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Project : MP / CRO / 98 / 020

**REFRIGERANT MANAGEMENT PLAN
IN CROATIA**

Final report

April 1999

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EXECUTIVE SUMMARY

The Republic of Croatia has acceded to the Vienna Convention for the Protection of the Ozone Layer, Montreal Protocol on Substances that Deplete the Ozone Layer and its London and Copenhagen Amendments. The Montreal Amendment of 1997 will be considered at a later date.

Since Croatia operates as an Article 5 country under the Montreal Protocol, the Country Programme was prepared and subsequently finalized in July 1996 and approved at the 20th Meeting of the Executive Committee of the Multilateral Fund. \$101,200 for the Institutional Strengthening Project was approved at the same Meeting of the Executive Committee. Subsequently, \$30,000 was approved for preparation of the Refrigerant Management Plan.

The Country Programme indicates that around 70% ODS consumption is in the Refrigeration and Air-Conditioning sector. This document presents the Refrigerant Management Plan for Croatia. The activities outlined in the Refrigerant Management Plan are designed to assist Croatia meet the 1999 freeze and the subsequent accelerated phase-out program that Croatia has opted to follow. It is well supported by Croatia's new by-law.

1998 CONSUMPTION OF ODS REFRIGERANTS

CFC-11	CFC-12	CFC-115 (as R-502)	HCFC-22
17.64 ODP Tonnes	43.58 ODP Tonnes	0.74 ODP Tonnes	2.67 ODP Tonnes

It should be pointed out here that 1998 consumption (Production + Import - Export) does not represent the actual situation. In anticipation of new taxes to be imposed, substantially large quantities of ODS were imported in 1997, resulting in stockpiling and substantially reduced imports in 1998. The table below, comparing 1995 - 1998 consumption figures provides a better understanding.

1995 - 1998 CONSUMPTION OF REFRIGERANTS (MT)

ODS	1995	1996	1997	1998
CFC-11	17.20	18.00	15.02	17.64
CFC-12	150.88	125.30	228.20	43.58
R-502	0.00	8.16	7.07	2.18
HCFC-22	80.00	72.40	76.75	53.39

A survey was conducted to determine 1998 actual use figures which are provided below.

The table below of estimated consumption of refrigerants by actual use and application, which has been derived from the survey, shows the actual use, which is representative of the use pattern in the country.

ESTIMATED CONSUMPTION OF REFRIGERANTS BY USE AND APPLICATION

Sector	Sub-Sector	ODS	Application	Consumption (MT)
Refrigeration and Air Conditioning	Domestic/Commercial/Industrial	CFC-11	Flushing	17.08
	Domestic	CFC-12	Recharge	16.36
	Commercial/Industrial	CFC-12	Recharge	56.21
	Mobile air-conditioning and Refrigeration (including ships)	CFC-12	Recharge	45.53
	Commercial/ Industrial	R-502	Recharge	3.08
	Domestic/Commercial/Industrial	HCFC-22	Recharge	51.24

The Government of the Republic of Croatia is extremely concerned about the consequences of non-availability of refrigerants. Abrupt change will affect the ability of the industries to perform, and will affect the earnings of the country. In addition there will be an unnecessary economic burden on the domestic refrigeration sector to replace systems that have not yet reached the end of economic life.

On January 14, 1999 the Government enacted legislation to ban venting of ODS, require recovery and recycling of ODS including from scrapped equipment, and implement an import/export licensing system with a reducing quota, with Annex A Group I and II, Annex B and Annex E Group I substances phased out from 2006. Annex B Group I and Annex C Group II substances are banned with immediate effect. This will limit the availability of ODS thereby encouraging recovery and recycling of CFC-12. In addition, the by-law also bans import of "new and recovered products containing ozone depleting substances listed in Groups I and II of Annex A, Groups I, II and II of Annex B, and Group II of Annex C". The implementation of this by-law, will lead to rapid introduction of ODS friendly equipment, thereby limiting the service tail to equipment imported and put into use prior to the legislation.

It is essential for the ODS users to be aware of the new by-law, and to be able to reduce and subsequently phase out their consumption in a coordinated, planned and cost effective manner. A combination of introduction of equipment using ozone friendly refrigerants, coupled with implementation of training in good maintenance practices and an effective recovery and recycling program is expected to ease the economic consequences of the accelerated phase out.

The following activities are being submitted for financial assistance from the Multilateral Fund:

Activity	Budget (US\$)
Phase I: Training of Trainers in good refrigerant management practices	156,000
Phase II: National training program for training technicians in good refrigerant management practices	
Training of Customs	52,000
National recovery and recycling project	702,600
TOTAL	910,600

On the basis of 1998 use (different from consumption) of 136.23 ODP Tonnes of refrigerant, the cost effectiveness amounts to \$ 6.68/ODP kg.

This Refrigerant Management Plan and the comprehensive by-law enacted in January 1999 reflect the Government's commitment to comply with its obligations as a Party to the Montreal Protocol on Substances that Deplete the Ozone Layer.

REFRIGERANT MANAGEMENT PLAN
TO PHASE OUT THE USE OF OZONE DEPLETING SUBSTANCES
IN THE R&A/C SECTOR IN CROATIA

1. CURRENT STATUS

1.1 Status of Croatia with regard to the Montreal Protocol

On October 8, 1991, with the Notification on Succession, the Republic of Croatia became a Party to the Vienna Convention and Montreal Protocol. Republic of Croatia also ratified the London Amendment in 1994 and the Copenhagen Amendment in 1997. The Montreal Amendment of 1997 is under consideration at this time.

1.2 Status of Country Programme

The Country Programme was completed in July 1996 and approved at the 20th Meeting of the Executive Committee of the Multilateral Fund. The Recovery and Recycling project was to be submitted later, and it now forms a part of this Refrigerant Management Plan.

a) The Action Plan, as given in the Country Programme is as follows:

“The Government of Croatia, through its SDE (*State Department of Environment*) will provide technical guidance, seek funding and generally provide an enabling environment to the companies.

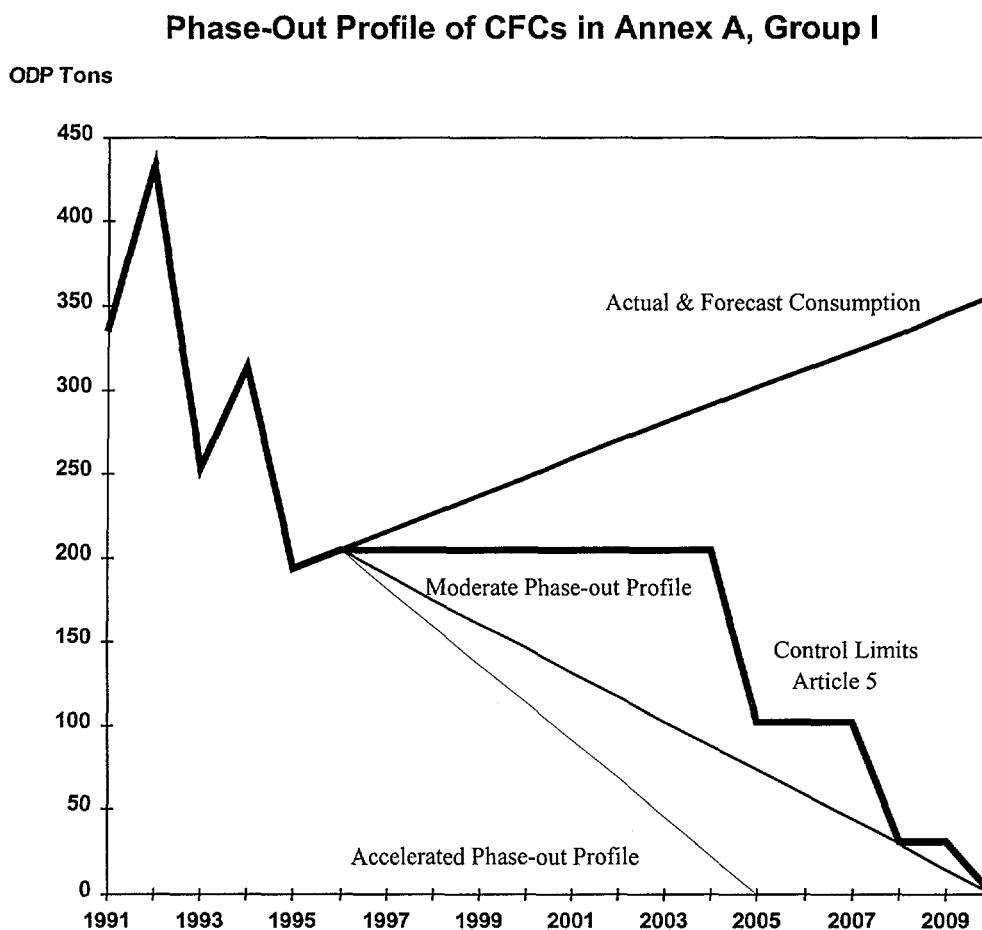
The Government Strategy will be implemented through the following elements:

1. Develop and establish appropriate laws and regulations for regulating ODS import, export and consumption.
2. Strengthen the responsible unit at the SDE to enable it to provide users with more technical and commercial information regarding ODS alternatives and markets.
3. Continue close monitoring and licensing system and amending it on the basis of national consultations with users.
4. Identify and formulate projects (as described in the Country Programme) for presentation to potential financing sources.
5. Investigate whether the maintenance needs of existing domestic refrigeration equipment (still using CFC coolants) can be fulfilled without causing unnecessary burden to citizens.
6. Organize workshops for industry and service trades on the possibilities of ODS substitution and recycling.

7. Develop publicity campaigns through mass media and NGOs to increase the consciousness of the general public and thus preparing it for increased economic costs which will be unavoidable in the phase out process.

The Government will, through its membership of the Parties to the Montreal Protocol, provide companies with technical and professional contacts, as well as with the latest information on non-ODS technologies. Wherever possible the Government will seek to engage the cooperation of industry in the phase out process and provide individual industries with contacts with similar industries and industrial associations in other countries. Newly privatized and soon to be privatized companies will be encouraged to enhance close contacts with their prospective foreign partners and seek support from industry associations and the local Chamber of Economy.”

- b) The projected timetable for elimination of Annex A Group I substances, as given in Annex II - Phase out profiles, of the Country Programme is shown in the graph below:



Croatia has chosen to go with the accelerated phase-out profile, as can be seen from its by-law (Annex 5).

1.3 Status of Institutional Project

A total budget of \$101,200 for the Institutional Strengthening Project was approved at the 20th Meeting of the Executive Committee. The Ozone Office began operating from April, 1997. This unit is part of the *State Directorate for the Protection of Nature and Environment (SDPNE)* which was formerly known as the State Directorate for Environment (SDE).

The funding for the Institutional Strengthening Project will end in March 2000. The Government needs to continue the functions of the Ozone Office well beyond year 2000, in order to ensure effective implementation of the by-law and full delivery of the RMP to all stakeholders. It will be seeking a formal extension of the Project funding at a later date.

The following activities have been undertaken by the SDPNE/Ozone Office till date:

a) Public Information Program:

1997

- On Ozone Day, the booklet and video script titled "Saving the Ozone Layer: Every Action Counts", and the sticker "Do Not Increase the Production and Consumption of CFCs" were distributed to every high school in Croatia.
- A press conference was held on Ozone Day talking about the tenth anniversary of the Montreal Protocol: the reasons for the adoption of the Protocol, the results of the implementation of the Protocol and its Amendments, and the implementation of the Montreal Protocol in Croatia.
- The video script "Saving the Ozone Layer: Every Action Counts" was shown twice on national television (in the morning and afternoon programs), as well as at seminars held during the stated period.
- SDPNE/Ozone Office took part in the first Croatian scientific expert group meeting titled "Air Pollution Prevention" in Crikvenica, where an exhibit titled "Implementation of the Montreal Protocol in Croatia" was presented.
- Disseminated information regarding new scientific and technological understandings about the ozone depletion problem, the implementation of the Montreal Protocol in Croatia, and replacement substances to those interested, especially to economists (ODS importers, distributors, and users), journalists, and environmental protection NGOs.
- Began production of four 30-second videos under the common title (and motto) "Saving the Ozone Layer: Every Action Counts" using computer animation technology.

1998

- SDPNE/Ozone Office participated on Educational Program of national television in January 1998, to inform the public about the ozone layer depletion problem and the implementation of the Montreal Protocol in the Republic of Croatia. The four animated videos "Saving the Ozone Layer: Every Action Counts" were presented for the first time.

- With the support from the Ministry of Education and Sport, the “Saving the Ozone Layer: Every Action Counts” animated videos are regularly broadcast on all three national television channels and on OTV (Open Television).
- In April, a lecture was held for the students in XV High School from Zagreb, titled “Montreal Protocol implementation in the Republic of Croatia”, to inform them on the objectives and tasks of the Montreal Protocol.
- In cooperation with the non-governmental organisation, Pokret prijatelja prirode ‘Lijepa naša’ (Nature Friends Movement ‘Our Beautiful Homeland’), participated in the Eco-Quizshow “Lijepa naša”. The quizshow was carried out in May 1998 throughout the 20 Croatian Counties and city of Zagreb, and the final round included the questions related to the ozone layer depletion problem. The finals was covered by the national television.
- In cooperation with the Ministry of Education and Sport, included the animated video, and the booklet “Saving the Ozone Layer: Every Action Counts” (translated and adapted for the Croatian-speaking community in 1997), as well as other related Montreal Protocol materials, among the contents of “GLOBE - Zagreb 1998 Multimedia CD ROM”.
- Marked Ozone Day with several actions:
 - * Making a poster and badges celebrating Ozone Day
 - * Cooperation with media: providing materials (text) about ozone depletion issues, Montreal Protocol and actions taken in the world and in Croatia to preserve the ozone layer. The materials were distributed to the major newspapers who published articles. National TV made a 10 minute video clip about this subject and broadcast it during central information TV news and TV stations.
 - * Continued daily showing of the “Saving the Ozone Layer: Every Action Counts” video script on national television.
 - * Broadcast animated videos “Saving the Ozone Layer: Every Action Counts” at "Importane" shopping center for one month (1st to 30 September 1998), every ten minutes.

a) Technical Lectures

1997

- Nine lectures titled “Chemistry of the Atmosphere and the Perniciousness of CFCs” for grade school and high school chemistry teachers.
- Four lectures titled “Reasons and Measures for Phasing Out the Consumption of Ozone Depleting Substances” for economists and mechanics of air-conditioning and cooling devices; agricultural consulting agencies; and representatives for health care, tourism, custom duty, and environmental protection NGOs.
- Lectures were held throughout Croatia (Zagreb, Split, Rijeka, Osijek, Crikvenica), to include the highest number of participants possible, which were accompanied by newspaper articles, as well as announcements on local and national radio and television stations.

