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The Government of Romania
Ministry of Waters, Forests and Environmental Protection

UNIDO

United Nations Industrial Development Organization

REFRIGERANT MANAGEMENT PLAN

April 1999

EXECUTIVE SUMMARY

This Refrigerant Management Plan aims at developing a comprehensive and detailed programme to phase-out 400 tons of CFCs used for servicing refrigeration and air-conditioning equipment in Romania. The current CFC consumption for servicing is 433 tons.

Romania ratified the Vienna Convention and the Montreal Protocol in 1993 and operates under the Article 5 of the protocol. The Country Programme was compiled in 1994-1995. The Institutional Strengthening Programme is approved and the programme is being implemented since the late 1996.

The phase-out of ODS (Annex A and B substances) has started in the industry. Some 963 ODP tons of ODS have been phased out by the end of 1998 in aerosol, foam and refrigeration industries. However, the CFC refrigerant consumption has been increasing since 1993 (170 tons) and is now (1998) estimated at 493 tons. Out of this amount approximately 433 tons is consumed for maintenance and 60 for initial charge.

The 1999 consumption freeze (of Annex A substances) will be reached.

By compiling this Refrigerant Management Plan the Government wants to present a comprehensive programme to phase out 400 tons of CFC refrigerants by the end of 2002 leaving out a diminishing amount needed to service the old equipment until it reaches the end of its technical and economical life. The old equipment will be increasingly serviced using recovered and recycled substances. The CFC refrigerant imports will finish by the end of 2003.

The plan indicates measures and sub-programmes with costs. When approved and funded and this plan will serve as a guideline up to the phase-out of all CFC refrigerants and will thus reduce administrative needs enabling the government to concentrate in effective phase-out measures in other sectors.

The Refrigerant management plan will consist of three components:

Training programme on good practices in refrigeration maintenance

Recovery and recycling of refrigerants

Training of customs officers

Romania has still equipment producers consuming CFCs for the initial charge. It has not been possible to define the conversion costs of this project in detail. The budget of the RMP doesn't include conversion costs.

The total incremental costs of the implementation of the refrigerant management plan are estimated at USD 640,940 of which the Government of Romania will finance approximately USD 25,840.

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1. COUNTRY SITUATION

1.1. Status of Romania with Regard to the Montreal Protocol

Romania ratified the Vienna Convention, the Montreal Protocol and the London amendment in January 1993. Romania is classified to operate under the Article 5 of the Protocol.

1.2. Status of the Country Programme

The Country Programme to phase out ozone depleting substances (ODS) was compiled in 1994-95.

The Country Programme targeted at an accelerated phase-out; all consumption (annex A and B substances) eliminated by the end of the year 2000. Phase-out measures have been initiated and activities mentioned in the Country Programme are being implemented. However, it is clear that the phase-out target set in the Country Programme will not be time wise achieved. The Action Plan section of the Country Programme presents and recommends totally 14 different activities to be initiated. The Action Plan section included in the 1995 approved Country Programme is in annex 1.

The Government has set up the Ozone Office and the Institutional Strengthening programme. Due to the administrative restructuring the initiation of the Institutional Strengthening Programme has been rather slow.

The Country programme has served as a general guideline for the Government and environmental authorities in developing phase-out actions and measures supporting them. However, the implementation of the Country Programme has been complicated. The Romanian economy has experienced difficulties during the whole 1990s, which difficulties are naturally reflected in ODS consuming sector, too. Of the fourteen activities proposed in the Country Programme seven are initiated, three finalised.

The companies consuming ODS have been facing new foreign competition, the sources of ODS have changed etc. The base inventory year of the Country Programme, 1993, was obviously exceptional. The consumption figures were lower than usual. The Country programme is now outdated. Therefore the Country Programme needs an up-date, for which this Refrigerant Management Plan will contribute regarding the refrigeration sector.

1.3. Status of the Institutional Strengthening Project

The Ozone Office was established in the Ministry of Waters, Forests and Environmental Protection (MWFEP) in 1997. The Institutional Strengthening Project was established in late 1996, has been formally operational since October 1997, but due to administrative difficulties and restructuring the actual implementation of the project has not started effectively until the latter part of 1998. The Institutional Strengthening Programme will run for a period of three years, i.e. up to 2001. Two professionals, a co-ordinator and an assistant operate the Ozone Office. Furthermore, the office is supplied with normal equipment and consumables. This set-up enables the office to run the normal administrative and co-ordination business, reporting etc.

