activities. If implementation of the recovery and recycling project is successfully completed in time, it may help meet existing demand. Nevertheless, supportive activities (e.g. raising public awareness) may still be needed, especially in a regional context, after completion of the GEF project to make ODS phase-out in Bulgaria continuous.

#### 4. Czech Republic

**Figure 4: Consumption of Annex A and B Substances and the GEF Project in the Czech Republic from 1991 to 1998**



**Status of ratification:** As a successor state of Czechoslovakia, the Czech Republic became a Party to the Vienna Convention and the Montreal Protocol on January 1, 1993 and acceded to the London and Copenhagen Amendments on December 18, 1996.

**Country program:** The Czechoslovakian CP was finalized in August 1992. The Czech Republic produced and exported CFCs and carbon tetrachloride. In 1991, the base year of the Czechoslovakian CP, consumption of the former CSFR equalled 3,730 ODP tons. The Czech Republic (as one successor state) determined that it had a share of 66% (2,475 ODP tons) of the Czechoslovakian total. More than 90% of this consumption was CFCs. The Czech Republic determined that more than 50% and more than 30% of ODS consumption in 1991 was for aerosols and in refrigeration respectively. The CP foresaw completion of the ODS phase-out by the end of 1996 and recommended the following sectoral phase-out dates: Aerosols: end of 1993; Refrigeration: end of 1996; Foams: end of 1995; Solvents: end of 1995; Halons: end of 1996. The Czech Republic later committed to a total ODS phase-out in line with the Montreal Protocol schedule, i.e., by 1996.

**GEF assistance:** The GEF Council approved the GEF Project in December 1992 and CEO endorsement was given in August 1994. Implementation with the World Bank as the Implementing Agency started in December 1994 and was completed at March 31, 1998. The GEF project was expected to phase out 390.0 ODP tons in total. The GEF grant (US \$2,412,000) was providing for 58.5% of the total cost of the project of US\$4,121,000. The ratio of the GEF grant and

total consumption in 1993 is US\$2.15/ODP kg. The GEF project consisted of five subprojects (four investment and one institutional strengthening). Including a recovery and recycling subproject, there were two subprojects in the refrigeration sector and one in the foam sector; one subproject was abandoned. The appraised phase-out of 390 ODP tons constitutes about 35% of the 1993 total consumption. Based on 1993 figures, the GEF project was thus to eliminate 50% of total consumption in the refrigeration sector and 30% in the foam sector. The original implementation schedule envisaged completion of the project by mid-1996.

**Policies and measures:** In January 1993, the Czech Republic banned the use of CFCs as propellants (except for essential uses). The Czech Republic introduced an ODS import and export licensing system including import quotas for ODS and ODS containing equipment in January 1996, when also the manufacturing, import and export of CFCs, including products containing them, were prohibited. Essential uses have been approved for 1996-99. The Czech Republic introduced an excise duty on the production and import of Annex A and B substances of approximately US\$3 per kg in 1994. In 1995, this tax was applied also to HCFCs and methyl bromide and the tax rate increased to approximately US\$6 per kg. In addition, several workshops were organised as part of the Czech GEF project between 1996 and 1998. The Czech Republic is continuing its work on developing the legislative framework for ODS control further (also within the context of UNEP's regional activities).

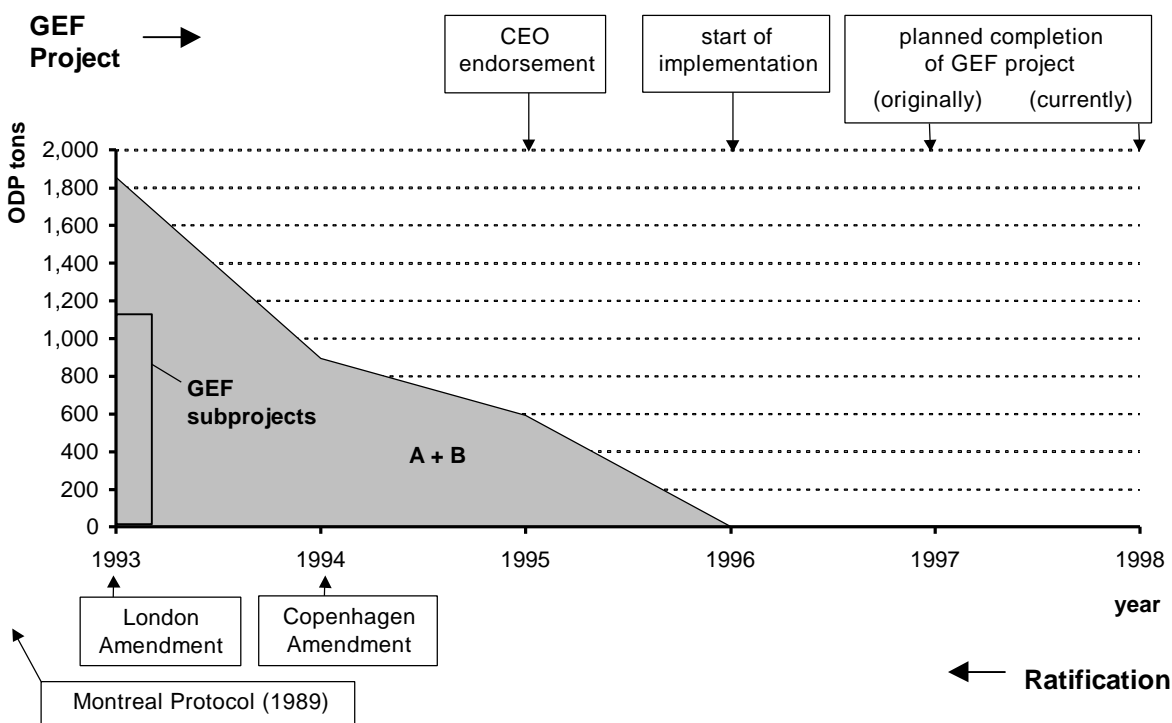
**Status:** The Czech Republic has submitted all data required under Article 7 of the Montreal Protocol. A near phase-out of Annex A and B substances was achieved by 1996, but residual production and consumption of CFCs, carbon tetrachloride and halons in 1994-1997 technically represented non-compliance. According to the Czech Republic residual production and consumption was due to essential uses (not approved by the Parties), laboratory uses and use as feedstock. The Czech GEF Project was completed in March 1998. Especially the performance of the recovery and recycling subproject has been only partially successful. While the envisaged amount of CFCs (200 tons) may indeed be recycled by refrigeration technicians, only a fraction of that is delivered for reclamation as planned. This has been due to the price of CFC-12 on the free market that has been about three times as high as the price offered by the reclamation centres. Some aspects of the other investment projects will also need fine-tuning for optimal functioning as a follow-up to the GEF Project.

**Concluding assessment and outlook:** The Czech GEF project is one of the first successfully completed ODS phase-out projects in the world. Representatives of the Czech Republic have participated in various international meetings sharing the experience of the first GEF project for ODS phase-out with others. Some residual consumption and demand for Annex A and B substances need to be addressed. The Czech government is following up its activities related to ODS phase-out in particular in the context of the process of acceding to the EU. The GEF project facilitated the introduction of non-ODS technology and thus helped reduce the demand for ODS that might otherwise have sought CFC supplies via illegal imports. In addition, the technical assistance enabled the country to identify best international practice.

From the recovery and recycling subproject, it has been learned that the financial incentive to technicians is most important for the functioning of such a scheme, that this incentive should be easily adaptable and that the commercial refrigeration sector should be the primary focus of activities. Making the recovery and recycling scheme reach its anticipated capacity remains a challenge. The Czech Ministry of Environment wants to address the shortcomings in particular by special training activities.

## 5. Hungary

**Figure 5: Consumption of Annex A and B Substances and the GEF Project in Hungary from 1993 to 1998**



**Status of ratification:** Hungary ratified the Vienna Convention on May 4, 1988 and the Montreal Protocol on April 20, 1989. It approved the London Amendment on November 9, 1993 and acceded to the Copenhagen Amendment on May 17, 1994. Hungary ratified the Montreal Amendment on July 26, 1999.

**Country program:** The CP was finalized in September 1994 and subsequently adopted by the Hungarian government. Hungary has neither produced nor exported ODS (except for minor re-exports). Its supplies were mainly imported from the EU. In 1993, the base year of the CP, total ODS consumption was roughly 1,920 ODP tons. Roughly 75% of 1993 consumption was CFCs and more than 20% halons. In 1993, refrigeration accounted for about a third of total consumption; foams for 30%; halons, aerosols and solvents for more than 10% each. The objective of the CP was to realize total ODS phase-out by 1996, i.e., in compliance with the Montreal Protocol.

**GEF assistance:** The GEF Council adopted the GEF project in May 1995 and CEO endorsement was given in autumn 1995. Implementation started at the end of 1995. The World Bank assisted Hungary in the implementation of ODS phase-out as the Implementing Agency. The Hungarian GEF project was expected to phase out 1,156.37 ODP tons in total (more than 60% of 1993 consumption). The costs for implementation amounted to US\$8,208,800 of which US\$6,497,300 (79.2%) were to be provided by a GEF grant. The ratio of the GEF grant and total consumption in 1993 is US\$3.50/ODP kg. The Hungarian GEF project consisted of 14 subprojects: an institutional strengthening subproject, a recovery and recycling scheme and a series of investment



subprojects. Subprojects were undertaken in all sectors. The recovery and recycling subproject in the refrigeration sector alone accounted for 40% of the total expected impact on ODS consumption. The aerosol and refrigeration subprojects were to phase-out nearly 80% and 90% of 1993 sectoral consumption respectively. The halon subproject was to result in an annual recovery of more halons than were used in 1993 due to the large Hungarian halon bank estimated to consist of about 3,000 metric tons in the CP. The Hungarian GEF project was originally scheduled to be fully implemented at the end of 1997 and was completed at the end of 1998.