1998

- In cooperation with the Ministry of Education and Sport, four lectures for instructors of professional and theoretical subjects involving laboratory training, workroom exercises instructors, and practical knowledge instructors in charge of training future cooling and air conditioning systems mechanics was held in the major cities. These lectures are titled "Implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer" and "Adjustment of Cooling Devices to New Work Media".

a) Legislation

At the moment, the following legislation related directly or indirectly to the protection of the atmosphere are in force:

- The Act on Environmental Protection (1994)
- The Act on Air Quality Protection (1995)
- The Act on Waste (1995)
- By-Law on Recommended and Limit Ambient Air Quality Values (1996)
- Rule Book on Environmental Emissions Inventory (1996)
- By-Law on Environmental Impact Assessment (1997)
- By-Law on Quality Standards for Liquid Oil Fuels (1997)
- By-Law on Pollutant Emission Limit Values from Stationary Sources into the Air (1997)
- By-Law on Substances that Deplete the Ozone Layer (1999)

The SDPNE/Ozone Office has worked closely with the Government Departments and other relevant institutions involved in drafting by-law, and a comprehensive By-Law on Substances that Deplete the Ozone Layer has been enacted by the Government and came into force on January 30, 1999. The translated copy of the By-Law is attached at Annex 5. The highlights of the By-Law are:

- Ban on release into the air of ODS.
- Import and export of ODS from/to non Parties is banned.
- Import of recovered and recycled ODS is banned.
- Import and sales of new and recovered products containing ODS is banned.
- The calculated levels of consumption for Annex A Group I substances are:
 - * 219,000 kg from January 1, 1999 to December 31, 1999
 - * 185,000 kg from January 1, 2000 to December 31, 2000
 - * 142,000 kg from January 1, 2001 to December 31, 2002
 - * 98,000 kg from January 1, 2003 to December 31, 2004
 - * 65,000 kg from January 1, 2005 to December 31, 2005
 - * Consumption is banned from January 1, 2006.
- Calculated levels for Annex A Group II are provided with consumption banned from January 1, 2006.
- Annex B Group I substances are banned with immediate effect.
- Annex B Group II and Group III substances will be banned from January 1, 2006.
- Annex C Group I (HCFCs) will be banned from January 1, 2030.
- Annex C Group II substances are banned with immediate effect.

- Calculated levels for Annex E Group I (Methyl Bromide) are provided with consumption banned from January 1, 2006.
- ODS, recovered and recycled in Croatia are permitted to be used.
 - Recovered ODS may be temporarily exported for recycling if such facilities do not exist in Croatia.
- Forms for import/export licenses are prescribed.
- Register of data - types and quantities of imported/exported ODS; quantities of imported ODS sold; and names of parties sold to - have to be maintained by the company.
 - This data has to be provided to the State Environmental Authority in the prescribed form within 30 days of expiry of the permit.
- From July 1, 1999 all products sold, which can contain ODS (listed in Appendix 2 of the By-Law), have to be accompanied with a Statement of Product's Compliance that they do not contain ODS.
- Import of banned items for special needs will be permitted against justification.
- Recovery of ODS during servicing of ODS using equipment is mandated from January 1, 2000.
 - Register has to be maintained, and data of recovered ODS, and new/recycled ODS added to the equipment has to be provided annually in the prescribed Form.
- When decommissioning non household products, ODS must be recovered (applicable from January 1, 2000).
 - Register has to be maintained and data of recovered ODS and subsequent disposition has to be provided in prescribed Form annually. Non recyclable ODS are subject to hazardous waste management regulations/by-lawss.
- Household equipment, when disposed in landfill or in any other manner, must have ODS recovered from it by the facility operator (effective January 1, 2000).
- All persons/organisations doing maintenance and decommissioning of ODS using equipment need to obtain permission to do so.
- Extent of penalties, 20,000 kunas to 60,000 kunas (\$3,000 to \$9,000) and when they apply are listed.

a) Participation in Meetings/Workshops

Croatia has participated in several meetings/workshops with assistance from UNEP and UNIDO, as well as with their own funds. Some of the meetings/workshops were:

- 10th Meeting of the Parties at Montreal, September 1997.
- 17th OEWG Meeting in Geneva.
- 18th Open Ended Working Group (OEWG) Meeting.
- 11th Meeting of the Parties at Cairo, November 1998.
- Regional Workshop on Control and Monitoring of ODS Consumption for Central and Eastern European Baltic States at Bratislava, Slovakia - December 9 - 11, 1998.
- Several other OEWG Meetings and Meetings of the Parties.

a) Projects

- At 16th Meeting of the Executive Committee, \$40,000 was approved for UNEP IE to prepare of Country Programme.
- At 20th Meeting of the Executive Committee, \$ 101,200 was approved for UNEP IE for the Institutional Strengthening Program.
- At 22nd Meeting of the Executive Committee, \$89,779 was approved for UNIDO for phasing out CFC-11 and 12 used in cosmetic aerosols manufactured by Pliva d.d.. The project start up was delayed and is now under implementation. It is expected to be completed in 1999.
- At 22nd Meeting of the Executive Committee, \$110,780 was approved for UNIDO for CFC-11 phase out in flexible foam manufactured by Oriolik Company. Project was completed in November 1998.
- At 24th Meeting of the Executive Committee, \$20,000 was approved for UNIDO for preparation of Demonstration Project (Tobacco, Potato) in Methyl Bromide Sector.
- At 24th Meeting of Executive Committee, \$30,000 was approved for UNIDO to prepare the Refrigerant Management Plan.
- At 25th Meeting of Executive Committee, \$288,200 was approved for a Demonstration Project - Three Alternatives to the Use of Methyl Bromide in Tobacco Production: Namely Solarization plus Biofumigation; The Use of Low Dose Chemicals; and Non Soil Cultivation; all in combination with an Integrated Pest Management Program. After two UNIDO expert visits, this project has successfully started in autumn 1998.

1.4 **Difficulties Encountered**

- a) Initially data collection proved to be difficult as users were reluctant to provide information. However, after several discussions, during which the recent By-Law was explained and the concept of the Refrigerant Management Plan, reasonably good data was provided.
- b) import/Export figures from Customs data was not found to be reliable. The revised Harmonised Tariff Code is not in use as yet, making break up of import/export by chemical difficult. Total Tonnage was also found to be inaccurate. Currently, data is collected from SDPNE's database on licenses approved and information from importers/exporters on actual quantity imported/exported.
- c) Customs Department does not have any training or equipment to recognise ODS and ODS using equipment. Customs is the first point for imported goods and proper implementation of the new By-Law is crucial for the success of the implementation as well as to have business running smoothly without delays.
- d) While equipment operating on ozone friendly substances is already in use in the country, the maintenance technicians are not trained in the use of these substances. Cases have been reported of HFC-134a refrigerators being repaired and charged with CFC-12 since the technicians do not know how to handle the lubricants and refrigerant.

1.5 Current Consumption

Following the survey conducted in February 1999, with assistance from UNIDO, it is reliably estimated that the 1998 actual use of refrigerants was as follows:

1998 ESTIMATED USE (ODP Tonnes)

CFC-11	CFC-12	CFC-115 (as R-502)	HCFC-22
17.08 ODP Tonnes	118.10 ODP Tonnes	1.05 ODP Tonnes	2.56 ODP Tonnes

ESTIMATED CONSUMPTION OF REFRIGERANTS BY USE AND APPLICATION

Sector	Sub-Sector	ODS	Application	Consumption (MT)
Refrigeration and Air Conditioning	Domestic/Commercial/Industrial	CFC-11	Flushing	17.08
	Domestic	CFC-12	Recharge	16.36
	Commercial/Industrial	CFC-12	Recharge	56.21
	MAC (including ships)	CFC-12	Recharge	45.53
	Commercial/Industrial	R-502	Recharge	3.08
	Domestic/Commercial/Industrial	HCFC-22	Recharge	51.24

2. JUSTIFICATION FOR REFRIGERANT MANAGEMENT PLAN

The Country Programme for Croatia identifies 1995 consumption in the R&A/C sector as 168 MT of CFCs. For 1998, the corresponding figures are 61 MT. This consumption includes the MAC sub sector. It should be noted here, that the Country Programme did not identify consumption of CFC-115 (as R-502), of which there is on going consumption. It should be further noted that 1998 consumption (Production + Import - Export) does not represent the true situation. In anticipation of new taxes to be imposed, substantially large quantities of ODS were imported in 1997, resulting in stockpiling and substantially reduced imports in 1998. The table below, comparing 1995 - 1998 consumption figures provides a better understanding.

1995 - 1998 CONSUMPTION OF REFRIGERANTS (MT)

ODS	1995	1996	1997	1998
CFC-11	17.20	18.00	15.02	17.64
CFC-12	150.88	125.30	228.20	43.58
R-502	0.00	8.16	7.07	2.18
HCFC-22	80.00	72.40	76.75	53.39

The R&A/C equipment in use in the country are in the domestic, commercial, industrial and MAC (car a/c, bus a/c, refrigerated trucks and ships) sectors. Croatia is recovering from a war and the economy has yet to stabilise and improve. Many facilities were destroyed during the war, and they are slow to resume activities. Several industries which were previously State owned are being privatised. With a large coastline on the Adriatic, international tourism is expected to play a major role in Croatia's economy and the Government is planning development of the necessary infrastructure to encourage overnight stays by tourists.

In view of this, the Government is extremely concerned about the consequences of non-availability of refrigerants. Abrupt change will affect the ability of the facilities (industry, hotels, restaurants, hospitals etc.) to perform, and will affect the earnings of the country. In addition there will be a severe and unnecessary economic burden on the domestic and commercial refrigeration sector to replace systems that have not yet reached the end of economic life.

Despite the above concerns, the Government is committed to meeting its obligations as a Party to the Montreal Protocol. It realises that, in spite of possible hardships in the immediate time frame, regulatory instruments have to be enacted and implemented to ensure that ODS friendly technology is available and implemented at an early stage. The By-Law on Substances that Deplete the Ozone Layer, which came into force in January 1999, shows the Government's commitment. It requires an accelerated phase out, with import of ODS being banned from January 1, 2006.

It is essential for ODS users to understand the ramifications of the By-Law and be able to reduce and subsequently phase out their consumption in a coordinated, planned and cost effective manner. A combination of introduction of equipment using ozone friendly refrigerants, coupled with implementation of training in good maintenance practices, and an effective recovery and recycling program is expected to ease the economic consequences of the phase out. The By-Law bans import of ODS using equipment with immediate effect, and mandates recovery and recycling from January 1, 2000.

The RMP reflects the Government's commitment to comply with its obligations as a Party to the Montreal Protocol on Substances that Deplete the Ozone Layer. It also provides the catalyst to industry and service organisations to allow them to meet the conditions of the By-Law. It provides the necessary tools to the Croatia Customs Department to implement the relevant clauses of the By-Law.

2.1 Sector Analysis

Croatia is divided into 20 provinces and the city of Zagreb. The other major cities are Split, Rijeka, Osijek and Dubrovnik. The bulk of refrigerant consumption occurs in areas close to the above cities. However, ODS imports into the country can occur at several points in the country.

a) Manpower

It is estimated that Croatia has at least 1,000 technicians working in the Refrigeration and Air - Conditioning sector. The skill level of service technicians in the country varies considerably. The industrial users and large service organisations have reasonably well trained in-house technicians while there are a large number of small service workshops with unskilled or untrained technicians, who service household refrigerators and smaller refrigeration equipment. Some service shops, also service MAC equipment.

Industrial systems are well maintained by in house technicians or by contracted service companies. Since imported equipment is expensive, it is economical to repair and operate systems until end of life.

Croatia has no specific institutes for technicians and mechanics where Refrigeration & Air Conditioning are taught. Would be technicians receive on the job training, usually with the large service organisations.

There are Electro-Technical Schools in Croatia, in all Croatian counties. After 8 years of primary school, students choose their secondary school, all of which come under the Ministry of Education and Sports. Those going to Technical School choose and receive education in their field of choice. The secondary program can be for 3 or 4 years (depending on the school and the specialisation). It is found that students who specialise in the electrical field are best suited for on the job training in the R&A/C sector.

b) Domestic Refrigerators and Freezers

It is estimated that there are at least 2.3 million refrigerators and freezers in Croatia, with 50 % households having more than 1 unit. The average life varies from 10 to 20 years.

Croatia does not manufacture any refrigeration equipment. Till 1991, majority of refrigerating equipment came from the former Yugoslavia (Slovenia, Montenegro). After 1991, they were imported from Western Europe, mainly Italy and Slovenia. Discussions with service companies indicate that most refrigerators and freezers have their compressor changed at least once during its lifetime. Assuming a life of 20 years, this means that about 5% of the refrigerators in the country are recharged, leading to an estimated use of 34.5 MT of CFC-12 mainly per annum.

Approximately 5% of refrigerators/freezers in use are scrapped annually. If even 50% of them still contain refrigerant, there is a potential to recover around 18 MT of refrigerant. The By-Law requires that refrigerant be recovered before final disposal.