The objectives of the Institutional Strengthening Programme are defined in the standard Terms of Reference included in the contract between UNIDO and the MWFEP.

The Ozone Office is regularly compiling the import and consumption data, issuing licenses for imports and exports. The ODS data collected and reported to the Ozone Secretariat is basically retrieved from three sources:

*ODS import licenses
*Customs statistics
*Regional environmental authorities

The consumption figures are being reported to the Ozone Secretariat, but the office is facing difficulties in compiling reliable statistics because of inconsistent data received from the aforementioned sources. The imports and trading patterns are extremely volatile. Stockpiling and some re-export make the compilation of statistics vague.

The Ozone Office has a comprehensive data on the refrigeration maintenance companies and workshops, which cover most of the refrigerant consumption. However, the economic and industrial restructuring has resulted in the establishment of several small refrigeration workshops, which work without any proper commercial licences.

An essential part of the refrigeration and especially refrigeration maintenance related date has been collected, and is continuously collected by the Cluj-Napoca based ICPIAF Co. (Institutul de Cercetare si Productie Pentru Industria Alimentara si Frigifrica). ICPIAF works in a close collaboration with the Ozone Office. Also ICPIAF has received some support from UNIDO to make a survey on the main companies involved in the refrigeration maintenance business. The results of this survey have been available when compiling this Refrigerant Management Plan.

The Ozone Office has supported the preparation and implementation of some industrial phase-out projects included in the Country Programme. Some public awareness activities have been implemented and the office has also supported the establishment of a refrigeration training centre in Cluj-Napoca.

The initial legislation relevant for the ODS has been passed. The following regulations form the basic tools available for the Ozone Office and the concerned authorities to tackle the ODS consumption:

1. Decision no 437/1992 on Modification and Completion of the Government Decision no. 340/92 Concerning Imports of Waste Materials and Residues of All Sorts and other Environmentally Dangerous Goods.
2. Decision to Complement the Denomination and the Classification of Goods in the Romanian Customs Import Tariff, Regarding Sub-classification of ODS.
3. Decision Concerning the Organisation and Functioning of the MWFEP (i.e. the MWFEP is the responsible authority regarding ODS issues in Romania).
4. Decision Concerning the Setting-up, Organisation and Functioning of the National Committee for the Protection of the Ozone Layer and the establishment of the Ozone Office at the MWFEP.

Naturally the implementation of the Vienna Convention and Montreal Protocol has been decreed.

The imports/exports of ODS from/to non-party countries are specifically banned.

For the time being there are no regulations regarding the specific applications (end use), installation and servicing of refrigeration equipment, labelling etc. The MWFEP has prepared a very comprehensive and detailed set of regulations (action programme) to cover all ODS related activities. The outlines of this programme are outlined in chapter 2 (Justification for RMP)

1.4. Current Situation

The following table indicates the ODS consumption in 1993 and 1998, respectively.

According to the Country Programme the ODS consumption (annex A and B substances only) in 1993 was 1557,9 ODP tons. Out of this volume CFCs counted for 1431,0 tons. The CFC refrigerant consumption was

176,3 tons. The ODS consumption in 1998 was approximately 664,8 tons, of which CFCs counted for approximately 590 ODP tons.

Annex-Group	Substance	Consumption in 1993 ODP tons*	Consumption in 1998 ODP tons**
A-Group I	CFC 11	267,2	20,0
	CFC 12	1102,5	567,8
	CFC 113	60,8	2,2
	CFC 114	0,5	
CFCs total		**1431,0**	**590,0**
A-Group II	Halon 1211	3,6	-
	Halon 1301	**26,0**	**2,5**
	Halon 2402	**1,8**	-
B-Group II	Carbon Tetrachloride	73,0	(***55,0)
B-Group III	Methyl chloroform	22,5	3,0
C	HCFC-22	0,4	0,3
E	Methyl Bromide	0,0	14,0
All ODS		**1558,3**	**609,8**

*) Country Programme, page 9, table 2.2.
**) Data collected by the MWFEP.
***) According to MWFEP all Carbon tetrachloride produced (55 OPD tons) was exported as feedstock.
Romania produced in 1993 some 515 tons of CFC 11 and CFC 12. This production has ceased and all 1998 consumption needs are imported.