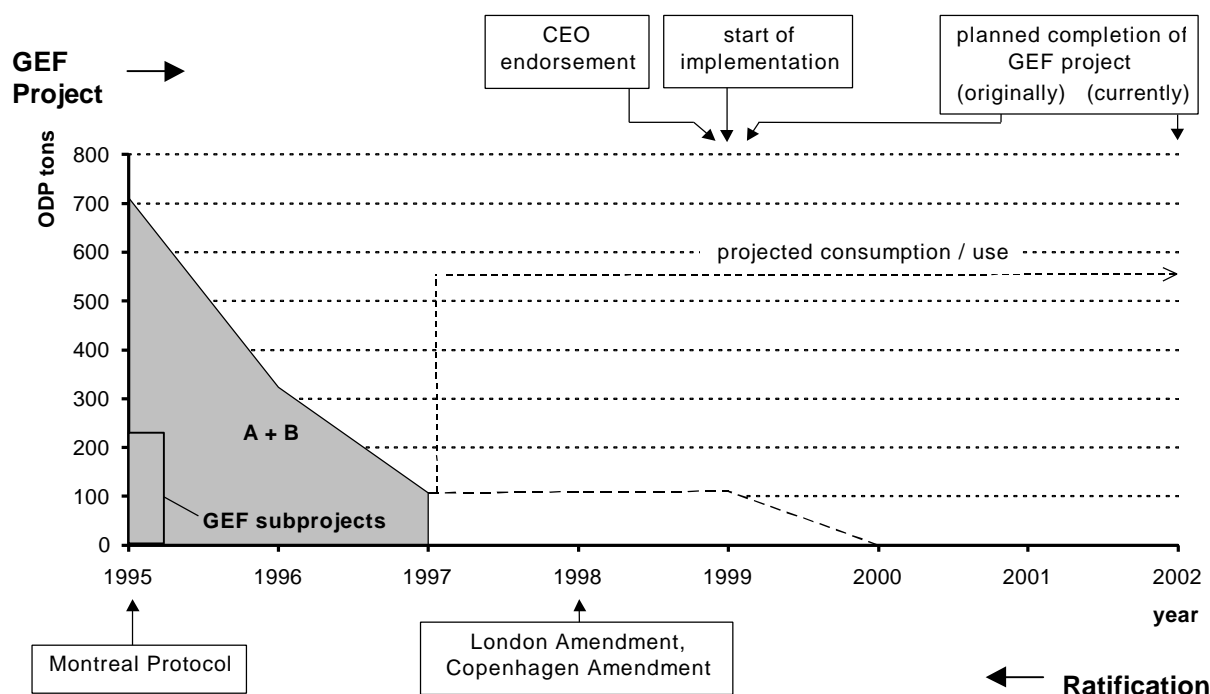
**Policies and measures:** Legislation on gradually phasing down and ultimately phasing out ODS consumption was introduced in mid-1992. Upon the completion of the CP, Hungary had already in place legislation determining the phase-out of ODS and had already banned ODS use as aerosols in the cosmetics industry. It also already had established an import and export licensing system, that today also determines import quotas. The functional equivalent of a national ozone office, a project implementation unit and a Technical Advisory Group have been set up. Hungary introduced a product fee for ODS refrigerants in 1995 using part of the revenues to support the recovery and recycling activities. Hungary hosted workshops and participated in others organised by the World Bank in a regional context, that served to enhance mutual learning. A coordinated public awareness raising campaign was implemented.

**Status:** Hungary has provided all data required under Article 7 of the Montreal Protocol. Accordingly, Hungary has fully been in compliance with its control obligations. By 1996, Hungary had, according to official data, totally phased out consumption of Annex A and B substances in line with the Montreal Protocol schedule. Halon imports had already stopped in 1994. According to the Ministry of Environment, the phase-out of the last 15–20% (about 1,200 tons) of the baseline consumption, which represented the technically most difficult and most costly part of the conversion, would not have been possible without assistance by the GEF. Data for 1997 show minor imports of CFCs for essential uses as approved by the Meeting of the Parties to the Montreal Protocol. The GEF project has been fully implemented and was completed at the end of 1998.

**Concluding assessment and outlook:** Overall, implementation of the Hungarian CP has been relatively smooth. The problems in the recovery and recycling area need to be followed in the future, but Hungary has shown commitment to overcoming the challenge faced by devoting additional resources from its Central Environmental Fund to these activities. No major difficulties in implementing the phase-out also in the future are anticipated. Hungary is in the process of increasing the product fees for refrigerants so as to increase the disincentive to use HCFCs. As one of the candidates for joining the European Union, it is striving to bring its ODS policies in line with EU standards.

## 6. Latvia

**Figure 6: Consumption of Annex A and B Substances and the GEF Project in Latvia from 1995 to 2002**



**Status of ratification:** Latvia acceded to both the Vienna Convention and the Montreal Protocol on April 28, 1995. It accepted the London and Copenhagen Amendments on November 2, 1998.

**Country program:** An initial CP was compiled in 1994 and approved by the Latvian government in 1995. The revised CP was finalized in March 1997. Latvia does not produce ODS, but the country exported 71 ODP tons of CFCs in 1995, the base year of the CP. According to the CP, this export was an exception driven by short term market opportunities in neighbouring countries. Base year consumption was 727 ODP tons. CFCs (A I) made up more than 90%. The aerosol sector accounted for more than 60% of the total of Annex A and B substances. The second largest sector was refrigeration contributing nearly 30%. The CP envisages a phase-out of Annex A and B substances by 2000 (with minor amounts required for servicing up until 2005).

**GEF assistance:** The GEF project was approved by the GEF Council in July 1997 and CEO endorsement was received in January 1999. As of mid-1999, the grant agreement was expected to enter into effectiveness during 1999. UNDP and UNEP are jointly assisting Latvia as Implementing Agencies. The Latvian GEF project is expected to phase out 223.6 ODP tons (slightly less than a third of 1995 ODS consumption). The total cost of the project is estimated at US\$1,863,919 of which US\$1,657,812 (88.9%) is to be provided by a GEF grant. The ratio of the GEF grant and total consumption in 1995 is US\$2.33/ODP kg. The Latvian GEF project consists of six subprojects: three investment subprojects (including one recovery and recycling) and one subproject each on institutional strengthening, training and demonstration.

**Policies and measures:** The government introduced a tax on imported ODS, set at about US\$1.9 per ODP kg. Training activities for customs authorities and in the refrigeration sector were completed and the Latvian Association of Refrigeration Engineers was established in 1998. Regulations on the handling of ODS as hazardous substances were pending. An advisory and monitoring unit was to be created in the environment ministry. It will oversee the ODS phase-out in the refrigeration sector. An amendment of the relevant legislation is to introduce provisions for, inter alia, certification and qualification of technicians in the refrigeration sector, supervision of refrigeration units, and control of import and export operations. In addition, voluntary agreements with ODS importers and users were sought to freeze and reduce ODS consumption. Subsequently, a ban on halons was imposed in December 1997. Also, Latvia has introduced an import licensing system including import quotas and intends to further improve this system by the end of 1999. In doing so, it receives support from UNEP in the context of UNEP's related regional activities.

**Status:** Latvia has submitted all data required under Article 7 of the Montreal Protocol. Accordingly, it has been in non-compliance with its control obligations since 1995 (halons and, since 1996, CFCs). From 1995 to 1997, consumption of Annex A and B substances declined by about 85%. The import of halons was phased out already in 1996. GEF Project implementation was delayed due to the pending ratification of the London Amendment by Latvia. As a consequence, the investment subprojects will be completed by the end of 2000 at the earliest, i.e., one year later than the date of total phase-out envisioned in the CP. In case of further implementation delays demand for illegal imports may increase. Demand for ODS in Latvia can be expected to persist beyond January 1, 2000. It is expected that this demand will, at least in an interim period, not be met by recovered material. The Latvian authorities do not see stockpiling as a viable option, but expect that CFC phase-out might need to be postponed as a result (for one year). This would prolong non-compliance with the Montreal Protocol.

**Future benchmarks:** In 1998, the MOP 10 noted the commitment of Latvia to phase out Annex A and B substances by the end of 1999 and to limit CFC consumption to 100 tons in 1999. Despite the aforementioned implementation delays it might still be possible to achieve this phase-out date, if limited stockpiling of CFCs can be implemented by Latvia. Latvia holds, however, that some imports might be necessary in 2000. The following benchmarks as reviewed by the Latvian authorities can serve to measure progress in phasing out ODS and completing the GEF project. Where differences between the limits set by MOP 10 and the assessment by Latvia exist, these are indicated in square brackets:

1999: Import quota for CFCs (A I) not to exceed 100 tons; import quota for carbon tetrachloride (B II) not to exceed 10 tons (11 ODP tons).

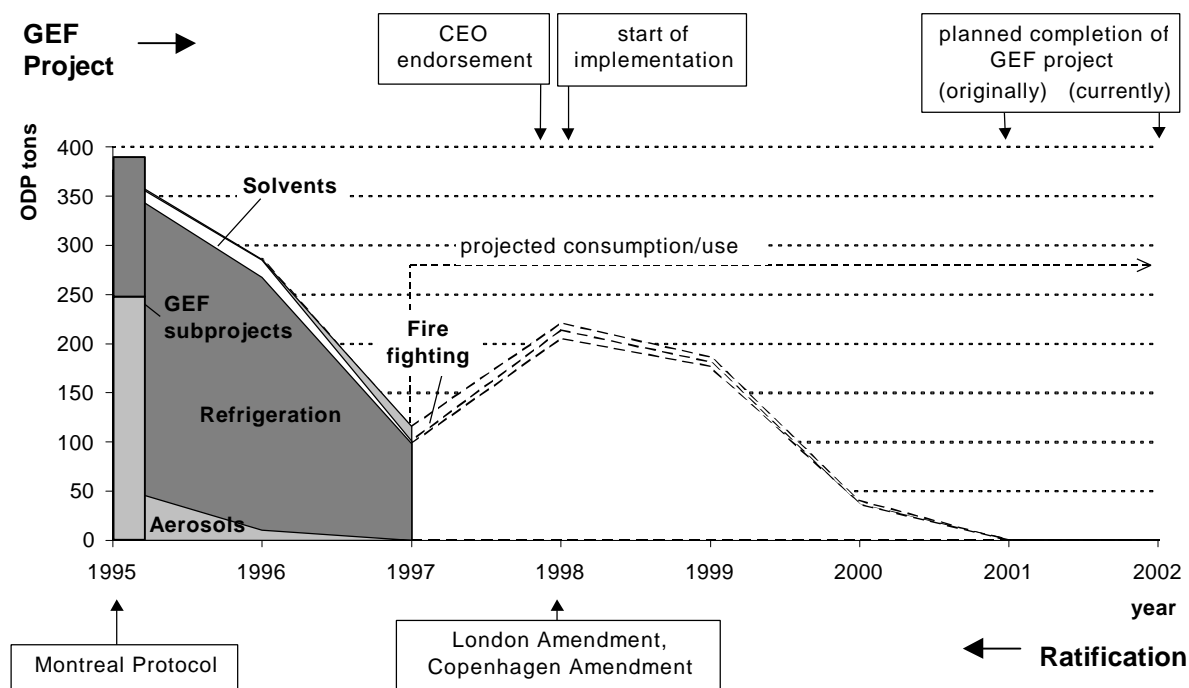
January 1, 2000: Revised import/export licensing system in place; ban of import of all Annex A and B substances [*Latvia holds that some import might be necessary in 2000 depending on the status of implementation of the recovery and recycling subproject*].

July 1, 2001: Completion of investment subprojects.

July 1, 2002: Completion of GEF project.

## 7. Lithuania

**Figure 7: Consumption of Annex A and B Substances and the GEF Project in Lithuania from 1995 to 2002**



Note: The appraised phase out of aerosols is based on the GEF subprojects' consumption average of 1993-1995.

**Status of ratification:** Lithuania acceded to the Vienna Convention and the Montreal Protocol on January 18, 1995 and ratified the London and Copenhagen Amendments on February 3, 1998.