HFC-134a based refrigeration systems have started coming into the country. Some hydrocarbon based (R-600) refrigerators have also been imported. The new By-Law bans import of ODS using equipment with immediate effect and this will limit the service tail to equipment imported prior to 1999.

c) Commercial Refrigeration

It is estimated from statistical data that approximately 19,000 cold shelves, 25,000 deep freezers, and 12,500 refrigerators are in use in Croatia. Of these, 80% operate on CFC-12 and the balance on HCFC-22.

The average charge of cold shelves is 0.5 kg and that of deep freezers and refrigerators 0.3 kg. Because of long lengths of piping, the estimated loss due to leakage from cold shelves is around 30% annually leading to a recharge of 2.85 MT/year. Because of heavy usage, 30 % of the refrigerators and deep freezers need recharge after repairs, leading to consumption of 2.25 MT/year.

New systems based on HCFC-22 and HFC-134a are the norm today. Earlier, it is believed, that used CFC-12 based commercial refrigerators and freezers were imported from Europe particularly for use in the hotel industry. Some assembly of HCFC-22 based commercial units is being undertaken by companies for turnkey projects.

The new By-Law bans import of ODS using equipment with immediate effect and this will limit the service tail to equipment imported prior to 1999.

d) Industrial Refrigeration

Some chemical, pharmaceutical, petrochemical and food industries in Croatia use refrigeration/chilling in their process. Ammonia systems are prevalent in this sub-sector, but some CFC-12 and R-502 based systems are in use. The biggest CFC-12 system is installed at Dina Petrokemija d.d., Omišalj. There are two compressors having 20 MT charge of CFC-12 each, used for process refrigeration. The loss of refrigerant through leakage, primarily around the seals and valves is estimated at 25%, leading to an annual recharge consumption of approximately 10 MT.

The new By-Law bans import of ODS using equipment with immediate effect and this will limit the service tail to equipment imported prior to 1999.

e) Air-Conditioning

Central air-conditioning systems are generally HCFC-22 based. However, some CFC-12 based systems are in use. It is estimated that of approximately 180 central a/c systems installed, 30% are CFC-12 based and 70% HCFC-22. The average charge of refrigerant per system is 250 kg. Leakage is estimated at 25% of charge per year, leading to a consumption of 3.375 MT of CFC-12 and 7.875 MT HCFC-22.

The new By-Law bans import of ODS using equipment with immediate effect and this will limit the service tail to equipment imported prior to 1999.

f) Mobile Air-conditioning and Refrigeration

Cars and Busses:

Croatia does not manufacture or assemble cars or busses. In 1997 there were 646,210 cars registered in Croatia. The majority of cars are imported from Europe and some from Japan, Korea, USA, Malaysia and Russia. Cars upto 7 years old are permitted to be imported. Discussions with automobile importers indicate that around 1% of the

cars (6,500) are air-conditioned. The new models (from 1995) are HFC-134a based, while the older ones are all CFC-12 based.

Assuming 6,000 cars are CFC-12 based and need an average of 0.250 kg per year topping up and repairs, the estimated consumption is 1.5 MT/year.

In 1997, there were 1,785 passenger busses, of which 20% (360) are air-conditioned. Assuming an average of 5 kg per year topping up and repairs, the estimated consumption is 1.8 MT/year.

Refrigerated Trucks:

General estimates are that there are about 2,300 refrigerated trailers and trucks. These are used for transport of milk and milk products, ice-cream, and perishable goods. Assuming an average of 2 kg per year topping up and repairs, the estimated consumption is 4.6 MT/year.

Ships:

Croatia has several ship building yards. Current air-conditioning and refrigeration devices on board are HCFC-22 based. However, earlier, several ships were designed and built with CFC-12 based R&A/C systems.

Current estimates from shipping companies and a large service company indicate that about 32.500 MT CFC-12 is consumed for service and topping up of ship based R&A/C systems.

Total consumption in the MAC sector can be estimated as 40.400 MT. The new By-Law bans import of ODS using equipment for mobile cooling and air-conditioning devices, refrigerated transport, and mobile a/c units, including units installed in vehicles, aircraft and vessels, with immediate effect and this will limit the service tail to equipment installed prior to 1999.

2.2 Current Prices

Retail prices for various refrigerants, in February, 1999 averaged as follows:

CFC-11	\$ 4.62 per kg.
CFC-12	\$ 5.69 per kg.
R-502	\$13.08 per kg.
HCFC-22	\$ 5.39 per kg.
HFC-134a	\$10.31 per kg.
R-404a	\$21.39 per kg.

A Customs Tax of 5 % and a Value Added Tax (PDV) of 22% is included in the above.

3. ASSISTANCE RECEIVED

At the 24th Meeting of the Executive Committee of the Multilateral Fund, \$30,000 was approved for the preparation of the Refrigerant Management Plan for Croatia. The Government has received technical assistance from UNIDO. Various Government authorities and relevant stakeholders and importers and consumers of ODS were consulted in the preparation of the RMP.

4. COMPONENTS OF PHASE OUT STRATEGY AND ACTION PLAN

The critical components of the phase out strategy being considered in the RMP are given below.

4.1 Policy Framework

The SDPNE/Ozone Office of Croatia will monitor implementation and control measures of the By-Law, such as:

- Ban on new installations and equipment using ODS.
- Enforcing licensing system (with reducing quotas) to monitor and regulate importation of ODSs.
- Study the possibility of import concessions and tax incentives to promote use of substitutes and alternative technologies.

4.2 Emission Reduction

- Implement a national recovery and recycling project.
- Encourage industrial and commercial consumers to consider ozone friendly refrigerants when planning equipment purchase and/or retrofitting of existing equipment.

4.3 Training

- Training of refrigeration technicians in good refrigerant management practices.
- Training for Customs, aimed at Custom enforcement officers to better implement the licensing system and the 1999 By-Law, as well as identify imports of ODS and ODS containing equipment and products.

The SDPNE/Ozone Office will be the main link between the users of ODS and the Government Bodies monitoring the import/export etc. of these substances. The reporting of consumption as obliged under the Montreal Protocol, ensuring that freeze and eventual phase-out dates of use of the ODSs within the projected timetable is also done by the SDPNE/Ozone Office. Continuation of Public Awareness programs, data collection of import/export and analysis of the same, monitoring of the recovery/recycling program (as and when implemented), and ensuring training programs reach the intended recipients will be a critical on-going task of the SDPNE/Ozone Office for the next 3-5 years at least.

5. TIMETABLE

The timetable below identifies the activities under the Action Plan of the Country Programme and this RMP, and estimates time to implement.

Activity	1999				2000				2001	
	Q 1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Public information program in association with industry and NGOs.	X	X	X	X	X	X	X	X	X	X
Implement import/export licensing system with sliding reducing quotas	X	X	X	X	X	X	X	X	X	X
Monitoring of ban on import of ODS using equipment..	X	X	X	X	X	X	X	X	X	X
Monitoring of imports of ODS	X	X	X	X	X	X	X	X	X	X
Training of Trainers in Good Refrigerant Management Practices.				X						
Training of technicians.					X	X	X	X	X	
Training of Customs.				X						
National Recovery and Recycling Project.				X	X	X	X	X	X	X

6. INSTITUTIONAL FRAMEWORK

The Government and national stakeholders of Croatia are committed to the freeze and phase out requirements of the Montreal Protocol. Early decisions will be taken to finalise and implement some or all of the action items that have been presented in the Refrigerant Management Plan. The SDPNE/Ozone Office in cooperation with the National Phase Out Team, will be responsible for the monitoring, coordination and successful implementation of the phase-out activities proposed in the RMP. The different Government bodies and other organisations will also be involved.

7. PROJECTS, COSTS AND FINANCIAL ASSISTANCE NEEDED

The following activities are being submitted for financial assistance from the Multilateral Fund:

Activity	Budget (US\$)
Phase I: Training of Trainers in good refrigerant management practices	156,000
Phase II: National training program for training technicians in good refrigerant management practices	
Training of Customs	52,000
National recovery and recycling project	702,600
TOTAL	910,600

For 1998 use (as different from consumption) of 136.23 ODP Tonnes of refrigerant, the cost effectiveness amounts to \$ 6.68/ODP kg.

More details of each project are provided in Annexes 1 - 3 attached.

8. IMPACT

The successful implementation of the various components of the RMP (training, implementation and monitoring of By-Law, and implementation of the National Recovery and Recycling Project) will lead to the effective phase out of ODS well within the requirements of the Montreal Protocol.

Component	Expected Impact
Institutional Strengthening and National Awareness Program (if extended beyond March 2000)	<ul style="list-style-type: none"> • Effective monitoring and coordination of all phase-out activities. • National Awareness of By-Law. • National awareness on Ozone issues, leading to increased demand for ozone friendly equipment.
Training of Trainers in Good Refrigerant Management Practices, followed by national training of technicians project	<ul style="list-style-type: none"> • Awareness of By-Law. • Control of CFC-11 for flushing from 2000. • Reduce CFC-12 from 2000 (by preventing unnecessary emissions) • Make technicians familiar with Drop in substitutes, retrofitting, and ozone friendly refrigerants
Implementation of By-Law	<ul style="list-style-type: none"> • Ban on imports of ODS and ODS using equipment as per By-Law. • Consumption controlled to the quotas as mentioned in the By-Law.
Training of Customs	Effective implementation of ODS import/export licensing system, and By-Law.
National Recovery and Recycling Project	Termination of imports of refrigerants from 2006 as required in the By-Law, and easing the consequences of non availability, through use of recovered and recycled refrigerants, particularly for domestic and commercial equipment until end of their economic life.

Annex 1

PROJECT COVER SHEET

Country	:	REPUBLIC OF CROATIA
Name of Project Refrigerant Project	:	Phase I - Training of Trainers in Good Management Practices Phase II - National Technicians Training
Sectors Covered	:	Refrigeration and Air Conditioning
ODS Consumption	:	136.17 ODP Tonnes
Duration of Project	:	2 years
Total Project Cost	:	\$159,000
Amount to be Contributed by Government of Croatia	:	\$3,000
Amount Requested from Multilateral Fund	:	\$156,000
National Coordinating Body for the	:	National Ozone Office, State Directorate Protection of Nature and the Environment.
Implementing Agency	:	UNIDO/UNEP/Bilateral Donor

1.1 Background

a) Manpower Resources

It is estimated that Croatia has around 1,000 mechanics/technicians working in the Refrigeration and Air Conditioning sector. There is no formal education available for those aspiring to be R&A/C mechanics/technicians and training is obtained on the job. As a result the level of knowledge and experience varies widely depending on where they served their "apprenticeship".

Students complete 8 years of primary school before entering secondary school. At that time they have a choice of entering the pure science stream, the humanities stream or the technical stream. Those who aspire to be engineers or mechanics/technicians get into Electro-technical schools in the country. There are Electro-technical schools in the each county. The technical program is for 3 or 4 years depending on the school and the area of specialisation.

Following graduation from an Electro-technical school the students have the choice of going to University for Engineering or enter the work force to be trained before entering the mainstream. Discussions with the R&A/C companies indicate that Electro-technical school graduates in the Electrical field are best suited for training as R&A/C technicians.

Croatia has five Engineering Faculties at Zagreb, Split, Rijeka, Osijek and Karlovac. They offer Heating, Refrigeration and Air-Conditioning specialisations.. The teachers have field experience and manage the laboratories.

The Ministry of Economic Affairs began a Master Craftsman program three years ago. Those primary school graduates who wish to develop their craft skills can take admission into the Craft School for their secondary education equivalent. To become a Master Craftsman the student must complete 3 years of Craft School followed by 3 years working experience and then a qualifying examination. Those who are already working do not have to go through Craft School. They must have 5 years experience and be currently working to complete the qualifying examination. The only course which comes close to R&A/C is the course for Domestic Appliances which includes refrigerators and small air-conditioners.

b) Refrigerant Consumption

1998 estimates of CFC consumption in the R&A/C sector is as follows:

1998 CONSUMPTION OF ODS REFRIGERANTS

CFC-11	CFC-12	CFC-115 (as R-502)	HCFC-22
17.64 ODP Tonnes	43.58 ODP Tonnes	0.74 ODP Tonnes	2.67 ODP Tonnes

. It should be noted that 1998 consumption (Production + Import - Export) does not represent the true situation. In anticipation of new taxes to be imposed, substantially large quantities of ODS were imported in 1997, resulting in stockpiling and substantially reduced imports in 1998. The table below, comparing 1995 - 1998 consumption figures provides a better understanding.

1995 - 1998 CONSUMPTION OF REFRIGERANTS (MT)

ODS	1995	1996	1997	1998
CFC-11	17.20	18.00	15.02	17.64
CFC-12	150.88	125.30	228.20	43.58
R-502	0.00	8.16	7.07	2.18
HCFC-22	80.00	72.40	76.75	53.39

With this background, the difference between consumption and actual use, as shown below can be explained.

ESTIMATED CONSUMPTION OF REFRIGERANTS BY USE AND APPLICATION

Sector	Sub-Sector	ODS	Application	Consumption (MT)
Refrigeration and Air Conditioning	Domestic/Commercial/Industrial	CFC-11	Flushing	17.08
	Domestic	CFC-12	Recharge	16.36
	Commercial/Industrial	CFC-12	Recharge	56.21
	MAC (including ships)	CFC-12	Recharge	45.53
	Commercial/ Industrial	R-502	Recharge	3.08
	Domestic/Commercial/Industrial	HCFC-22	Recharge	51.24

The detailed list of consumers with their 1998 consumption is attached at Annex 4

c) Presence of ODS Friendly Technology

Croatia is part of Europe and imports mostly European R&A/C equipment. The January 1999 By-Law which bans import of equipment operating on Annex A, Group I substances with immediate effect will ensure new imports are with ozone friendly substances. Discussions with several service companies and large consumers indicate that there is awareness of alternatives to CFCs. The service companies are seeing refrigerators and commercial refrigeration equipment operating on HFC-134a and R-404. Some refrigerators operating on R-600 (Hydrocarbon blends) are also reported operating in Croatia. Those companies which service R&A/C equipment were the first to encounter HFC-134a and were initially not aware of the differences between the refrigerants and their respective lubricants. The wholesalers of refrigeration spares and components have received information and some training on alternatives and their differences with traditional CFC based equipment and try to advise the service technicians who are their customers on how to deal with the changing technology.