The CFC consumption in the refrigeration sector was in 1993 and 1998, respectively, as follows:

User Sector/Use	Application Of CFC 12	Consumption in ODP tons	
		1993	1998
Domestic refrigeration 1997/98: 5 million domestic units	Initial charge CFC-12 Servicing CFC-12	60,2 11,1	53,0 180,0
Commercial refrigeration 0,5 million units	Initial charge CFC-12 Servicing CFC-12	55,0 6,0	0,0 200,0
Cold stores and industrial refrigeration 4000 cold stores Industrial installations	Initial charge CFC-12 Servicing CFC-12	5,0 3,0	5,0 40,0
Refrigerated transport 1000-1200 refrigerated trucks, railway wagons	Servicing CFC- 12	10,8	15,0
Refrigeration total **Of which initial charge** **Servicing**		**170,3** **109,2** **61,1**	**493,0** ***60,0** **433,0**

*) Since the production of refrigeration equipment is fluctuating the actual volumes used for the initial charge cannot be defined accurately. The figure, 60 tons, may partially present refrigerants stocked.

It should be pointed out that the consumption figures do not include CFCs (mainly CFC-11) used for the insulation.

Inventories made after the Country Programme Preparation indicate that the 1993 CFC refrigerant consumption was underestimated. It should also be pointed out that the first years of 1990s were very exceptional in the Romanian economy. The national economy contracted, food consumption included. The maintenance of equipment was largely neglected.

In 1998 the Government issued approximately 80 licences (for approximately 15 companies) to import CFCs. A licence is issued for each separate shipment.

A remarkable part of larger commercial and industrial installations are technically old (from 1960s and 1970s) being a source of leaks and posing a problem in the maintenance.

The population of Romania (22 million) is distributed rather evenly all over the country, which also means that the distribution of refrigeration equipment is even.

Regarding the technical and structural issues the following can be noted:

The current maintenance standards of domestic and commercial refrigeration equipment are generally poor. However, since 1993 some new maintenance companies have emerged in the market. Out of these companies the most remarkable is the Midal Co. which company runs the refrigerant maintenance and trade all over Romania and importing some 200 tons of refrigerants p.a. The recent economic changes have resulted in establishing several small, poorly equipped maintenance workshops. Larger commercial and industrial installations are usually serviced properly, but commercial difficulties often result in lowering the standards by using non-professional operators.

Romania has approximately 310 licensed refrigeration service workshops (i.e. businesses which indicate refrigeration maintenance as their activity). There are no specific rules to start or run a maintenance business and thus no regulated way to prevent a business from starting the maintenance. In addition to these commercially licensed workshops the number of small, unlicensed workshops and individual operators/technicians has been recently increasing. The total number of technicians working on refrigeration maintenance is about 1200.

There are no systematic recovery and recycling activities. However, the inventories made during the preparation of this RMP revealed that within the business there is a remarkable interest in the recovery and recycling. Some CFC traders (e.g. Central Europe Trading and Technologies S.R.L.) have made recovery and recycling trials with their clients (end users) and

at least a small market for recovered refrigerants exists. Recovery and recycling machines are being tested.

Practical maintenance skills are mainly learned on-the-job. Refrigeration technology is taught at the university level as part of mechanical engineering. However, a very small number of the graduates are recruited in the refrigeration business and even a smaller number is involved in the maintenance. Romania has a professional association of refrigeration engineers (AGRF), but the activities of this association are mainly within the academia.

The ICPIAF Co. in Cluj-Napoca has established a properly equipped refrigeration training center and trained trainers with the support of UNIDO. This training center and trainers will be the key facility in implementing the envisioned training programme.

Refrigerant service businesses and larger commercial and industrial users are generally aware of the forthcoming imports and consumption restrictions. Also alternative substances, alternative technology and other options to replace CFCs are known. The service needs of new, mainly HFC 134a run equipment are still very small, but to enhance the application of CFC-free technologies it is necessary promote the alternatives and their handling in the training.

2. JUSTIFICATION FOR RMP

Romania has already phased out most of the initial charge of CFC refrigerants and is in process to phase-out the remaining initial charge. Part of this phase-out is not by design but by force. The producers have had difficult times. The phase-out of the remaining initial charge needs some financial support but the process is also supported by the market. This development follows the phase-out target and process set in the Country Programme. Contrary to the phase-out of the initial charge the CFC recharge for maintenance has been increasing. Even though Romania may have no problems regarding the 1999 freeze (regarding all Annex A and B substances) the increased consumption of refrigerants is highly undesirable. Therefore this Refrigerant Management Plan and the subsequent support for its implementation is extremely necessary to counterbalance the somewhat negative development and to prevent Romania from suffering from higher prices and more complicated availability of CFC refrigerants in the future.