**Country program:** The CP was finalized in March 1997 and approved by the Lithuanian government. Lithuania neither produces nor exports any ODS. Nearly 90% of total Lithuanian ODS consumption of 420 ODP tons in 1995, the base year of the CP, were Annex A and B substances imported from Russia. Close to 97% of these were CFCs (A I). The refrigeration sector was dominant by accounting for 82% of the Annex A and B total, while aerosols contributed close to 15%. The CP envisions a phase-out of Annex A and B substances by 2001 (with minor amounts required for servicing up until 2005).

**GEF assistance:** The GEF project received approval by the GEF Council in July 1997. CEO endorsement followed in April 1998 and the grant agreement was signed in May 1998. UNDP and UNEP serve as Implementing Agencies. The Lithuanian GEF project is thought to phase out 387.0 ODP tons in total at a cost of US\$8,038,008 of which the GEF grant will cover US\$4,416,529 (54.9%). The ratio of the GEF grant and total consumption in 1995 is US\$7.87/ODP kg. The Lithuanian GEF project consists of seven subprojects: four investment subprojects (including one recovery and recycling) and one subproject each in institutional

strengthening, training and demonstration. Three investment subprojects belong to the refrigeration sector (including one recovery and recycling) and one to the aerosol sector.

**Policies and measures:** Lithuania has established an Ozone Focal Point and a National Ozone Committee. Furthermore, the Lithuanian Refrigeration Association was established. Lithuania has introduced an ODS import and export licensing system in 1999. Trade in ODS is currently controlled by means of a permit system. Close cooperation between the Ministry of Environment and the customs department allows close tracking of ODS imports and exports. Lithuania is planning to introduce import quotas and bans on certain products containing ODS as well as certain ODS uses. Lithuania has prohibited the use of ODS (except methyl bromide) in new areas of application. CFC use in aerosols and for foam production as well as in new refrigeration and air-conditioning equipment is banned. To develop its legal framework, Lithuania is actively participating in the related regional activities of UNEP. It is also planning to take an active part in anticipated regional training of customs officers.

**Status:** Lithuania has submitted all data required under Article 7 of the Montreal Protocol which show that the country has been in non-compliance with its control obligations since 1996. Consumption of Annex A and B substances declined from 370 ODP tons to 120 ODP tons between 1995 and 1997. This was not least due to the early adoption of alternative technologies in the GEF subprojects pending implementation of the eventual solution. As a result, consumption in the aerosol and foam sectors could be phased out in 1997. Lithuania has reported consumption of several ODP tons in 1996 and 1997 for “other uses,” mainly laboratory uses not exempted from control under the Montreal Protocol. Implementation of the investment subprojects started in 1998 and may be completed during the first half of 2000, as no major problems in implementing the GEF project are anticipated.

**Future benchmarks:** MOP 10 accepted the commitment of Lithuania to reduce the consumption of Annex A and B substances by 86% from 1996 levels by January 1, 2000 and to ban the import of CFC 113, carbon tetrachloride and methyl chloroform by the same date (save for feedstock use and exempted essential uses approved by the Parties). Total phase-out was envisaged for January 1, 2001 (Decision X/25). Given the current status, it should be possible to realize this phase-out schedule. Some demand for CFCs persisting beyond 2001, especially for refrigeration servicing, could be met by stockpiling limited amounts of CFCs in advance of 2001 within the restrictions already established. The following benchmarks can serve to measure progress in phasing out ODS and completing the GEF project, as planned by the Lithuanian authorities:

January 1, 2000: Ban on imports of carbon tetrachloride, methyl chloroform and CFC-113 in 2000 for solvent applications except for 1 ODP ton of carbon tetrachloride for laboratory uses and about 10 tons for feedstocks; quota for CFCs, halons and carbon tetrachloride (for other applications than solvents) in 2000 not to exceed 41.6 ODP tons (save for feedstock use and exempted essential uses approved by the Parties).

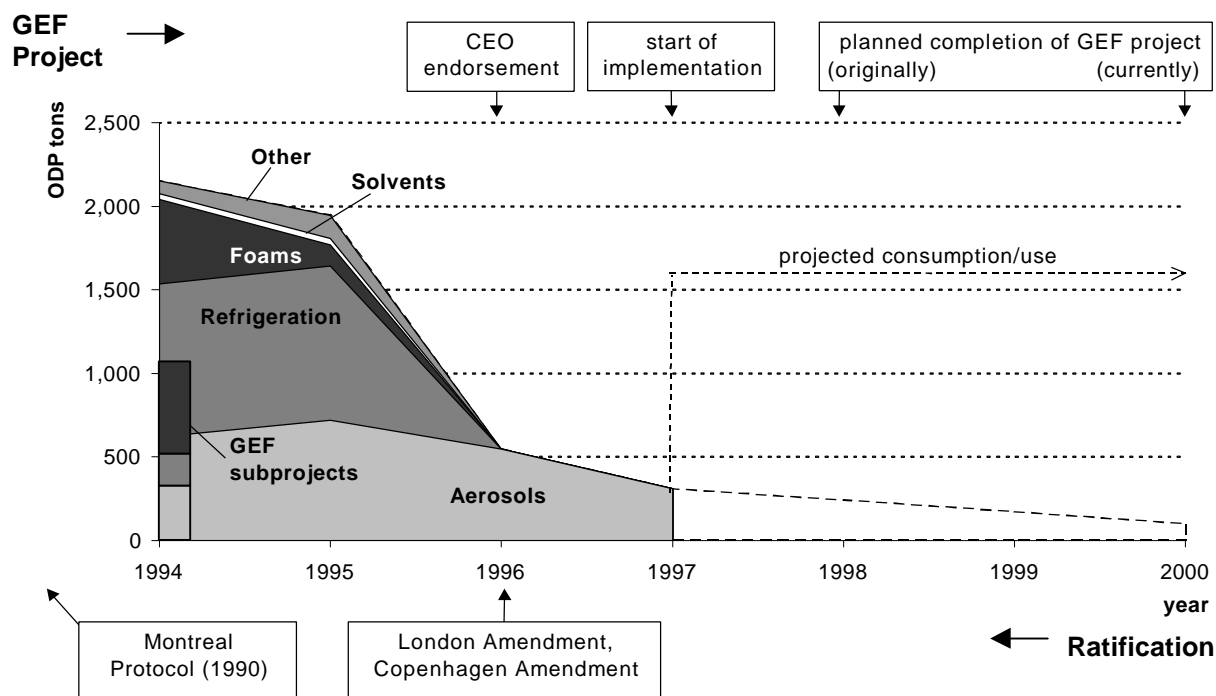
July 1, 2000: Completion of investment subprojects of the GEF project.

January 1, 2001: Ban on imports of all Annex A and B substances in 2001 (except for essential uses or feedstocks).

Lithuania thus plans to import one ODP ton of carbon tetrachloride in 2000 for laboratory uses not exempted from controls under the Montreal Protocol. This is not formally in line with the import limits set in Decision X/25. In the planning of Lithuania, this is compensated by lower imports of Annex A substances.

## 8. Poland

**Figure 8: Consumption of Annex A and B Substances and the GEF Project in Poland from 1994 to 2000**



**Status of ratification:** Poland acceded to the Vienna Convention and the Montreal Protocol on July 13, 1990 and to the London and Copenhagen Amendments on October 2, 1996.

**Country program:** The CP was finalized in June 1995. Poland has produced carbon tetrachloride mainly for feedstock use. All other ODS consumed in Poland have been imported, mainly from the EU and Russia. The CP foresaw completion of the phase-out of Annex A and B substances in line with the applicable provisions of the Montreal Protocol, i.e., by 1996. The exact break-down of sectoral consumption of Annex A and B substances in 1994 is uncertain. For all sectors, the CP foresaw total phase-out of consumption (not use) by 1996 (halons: 1994), the phase-out date mandated by the Montreal Protocol.

**GEF assistance:** The GEF Council adopted the GEF project in April 1996. CEO endorsement followed in December 1996, with the project updated in January 1997. The grant agreement was signed in early 1997 and the World Bank serves as the Implementing Agency. The Polish GEF project was scheduled to phase out a total of 1,054.0 ODP tons (about 50% of total consumption in 1994). The GEF grant (US\$6,214,000) is providing for 30.8% of the total cost of the project of US\$20,167,000. The ratio of the GEF grant and the average of the total consumption in 1994/1995 is US\$3.62/ODP kg. The Polish GEF project consists of nine subprojects, including seven investment subprojects (including one recovery and recycling subproject), an institutional strengthening and a training subproject. Of the seven investment projects, two belong to the refrigeration sector (including one recovery and recycling), four to the foam sector and one to the

aerosol sector. The original implementation schedule envisaged GEF project completion at the end of 1998.

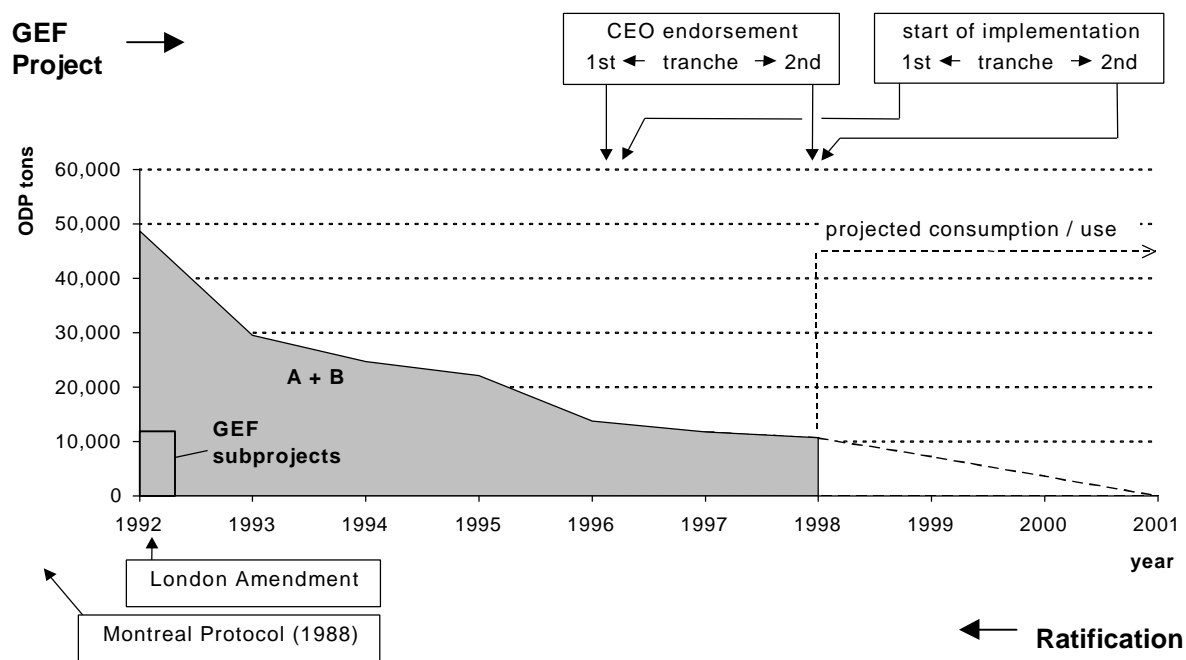
**Policies and measures:** Prior to the completion of the CP, Poland already had, inter alia, introduced a tax on the emission of controlled substances, established a CFC import and export licensing system including quantitative restrictions on imports and stopped the granting of certificates for halon-containing fire-fighting devices. A number of further initiatives have been taken since then and are being followed up as part of the general quest of Poland to bring its legislative framework in line with EU requirements. The ODS import and export licensing system has been developed further to cover all controlled substances and include regular feedback reporting. Trade in ODS and ODS-containing products with Non-Parties to the Montreal Protocol is prohibited. The use of ODS in certain products has been prohibited as well as trade in such products. Since 1997 ODS wastes are considered as hazardous wastes and charges are applicable for their deposit. A training program for refrigeration technicians was to start in September 1999 as part of a public awareness raising campaign.