In the commercial sector multi-compressor systems for supermarkets are being designed and assembled in Croatia using ozone friendly or HCFC technology. Imports from Europe are all based on ozone friendly substances. It was noted that there were substantial imports of used CFC-12 based commercial refrigerators/freezers for use in the hotel/restaurant industry. With the implementation of the By-Law this will stop with immediate effect. There are some reports of HFC-134a systems being charged with CFC-12 but details are not known.

In the industrial sector, R&A/C equipment operating on Ammonia, CFC-12, HCFC-22, R-502, HFC-134a and R-404a have been observed. Users of such equipment are extremely concerned about the availability of CFC-12 and R-502 to keep their equipment operational till the end of the economic life. Financial capability to retrofit equipment is not available since all of them are recovering from the war and the country is in a transitional economy. The organisations who have procured new equipment in the recent past have had to go with ozone friendly substance based equipment since all procurement has been from Europe where ODS use was banned from 1996.

In the MAC sector, it is noted that new cars, (European and Japanese and some American) are all based on HFC-134a. The premier line of cars come “fully loaded” with a/c (barely 1% of the market). However most of the cars are not air-conditioned. Used cars are imported, mainly from Europe, and the law prohibits import of cars older than seven years. The new By-Law prohibits import of cars, new or used, with CFC based air-conditioning systems.

In addition there are several air-conditioned busses operating in Croatia. Many of them are CFC-12 based, while the new ones all use ozone friendly or transitional substances.

Quite a large number of refrigerated trucks operate in Croatia. They are used to move milk and milk products, meats, ice-creams and other perishable goods. It is reported that the systems operate on CFC-12, HCFC-22, R-502 and R-404a. Here too, the new By-Law will ensure that all new imports are based on ozone friendly substances.

1.2 Project Objectives

The goal of this training is to reduce ODS usage in the refrigeration & air-conditioning sector. The immediate objectives will include (but not be limited to):

- Increasing participant awareness.
- Providing information on the new By-Law.
- Introduction and demonstration of procedures that eliminate refrigerant emissions during preventive and unscheduled maintenance.
- Stimulate development of a network for information sharing throughout the sector.

1.3 Expected Outcome

- In Phase I, approximately 30 to 40 National Trainers trained for ongoing training of existing technicians.
- In Phase II, most or all technicians in the country (approximately 1,000) trained in good refrigerant management practices.
- Elimination of the use of CFC-11 for flushing by 2000.
- Substantial reduction in CFC-12 consumption from 2000, after technicians are trained in preventing leaks through good maintenance practices.

1.4 Target Audience

Phase I:

The first phase in training technicians is the Train the Trainers Program. The National Trainers will be drawn from the Engineering Faculty, Craft School teachers and professionals in the field who are willing to deliver the national training program.

One Train the Trainer course is planned to cover the National Trainers from all over the country. The course will be held at Zagreb, the capital. The training course will have a maximum of 30 to 40 participants.

Phase II:

Since there is no National Institution training students for the R&A/C trade, it is expected that the National Training project to train the mechanics/technicians in the country will be undertaken by the 5 Faculties and interested professionals working in the field. Following the Train the Trainers Program, the Trainers will develop a common national training program to take it to the mechanics/technicians. At this point of time it is envisaged that 40 training courses, each with 25 mechanics/technicians will be held. Out of necessity, and to ensure maximum participation, the courses will be held over a week in the evening hours, with a longer Saturday program devoted to hands on training on the equipment. This will allow the mechanics/technicians to earn their living during the day and upgrade their skills in the evening.

1.5 Project Activity

Phase I:

As indicated above, one 5 day "Train the Trainers" workshop will be held in Zagreb. The workshop will consist of classroom presentations, practical demonstrations, and hands-on training. The emphasis of the workshop will be on Training of Trainers who will be involved in the delivery of the hands-on training programs for the service technicians in the country, both in service and subsequently coming into the sector every year. The course development for these training programs will be coordinated by the National Consultant. This Training of the Trainers Program is an important self-sustaining capacity building tool and is considered very important by the Government. It will assure continuity in training and introduction of current methodology and techniques to future technicians also.

The agenda will include, but not be limited to:

- Background to Ozone Layer, Destruction of the Ozone Layer, the Vienna Convention, the Montreal Protocol and its amendments, the freeze and phase out requirements, and the Government's response as a Party to the Montreal Protocol.
- Discussion on the new By-Law and its implications.
- Why the refrigeration sector is important
- Installation of equipment
- System operation and maintenance
- Preventive inspection and maintenance
- Properties of different refrigerants and lubricants
- Handling and storage of refrigerants
- Safety requirements
- Retrofitting, redesign and alternatives
- Safety requirements
- Recovery, recycling and reclamation
- Discussion on developing a national code of good practice
- Discussion on certification
- Equipment demonstration and hands on training in the proper use of equipment and recovery and recycling machines.

One set of basic equipment, a recovery machine and a recovery and recycling machine, along with spares, consumables and adequate number of refrigerant storage cylinders will be provided to each of the 5 Faculties (training centres). These equipment will be used as training tools in the on going curriculum of the institutions as well as for the short training courses for the technicians. These Recycling machines at the training institutions may also be used for commercial recycling, to ensure effective capacity utilisation.

Following the Training of the Trainers in Phase I, the National Consultant will coordinate the development of the training curriculum which will be suitable for the target audience.

Phase II:

The format of delivery of the training program will be finalised after completion of the Train the Trainers Program. The SDPNE/Ozone Office and the National Phase-out Team will be closely involved in the curriculum development. As soon as the curriculum for the mechanics/technicians is ready, SDPNE/Ozone Office will finalise dates and locations for the training programs. The SDPNE/Ozone Office, through their public information program, will ensure that the information, along with the need to participate, is widely disseminated. It is expected that if the training programs are held in the evenings, and at no cost to the technicians, there will be very good participation.

By the time the curriculum for the technicians is ready, it is expected that the Government will come to a decision about certification of technicians. If it is decided to do so, then this information will also be widely disseminated to the general public as well as the technicians.

Given the number of technicians estimated (around 1,000) it is expected that at least 40 training programs of 25 participants will need to be conducted. The cost for these is reflected in the budget.

1.6 Time Frame

The tentative timing for the Train the Trainers program is the fourth quarter of 1999. However, in view of the need to procure equipment as part of the training activity, the workshops may be delayed to the first quarter of 2000.

1.7 Organisers

The SDPNE/Ozone Office will coordinate the local organisation of the workshops, including local invitations for participation. This will be done in conjunction with the Faculties and the known interested professionals. UNIDO/UNEP/Bilateral agency will arrange for the expert and for the equipment to be supplied. The equipment should be the same as equipment to be supplied under the Recovery and Recycling project.

1.8 Support and Follow Up Actions

Pre Workshop:

- SDPNE/Ozone Office to request waiver of any applicable duties and taxes, and speedy clearance of training equipment.

Post Workshop:

- Development of curriculum by the Trainers for local training of mechanics/technicians. – within 3 months or earlier.
- Appropriate dissemination of information about training program for mechanics/technicians by the SDPNE/Ozone Office within 3 months.
- On going follow up by the SDPNE/Ozone Office of delivery of the Program.
- Follow up with service companies by SDPNE/Ozone Office on discontinuation of use of CFC-11 for purging.

1.9 Budget

A detailed budget with breakdown is provided below. The cost for the equipment is included in the Recovery and Recycling Project at Annex 3.

Item	Budget (US\$)
Phase I:	
International Expert (Travel, DSA and fees)	10,000
National Consultant	2,500
Translator (\$300 per 8 hours x 5 days)	1,500
Travel and per diem for outstation participants (25 persons x 5 days @\$120 per day)	15,000
Local Organisation (35-40 persons for 5 days)	5,000
Training material	1,500
Contingency	3,500
Sub Total for Phase I	39,000
Phase II:	
1,000 sets training material	10,000
Logistical Organisation for 40 training programs @\$1,500 per session	60,000
Fees to Trainers for conducting workshops (\$1,000 per workshop x 40 workshops)	40,000
Contingency	10,000
Sub Total for Phase II	120,000
TOTAL Phase I and Phase II	159,000
Contribution by Croatia Government	3,000
Amount Requested from Multilateral Fund	156,000

Annex 2

PROJECT COVER SHEET

Country	:	REPUBLIC OF CROATIA
Name of Project	:	Customs Training
Sectors Covered	:	All
ODS Consumption	:	114 ODP Tonnes in 1998 (all sectors)
Duration of Project	:	2 years
Total Project Cost	:	\$ 53,000
Amount to be Contributed by Government of Croatia	:	\$ 1,000
Amount Requested from Multilateral Fund	:	\$ 52,000
National Coordinating Body Protection of	:	Ozone Office of the State Directorate for Nature and Environment
Implementing Agency	:	UNIDO/UNEP/Bilateral Donor

2.1 Background

An essential source of information for monitoring and control of ODS and ODS using equipment is the Customs Division, since all ODS and ODS using equipment are imported to Croatia. Currently, Customs statistics are unreliable for several reasons, such as:

- a) Current Harmonised Tariff Codes used do not identify some specific ODS or ODS using equipment
- b) Custom inspectors are not trained to recognise ODS and ODS using equipment.

Croatia has an import/export licensing policy in place for some time. From 1996, the Ministry of Economic Affairs, which issues the Import/Export License was required to obtain clearance from the State Director for Protection of Nature and Environment for all ozone depleting substances. The new By-Law (see Annex 5) came into force in January 1999 and bans import of ODS using equipment, and certain ODS; and places reducing limits on imports of certain ODS, with most substances being phased out by 2006.

2.2 Project Objectives

There are 10 Customs Districts in Croatia, and approximately 50 border entry points. In general, only 5 entry points are used for international movement of traffic and goods. The other 45 allow movement of citizens of neighbouring countries only.

Entry of goods can be by road, rail, ship or air. When goods enter by road, the checkpoint checks that they are entering against a valid licence and the container or truck is sealed. The goods are then physically declared at one of the 10 District Offices. It is here that all documentation is checked, and taxes collected. Physical examination of goods, if required, is also done here.

Customs requires training in recognition of ODS and ODS containing using equipment to control and ensure acceptable products are entering the country. The objective of this training is primarily to ensure the proper enforcement of the 1999 By-Law in Croatia. This training program will also be developed around the Train the Trainers principle, to ensure the information is incorporated into the on going training and refresher programs of the Customs Department.

CFC detection equipment will also be provided for all customs entry points in the country.

2.3 Expected Outcome

- Appropriate vigilance on entry of ODS and ODS using equipment into the country
- Database of ODS importers/exporters, and accurate data on imports and exports, which will assist in meeting reporting requirements.
- Continuity in Training of all Customs officers in Croatia, including new entrants.

2.4 Target Audience

The participants at the workshops will number approximately 40. They will be drawn from the 10 Customs District Offices, the training department, laboratory and other enforcement agencies and from government.

2.5 Project Activity

One 5-day "Train the Trainers" workshops, will be held for training enforcement officers in the requirements of the By-Law; ODS import/export licensing system, and in recognising ODS and ODS containing equipment to control and ensure acceptable products are entering the country.

3 CFC detection equipment per Customs District Office will also be provided. Croatia has 10 District Offices.

2.6 Time Frame

The training program is tentatively scheduled for last quarter of 1999. The timing is governed by when the project will be approved by the Multilateral Fund Executive Committee, and contracts with the implementing agency finalised.

2.7 Organisers

The SDPNE/Ozone Office will be responsible for organising the workshop in collaboration with the Customs Division and other related government offices. UNIDO/UNEP/ Bilateral Donor will arrange for the expert and supply of CFC detection equipment..

2.8 Support and Follow Up Actions

- Follow up by SDPNE/Ozone Office with Customs on implementation of By-Law and Import/Export Licensing system.
- Ongoing training of local Customs officials within 6 months of workshop.

2.9 Budget

A detailed budget with breakdown is given below:

Item	Budget
International Expert (Travel, DSA and fees)	10,000
Translator (\$300 per 8 hours x 5 days)	1,500
Travel and per diem for outstation participants (20 persons x 5 days @\$120 per day)	12,000
Local Organisation (35-40 persons for 5 days)	5,000
30 ODS Identification kits @ \$650 each	19,500
Contingency	5,000
TOTAL	53,000
Amount to be contributed by Croatia Government	1,000
Amount requested from Multilateral Fund	52,000

Annex 3

PROJECT COVER SHEET

Country	:	REPUBLIC OF CROATIA
Name of Project	:	National Recovery and Recycling Project
Sectors Covered	:	Refrigeration and Air Conditioning
ODS Consumption	:	136.17 ODP Tonnes
Duration of Project	:	2 years
Total Project Cost	:	\$ 702,600
Amount to be Contributed by Government of Croatia	:	NIL
Amount Requested from Multilateral Fund	:	\$ 702,600
National Coordinating Body Protection of	:	Ozone Office of the State Directorate for Nature and Environment
Implementing Agency	:	UNIDO

3.1 Background

The information needed to prepare this project was supported by a survey conducted by a local consultant appointed by UNIDO and the SDPNE/Ozone Office. An international consultant of UNIDO, accompanied by the Ozone Officer and the local consultant met several consumers and importers to understand current practices and discussed the concept of recovery and recycling with them. The concept was well received by all consumers and repair shops, who have not yet implemented recovery and recycling practices due to the high cost of equipment.

The survey data disclosed several large repair shops and consumers spread across the country in addition to many medium-sized consumers/repair shops. It was felt that the survey had covered most of the formal sector, but the informal sector was not very well represented. The results of the survey are attached at Annex 4.