Romania is running an Institutional Strengthening Programme since the beginning of 1997. This programme affects indirectly, but it should be noted that the Programme and its management tool, the Ozone Office, have been successful in preparing and implementing industrial phase-out

projects. The establishment of the training center is also a remarkable issue.

The Ozone Office at the MWFEP has prepared a proposal for a comprehensive ODS regime. The main components of this regime are as follows:

*general regulations concerning import, export, use, recovery and equipment (these regulations are in accordance to the regulations adopted in other CEIT countries in the Region)
*import/re-export bans from/to non-party countries (substances and equipment)
*technical regulations on handling the substances and assembling/disassembling and disposal of equipment using and containing ODS
*establishment of import quotas starting from 1999
*a specific "ability licence" as a condition for import
*obligatory labelling, i.e. to indicate if the equipment is using CFCs or is CFC-free
*obligatory recovery and recycling of CFC in the maintenance
*ban of disposable cylinders
*obligatory training as a condition to get a licence for mounting and maintaining equipment
*specific penalties for misconduct and misuse

The Refrigerant Management Plan is firstly needed to keep the phase-out development going on and support the implementation of the envisioned regime. Secondly, the phase-out targets and projects formulated to reach these targets are concise, clear and valid.

It should be noted that the proposed ODS (and CFC) regime is not in line with the several existing regimes, of which the general free trade policy pursued by the Government

Therefore the Refrigerant Management Plan and implementation of the projects included in it, with the proper support from the Multilateral Fund, are an effective and cost-efficient tool to reach almost a complete phase-out of ODS refrigerants within a few years

3. ASSISTANCE RECEIVED

The compilation of this Refrigerant Management Plan has been supported by UNIDO, which sent two consultants to work for a short period in Romania to compile the background information, assess the situation and develop contacts with authorities and businesses already involved or to be involved in phase-out actions. The consultants also contributed to the

formulation of the project proposals included in this document. The Ozone Office, high executives of the Ministry Waters, Forests and Environmental Protection have actively supported the compilation of this Refrigerant Management Plan. The Joint UNIDO-Romania Center in Bucharest also contributed to the proposal preparation. A valuable support was received from the ICPIAF and other private companies involved in the refrigeration business. ICPIAF has reviewed several components of the proposal document. Especially the realism of the proposed projects has checked with the businesses.

4. COMPONENTS OF THE PHASE OUT STRATEGY

The Country Programme defines the phase-out strategy as follows:

"The Romanian Government's point of view is that the key challenges of ODS phase-out in Romania are only partly of a technical nature. There are several non-technical factors which must be addressed and, in many cases, need more consideration than the technical issues. Technical substitution options exist or are under development in Romania though in a few cases is not up-to-date compared with Western standards. Probably, the scarcity of capital and the deficiencies in the institutional set-up are the two most important challenges to completion of the necessary R & D and to successful implementation of the ODS phase-out strategy. In addition, MWFEP will implement a regulatory regime for ODS production, consumption and trade, making use of administrative and economic instruments."

Basically the strategy adopted is valid, but need some focusing. Since the time the Country programme was compiled the development in the refrigeration sector has been rather positive, with the exception that the CFC consumption for maintenance purposes has increased. The conversion projects already implemented or to be implemented will also result in lower maintenance consumption in the long run. The maintenance sector is an immediate and remarkable source of savings and therefore needs more support than envisioned in the Country Programme.

An other issue which needs more attention is the regulatory side. The import and trading patterns seem to be very volatile. The supply of CFCs in the Region is more than abundant and the non-intervention, which the Government is practising seems to be partially misused. There has been positive developments and by focusing in the implementation of the projects described in this documents the refrigerant consumption can be phased out within a few years without causing unnecessary burden to the consumers and businesses.

5. ACTION PLAN

Based on the experience gained since the preparation of the Country Programme, further negotiations and discussions with the Government and businesses, it is proposed that the Refrigerant Management Plan will consist of the following components:

Training Programme for Good Practices in Refrigeration
Recovery and Recycling Programme
Training Programme for Customs Officers

Timetable to implement the components is indicated in the following scheme:

Action	Year			
	1999	2000	2001	2002
1. Training for good practices	I II	III		
2. Recovery and recycling				
3. Training of custom officers.				