**Status:** Poland has reported the data required under Article 7 of the Montreal Protocol. Production of carbon tetrachloride has been reduced to small amounts used as process agents and for laboratory and analytical uses allowed under the Protocol. Poland stopped halon consumption in 1994. According to reported data, Poland consumed more CFCs than allowed under the Protocol in 1994 and 1995. It claims that about 30% of consumption was for use in metered-dose inhalers. Consumption of Annex A and B substances was phased out by 1996 except for CFCs for approved essential use as aerosols. Poland also exceeded the limits of the Protocol for Annex B substances in 1996, but was in full compliance in 1997. Six subprojects have been completed, while three were ongoing in 1999 (including recovery and recycling). Poland continues to take an active part in the regional activities of UNEP to develop further its legislative framework and to share its experience in ODS phase-out with its neighbors. Project implementation could have been accelerated, if Poland had ratified the London Amendment earlier. The major remaining problem is related to the timely and effective implementation of the recovery and recycling subproject.

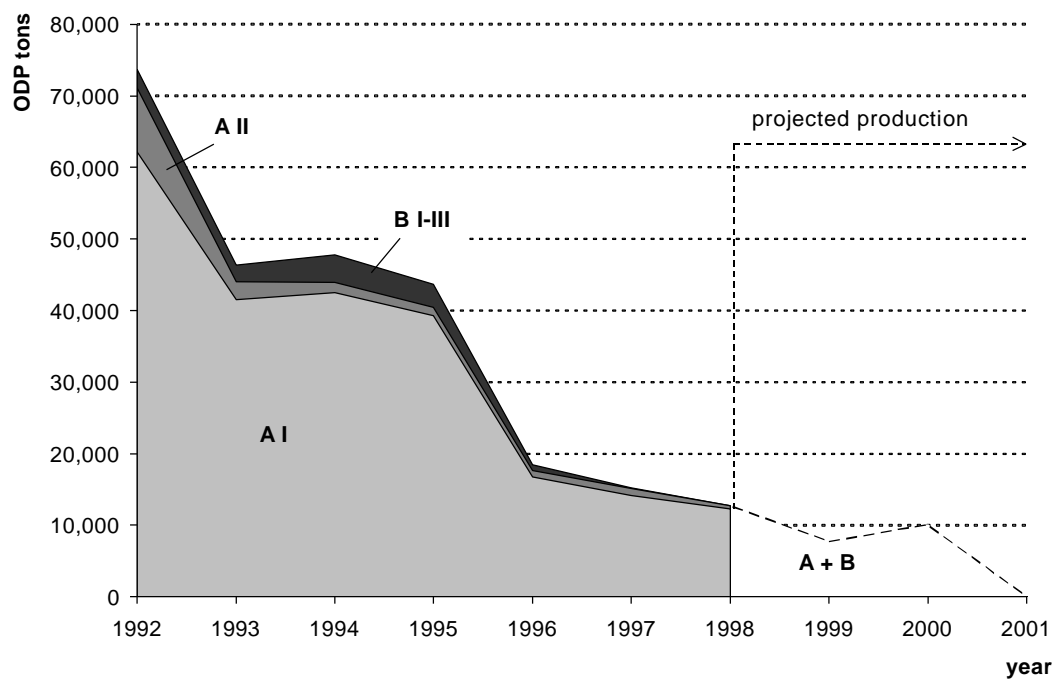
**Outlook and conclusion:** Implementation of the Polish GEF project has been comparatively smooth and timely. Due to considerable efforts by Poland itself, Poland has been able to meet the phase-out date applicable to industrialized countries under the Montreal Protocol. While this was achieved before implementation of the bigger part of the GEF project started, the GEF project has helped phase out ODS demand that existed beyond 1995 and avoid economic disruptions resulting from ODS phase-out. Enterprises that did not complete phase-out by 1996 have generally either met their demand by using existing stocks of Annex A and B substances and transitional substances, or have suspended production. Full completion of the GEF project is now foreseen for early 2000. Until then, Poland will undertake further efforts to phase-out residual CFC demand especially in the refrigeration sector. It is also hoped that progress will be achieved in combating illegal trade (by equipping customs officers with CFC identifiers, training activities and improved cooperation with customs authorities).

## 9. Russian Federation

**Figure 9.1: Consumption of Annex A and B Substances and the GEF Project in the Russian Federation from 1992 to 2001**



**Figure 9.2: Production of Annex A and B Substances in the Russian Federation from 1992 to 2001**





**Status of ratification:** The Russian Federation as the successor of the Soviet Union is a signatory to both the Vienna Convention and the Montreal Protocol and accepted these instruments on June 18, 1986 and November 10, 1988 respectively. It acceded to the London Amendment on January 13, 1992, but has not yet ratified the Copenhagen Amendment.

**Country program:** A national action plan for the phase-out of ODS was prepared in 1994 and adopted by the government in May 1995 (Resolution No. 526 of May 24, 1995). This set of measures built the basis of the Russian CP finalized and revised in October/November 1995\*. Russia produces and exports most kinds of ODS. Russia has thus been self-sufficient as regards most Annex A and B substances. Carbon tetrachloride has at times been imported (particularly from Ukraine). In 1992 (the base year of the CP), total ODS *production* amounted to 74,000 ODP tons (roughly 10% of the global total). ODS *consumption* in 1992 amounted to roughly 49,000 ODP tons. The difference between production and consumption data (1992: ca. 25,000 ODP tons) is accounted for by ODS exports. Russia has been the major supplier of ODS to most other CEITs that still consume controlled substances. Discrepancies exist between 1992 production and consumption data as reported to the Ozone Secretariat and contained in the COWI study of August 1994 (the Russian CP). According to the original plans, Russia was to phase-out production and consumption of Annex A and B substances by the end of 1999.

As one of the major ODS consumers worldwide, Russia has used controlled substances in all major consumption sectors. The COWI study/CP puts the sectoral breakdown in 1992 as follows: aerosols: 46%, refrigeration: 27%, foam: 11%, solvents: 2%, and halon: 14%. According to the Russian government's plans of August 1994, the following sectoral phase-out deadlines were envisaged (depending on smooth implementation of the CP): aerosols: January 1, 1999; refrigeration: January 1, 1998 (2000 for servicing); foam: January 1, 1998; solvents: January 1, 1999; and halon: January 1, 1997. When Russia presented its phase-out plans to the Implementation Committee of the Montreal Protocol one year later, the lack of progress in the interim resulted in a postponement in the sectoral phase-out dates officially submitted by one year for all sectors except aerosols (UNEP/OzL.Pro/ImpCom/12/3, Annex II).

**GEF assistance:** On the basis of the CP, the World Bank as the Implementing Agency in charge of the Russian CP elaborated a GEF project consisting of three tranches to be implemented step by step. The GEF Council approved the three tranches in May 1995, April 1996 and May 1999 respectively. CEO endorsement of the first two tranches was granted in May 1996 and January 1998. Implementation of the first tranche started in mid-1996. The Russian ODS Consumption Phase-out Project is the biggest project in terms of volume of ODS and money involved. It contains 22 subprojects (excluding the Special Initiative on the Production Sector; see below). Each tranche contains an institutional strengthening subcomponent as well as various investment subprojects (1st tranche: 1, 2nd tranche: 4, and 3rd tranche: 15). In the case of the third tranche, this includes a halon banking management program and a Small Grants Program covering part of the small ODS consumers, which were not included in the GEF grant tranches as separate subprojects. The GEF project covers all relevant consumption sectors. Six subprojects address the aerosol sector, seven the refrigeration sector (including three recovery and recycling subprojects), three the foam sector and two the solvent sector. Implementation of the investment subprojects has been assessed to lead to an appraised phase-out of 11,842 ODP tons. The cost of the total GEF project is estimated at US\$71,967,356 of which US\$59,964,634 will be provided by a GEF

---

\* Based on a COWI study of August 1994 The CP has not been available in the context of this study. In the following, the COWI study is thus treated as providing the data of the CP.

grant. The ratio of the GEF grant and the average total consumption in 1992–1995 is US\$0.48/ODP kg.

To support and facilitate the close-down of Russian ODS production, the World Bank launched a Special Initiative for ODS Production Closure in the Russian Federation in 1996. The Special Initiative has a total financial volume of US\$ 27 million. Since bilateral commitments fell short of the required amount, however, US \$ 8.5 million (including US\$ 500,000 to cover foreign exchange conversion adjustments for those donor contributions which were made in their domestic currencies) of the third Tranche of the GEF Project were reallocated to the Special Initiative. In the original planning, the Special Initiative was to lead to a production phase-out by the end of 1999.

**Policies and measures:** By 1992, an Inter-Agency Commission for the Protection of the Ozone Layer already had been created. Also, relevant legislation was passed prior to CP implementation. In accordance with the early planning, a licensing system based on quotas for ODS production and exports has been established based on government resolutions by way of Orders of the State Committee of the Russian Federation for Environmental Protection. On May 5, 1999, the Russian government passed a Decree (No. 490) that determines phase-out of CFC (A I) production by July 1, 2000. Since 1996, it has fixed annual quotas for ODS production and exports. In addition, an import/export licensing system for products containing ODS has been established. Russia has also participated in the regional activities conducted by UNEP. Moreover, research and design work has been initiated to create an ozone-safe mixture for CFC substitution in existing and new appliances. Economic instruments providing incentives for the management and ultimate elimination of residual ODS demand are under development, which is scheduled to be supported under the third tranche of the GEF project.