The survey indicates the following use for 1998:

1998 ESTIMATED USE (ODP Tonnes)

CFC-11	CFC-12	CFC-115 (as R-502)	HCFC-22
17.08 ODP Tonnes	118.10 ODP Tonnes	1.05 ODP Tonnes	2.56 ODP Tonnes

ESTIMATED CONSUMPTION OF REFRIGERANTS BY USE AND APPLICATION

Sector	Sub-Sector	ODS	Application	Consumption (MT)
Refrigeration and Air Conditioning	Domestic/Commercial/Industrial	CFC-11	Flushing	17.08
	Domestic	CFC-12	Recharge	16.36
	Commercial/Industrial	CFC-12	Recharge	56.21
	MAC (including ships)	CFC-12	Recharge	45.53
	Commercial/ Industrial	R-502	Recharge	3.08
	Domestic/Commercial/Industrial	HCFC-22	Recharge	51.24

Croatia does not have any refrigerator manufacturing or assembling unit. The total consumption of refrigerants is attributed to replacement after leaks, venting during service activities, and replacement of burnt out compressor motors. At present, virtually none of the vented refrigerant is recovered or recycled.

In addition, the dismantling of old equipment and retrofitting to non CFC equipment will lead to venting of large quantities of refrigerant. It is expected that this project will be able to capture these refrigerants also.

3.2 Project Objectives

The objectives of this project are to implement a National Recovery and Recycling project in the R&A/C sector in keeping with the requirements of the By-Law (Annex 5). Implementation of this project will lead to capture of refrigerants currently being vented (which is banned), both from repair and maintenance activities and from decommissioning and retrofitting of CFC based equipment. The recovered and recycled refrigerant will lead to reduced dependency on imports and provide for a stock to meet the requirement of the service tail of CFC-12 based equipment continuing in service till the end of their economic life. The Government would like to ensure availability of CFC-12 for refrigeration servicing as long as necessary and practical.

3.3 Expected Outcome

The quantity of CFC-12 that will not need to be imported after successful implementation of the Recovery and Recycling project is estimated as follows:

- 132 refrigerant bags will recover an average of 0.1 kg of CF-12 per day per bag.
- 64 recovery machines will recover and average 1kg of CFC-12 per day per machine.
- The basis is 250 working days per year.
- 80% of recovered gas can be recycled.

Thus annual quantity of recycled CFC-12 would be 15.44 MT.

2.4 Target Beneficiaries

The survey indicates that service shops, which consume over 500 kg of CFC-12 per annum, are generally dealing with the commercial and industrial sector. Several consumers with in house service capability have similar consumption also. These will receive recovery machines and associated equipment. Service companies which have 1.5 to 3.0 MT consumption will be provided with two recovery machines and associated equipment.

The smaller consumers are primarily involved with domestic refrigeration. The service companies which have less than 500 kg consumption per year will receive recovery bags and associated equipment.

It should be noted here that companies identified in the survey as doing MAC servicing, are actually servicing refrigerated trucks and busses, since there are very few air-conditioned cars in Zagreb. Another very large consumer in the MAC sector is in ship board R&A/C servicing.

The five Faculties, which will take the lead role in the training program for the technicians will each receive a set of recovery machines, recycling machines and associated equipment. The equipment will be used primarily for training and, when not being used for that purpose, be available to those technicians who have not benefited from the distribution of equipment. The recycling machines, when not being used for training, will be available for on site jobs in the area, where large volumes of refrigerant have to be handled.

Dubrovnik, Split and Rijeka have large consumption of refrigerants for ship board R&A/C use. The recovery machines and recycling machines at the Faculties in these cities will be available for ship servicing as and when required.

3.5 Project Activity

3.5.1 Demonstration Seminars:

Three 1.5 day demonstration seminars will be held at Zagreb, Rijeka and Split. Representatives of firms and organisations owning and maintaining their own R&A/C installations, technicians from maintenance and service workshops and independent refrigeration technicians will be invited to attend these demonstration seminars which will be conducted prior to distribution of equipment.

An international consultant/representative of equipment supplier will introduce and explain the recovery program and the recycling infrastructure. The seminars will include a background to the Montreal Protocol, an explanation of the effects of Ozone Layer Depletion, and the resultant need for recovery and recycling of CFC refrigerants, presentation on the 1999 By-Law, the presentation of recovery and recycling technologies and methodologies in different R&A/C systems, and a hands on demonstration of the equipment to be supplied through the project.

3.5.2 Formation of Recycling Centres:

Based on the survey (Annex 4), 132 recovery bags will be supplied to 33 domestic refrigerator service companies in the cities identified in the survey, and 64 recovery machines and associated equipment to commercial and industrial service companies, and companies that maintain their own R&A/C equipment.

The SDPNE/Ozone Office will invite letters of interest from parties interested in running the Recycling Centres and select the appropriate candidates for each location. 14 Recycling centres will be set up at 10 cities/regions, with some locations having more than one recycling machine, since the volume of recovered refrigerant is anticipated to be large. The cities are Osijek, Zagreb (2), Cakovec-Varazdin-Bjelovar, Sisak, Karlovac, Rijeka (3), Zadar, Sibenik, Split (2) and Dubrovnik. One of the recycling machines in Rijeka will be dedicated for ship based servicing, since the largest consumption is on ships which operate out of Rijeka port. Additional recycling machines will be available at the Faculties at Zagreb, Osijek, Rijeka, Split and Karlovac. The survey indicates that most of the consumption occurs in and around these cities.

Monitoring System:

The By-Law requires reporting of recovered ODS (see Annex 5, Form ODS 5). The SDPNE/Ozone Office will design a program to follow up and monitor the recovery and recycling activities based on the reported data. It will keep records of the amounts recovered, the quantities of recycled refrigerant stored at the recycling centres and monitor the quality of recycled gas as well as the price structure.

3.6 Time Frame

The National Recovery and Recycling project implementation will begin by the first quarter of 2000. The 1999 By-Law bans venting of ODS from January 1, 2000, thereby mandating recovery and recycling. For the By-Law to be effective, support has to be provided to the technicians by way of equipment to encourage recovery and use of recycled refrigerant.

3.7 Equipment Specification

3.3.1 For Recovery of Refrigerant

- Portable CFC-12 recovery machines with over fill protection (OFP) device. Each machine will include one 30lb. DOT refrigerant recovery cylinder and appropriate hoses with tap valves.
- 30 lb. (ERC) DOT refrigerant recovery cylinders with OFP device and two ports.
- Recovery Equipment Kit consisting of:
 - 1 gauge manifold with hoses
 - 1 electronic weighing scale
 - 1 electronic hand held leak detector
 - 2 service couplings
 - 1 piercing pliers
 - 2 pairs of goggles and 2 pairs of gloves
 - 1 thermometer
 - 1 set of service hoses
- Refrigerant recovery bags and appropriate hoses incorporating a tap valve and sight glass.

- 30 lb. DOT refrigerant recovery cylinders with OFP device and two ports.
- Vacuum pumps
- Spare parts and consumables for the above.

Note: All equipment must be capable of operating at 220V AC 50 c/s and should meet European Standards.

3.3.2 For Recycling of Recovered Refrigerant

- One pass recycling machines incorporating an OFP device with capacity to process a 120 lb cylinder and fill automatically in a single pass. Each machine will incorporate at a minimum an oil separator, acid, moisture and particulate filters, automatic purging of non-condensable gasses, along with appropriate gauges and hoses.
- Refrigerant identification kit to identify mixed refrigerants and assure only CFC-12 is recycled.
- Vacuum pump
- 100 lb. Refrigerant cylinder with OFP and dual ports.
- 1,000 lb. Refrigerant cylinder with OFP and dual ports.
- Spare parts and consumables for the above.

Note: All equipment must be capable of operating at 220V AC 50 c/s and should meet European Standards.

3.8 Number of Equipment Required

Equipment	Domestic Eqpt. Service	Comm/Ind EqpService	Recycling Centres	Trng. Centres	Spare	TOTAL
Recovery m/c with appropriate spares and consumables		64	14	5		83
30 lb. ERC Recovery Cylinder		128	28	10	57	223
Vacuum Pump		64	14	5		83
Equipment Kit with appropriate spares and consumables	33	64	14	5		116
Recovery Bags	132			20		152
30 lb. DOT Recovery Cylinder (for use with recovery bags)	33			5		38
Recycling machine with appropriate spares and consum			14	5		19
Refrigerant Identification Kit			14	5		19
Vacuum pump			14	5		19
100 lb. Refrigerant Cylinders			56	20		76
1,000 lb. Refrigerant Cylinders			56	20		76

Note 1: Each recovery machine set will consist of a recovery machine, 2 ERC Recovery cylinders, 1 vacuum pump and one equipment kit.

Note 2: Each domestic service set will consist of 4 recovery bags, 1 equipment kit and one DOT recovery cylinder.

Note 3: The 14 Recycling centres will each have one recycling machine, one refrigerant identification kit, one vacuum pump, four 100 lb and three 1,000 lb recovery cylinders for use when large systems are serviced and for storing recycled CFC-12. An additional 1,000 lb cylinder will be earmarked at each location, for storage of unrecyclable (mixed) refrigerants for disposal at a later date.

Note 4: Each recycling centre will have one recovery machine sets in reserve, to be made available for recovery operations by workshops and firms not included in the recovery network and for replacement during repair of equipment. In addition, each centre will also have three ERC recovery cylinders in reserve.

3.9 Budget

Training and Demonstration Seminars:	
International Expert (Travel, DSA and Fees)	10,000
Local Organisation	5,000
Translator	1,500
Technical Literature	4,000
Printing	4,000
Total for Seminars	24,500
Recovery Equipment – CFC-12:	
83 Recovery machines @\$1,000 each	83,000
223 - 30 lb ERC refrigerant cylinders @\$100 each	22,300
83 Vacuum Pumps @\$400 each	33,200
116 Equipment Kit @\$ 600 each	69,600
152 units Recovery Bags @\$ 50 each	7,600
38 units 30 lb. DOT Recovery Cylinders @\$ 100 each	3,800
Total for CFC-12 Recovery Equipment	219,500
Recycling Equipment	
19 Recycling machines @\$ 7,500 each	142,500
19 Refrigerant Identification kits @\$ 2,000 each	38,000
19 Vacuum pumps @\$300 each	5,700
76 – 100 lb. Refrigerant cylinders @\$ 200 each	15,200
76 – 1,000 lb. Refrigerant cylinders @\$ 1,200 each	91,200
Total for CFC-12 Recycling Equipment	292,600
Consumables and Spare Parts for all equipment above	75,000
Freight Cost @ 5% of above	26,000
Contingencies @ 10% of above	65,000
TOTAL	702,600

3.10 Expected Outcome

- Recovery of CFC-12 refrigerant during servicing and maintenance operations.
- Recovery of CFC-12 during decommissioning and retrofitting operations.
- Reduction of 15.44 MT in CFC-12 imports is expected.

1998 CONSUMPTION FROM SURVEY

Company	Sub-Sector %			Consumption						
	Dom	Ind / Com	MA C	CFC-11	CFC-12			R-502	HCF C-22	HFC-134a
					Dom	Com/Ind	MA C			
ZAGREB										
Service Companies										
MB Frigo	20	80		50	420	1,680		150	1,500	50
Hladenje		100		667		2,638		120	2002	490
Gea Klima	50	50							74	
Klotz Samobor	100								155	200
Rashladna Tehnika	100			10	60				175	
Termomehanika Sesvete	30	70		450	630	1,470		150	1,240	100
Frigoservis		50	50	800		1,410	1,410	130	3,372	
Haramustek V. Gorica				500			2,220		2,040	100
Servis Ajster	20	60	20		380	1,140	380		1,150	
Ezit			100	272			1,900			
Awi Emzet	50	50		190	720	720				
Koncar Servis (7 locations)	100				1,050				1,508	
Gorenje (22 locations)	100			1,000	5,802				4,676	
LTH	40	60		100	320	480			1,340	200
Industry										
INA-TEHN. SEKT		100				150		5	300	
Pliva		100		150		2,053			840	60
Hrvatska Tiskara		100		70						
Food Industry										
Dukat		70	30			920	395		740	
Kras		100								
Zagrebcanka		70	30	175		300	150		30	
Zagrebacka Pivovara		100							150	
Agrokoka		100				15			30	

Company	Sub-Sector %			Consumption						
	Dom	Ind / Com	MA C	CFC-11	CFC-12			R-502	HCF C-22	HFC-134a
					Dom	Com/Ind	MA C			
Transport										
Hrvatske Zeljeznice			100	100			480			
Croatia Bus			100	100			829			
Shops										
Batis		100				1,300			460	
Nama		100		75		200			460	20
Zagrebacka Banka		100							120	
Hospitals										
KBC Dubrava		100				14			20	6
TOTAL: ZAGREB				4,709	9,382	14,490	7,764	555	24,222	1,226
CAKOVEC - VARAZDIN - BJELOVAR										
Service Companies										
Co Frigotehnika	20	80		400	500	2,000				800
Majcen Varazdin	10	90			160	1440				
Frigo a Rovisce	100			10	400				400	
Industry										
Elektrotehnika Krizevci		100		35					800	
Oprema I Uredaji Ludbreg		100								2,500
Food Industry										
Podravka, Koprivnica		100				300				
Sireli, Bjelovar		100				372			130	240
Mesna Ind., Cakovec		60	40			68	46	20	40	52
TOTAL: CAKOVEC - VARAZDIN - BJELOVAR				445	1,060	4,180	46	20	1,370	3,592
DUBROVNIK										
Service Companies										
Elkes Metkovic	50	50			250	250				
LTH Dubrovnik	50	50		10	250	250				
Frigo Dubrovnik	50	50		10	250	250				
Transport										
Mediterranska Plovidba Korcula			100	1,050			3,500			