Project implementation

Monitoring, follow-up, reporting

Romania has still some initial charging capacity of some 60 ODP tons of CFC. The companies involved in the equipment manufacturing are currently experiencing economic and financial difficulties and the business wise validity and feasibility of the possible conversion projects need a special attention. Therefore this RMP doesn't include any proposal or financial contribution for conversion, which will be subject to further investigations in the Country Programme to be updated.

Training Programme for Good Practices in Refrigeration

This project aims at training 400 service technicians, who service domestic and commercial equipment, industrial installations and refrigerated transport.

Trainees come from approximately 60 service businesses. Training will be arranged in Cluj-Napoca at the Training Centre for Refrigeration Service Technicians. It is estimated that the training contributes to phase-out some 350 tons of CFC. The costs of the training are estimated at USD 244,000. The project proposal is attached as annex 2.

Recovery and Recycling Programme

This project aims at providing some 300 service workshops with proper recovery equipment. The project further establishes seven recycling centres equipped with proper equipment. The estimated phase-out impact is 50 tons of CFC recovered and re-used to service the CFC consuming equipment. The costs of recovery and recycling are estimated at USD 373,840. The project proposal is attached as annex 3.

Training of Customs Officers

This project aims at training 25 customs officers in proper recording and detecting of ODS. Refrigerant detecting equipment will be provided. The imports of ODS will be concentrated to take place only through four customs checkpoints in the country. The phase-out impact is mainly indirect, but without doubt, the knowledge, that strict control measures exist will affect that improper trading patterns vanish. The training will geared to the regional control activities of Eastern European CEIT countries. The costs of the training are USD 23,100. The project proposal is attached as annex 4.

Budget

The following table summarises the costs of actions:

Action	Sector	Objectives	Total Costs USD	Funding	
				MF	Govt of Romania
1. Training for good practices in refrigeration	Refrigeration	Training of 400 technicians, base for certification regime	244,000	244,000	–
2. Recovery and recycling of refrigerants	Refrigeration	Procurement of recovery and recycling equipment	373,840	350,000	23,840
3. Training of the customs officers	All	Monitoring of imports and exports, support to regulatory actions	23,100	21,100	2,000
		TOTAL	**640,940**	**615,100**	**25,840**

It is assumed that the Institutional strengthening project will create, by the year 2001, a well functioning regulatory framework, which will be applied for the "service tail" of CFC consumption beyond the year 2002.

The phase-out impact is indicated in chapter 7.

The Government of Romania will commit itself to the proposed financing schedule.

It should be noted that the above budget doesn't include technical conversion project to phase out the initial charge of approximately 60 ODP tons of CFC. In case the phase-out of the initial charge will be reached through MF financed conversion projects the incremental cost hardly exceed USD 300,000 (excluding the conversion of the insulation from CFCs to non-CFCs)

6. INSTITUTIONAL FRAMEWORK

The RMP will be managed by the Ozone Office at the Ministry of Waters, Forests and Environmental Protection (MWFEP). The National Committee for the Protection of the Ozone Layer will be summoned to enhance the project implementation. The role of ICPIAF, not only as the practical training organiser but also as a facilitator of better maintenance practices and introduction of recovery and recycling activity, is essential.

The initiation of the training and especially the initiation of recovery and recycling programme requires that the Ozone Office maintain intensive relationships with the businesses.

The Multilateral Fund and UNIDO will receive regular reports on the progress and results.

The monitoring of the implementation will be done by the Ozone Office, which will be supported by the Customs Department and authorities responsible for compilation of statistics. As the legal and administrative framework is set and operational, the monitoring task should be a routine exercise.

7. IMPACT

The timing and estimated impact of the implementation of the Refrigerant Management Plan and its components are indicated in the following table

Action	**Year**			
	1999	2000	2001	2002
1. Training for good practices	———	———	----	
Estimated phase-out impact Tons of ODP	30	200	350	
3. Recovery and recycling		———	----------	
Estimated phase-out impact Tons of ODP	-	25	50	
3. Training of custom officers.		———	----------	----------
Estimated phase-out impact Tons of ODP	-	n/a		
Total impact, tons of ODP	**30**	**225**	**400**	
Remaining CFC refrigerant consumption for service purposes	**403**	**208**	**33**	

——— Project implementation ---- Monitoring, follow-up, reporting

Regarding the Training of Customs officers it should be stated that this activity naturally covers all ODS imports in addition to refrigerants.
The impact of the Training of Customs Officers is indirect; but supported by a legal framework and a licensing system for the import/export of ODSs it will have an important role in the phase-out of ODS-consumption.