**Status:** Russia has supplied all data required under Article 7 of the Montreal Protocol to the Ozone Secretariat. These data indicate that the Russian Federation has been in a state of non-compliance with its obligations under the Montreal Protocol since 1996. Since 1992, Russian ODS production and consumption have dropped considerably. *Production* dropped by more than 80% (1998), including a total phase-out of production of carbon tetrachloride by 1997 and methyl chloroform by 1996. Actual production has remained below the annual quotas fixed by the Russian government. ODS *consumption* was reduced by more than two thirds by 1997. As of May 1999, agreement had been reached between Russia and the donor countries about the implementation procedure of the Special Initiative. The Special Initiative was approved by the GEF Council in May 1999 as part of the third tranche, that currently awaits implementation.

The transitional dynamics in the Russian Federation have provided a particularly unstable and uncertain framework for the implementation of the GEF project. Delays and various changes in the planning have been the result. One subproject of the first tranche is close to completion and has phased out CFC use, while the subprojects of the second Tranche are under implementation. Various planned subprojects have been cancelled or changed in scope and content, while others have been added. As a result, the original phase-out schedule has been relaxed by six months, i.e. phase-out is now to be achieved by July 1, 2000 (upon completion of ODS production plant closures under the Special Initiative, as planned by the Russian government). As in other CEITs, the small and medium-sized enterprises and the refrigeration servicing sector present a formidable challenge as regards implementing the phase-out of Annex A and B substances. The considerable demand in Russia for CFCs in particular that will remain after the scheduled close-down of production in mid-2000 may endanger compliance beyond 2000. Much will depend on the

successful implementation of the recovery and recycling subprojects and the Small Grants Program.

**Future benchmarks:** MOP 10 determined that production of Annex A substances should cease June 1, 2000, while phase-out of consumption of Annex A and B substances should be complete by the same date (Decision X/26). In 1999, consumption of CFC (A I) and halons (A II) should be limited to the maximum production allowed under the CP for that year: 6,280 ODP tons and 960 ODP tons respectively. In contrast, the Russian Federation determined *common* production quotas for 1999 and 2000. Under the assumption that the need for some stockpiling of CFCs for use beyond 2000 is accepted, the following benchmarks can serve to measure progress in the phase-out process. The benchmarks take due account of the current planning of the Russian government. Where they diverge from Decision X/26, this is indicated in italics in square brackets:

January 1, 2000: Concrete implementation arrangements for the complete phase-out of production and consumption of Annex A and B substances by July 1, 2000 in place; implementation of third tranche operational; additional production of CFCs in 1999/2000 only for stockpiling and quota not to exceed 10,150 ODP tons (A I: 10,120; B I: 30).

July 1, 2000: Ban on imports and exports of ODS effective; phase-out of consumption and production of Annex A and B substances [*Decision X/26: June 1, 2000*]; completion of Special Initiative.

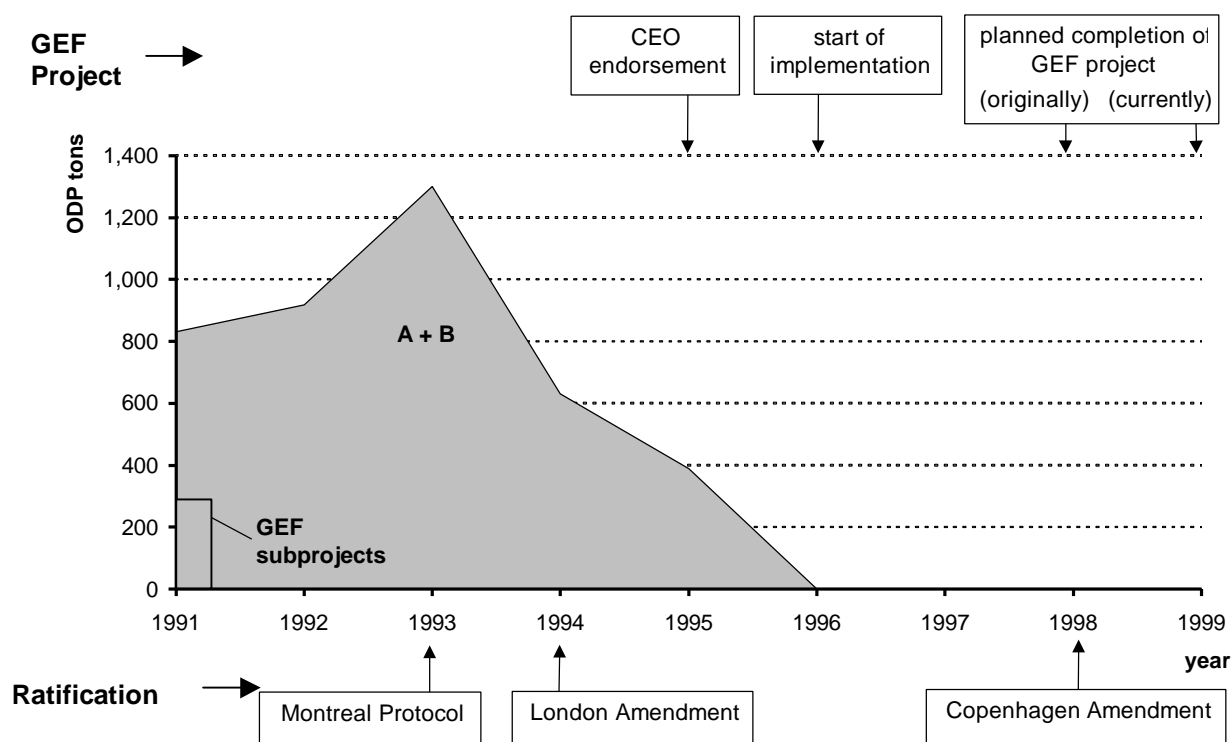
January 1, 2001: Implementation of second tranche of GEF project completed.

January 1, 2002: Completion of GEF project except for Small Grants Program, halon banking management program and technical assistance.

January 1, 2004: Full completion of GEF project (the Special Initiative will only close by the end of 2006 in order to allow for continued monitoring and verification of plant closures).

## 10. Slovakia

**Figure 10: Consumption of Annex A and B Substances and the GEF Project in Slovakia from 1991 to 1999**



**Status of ratification:** Slovakia became a Party to the Vienna Convention and the Montreal Protocol on May 28, 1993 as a successor state of Czechoslovakia. It approved the London Amendment on April 15, 1994 and acceded to the Copenhagen Amendment on January 9, 1998.

**Country program:** The CP was finalized in August 1992. Slovakia has neither produced nor exported ODS (except for some re-exports of HCFCs in the 1990s). In 1991, the base year of the Czechoslovakian CP, consumption of the former CSFR equalled 3,730 ODP tons. About 80% of 1991 consumption consisted of CFCs (A I) and 18% were carbon tetrachloride (B II). The data reported by Slovakia showed total consumption of Annex A and B substances of 920 ODP tons in 1992, of which nearly two-thirds were CFCs and 30% carbon tetrachloride. In 1991, Slovakia's refrigeration and aerosol sectors accounted for 50% and 30% of total CFC consumption, the foam for 15%. The Czechoslovakian CP foresaw completion of the ODS phase-out by the end of 1996.

**GEF assistance:** The GEF Council approved the Slovakian GEF project in May 1995 and CEO endorsement was given in December 1995. The World Bank is the Implementing Agency with the International Finance Corporation (IFC) administering the GEF Project. The IFC management approved the GEF project in June 1996 and implementation started in September 1996. The Slovakian GEF project was expected to phase out 283.0 ODP tons (30% of total consumption in 1992) at a total cost of US\$5,953,000 of which US\$3,500,000 (58.8%) were to be covered by a GEF grant. The ratio of the GEF grant and average consumption of Annex A and B substances in

1991–1993 is US\$ 3.44/ODP kg. The basis of calculating the appraised phase-out was production/production capacity. It is subject to review in line with the established guidelines for calculating appraised phase-out. Figures are likely to be revised downwards. The Slovakian GEF project consisted of two investment subprojects in the refrigeration sector. The full project was originally scheduled to be completed in mid-1998.

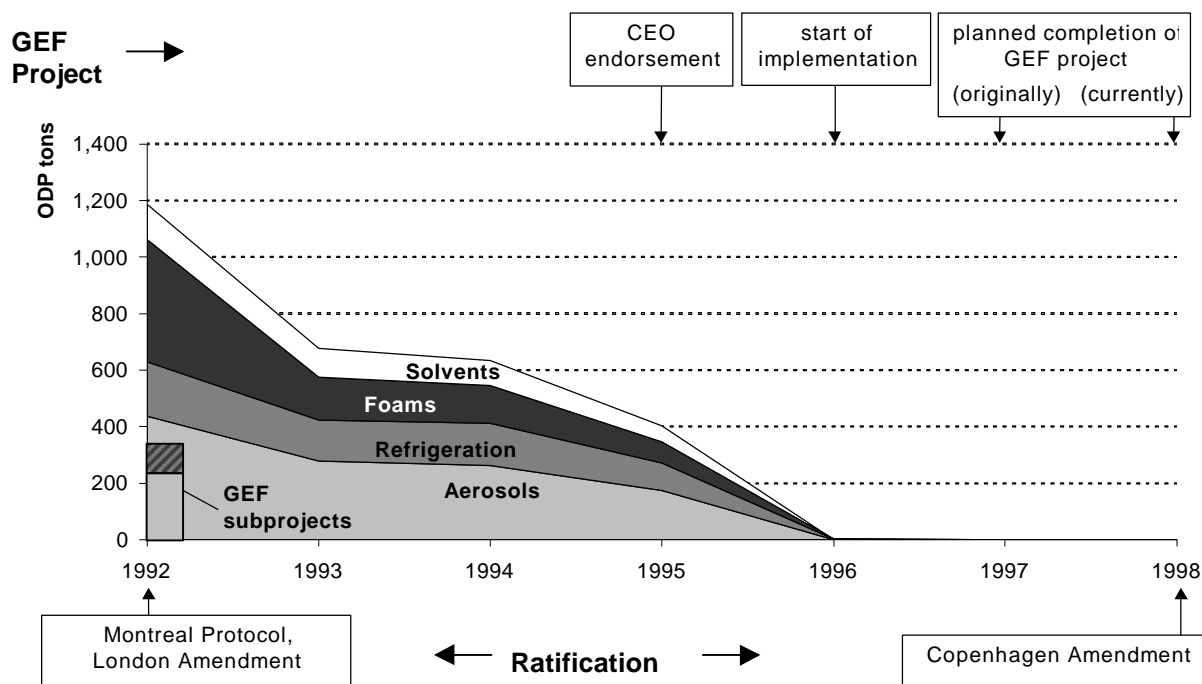
**Policies and measures:** Slovakia has operated an import and export licensing system including import quotas since 1995. From April 1, 1998, production, import, export and use of Annex A and B substances as well as HBFCs have been prohibited by law. This law introduced charges for production and import of ODS as well as for some products. The same law forbids production, import and placing on the market of products containing HCFCs starting January 1, 2015. Import of all CFCs has been effectively banned since 1996 in accordance with the Montreal Protocol. Slovakia does currently not plan to introduce new regulations on ODS, but takes an active part in the regional activities organised by UNEP in Central and Eastern Europe.