Company	Sub-Sector %			Consumption						
	Dom	Ind / Com	MA C	CFC-11	CFC-12			R-502	HCF C-22	HFC-134a
					Dom	Com/Ind	MA C			
(Ship)										
Hotels										
Croatia Deluxe		100		10		30		10	10	50
Lapad		100		10		40			300	30
Lopud		100				12			24	20
Hotel Helios Hvar		100		10		40			30	20
HTP Korcula		100		20		231		50	14	20
Babin Kuk		100		100		700				
TOTAL - DUBROVNIK				1,220	750	1,803	3,500	60	378	140
KARLOVAC										
Service Companies										
Elektrocomerc	20	40	40	255	336	672	672	150	300	900
Food Industry										
Karlovaca Pivovara		100						100		10
Kim		80	20	30		80	20	25	200	420
Banks										
Karovacka Banka		100		85		200		50	100	120
TOTAL: KARLOVAC				370	336	952	692	325	600	1,450
KUTINA										
Service Companies										
MT-Frigo	100				290			15	80	22
Industry										
Petrokemija		100							100	
Transport										
Cazmatrans Cazma			100	10			360			500
TOTAL: KUTINA				10	290		360	15	180	522
OSIJEK										
Service Companies										
Termoteh	20	20	60	113	312	312	936		166	13
Hladenje	30	70		50	240	560		60	1,000	130
Seki Klima	20	80		100	144	576				130
Elgor Vinkovci	50	50		50	360	360				130
Food Industry										
Klaonica S Tovilistem Nova		100			30	115				

Company	Sub-Sector %			Consumption						
	Dom	Ind / Com	MA C	CFC-11	CFC-12			R-502	HCF C-22	HFC-134a
					Dom	Com/Ind	MA C			
Gradiska										
Mljekara Staro Petrovo Selo		80	20	30		8	0	20	25	200
Pik Dakovo		80	20	100		184	46		150	200
Hospital										
Klinicka Bolnica Ocijek		100				70		5	192	
TOTAL: OSIJEK				443	1,086	2,185	982	85	1,533	660
RIJEKA										
Service Companies										
Termomobil		10	90	90		100	900	25	447	10
Elektrolux		95	5	1,000		2125	115		1,750	800
Ave Tehnika	20	80		500	360	1460				
Technoklima	20	80		105	160	640			500	
Biomatic		100				1,636				
Montkemija Bakar		100		800		1520				
Industry										
Ina Maziva		100		100		1,750		30	2,700	
Dina Omisalj		100				9,200				
Luka Rijeka (fish)		100		50		160				
Brodogradiliste (ship)			100	1,000			4,000		2,700	
Uljanik Pula (ship)			100	800			3,600			
Brodgradiliste Greben (ship)			100	290			2,500			
Transport										
Autotrans Rijeka			100	100			1,800			360
Croatia Line (ship)			100	100			1,600			
Losinjska Plovidba (ship)			100	100			2,200			
Jadrolinija Rijeka (ship)			100	1,500			6,000			
Creska Plovidba (ship)			100	50			400			

Company	Sub-Sector %			Consumption						
	Dom	Ind / Com	MA C	CFC-11	CFC-12			R-502	HCF C-22	HFC-134a
					Dom	Com/Ind	MA C			
Shops										
Robna Kuca Rijeka		100				500				
Hotels										
Haludovo Malinska		100				100			120	
Imperial Koncern		100				1,070		140	120	
Jadran Hotel, Rijeka		100		10		100			100	
Hospital										
KBC Rijeka		100		100		800				
TOTAL: RIJEKA				6,695	520	21,161	23,115	195	8,347	1,170
SISAK										
Service Companies										
Elektromehanica	100			100	372			10	160	10
EMS Sisak	30	70		50	234	546		180	230	48
Industry										
INA Rafinerija Sisak		100				1,050		50	750	
Gavrilovic Petrinja		80	20			320	80	10	430	420
TOTAL: SISAK				150	606	1,916	80	250	1,570	478
SPLIT										
Service Companies										
E&M Split	50	50			100	100			800	
Frigomotors Stobrec	10	90			90	810		50	2,800	100
Frijo Elektroservis	50	50			884	884		95	361	
Frigoprema Stobrec	10	90		1,000	150	1,350			2,500	1,000
Andabaka	10	90			180	1,620			1,500	150
Elmat	30	70			430	1,014			2,000	800
Sem-Marina		100				200			800	300
Maringeneral Oprema	70	30		80	106	46			1,530	160
Industry										
SSM (ship)			100	200			1,400			

Company	Sub-Sector %			Consumption						
	Dom	Ind / Com	MA C	CFC-11	CFC-12			R-502	HCF C-22	HFC-134a
					Dom	Com/Ind	MA C			
HRM (ship)			100	200			800			
Brodogradiliste (ship)			100	500			2,500			
Adria Vinil		100						1,312		
Brodogradiliste Trogir (ship)			100	500			2,800			
Mljekara (food)		70	30			602	258		340	
Shops										
Dalma		100		100		250			300	80
Hotels										
Medena Trogir		100				360				
TOTAL: SPLIT				2,580	1,940	7,236	7,758	1,457	12,931	2,590
SIBENIK										
Service Companies										
Tehno Jelic	30	70		300	390	910				500
Transport										
Slobodna Plovidba (ship)			100	100			1,200			500
TOTAL: SIBENIK				400	390	910	1,200			1,000
ZADAR										
Food Industry										
Mljekara Zadar		80	20	50		128	32		80	
Martinovic (fish)		100		10		50				50
Hotel										
Borik		100				1,200		120	30	
TOTAL: ZADAR				60		1,378	32	120	110	50
GRAND TOTAL										
				17,082	16,360	56,211	45,529	3,082	51,241	12,877

On the basis of Article 4 of the Law on Ratification of Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Official gazette of the Republic of Croatia - 'Narodne novine' - International Treaties No. 11/93) and Article 5 of the Law on Ratification of Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer ('Narodne novine' - International Treaties No. 1/8/96), the Government of the Republic of Croatia in the session of 14 January 1999, enacted the following

**BY-LAW
ON SUBSTANCES THAT DEplete THE OZONE LAYER**

I GENERAL PROVISIONS

Article 1

The present By-Law defines requirements and methods for phasing out consumption of ozone depleting substances, as well as handling of products that contain such substances or were produced with them.

Article 2

Ozone depleting substances are defined in the Law on Ratification of the Montreal Protocol on Substances that Deplete the Ozone Layer ('Narodne novine' - International Treaties Nos. 11/93, 12/93, 1/8/96; hereinafter referred to as: the Montreal Protocol), whether existing alone or in mixtures, including isomers of any such substance. The list of substances with their tariff codes is contained in Appendix 1.

Provisions of the present By-Law do not refer to substances specified in the paragraph 1 of the present Article that occur as a side or accidental product in a production process or appear as impurities in other compounds.

Article 3

Unless the present By-Law specifies otherwise, production of ozone depleting substances, listed in the Montreal Protocol, is banned.

Release into the air of the ozone depleting substances listed in the Montreal Protocol is banned.

Article 4

Import of ozone depleting substances and products containing such substances from a country not party to the Montreal Protocol is banned.

Export of ozone depleting substances and products containing such substances to a country not party to the Montreal Protocol is banned.

Article 5

Import of ozone depleting substances listed in Groups I and II of Annex A, Groups II and III of Annex B, and Group I of Annex E of the Montreal Protocol is allowed only so as to satisfy domestic needs.

Import of recovered and recycled ozone depleting substances listed in the Montreal Protocol is banned.

Without prejudice to paragraph 2 of the present Article, import of recycled halons, registered at the halon bank, is allowed.

Article 6

Unless the present By-Law specifies otherwise, import and placement on the wholesale and retail market of new and recovered products containing ozone depleting substances listed in Groups I and II of Annex A, Groups I, II and III of Annex B, and Group II of Annex C of the Montreal Protocol is banned. The list of these products is contained in Appendix 2.

II CONSUMPTION OF OZONE DEPLETING SUBSTANCES

Article 7

The allowed consumption levels for ozone depleting substances in specific time periods is calculated on the basis of levels expressed as mean consumption in a specific time period, according to the Montreal Protocol.

Article 8

The calculated level for ozone depleting substances listed in Group I of Annex A of the Montreal Protocol: chlorofluorocarbons (CFCs), is 219,000 kg.

The allowed annual ozone depleting substances consumption levels, determined according to the calculated level in paragraph 1 of the present Article, expressed in kilogrammes, are as follows:

- 219,000 kg from 1 January 1999 to 31 December 1999;
- 185,000 kg from 1 January 2000 to 31 December 2000;
- 142,000 kg from 1 January 2001 to 31 December 2002;
- 98,000 kg from 1 January 2003 to 31 December 2004;
- 65,000 kg from 1 January 2005 to 31 December 2005.

Consumption of ozone depleting substances in paragraph 1 of the present Article shall be banned as of 1 January 2006.

Article 9

The calculated level for ozone depleting substances listed in Group II of Annex A of the Montreal Protocol: halons, is 4,000 kg.

The allowed annual ozone depleting substances consumption levels, determined according to the calculated level in paragraph 1 of the present Article, expressed in kilogrammes, are as follows:

- 4,000 kg from 1 January 1999 to 31 December 2000;
- 3,000 kg from 1 January 2001 to 31 December 2003;
- 1,600 kg from 1 January 2004 to 31 December 2005;

Consumption of ozone depleting substances in paragraph 1 of the present Article shall be banned as of 1 January 2006.

Article 10

Consumption of ozone depleting substances listed in Group I of Annex B of the Montreal Protocol: other fully halogenated chlorofluorocarbons (CFCs), is banned.

Article 11

The calculated levels for ozone depleting substances listed in Group II of Annex B: carbon tetrachloride, and in Group III of Annex B of the Montreal Protocol: 1,1,1-trichloroethane, shall be determined and announced in 'Narodne novine' by 31 January 2001.

Percentage amounts of the allowed annual ozone depleting substances consumption levels, determined according to the calculated levels in paragraph 1 of the present Article, shall be as follows:

- one hundred percent from 1 January 2001 to 31 December 2001;
- eighty percent from 1 January 2002 to 31 December 2002;
- fifty percent from 1 January 2003 to 31 December 2003;
- twenty percent from 1 January 2004 to 31 December 2005.

Consumption of ozone depleting substances in paragraph 1 of the present Article shall be banned as of 1 January 2006.

Article 12

Exceptionally, in the period from 1 January 2006 to 31 December 2010, annual consumption levels for Article 8, 9 and 11 ozone depleting substances intended for special needs may be exceeded by up to ten percent of the determined calculated levels.

Special needs refer to the use of ozone depleting substances contained in products intended for preserving human, plant and animal life, for national defence and safety, fire-fighting, traffic and scientific research safety, when such products cannot be replaced by environmentally sounder technical or economic alternatives.

Article 13

The calculated and allowed consumption levels for ozone depleting substances listed in Group I of Annex C of the Montreal Protocol: hydrochlorofluorocarbons (HCFCs), shall be determined and announced in 'Narodne novine' by 31 January 2016.

Consumption of ozone depleting substances listed in Group I of Annex C of the Montreal Protocol: hydrochlorofluorocarbons (HCFCs), shall be banned as of 1 January 2030.

Article 14

Consumption of Appendix 1 ozone depleting substances, listed in Group II of Annex C: hydrobromofluorocarbons (HBFCs), is banned.

Article 15

The calculated level for the ozone depleting substance in Group I of Annex E of the Montreal Protocol: methyl bromide, is 27,000 kg.

The allowed annual ozone depleting substances consumption levels, determined according to the calculated level in paragraph 1 of the present Article, expressed in kilogrammes, are as follows:

- 27,000 kg from 1 January 2001 to 31 December 2001;
- 21,600 kg from 1 January 2002 to 31 December 2002;
- 16,200 kg from 1 January 2003 to 31 December 2003;
- 10,800 kg from 1 January 2004 to 31 December 2004;
- 5,400 kg from 1 January 2005 to 31 December 2005.

Consumption of the ozone depleting substance in paragraph 1 of the present Article shall be banned as of 1 January 2006.

Article 16

It is allowed to use the ozone depleting substances listed in Groups I of II Annex A and Group I of Annex C of the Montreal Protocol that were recovered and recycled in the territory of the Republic of Croatia in cooling and air-conditioning systems and fire-extinguishing apparatus maintenance operations in the course of their duration.

Recovered substances in paragraph 1 of the present Article may be temporarily exported for recycling should their recycling not be possible in the Republic of Croatia.

Article 17

A recovered ozone depleting substance refers to a substance extracted and collected from the product during maintenance operations or prior to its disposal as waste.

A recycled ozone depleting substances refers to a recovered substance with physical and chemical properties and quality equal to those of a new substance obtained via filtration, drying, distillation or chemical treatment.

Import/export of ozone depleting substances

Article 18

Request for an import/export licence for ozone depleting substances is submitted to the Ministry of Economic Affairs on the ODS 1 or ODS 2 Forms.

Record-keeping on ozone depleting substances imports, exports and consumption lies within the competence of the State environmental authority.

Article 19

Legal and natural person shall maintain a register of imports/exports of ozone depleting substances defined in the Montreal Protocol and of its end users. The register shall include data on types and quantities of imported/exported ozone depleting substances, quantities of sold imported ozone depleting substances and end users of sold ozone depleting substances. The register is kept for five years.

Data in the paragraph 1 of the present Article that are recorded in the register shall be provided to the State environmental authority within thirty days following the expiry of the permit, on the ODS 3 Form.

III HANDLING PRODUCTS

Article 20

As of 1 July 1999 any Appendix 2 product shall be accompanied by a statement, stating that the product does not contain ozone depleting substances, on the Form ODS 4 .

The provision in the paragraph 1 of the present Article does not refer to products containing substances listed in Article 13 of the present By-Law.

Article 21

Without prejudice to the provision in Article 6 of the present By-Law, import and placement on the market of new Appendix 2 products containing Appendix 1 ozone depleting substances listed in Groups I and II of Annex A, Groups I, II and III of Annex B and Group II of Annex C is allowed for special needs by 31 December 2010.