The combined cost effectiveness of the three projects will be 1.6 USD per 1 kg of CFC phased-out.

It must be stated that the phase-out target is tough and requires a full-scale commitment not only from the Government but also from the local business.

Annexes

1. **Country Programme (1995) Action Plan**
2. **Training for Good Practices in Refrigeration**
3. **Recovery and Recycling Programme**
4. **Training of the Customs Officers**

ANNEX 1

Action Plan of the 1995 Country Programme

3.2. Action Plan

3.2.1 Government Actions

To facilitate compliance with the Montreal Protocol, the Romanian Government will implement a regulatory regime for ODS production, consumption and trade, making use of administrative and economic instruments as well as additional measures, including institutional strengthening.

In the following the Government actions selected are described. The criteria for selecting the Government actions have been effectiveness and that the action can be implemented in a short period of time. Thus, the actions are based on existing legal framework, institutional structures and revenue raising instruments.

The instruments which the Romanian Government will implement to support ODS phase-out are as follows:

Administrative instruments

- Improvement of customs sub-classifications
- Improvement of ODS import licenses
- Introduction of ODS production licenses
- Ban on re-export of ODS
- Sector specific bans on ODS consumption
- Bans on import of selected ODS based goods corresponding to the domestic sector specific bans on ODS consumption

Economic instruments

- Non-compliance measures
- Economic support of ODS phase-out activities

Additional measures:

- Institutional strengthening (cf. Section 3.3)
- Monitoring arrangements
- Voluntary agreements with ODS import organisations and ODS producing and consuming enterprises
- Introduction of an accreditation system (certificates) for refrigeration servicing technicians
- Awareness campaign
- Revision of industry norms and standards, including safety standards

Deliberately, the Romanian Government has chosen, as a starting point, not to introduce taxes, charges and levies on imports, production or uses of specific substances to affect market preferences. The reason is, that the deficiencies in the institutional set-up, including the lack of experience in operating extra-budgetary funds such as environmental funds, will make it very difficult to implement these measures, at least in the near future.

It is important to stress that the proposed economic instruments complement the administrative instruments, and that they cannot stand alone. Furthermore, these administrative and economic instruments must be supported by a formalized reporting and enforcement system.

Below, the administrative and economic instruments as well as the additional measures, except institutional strengthening and monitoring arrangements which are dealt with in Sections 3.3 and 3.6, respectively, are described in more detail.

Improvement of customs sub-classifications

In the official statistics, imports are at present registered at a 6-digit level compared with a 8-level (EU compatible) generally. This means that imports of ODS which is possible at the 8-digit are included with other chemicals at the 6-digit-level, and therefore no data are immediately available. This setup will, however, be changed in 1995 and so imports of ODS for 1995 (or 1996) will be distinctly represented.

Improvement of ODS import licenses

Import and production licences are the most efficient way of ensuring compliance with the country's phaseout strategy and hence achievement of the required environmental effect. Furthermore, they are easy to implement because they can be based on the existing legal framework for environmental policy. Finally, licences are expected to be acceptable to the enterprises as long as the allowed ODS production is enough to satisfy the demand for these substances according to a realistic and cost-effective phaseout plan.

Though Romanian importers and custom officials claim that an effective customs declaration system is in place, it is the Romanian Government's point of view that the system may be improved. Consequently, an amendment will be made to Government Decision No. 340 of June 1992 and Government Decision No. 437 of August 1992. The amendment will ensure that a specific reference to ODS is made in the list of goods which are dangerous for the health of the population and the environment. Furthermore, the Ministry of Commerce will be mandated to design a licensing system for ODS to be approved by the MWFEP.

Introduction of ODS production licenses

In accordance with the achievable ODS phase-out strategy in Romania outlined in Section 3.1 above, the Romanian Government will issue ODS production licenses for the two ODS producing enterprises.

Ban on re-export of ODS

In accordance with the Montreal Protocol a ban on re-export of ODS will be introduced as soon as possible.