**Status:** Slovakia has submitted all data required under Article 7 of the Montreal Protocol until 1997. The data show full compliance of Slovakia with its control obligations under the Montreal Protocol. In 1994 the use of CFC in aerosols was phased out. According to the official data reported under Article 7, Slovakia also achieved a phase-out of halons in 1994 and ceased all imports of Annex A and B substances by 1996. The bigger subproject was completed prior to implementation of the GEF Project in 1995. Both subprojects ceased using CFCs in 1995. Prior to the ban of imports, large amounts were reportedly stockpiled at the end of 1995. The Slovakian GEF project took a considerable time to become fully operational due to the dissolution of Czechoslovakia in 1992. The completion of the overall Project was delayed because the anticipated privatisation of the companies was cancelled by the Slovak government. Therefore IFC suspended all disbursements from mid-1997 until the completed reorganisation. Apparently, illegal imports have played a role (as in most other European countries) but cannot be quantified.

**Concluding assessment and outlook:** When the Slovakian GEF project is completed at the end of 1999, GEF support will have enabled the recipients to stay in the market and compete in the Czech and Western European markets. It also helped reduce demand for ODS, which otherwise – even in face of government regulation – might have led to increased incentives for illegal imports. Still, residual demand for Annex A and B substances, generally CFC-12 refrigerant, has persisted in Slovakia. This may amount to 80-100 tons and would be met by recovery and reclamation of CFC-12, drop-in substitutes (where available) and full retrofit of systems to non-ODS, and illegal imports. Overall, Slovakia appears to have completed its phase-out of Annex A and B substances successfully – and the GEF project has made a significant contribution to this end.

## 11. Slovenia

**Figure 11: Consumption of Annex A and B Substances and the GEF Project in Slovenia from 1992 to 1998**



**Status of ratification:** Slovenia joined the Vienna Convention and the Montreal Protocol on July 6, 1992 and accepted the London Amendment on December 8 the same year. On November 13, 1998, it also accepted the Copenhagen Amendment.

**Country program:** The CP was finalized in June 1994 and adopted by the Slovenian government in July 1994. Slovenia has neither produced nor exported ODS (except for minor re-exports), but has met its demand by imports mainly from the European Union. In 1992 (the base year of the CP), total ODS consumption was close to 1,210 ODP tons. About 90% of 1992 consumption consisted of CFCs (A I). Aerosols and foams accounted for more than 35% each. The CP recommended passing regulation to phase out CFC use by the end of 1995, except for servicing of existing refrigeration equipment that would be allowed until the end of 2001. The use of methyl chloroform was to be banned from January 1, 1998 and the use of halons in 1994. This appeared to be in line with the Montreal Protocol since Slovenia was classified as an Article 5 country at the time of CP preparation.

**GEF assistance:** The GEF Council approved the GEF project in May 1995 and CEO endorsement was given in September 1995. Implementation started at the end of 1995. At this time, Slovenia was classified as not operating under Article 5 and thus adapted its phase-out schedule so as to comply with the requirements applicable to industrialized countries under the Montreal Protocol (i.e., full phase-out of all Annex A and B substances by the end of 1995). The World Bank assisted Slovenia in the CP implementation as the Implementing Agency. The Slovenian GEF project was to phase out 338.2 ODP tons in total (about one-third of total 1992 consumption). The GEF grant (US\$5,884,000) provided for 66.6% of the total cost of the project

(US\$8,835,000). The ratio of the GEF grant and total consumption in 1992 was US\$4.88/ODP kg. The GEF project consisted of seven subprojects including six investment subprojects and one institutional strengthening subproject. Of the six investment subprojects, three were in the refrigeration and foam sectors, two in the aerosol sector and one in the solvent sector.

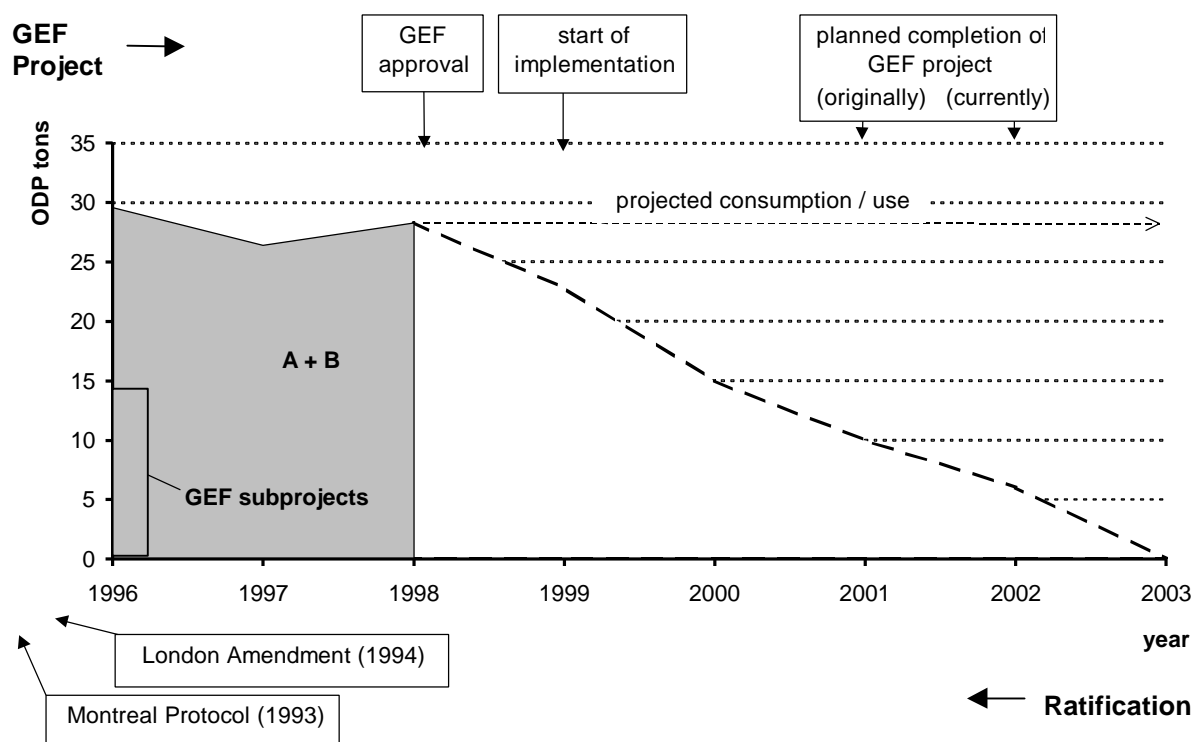
**Policies and measures:** A national ozone office was established working closely with governmental and non-governmental organisations. Specific ODS legislation was passed in December 1997 controlling production, imports, exports and use of ODS and ODS containing products. The import of ODS except HCFCs and methyl bromide was prohibited. Exemptions were also possible for essential uses, recovered and reclaimed refrigerants, for use as feedstock and for destruction. A licensing system for imports and exports of ODS was established and the placing on the market of products containing ODS (except HCFCs) banned. Slovenia is currently preparing legislation covering the use/disposal of ODS containing products/equipment. A manual on good practices in refrigeration and air conditioning was prepared, 11 training courses for service technicians in this sector and a workshop for customs officers were conducted. Slovenia also participated in regional workshops on ODS phase-out launched by the World Bank.

**Status:** Slovenia has supplied all data required under Article 7 of the Montreal Protocol to the Ozone Secretariat. The Slovenian GEF Project was completed in June 1998 and has led to total phase-out of ODS. Overall, Slovenia virtually phased out the consumption of Annex A and B substances by 1996. Residual imports of CFCs in 1996 and 1997 (and 1998) were mainly for laboratory uses and for meeting residual demand in the refrigeration sector. However, the latter did not constitute non-compliance as Slovenia was classified as an Article 5 country after 1995. Financial viability problems and re-planning of subproject components led to delays in the implementation phase. Problems have also been faced with respect to enforcement and illegal imports of ODS that are suspected to occur (but no hard evidence exists).

**Concluding assessment and outlook:** Implementation of the Slovenian GEF project has been relatively smooth and successful. When Slovenia was reclassified as a Party operating under Article 5 of the Montreal Protocol based on its 1995 consumption data, project implementation had already been initiated. Thus, Slovenia became the only Article 5 country receiving GEF assistance. Several of the projects introduced innovative solutions for ODS phase out to the Slovenian market. The national ozone office has been instrumental in realising ODS phase-out beyond the investment subprojects funded under the GEF project. Overall, the project has also benefited Slovenia's preparations for joining the EU in the early 21st century. The investment projects thus contributed to reducing demand for ODS, which might otherwise have been met by illegal imports. However, the issue of continuing demand for CFCs for servicing existing equipment, a major driving force of illegal imports, still needs to be addressed adequately. Slovenia wishes to implement a recovery and recycling project taking due account of the relevant experience made in other CEITs in that respect.

## 12. Turkmenistan

**Figure 12: Consumption of Annex A and B Substances and the GEF Project in Turkmenistan from 1996 to 2003**



Note: CEO endorsement was not required since the Turkmenistan GEF Project is a PDF B Project.

**Status of ratification:** Turkmenistan ratified the Vienna Convention and the Montreal Protocol on November 18, 1993 and the London Amendment on March 15, 1994. It has yet to ratify the Copenhagen Amendment.

**Country program:** With the assistance of UNDP and UNEP, the CP was finalized and approved by the government in July 1998. Turkmenistan does not produce or export ODS. In 1996 (the base year of the CP), consumption of ODS was 31.1 ODP tons. Ninety-five% of the total were CFCs (A I). As regards other ODS, only consumption of HCFCs was reported. All ODS consumption in Turkmenistan in 1996 was due to servicing of refrigeration equipment. Imports originated mainly from the Russian Federation. Under the CP, the phase-out of CFCs was planned to be completed by (the end of) 2002, with some limited remaining demand for servicing to be met by recovered and recycled material.

**GEF assistance:** The GEF Council approved the Turkmenistan GEF umbrella project in October 1998. CEO endorsement was not required since the Turkmenistan GEF project is a PDF B Project. The UNDP grant agreement was signed in February 1999. UNDP and UNEP serve as Implementing Agencies. The Turkmenistan GEF project should lead to a phase-out of 14.06 ODP tons of annual ODS consumption (nearly half of 1996 consumption). Of the project's cost of



US\$383,920, US\$361,120 (94.0%) will be covered by a GEF grant. The ratio of the GEF grant and total consumption in 1996 is US\$12.20/ODP kg. The GEF project consists of three subprojects including one each on recovery and recycling, institutional strengthening and capacity building and training. The schedule of the CP envisions the completion of these subprojects by the end of 2001 (training and investment: 2000).