Request for issuing the permit for import in paragraph 1 of the present Article is submitted to the Ministry of Economic Affairs on the ODS 2 Form.

Prior to issuing the permit, the authority in the paragraph 2 of the present Article shall request an opinion of the State environmental authority.

Article 22

As of 1 July 1999, any Appendix 2 product, on placement the market, shall have a declaration in Croatian language and Latin script.

The declaration shall distinctly state that the Appendix 2 product does not contain ozone depleting substances, unless the present By-Law specifies otherwise.

The declaration shall be easily perceivable, legible and permanent.

Product maintenance and decommissioning

Article 23

Should the Appendix 2 products in Group I: cooling and air-conditioning devices, contain ozone depleting substances during maintenance and/or repair, those substances shall be collected into the designated facility.

The operator - legal or natural person - shall maintain a register of the used quantities of ozone depleting substances taken over, handling of ozone depleting substances and quantities of introduced new or recycled ozone depleting substances. The register is kept for five years. The data for the register shall be provided to the State environmental authority by 31 January of the current year for the past calendar year, on the ODS 5 Form.

Article 24

When decommissioning products in Appendix 2 Group I: cooling and air-conditioning devices, and Appendix 2 Group IV: fire-extinguishing apparatus, that contain ozone depleting substances and are not in household use, the legal or natural person owner of such products shall provide for the collection of ozone depleting substances.

The operator - legal or natural person - shall maintain a register of the substances collected in line with paragraph 1 of the present Article, their quantities and the respective handling operations. The register is kept for five years. The data for the register shall be provided to the State environmental authority by 31 January of the current year for the past calendar year, on the ODS 5 Form.

The recovered ozone depleting substances that cannot be recycled are subject to hazardous waste management regulations/by-lawss.

Article 25

Prior to their disposal into a landfill, or during disposal operations, the ozone depleting substances shall be collected from the Appendix 2 Group I products: cooling and air-conditioning devices that contain ozone depleting substances and are in household use.

The operator - legal or natural person - shall maintain a register of the substances collected in line with paragraph 1 of the present Article, their quantities and the respective handling operations. The register is kept for five years. The data for the register shall be provided to the State environmental authority by 31 January of the current year for the past calendar year, on the ODS 5 Form.

Should a product in paragraph 1 of the present Article, defined as waste, not be disposed into a landfill, but handled in some other manner, the ozone depleting substance shall be first collected from it.

The recovered ozone depleting substances that cannot be recycled are subject to hazardous waste management regulations/by-lawss.

Article 26

In order to perform activities defined by Article 23 paragraph 2, Article 24 paragraph 2 and Article 25 paragraph 2 of the present By-Law, legal or natural person should obtain permission from the State environmental authority.

IV PENALTY CLAUSES

Article 27

Legal or natural person shall be fined in the amount of 20,000.00 to 60,000.00 kunas for the following:

1. Should they produce ozone depleting substances (Article 3, paragraph 1);
2. Should they release ozone depleting substances into the air (Article 3, paragraph 2);
3. Should they import recovered or recycled ozone depleting substances (Article 5, paragraph 2);
4. Should they place ozone depleting substances on the wholesale or retail market (Article 6);
5. Should they fail to maintain the register (Article 19 paragraph 1, Article 23 paragraph 2, Article 24 paragraph 2, Article 25 paragraph 2);
6. Should they fail to provide data within the prescribed time-limits (Article 19 paragraph 2, Article 23 paragraph 2, Article 24 paragraph 2, Article 25 paragraph 2);
7. Should an Appendix 2 product not be accompanied by a Statement of Compliance (Article 20);
8. Should a product placed on the market not have the specified declaration (Article 22);
9. Should ozone depleting substances not be collected into a designated facility (Article 23 paragraph 1);
10. Should they not provide for the collection of ozone depleting substances (Article 24 paragraph 1, Article 25 paragraph 1);
11. Should they perform activities without permission of the State environmental authority (Article 26).

For actions listed in the paragraph 1 of the present Article, duly authorised officer within the legal person shall be fined 20,000.00 kunas.

V FINAL PROVISIONS

Article 28

Appendix 1, Appendix 2, Forms ODS 1, ODS 2, ODS 3, ODS 4 and ODS 5, including their corresponding contents, are published with the present By-Law and are constituent parts thereof.

Article 29

The provision of Article 6 of the present By-Law shall not apply to ozone depleting substances containing products should the import and/or production thereof have been arranged prior to entry into force of the present By-Law.

Article 30

Provisions of Articles 23, 24 and 25 of the present By-Law shall apply as of 1 January 2000.

Article 31

The present By-Law shall enter into force on the eighth day following its publication in 'Narodne novine'.

APPENDIX 1

LIST OF OZONE DEPLETING SUBSTANCES

OZONE DEPLETING SUBSTANCE	CHEMICAL FORMULA	SYMBOL	OZONE DEPLETING POTENTIAL ¹⁾	TARIFF CODE
Annex A, Group I: chlorofluorocarbons (CFCs)				
trichlorofluoromethane	CFCl ₃	CFC-11	1.0	2903.41
dichlorodifluoromethane	CF ₂ Cl ₂	CFC-12	1.0	2903.42
trichlorotrifluoroethane	C ₂ F ₃ Cl ₃	CFC-113	0.8	2903.43
dichlorotetrafluoroethane	C ₂ F ₄ Cl ₂	CFC-114	1.0	2903.44
chloropentafluoroethane	C ₂ F ₅ Cl	CFC-115	0.6	2903.44
Annex A, Group II: halons				
chlorobromodifluoromethane	CF ₂ BrCl	halon-1211	3.0	2903.46
bromotrifluoromethane	CF ₃ Br	halon-1301	10.0	2903.46
dibromotetrafluoroethane	C ₂ F ₄ Br ₂	halon-2402	6.0	2903.46
Annex B, Group I: other fully halogenated chlorofluorocarbons (CFCs)				
chlorotrifluoromethane	CF ₃ Cl	CFC-13	1.0	2903.4501
pentachlorofluoroethane	C ₂ FCl ₅	CFC-111	1.0	2903.4502
tetrachlorodifluoroethane	C ₂ F ₂ Cl ₄	CFC-112	1.0	2903.4503
heptachlorofluoropropane	C ₃ FCl ₇	CFC-211	1.0	2903.4504
heksachlorodifluoropropane	C ₃ F ₂ Cl ₆	CFC-212	1.0	2903.4505
pentachlorotrifluoropropane	C ₃ F ₃ Cl ₅	CFC-213	1.0	2903.4506
tetrachlorotetrafluoropropane	C ₃ F ₄ Cl ₄	CFC-214	1.0	2903.4507
trichloropentafluoropropane	C ₃ F ₅ Cl ₃	CFC-215	1.0	2903.4508
dichlorohexafluoropropane	C ₃ F ₆ Cl ₂	CFC-216	1.0	2903.4509
chloroheptafluoropropane	C ₃ F ₇ Cl	CFC-217	1.0	2903.4510
Annex B, Group II: carbon-tetrachloride				
carbon-tetrachloride	CCl ₄	carbon-tetrachloride	1.1	2903.14
Annex B, Group III: 1,1,1-trichlorethane				
1,1,1-trichloroethane	C ₂ H ₃ Cl ₃ ²⁾	1,1,1-trichloroethane (methylchloroform)	0.1	2903191
Annex C, Group I: non-halogenated hydrochlorofluorocarbons (HCFCs)				
dichlorofluoromethane	CHFCI ₂	HCFC-21	0.04	2903491
chlorodifluoromethane	CHF ₂ Cl	HCFC-22	0.055	
chlorofluoromethane	CH ₂ FCI	HCFC-31	0.02	

OZONE DEPLETING SUBSTANCE	CHEMICAL FORMULA	SYMBOL	OZONE DEPLETING POTENTIAL ¹⁾	TARIFF CODE
tetrachlorofluoroethane	C ₂ HFC ₄	HCFC-121	0.01 - 0.04	
trichlorodifluoroethane	C ₂ HF ₂ Cl ₃	HCFC-122	0.02 - 0.08	
dichlorotrifluoroethane	C ₂ HF ₃ Cl ₂	HCFC-123 ³⁾	0.02 - 0.06	
chlorotetrafluoroethane	C ₂ HF ₄ Cl	HCFC-124 ³⁾	0.02 - 0.04	
trichlorofluoroethane	C ₂ H ₂ FC ₃	HCFC-131	0.007 - 0.05	
dichlorodifluoroethane	C ₂ H ₂ F ₂ Cl ₂	HCFC-132	0.008 - 0.05	
chlorotrifluoroethane	C ₂ H ₂ F ₃ Cl	HCFC-133	0.02 - 0.06	
dichlorofluoroethane	C ₂ H ₃ FC ₂	HCFC-141	0.005 - 0.07	
dichlorofluoroethane	CH ₃ CFCl ₂	HCFC-141b ³⁾	0.11	
chlorodifluoroethane	C ₂ H ₃ F ₂ Cl	HCFC-142	0.008 - 0.07	
chlorodifluoroethane	CH ₃ CF ₂ Cl	HCFC-142b ³⁾	0.065	
chlorofluoroethane	C ₂ H ₄ FCI	HCFC-151	0.003 - 0.005	
hexachlorofluoropropane	C ₃ HFC ₆	HCFC-221	0.015 - 0.070	
pentachlorodifluoropropane	C ₃ HF ₂ Cl ₅	HCFC-222	0.010 - 0.090	
tetrachlorotrifluoropropane	C ₃ HF ₃ Cl ₄	HCFC-223	0.01 - 0.080	
trichlorotetrafluoropropane	C ₃ HF ₄ Cl ₃	HCFC-224	0.01 - 0.090	
dichloropentafluoropropane	C ₃ HF ₅ Cl ₂	HCFC-225	0.02 - 0.070	
dichloropentafluoropropane	CF ₃ CF ₂ CH Cl ₂	HCFC-225ca ³⁾	0.025	
dichloropentafluoropropane	CF ₂ ClCF ₂ C HClF	HCFC-225cb ³⁾	0.033	
chlorohexafluoropropane	C ₃ HF ₆ Cl	HCFC-226	0.02 - 0.10	
pentachlorofluoropropane	C ₃ H ₂ FC ₅	HCFC-231	0.05 - 0.09	
tetrachlorodifluoropropane	C ₃ H ₂ F ₂ Cl ₄	HCFC-232	0.008 - 0.10	
trichlorotrifluoropropane	C ₃ H ₂ F ₃ Cl ₃	HCFC-233	0.007 - 0.23	

OZONE DEPLETING SUBSTANCE	CHEMICAL FORMULA	SYMBOL	OZONE DEPLETING POTENTIAL ¹⁾	TARIFF CODE
dichlorotetrafluoropropane	C ₃ H ₂ F ₄ Cl ₂	HCFC-234	0.01 - 0.28	
chloropentafluoropropane	C ₃ H ₂ F ₅ Cl	HCFC-235	0.03 - 0.52	
tetrachlorofluoropropane	C ₃ H ₃ FCl ₄	HCFC-241	0.004 - 0.09	
trichlorodifluoropropane	C ₃ H ₃ F ₂ Cl ₃	HCFC-242	0.005 - 0.13	
dichlorotrifluoropropane	C ₃ H ₃ F ₃ Cl ₂	HCFC-243	0.007 - 0.12	
chlorotetrafluoropropane	C ₃ H ₃ F ₄ Cl	HCFC-244	0.009 - 0.14	
trichlorofluoropropane	C ₃ H ₄ FCl ₃	HCFC-251	0.001 - 0.01	
dichlorodifluoropropane	C ₃ H ₄ F ₂ Cl ₂	HCFC-252	0.005 - 0.04	
chlorotrifluoropropane	C ₃ H ₄ F ₃ Cl	HCFC-253	0.003 - 0.03	
dichlorofluoropropane	C ₃ H ₅ FCl ₂	HCFC-261	0.002 - 0.02	
chlorodifluoropropane	C ₃ H ₅ F ₂ Cl	HCFC-262	0.002 - 0.02	
chlorofluoropropane	C ₃ H ₆ FCl	HCFC-271	0.001 - 0.03	
Annex C, Group II: hydrobromofluorocarbons (HBFCs)				
dibromofluoromethane	CHFBr ₂		1.0	2903.492
bromodifluoromethane	CHF ₂ Br	HBFC-22B1	0.74	
bromofluoromethane	CH ₂ FBr		0.73	
tetrabromofluoroethane	C ₂ HFBr ₄		0.3 - 0.8	
tribromodifluoroethane	C ₂ HF ₂ Br ₃		0.5 - 1.8	
dibromotrifluoroethane	C ₂ HF ₃ Br ₂		0.4 - 1.6	
bromotetrafluoroethane	C ₂ HF ₄ Br		0.7 - 1.2	
tribromofluoroethane	C ₂ H ₂ FBr ₃		0.1 - 1.1	
dibromodifluoroethane	C ₂ H ₂ F ₂ Br ₂		0.2 - 1.5	
bromotrifluoroethane	C ₂ H ₂ F ₃ Br		0.7 - 1.6	
dibromofluoroethane	C ₂ H ₃ FBr ₂		0.1 - 1.7	
bromodifluoroethane	C ₂ H ₃ F ₂ Br		0.2 - 1.1	
bromofluoroethane	C ₂ H ₄ FBr		0.07 - 0.1	
hexabromofluoropropane	C ₃ HFBr ₆		0.3 - 1.5	
pentabromodifluoropropane	C ₃ HF ₂ Br ₅		0.2 - 1.9	
tetrabromotrifluoropropane	C ₃ HF ₃ Br ₄		0.3 - 1.8	

OZONE DEPLETING SUBSTANCE	CHEMICAL FORMULA	SYMBOL	OZONE DEPLETING POTENTIAL ¹⁾	TARIFF CODE
tribromotetrafluoropropane	C ₃ HF ₄ Br ₃		0.5 - 2.2	
dibromopentafluoropropane	C ₃ HF ₅ Br ₂		0.9 - 2.0	
bromohexafluoropropane	C ₃ HF ₆ Br		0.7 - 3.3	
pentabromofluoropropane	C ₃ H ₂ FBr ₅		0.1 - 1.9	
bromotrifluoropropane	C ₃ H ₂ F ₃ Br ₃		0.2 - 5.6	
dibromotetrafluoropropane	C ₃ H ₂ F ₄ Br ₂		0.3 - 7.5	
bromopentafluoropropane	C ₃ H ₂ F ₅ Br		0.9 - 1.4	
tetrabromofluoropropane	C ₃ H ₃ FBr ₄		0.08 - 1.9	
tribromodifluoropropane	C ₃ H ₃ F ₂ Br ₃		0.1 - 3.1	
dibromotrifluoropropane	C ₃ H ₃ F ₃ Br ₂		0.1 - 2.5	
bromotetrafluoropropane	C ₃ H ₃ F ₄ Br		0.3 - 4.4	
tribromofluoropropane	C ₃ H ₄ FBr ₃		0.03 - 0.3	
dibromodifluoropropane	C ₃ H ₄ F ₂ Br ₂		0.1 - 1.0	
bromotrifluoropropane	C ₃ H ₄ F ₃ Br		0.07 - 0.8	
dibromofluoropropane	C ₃ H ₅ FBr ₂		0.04 - 0.4	
bromodifluoropropane	C ₃ H ₅ F ₂ Br		0.07 - 0.8	
bromofluoropropane	C ₃ H ₆ FBr		0.02 - 0.7	
Annex E, Group I: methyl bromide				
methyl bromide	CH ₃ Br	methyl bromide	0.7	2903.301

1. The ozone depleting potentials are estimates based on existing knowledge and will be reviewed and revised periodically in accordance with provisions of the Montreal Protocol.
2. Formula does not refer to 1,1,2-trichloroethane.
3. Identifies the most common isomers as prescribed by the Montreal Protocol.