**Policies and measures:** The CP foresees, inter alia, the establishment of a National Ozone Unit within the Environment Ministry. Furthermore, an import licensing system and a ban on the import of ODS using equipment (supported by labelling requirements) is planned to be completed by January 2000. Within the same period, a monitoring system for ODS imports in the customs department, a system of disincentives/incentives (e.g., taxation of ODS, fees for permits for imports and exports of ODS and related products) and a licensing/certification system for refrigeration servicing technicians was planned to be elaborated and established. Turkmenistan has participated in UNEP's regional activities for developing the regulatory framework in CEITs. In the framework of the GEF project, it intends to develop and present to parliament a separate Law on Ozone Layer Protection.

**Status:** Turkmenistan has submitted all data required under Article 7 of the Montreal Protocol to the Ozone Secretariat for 1996. It has yet to report on the baseline years of control (1986 and 1989, as appropriate) and for the years 1994, 1995 and 1997 (as of September 1999). Turkmenistan was in non-compliance in 1996 with respect to CFC consumption. Judging from available preliminary data, the consumption of CFCs in 1997 and 1998 was roughly at the same level as in 1996. The projects to be implemented with GEF support appear to be well on track. Uncertainty exists with regard to the current state of development of the legal framework in Turkmenistan. Lack of awareness and training of the enterprises is cited as an impediment to a fast phase-out. Compliance with the ODS phase-out by 2003 will require particular efforts on the side of the government to control imports of CFCs.

**Future Benchmarks:** The Implementation Committee and the MOP of the Montreal Protocol have not yet dealt with Turkmenistan in detail. The following benchmarks could serve to measure progress in the phase-out process until 2003 and have largely been submitted by the national ozone office. Proposed additions are indicated in square brackets:

1999: Import of CFCs should not exceed 22 ODP tons.

January 1, 2000: Import/export licensing system in place; bans on import of equipment using and containing ODS; import quota for CFCs in 2000 not exceeding 15 ODP tons (roughly -50% compared to 1996) [*ban of import of all Annex A and B substances except CFCs (A I)*].

January 1, 2001: Import quota for CFCs in 2001 not exceeding 10 ODP tons (-66% compared to 1996); effective system for monitoring and controlling ODS trade in place and working.

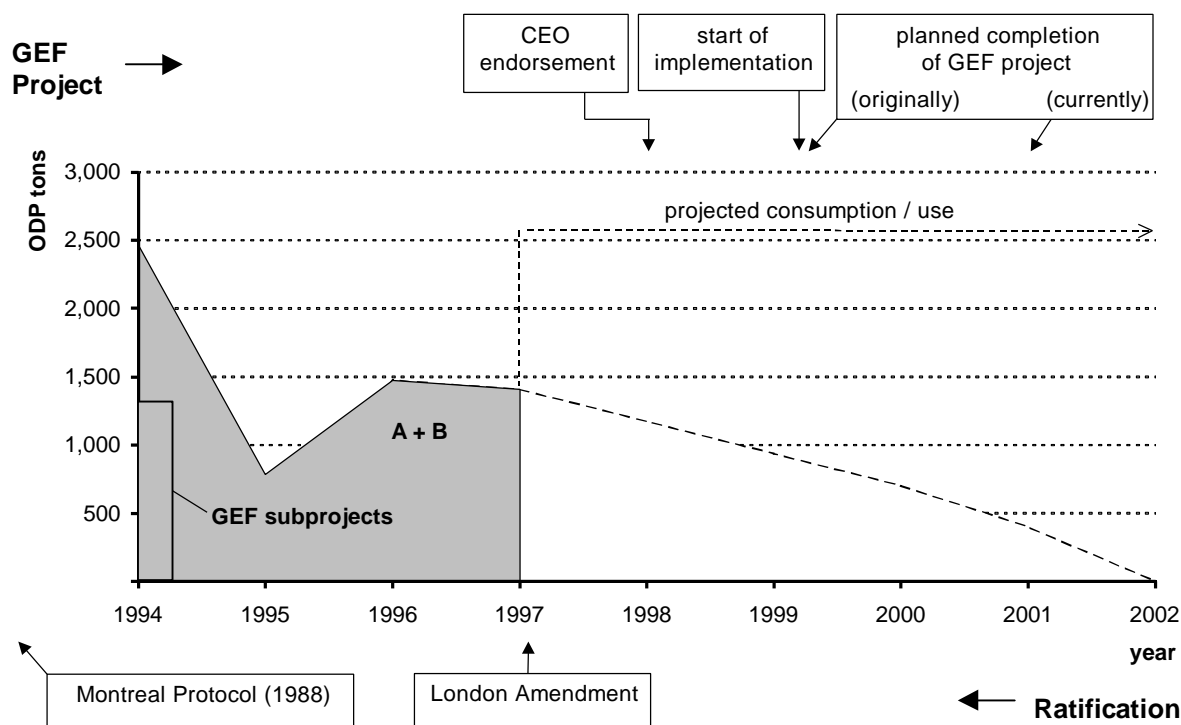
[July 1, 2001: recovery and recycling and training projects completed.]

January 1, 2002: Import quota for CFCs in 2002 not to exceed 6 ODP tons (-80% compared to 1996).

January 1, 2003: Total prohibition of imports of Annex A and B substances/zero quota; GEF project completed.

### 13. Ukraine

**Figure 13: Consumption of Annex A and B Substances and the GEF Project in Ukraine from 1994 to 2002**



**Status of ratification:** Ukraine ratified the Vienna Convention on June 18, 1986 and the Montreal Protocol on September 20, 1988. It acceded to the London Amendment on February 6, 1997 and has yet to ratify the Copenhagen Amendment.

**Country program:** The Ukraine CP was completed in October 1995 and received government approval in October 1996. Ukraine has been a producer and exporter of carbon tetrachloride (to Russia for use as feedstock) and methyl bromide. All of its carbon tetrachloride production has usually been exported. For other ODS, Ukraine has been dependent on ODS imports, in particular from Russia. In 1994, Ukraine consumed close to 2,500 ODP tons of which nearly all was CFCs. The refrigeration, aerosol and solvent sectors accounted for all consumption of Annex A and B substances in Ukraine in 1994. The refrigeration sector had a dominant position making up more than 60% of the total. Assuming that financial assistance would be granted in 1995, the CP foresaw completion of ODS phase-out by the end of 1997. An updated schedule may be part of the updated CP currently prepared.

**GEF assistance:** The GEF Council approved the GEF project in October 1996 and CEO endorsement was given in February 1998. The grant agreement was signed in September 1998 and ratified by the Parliament of Ukraine on March 4, 1999. The Implementing Agency for the Ukraine GEF project is the World Bank. The GEF project consists of 12 subprojects, including nine investment subprojects and three subprojects on institutional strengthening, training in the halon sector and product development. The current GEF project has an appraised ODS phase-out of 1,300 ODP tons. The ratio of the GEF grant and total average Annex A and B consumption in

1994–1996 is US\$14.80/ODP kg. Upon endorsement of the GEF project in 1998, phase-out was scheduled for the end of 1999.

**Policies and measures:** Ukraine established an Interagency Commission on Implementation of the Montreal Protocol in late 1995 and a national ozone office in late 1996. It introduced an import and export licensing system for ODS in 1998. ODS containing products are also subject to import and export licensing, and Ukraine has banned ODS re-exports. Licensing of the handling of ODS became effective in 1999. Sector specific bans and licensing requirements for refrigeration technicians are foreseen. It also plans to impose duties on ODS imports. Ukraine has taken an active part in the regional activities of UNEP.

**Status:** Ukraine has supplied all data required under Article 7 of the Montreal Protocol to the Ozone Secretariat until 1997. Thus, it was in non-compliance with its control obligations in 1996 and 1997. Ukraine reduced its consumption of Annex A and B substances by more than 40% between 1994 and 1997. There has been a considerable delay in the implementation of the CP and the GEF project. Grant agreement effectiveness was delayed for several months because of political turf battles between the government and the parliament in Ukraine in late 1998 and early 1999. Because of the continuing unstable political and economic situation, several of the smaller subprojects in particular may face financial viability problems. CFC demand by businesses dependent on CFC servicing is likely to persist beyond official phase-out. To ease the pressure, Ukraine could build up a small, closely monitored CFC stock before 2002. Establishing such stocks is likely to require government action. In addition, it appears essential that Ukraine, on the basis of the recovery and recycling subproject builds up capacity for recovering and recycling CFCs so as to meet the “servicing tale” in the refrigeration sector. If no further problems occur, project completion might be achieved in 2001.

**Future benchmarks:** Ukraine committed to achieve total phase-out by January 1, 2002 vis-à-vis MOP 10 (Decision X/27) in 1998. The Ukraine ozone office was not in a position to elaborate maximum import requirements until ODS phase-out, as establishing quotas belongs to the competence of the Interagency Commission on Implementation of the Montreal Protocol. Despite this limitation, the following proposals of benchmarks for measuring progress in the phase-out process until 2002 are put forward. Ukraine may wish to consider establishing these or similar commitments officially:

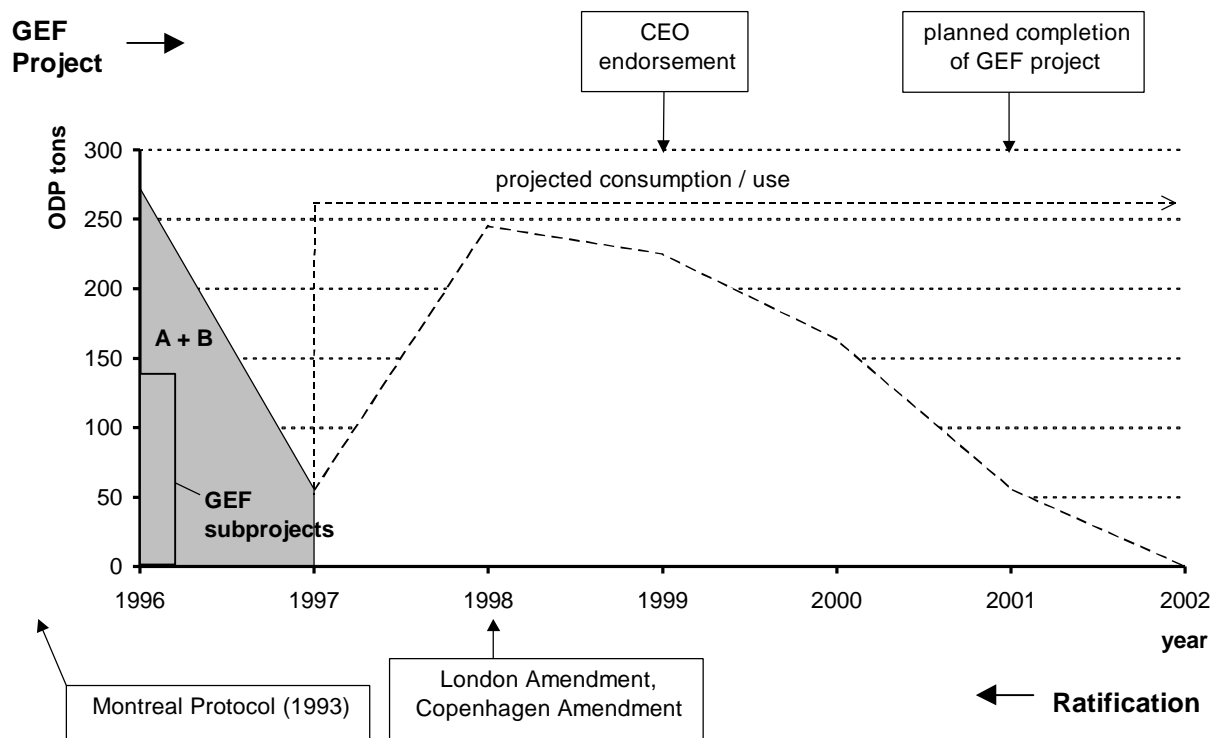
January 1, 2000: All GEF subprojects ongoing; import of Annex A (CFCs only) and B substances in 2000 not to exceed 700 ODP tons;

January 1, 2001: Import quota for CFCs in 2001 not exceeding 400 ODP tons; ban of import of Annex B substances; full phase-out in aerosols, foams and solvents sectors realized (and related subprojects completed).