PRODUCT LIST

Group I: Cooling and air-conditioning devices¹⁾

- a) Fixed cooling and air-conditioning devices
 - refrigerators, freezers, ice-makers, refrigeration apparatus,
 - dehumidifiers,
 - water coolers,
 - heat pumps,
 - air-conditioners.
- b) Mobile cooling and air-conditioning devices
 - refrigerated transport,
 - mobile air-conditioning units, including units installed in vehicles, aircraft and vessels.

Group II: Aerosol products (sprays), excluding medical use²⁾**Group III: Solvents³⁾****Group IV: Fire-extinguishing apparatus⁴⁾**

- a) preparations, fire-extinguisher fillers or fire-extinguishing shells,
- b) fire-fighting devices (filled with extinguishing agents).

Group V: Polymeric materials⁵⁾

- a) Basic polymeric material and products,
- b) Foam polymeric material and products.

- 1) Cooling and air-conditioning devices that contain or use Appendix 1 Annex A Group I ozone depleting substances (chlorofluorocarbons) in insulation and/or as refrigerants.
- 2) Aerosol products containing Appendix 1 Annex A Group I ozone depleting substances (chlorofluorocarbons) as propellants. This includes foodstuffs, cosmetics and toiletry, pesticides, paints, lubricants, liquid defrosters, silicones, weapons (tear gas), etc.
- 3) Products containing Appendix 1 Annex B Groups II and III ozone depleting substances (carbon tetrachloride and 1,1,1-trichloroethane) as solvents). This includes paint and varnish dilutants, solvents and various solvent-containing products, e.g. oil, grease, dust or mould removers, film, glass and tin metal cleaners, fumigants, correction fluids etc.
- 4) Fire-extinguishing apparatus containing Appendix 1 Annex A Group II ozone depleting substances (halons), including portable fire-extinguishers and stable fire-fighting systems.
- 5) Products whose technological production processes involve Appendix 1 Annex A Group I ozone depleting substances (chlorofluorocarbons) and Annex A Groups II and III ozone depleting substances (carbon tetrachloride and 1,1,1-trichloroethane) as solvents or foaming agents. This includes flexible and rigid polyurethane foams, phenolic, polystyrene and polyolephene foams and products containing such agents (furniture - chairs, sets, mattresses, foam-based carpets, shape-customised instrument and tool packaging material, vehicle seats, insulation material, sandwich panels, buoys, insulation foam in spray, medical items, etc.).

**REQUEST FOR OZONE DEPLETING SUBSTANCES
IMPORT/EXPORT PERMIT**

No.: (1) _____

(2) Title of importing/exporting company _____
Registration code of importer/exporter _____
Address (town, street and number) _____

_____ Phone _____ Fax _____
Name of duly authorised officer _____

?3? Name and tariff code of the (new / recovered / recycled) ozone depleting substance requested to be imported/exported

?4? Chemical formula of the ozone depleting substance requested to be imported/exported

Requested import/export quantity for the ozone depleting substance, expressed in kilogrammes

(5) Title of the company - producer of the ozone depleting substance requested to be imported/exported

Address (State, town, street and number) _____

(5) Ozone depleting substance exporting/importing State

(6) Intended use of the imported ozone depleting substance _____

(7) Done in _____

L.S.

Duly authorised
officer

Name

Signature

ODS 1 - INSTRUCTIONS FOR USE

(1) Each ODS 1 Form shall be numbered.

Information to be entered:

- (2) title, address and registration code of the importing/exporting company (for bigger companies denote the technological unit), and the name of the duly authorised officer;
- (3) name, chemical formula, quantity and tariff code of the ozone depleting substance intended for import/export. Indicate (underline) whether import permit is requested for a new or recycled substance, or export permit for a new or recovered substance exported for recycling;
- (4) State, title and address of the ozone depleting substance producer;
- (5) ozone depleting substance importing/exporting State;
- (6) intended use of the imported ozone depleting substance (e.g. maintenance, production etc.);
- (7) place and date of completion and clearly written name of the duly authorised officer, signature and stamp by the importing/exporting company.

Note:

The Form is completed by legal or natural person importing/exporting ozone depleting substances and submitted to the Ministry of Economic Affairs. The Form is used separately for each individual ozone depleting substance.

The information is entered in block capitals, by hand, typewriter or computer.

**REQUEST FOR IMPORT PERMIT FOR OZONE DEPLETING SUBSTANCES AND
ODS-CONTAINING PRODUCTS FOR SPECIAL PURPOSES**

No. (1) _____

(2) Importing company title _____
Importer registration code _____

Address (town, street and number) _____
Phone _____ Fax _____

Name of duly authorised officer _____

(3) Name and tariff code of the (new/recycled) ozone depleting substance
requested to be imported.....

Name and tariff code of the product containing the ozone depleting
substance requested to be imported.....

Chemical formula of the ozone depleting substance requested to be
imported, or contained in the product requested to be imported.....

Requested import quantity of the ozone depleting substance, expressed in
corresponding measuring units.....

Requested quantity of the ODS-containing product, expressed in
corresponding measuring units.....

- (4) Description of special need
- a) preservation of human/plant/animal life
 - b) national defence/safety
 - c) protection against fire
 - d) traffic safety
 - e) scientific research purposes

(5) Title of the company producing the ozone depleting substance / ODS-containing
product requested to be imported _____

Address (State, town, street and number) _____

(6) Ozone depleting substance / ODS-containing product exporting State

(7) End user of the imported ozone depleting substance _____

End user of the imported ODS-containing product.....

(8) Done in _____

L.S.
Duly authorised officer

Name/ Signature

ODS 2 - INSTRUCTIONS FOR USE

(1) Each ODS 2 Form shall be numbered.

Information to be entered:

- (2) importing company title, address and registration code, name of duly authorised officer;
- (3) name, tariff code, chemical formula and quantity of the ozone depleting substance. Indicate (underline) whether import is requested for a new or recycled substance. Enter name, tariff code and quantity of imported product;
- (4) Circle the special need of requested import. Special need denotes consumption of ozone depleting substances contained in products used for preservation of humans, plant and animal life, national defence and safety, protection against fire, traffic safety and safety of scientific research, when such substances and products cannot be replaced by environmentally sounder technical or economic alternatives;
- (5) State, title and address of the company producing the ozone depleting substance or the ODS-containing product requested to be imported;
- (6) State exporting the ozone depleting substance or the ODS-containing product requested to be imported;
- (7) name of end user of the ozone depleting substance or the ODS-containing product requested to be imported;
- (8) place and date of completion and clearly written name of the duly authorised officer, signature and stamp by the importing company.

Note:

The Form is completed by legal or natural person importing ozone depleting substances or ODS-containing products and submitted to the Ministry of Economic Affairs. The Form is used separately for each individual ozone depleting substance and for each individual ODS-containing product.

The information is entered in block capitals, by hand, typewriter or computer.

INFORMATION ON OZONE DEPLETING SUBSTANCES IMPORTS/EXPORTS

No. (1) _____

(2) Importing/exporting company title _____
Importing/exporting company registration code _____
Address (town, street and number) _____
Phone _____ Fax _____
Name of duly authorised officer _____

(3) Importation/exportation period _____

(4) Name and tariff code of the imported/exported ozone depleting substance

Chemical formula of the imported/exported ozone depleting substance

Imported/exported quantity of the ozone depleting substance, expressed in
kilogrammes

Bill of lading number and date and/or customs declaration number and date

(5) Quantity of the sold ozone depleting substance imported, expressed in
kilogrammes

Quantity of the stored ozone depleting substance imported, expressed in
kilogrammes

(6) End user of the imported ozone depleting substance
Address (town, street and number) _____
_____ Phone _____ Fax _____
Name of duly authorised officer _____

(7) Intended use of imported ozone depleting substance _____

(8) Done in _____ L.S.

Duly authorised officer

Name /Signature

ODS 3 - INSTRUCTIONS FOR USE

(1) Each ODS 3 Form shall be numbered.

Information to be entered:

- (2) *importing/exporting company title, address and registration code, name of duly authorised officer;*
- (3) *time period (month and year) of importation/exportation of ozone depleting substances;*
- (4) *name, chemical formula, quantity and tariff code of the actually imported/exported ozone depleting substance, and the bill of lading number and date or customs declaration number and date;*
- (5) *total quantity of the imported ozone depleting substance sold and the quantity stored;*
- (6) *information on the end user of the imported ozone depleting substance; enter address, and name of duly authorised person;*
- (7) *intended use of the imported ozone depleting substance (e.g. maintenance, production etc.);*
- (8) *place and date of completion along with the clearly written name of duly authorised officer, signature and stamp by the importing/exporting company.*

Note:

The Form is completed by legal or natural person importing/exporting ozone depleting substances and submitted to the State environmental authority within thirty days following the expiry of permit. The Form is used separately for each individual ozone depleting substance.

The information is entered in block capitals, by hand, typewriter or computer.

STATEMENT OF PRODUCT'S COMPLIANCE

No. (1) _____

- (2) Product importing/producing company title _____
Product importing/producing company registration code _____

Address (town, street and number) _____

Phone _____ Fax _____

Name of duly authorised officer _____

- (3) Product name, type and tariff code

Quantity of imported shipment _____

Quantity of shipment placed on the wholesale and retail market in the territory of the Republic of Croatia

Chemical formula and quantity (in kilogrammes) of the alternative substance contained in the product

Bill of lading number and date and/or customs declaration number and date

- (4) Done in _____

L.S.

Duly authorised officer

Name

Signature

ODS 4 - INSTRUCTIONS FOR USE

- (1) Each ODS 4 Form shall be numbered.

Information to be entered:

- (2) importing/producing company title, address and registration code, name of duly authorised officer;
- (3) name, type and tariff code of the product imported/placed on the wholesale and retail market in the territory of the Republic of Croatia, quantity of shipment imported/placed into circulation, expressed in corresponding measuring units (litres, kilogrammes, pieces etc.);
- (3) place and date of completion and clearly written name of duly authorised officer, signature and stamp by the importing/producing company.

Note:

The Form is completed by legal or natural person importing Appendix 2 products. The Form is used separately for each individual ozone depleting substance.

Legal person should, on import, enter product quantity according to imported product type, as well as product quantities placed into wholesale and retail circulation in the territory of the Republic of Croatia.

Information is entered in block capitals, by hand, typewriter or computer.

INFORMATION ON RECOVERED OZONE DEPLETING SUBSTANCES

No. (1) _____
Year _____

(2) Title of company performing collection of recovered ozone depleting substances

Company registration code _____

Address (town, street and number) _____

Phone _____ Fax _____

Name of duly authorised officer _____

(3) Chemical formulas and quantities (in kilogrammes) of recovered ozone depleting substances taken over

(4) Title and address of the legal or natural person owner of products containing the collected ozone depleting substances

(5) Handling of collected ozone depleting substances

(6) Title of company performing recycling of recovered ozone depleting substances

Company registration code _____

Address (town, street and number) _____

Phone _____ Fax _____

Name of duly authorised officer _____

(7) Done in _____

L.S.

Duly authorised officer

Name

Signature

ODS 5 - INSTRUCTIONS FOR USE

- (1) Each ODS 5 Form shall be numbered, stating also the year to which the information on collection and handling of recovered ozone-depleting substances refers;

Information to be entered:

- (2) collection company title, address and registration code, name of duly authorised officer;
- (3) chemical formulas and quantities of recovered ozone depleting substances taken over; to be completed separately for each individual substance;
- (4) title and address of the legal or natural person owner of the products containing the collected recovered ozone depleting substances or of municipal waste treatment facility for collected ozone depleting substances from households;
- (5) method of handling collected ozone depleting substances (enter the recycling method used or another procedure according to waste management regulations/by-lawss);
- (6) recycling company title, address and registration code, name of duly authorised officer;
- (7) place and date of completion and clearly written name of duly authorised officer, signature and stamp by the collection company.

Note:

The Form is completed by legal or natural person authorised for performing collection of recovered ozone depleting substances and submitted to the State environmental authority by 31 January of the current year for the past calendar year.

The Form is used separately for each individual recovered ozone depleting substance collected.

Information is entered in block capitals, by hand, typewriter or computer.