January 1, 2002: All investment subprojects completed; zero import quota for Annex A and B substances.

## 14. Uzbekistan

**Figure 14: Consumption of Annex A and B Substances and the GEF Project in Uzbekistan from 1996 to 2002**



**Status of ratification:** The Republic of Uzbekistan acceded to the Vienna Convention and the Montreal Protocol on May 18, 1993 and to the London and Copenhagen Amendments on June 10, 1998.

**Country program:** The CP, prepared with assistance of UNEP and UNDP, was submitted for approval of the GEF Council in August 1998 (and subsequently approved). The final draft CP was presented for Uzbekistan government approval in March 1999. Uzbekistan does not produce or export ODS (some re-exports of CFCs occasionally occurred in the past). Almost all ODS are imported from Russia. ODS consumption amounted to 274.5 ODP tons in 1996, the base year of the CP. More than 95% of the total consumption of Annex A and B substances were CFCs (A I). All CFCs (and HCFCs) imported are consumed in refrigeration, carbon tetrachloride and methyl chloroform as solvents for laboratory use. The CP foresees a total phase-out by 1 January 2002 and contains detailed annual phase-out steps. As determined by the tenth MOP of the Montreal Protocol in November 1998 (Decision X/28), the following phase-out schedule is pursued:

	2000	2001	2002
CFCs	-40%	-80%-	-100%
Carbon Tetrachloride	-35%	-67%	-100%
Methyl Chloroform	-40%	-82%	-100%
<b>TOTAL</b>	<b>-40%</b>	<b>-79%</b>	<b>-100%</b>

**GEF assistance:** The Uzbekistan GEF project was adopted by the GEF Council in October 1998, and CEO endorsement followed in January 1999. The grant agreement was signed in March 1999. UNDP and UNEP act as Implementing Agencies. The GEF project consists of four subprojects, including one each on institutional strengthening, training, recovery and recycling and technology conversion. The appraised ODS phase-out of the subprojects is 142 ODP tons (52% of total ODS consumption in 1996). The ratio of the GEF grant and total consumption in 1996 is US\$11.77/ODP kg. The recovery and recycling scheme is to contribute nearly two thirds to the appraised ODS phase-out of the GEF project. Subprojects were originally planned to be completed by the end of 2000 (institutional strengthening: 2001).

**Policies and measures:** Framework legislation for the protection of the ozone layer exists since 1996. A draft resolution envisages, among other things: the establishment of an inter-ministerial commission; a ban on imports of halons (except for essential use), other fully halogenated CFCs (B I) and refrigeration and air conditioning equipment containing Annex A and B substances; the establishment of import quotas for CFCs (A I), carbon tetrachloride and methyl chloroform; the introduction of an import/export licensing system for ODS and products containing them; the organization of a public awareness raising campaign; and the formulation of economic mechanisms (tax privileges, regulation of prices etc.). It was expected that the draft resolution would be approved in autumn 1999. In developing its policies, Uzbekistan has benefited from UNEP's regional activities.

**Status:** Uzbekistan has supplied all data required under Article 7 of the Montreal Protocol to the Ozone Secretariat until 1997. These show non-compliance since 1996. The implementation of the CP is still at an early stage. It is expected that the training, recovery and recycling and technology conversion subprojects will be completed by mid-2001 (institutional strengthening 2002). Compliance with the ODS phase-out schedule will require a strenuous enforcement effort to control imports of CFCs. The phase-out schedule presented above should allow to stockpile some CFCs for use after 2001 to facilitate transition in the refrigeration servicing sector.

**Future benchmarks:** In line with the Decision X/28 of MOP 10, the following benchmarks can serve to measure progress in the phase-out process until 2002, as planned by the Uzbekistan authorities:

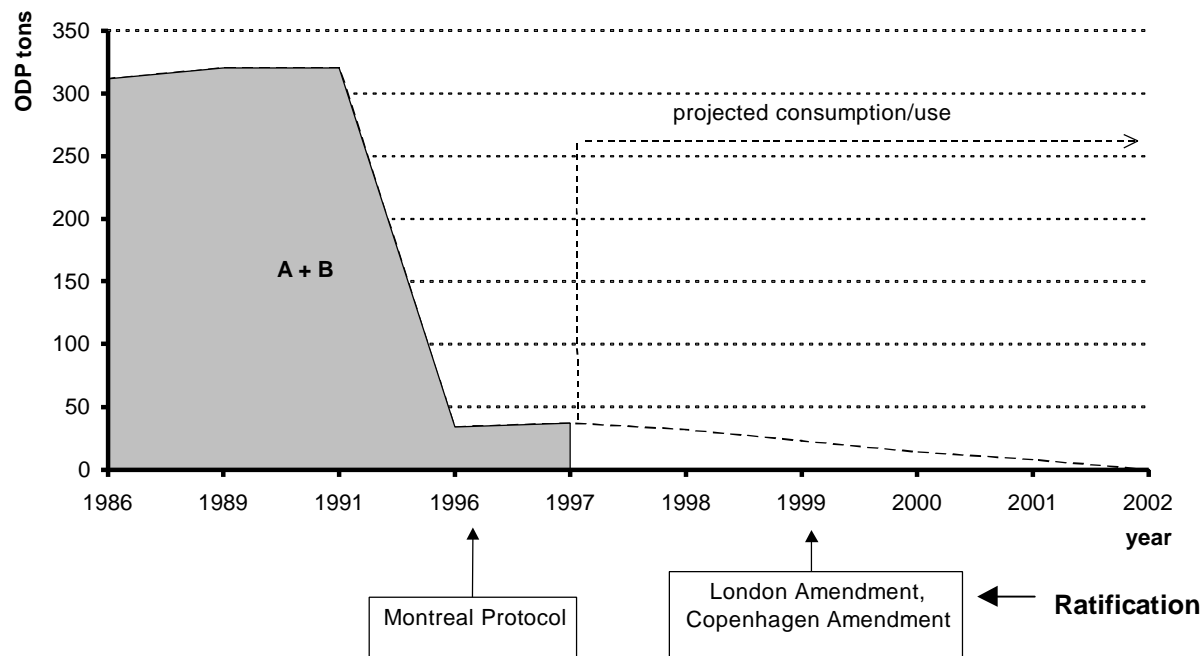
September 1999: Import/export licensing system in place; bans on import of halons (A II) and other fully halogenated CFCs (B I) and refrigeration and air conditioning equipment using or containing Annex A and B substances; import quota for remaining Annex A and B substances not exceeding 225 ODP tons in 1999 and 164 ODP tons in 2000.

July 1, 2001: Recovery and recycling, training and SINO subprojects completed; import quota for A and B substances in 2001 not exceeding 56 ODP tons

January 1, 2002: No import quota for Annex A and B substances/ban of import effective; effective system for monitoring and controlling ODS trade in place and working.

## 15. Estonia

**Figure 15: Consumption of Annex A and B Substances and the GEF Project in Estonia from 1996 to 2002**



**Status of ratification:** Estonia acceded to both the Vienna Convention and the Montreal Protocol on October 17, 1996. It ratified the London and Copenhagen Amendments on April 12, 1999.

**Country program:** A first version of the CP was finalized in November 1997. As of October 1999, the final CP is being updated and finalized. Estonia does not produce ODS, but CFCs appear to have been trans-shipped through Estonia (especially from Russia to Western Europe). Its ODS consumption (imported mainly from Russia) has been dominated by Annex A substances. In the 1980s and early 1990s, CFCs accounted for about 60% and halons for about 40% of annual consumption. According to the CP, the refrigeration sector accounted for the bulk of ODS consumption in 1996 (29.7 ODP tons or 86%). According to available data, Estonian ODS consumption dropped from about 310–320 ODP tons of Annex A and B substances in 1986/89 to about 45 ODP tons in 1997 (a reduction of roughly 85%). The CP of 1997 forecasted that consumption of Annex A and B substances would fall to 22 ODP tons in 1998, to 10 ODP tons in 1999 and to less than 4 ODP tons in 2000. This planning appears to have changed in the interim due to the delay in implementing the CP.

**GEF assistance:** Once the envisaged GEF project is approved, UNDP and UNEP will act as Implementing Agencies in their respective capacities. According to the country program of Estonia being finalized in October 1999, the envisaged GEF project would consist of four subprojects covering institutional strengthening, training in monitoring and control of ODS, training of trainers in good practices in refrigeration and recovery and recycling.

**Policies and measures:** The Estonian Environment Ministry has established a national ozone team and a National Country Program Team in which other institutions are involved as well. Estonia started to also set up an ODS import and export licensing system, but had not established import quotas in late 1998, when it was planning to establish further control measures on trade in ODS. It has participated actively in the regional activities of UNEP.

**Status:** Estonia has submitted full data under Article 7 of the Montreal Protocol. Estonia was thus in non-compliance with the Montreal Protocol in 1997. Following the Implementation Committee's recommendation, MOP 10 assessed Estonia to have been in non-compliance with its obligations in 1996 as well (Decision X/23), although the Protocol was not in force for Estonia in that year and it would not have been obliged to submit data under Article 7.

**Outlook and future benchmarks:** Estonia is committed to phasing out consumption of Annex A and B substances by 2002. By ratifying the London Amendment in April 1999, Estonia has removed one of the major remaining obstacles for receiving GEF assistance. Provided that project preparation is completed timely, implementation of the GEFproject could start in early 2000. This should enable Estonia to meet its own deadline. The tenth MOP accepted the following milestones on the way to total phase-out:

January 1, 1999: Consumption of Annex A and B substances in 1999 not to exceed 23 ODP tons; a harmonized system for monitoring and controlling ODS imports established;

January 1, 2000: Total phase-out of consumption of Annex B substances; consumption of Annex A substances not to exceed 14 ODP tons in 2000;

January 1, 2001: Total consumption of CFC-12 not to exceed one ton in 2001;

January 1, 2002: Zero consumption of Annex A and B substances.