Sector specific bans on ODS consumption

Sector specific bans will be imposed on all ODS using sectors. The sector specific bans will promote cost-effectiveness in the phaseout strategy by banning the use of CFC in the non-pharmaceutical aerosol sector first, secondly in the non-refrigeration foam sector - allowing more CFC to be used in sectors that are regarded as essential and expensive to replace (such as refrigeration). Finally, the bans may be acceptable to enterprises, if they will be informed well

in advance of the cut-off date so that they may use this information in the planning process. The schedule of bans on sector specific ODS use should follow the achievable ODS phaseout strategy in Romania outlined in Section 3.1 above.

Bans on import of selected ODS based goods

The introduction of sector specific bans on ODS consumption should be accompanied by an import ban for similar products containing ODS.

Non-compliance measures

A non-compliance fee for imposition on enterprises which fail to comply with the import and production licenses and the sector specific bans on ODS consumption will be introduced. The non-compliance fee is easy to introduce because it follows the already existing practices.

It is probable that the enterprises will oppose the fee, but if the licences and bans are reasonable giving the enterprises enough time to convert their production to ODS free technology, there is no reason why they should not comply with the allowed levels.

Economic support of ODS phase-out activities

The Romanian Government is prepared, through the State budget, to offer substantial economic support for necessary R&D connected with ODS phase-out.

The Romanian Government has initiated a *Research Programme regarding the Changes in the Ozone Layer and the Protection of its Quality* which in 1994 received funds of 1.2 bn Lei. The total budget for environmental research was around 10 bn Lei. In 1995, however, it is expected that round 0.7 bn Lei only will be available for the ODS research. The main beneficiaries of the funds have been:

- under the MWFEP: ICIM, INMH and IRCM;
- under the Ministry of Industries: ICPIAF, ICPAO, ICCF and PROCHEMA; and
- under the Ministry of Agriculture: ICA and ICPP.

The themes of the 1995-96 research include:

- an inventory of sources of ODS and monitoring of the concentration of ODS in the atmosphere;
- ecological and socio-economic effects from a deteriorated ozone layer;
- policies and strategies for eliminating ODS; and
- a national database with information on research activities, regulations etc.

The research programme will be extended to include the fiscal years 1997 and 1998.

Furthermore, the Romanian Government will, through the issue of Government guarantees, assist enterprises in obtaining credits in the commercial banking sector for financing, partly or entirely, ODS replacement projects.

Monitoring arrangements

An important additional regulatory action is the development of an effective monitoring and enforcement system. This is required in order for Romania to meet its obligations under the Montreal Protocol, ie monitoring the annual ODS consumption, monitoring the effectiveness of the Action Plan and monitoring the implementation of projects identified in the Action Plan.

A formalized data collection system should be set up whereby ODS industries are required to report regularly (annually) to the ODS Secretariat (cf. below) or an independent body. Questionnaires should be prepared and sent to the enterprises and collected by the local offices subordinated the State Environmental Inspection. Regular inspections at the production sites should also be organised.

Voluntary agreements

Agreements between industries/enterprises and MWFEP are necessary documents for the levying of charges. However, they are not needed to impose sector bans and licences. Furthermore, they may promote a dialogue and exchange of information which is extremely important in order to achieve a cost-effective and realistic ODS phaseout strategy which takes into consideration the required adjustments needed at the level of the producer and user industries. As such, agreements are a useful tool in determining the level of production licences for each enterprise and the time schedule for the sector specific bans.

The agreements are in line with existing environmental regulation in Romania and as such they can be implemented immediately without further legislation. Furthermore, agreements have been practised with success in other environmental fields and they are likely to be accepted by enterprises, because the obligations of the enterprise are clarified with the environmental authorities.

Furthermore, information dissemination and continuous dialogue especially with the ODS industries is proposed as a top priority action, in order to allow the industries to adjust their production plans to the ODS phaseout strategy and to avoid imposing restrictions or regulations that will have severe adverse effects on production, employment and human safety. Both before and after approval of a certain measure, it is most important that the affected enterprises are informed. To be effective, the regulations should be a help to the ODS industries, not a spoke in their wheel. Therefore, a good dialogue between the MWFEP and the ODS industries is essential.

Introduction of an accreditation system (certificates) for refrigeration servicing technicians

Accreditation of service technicians to ensure that refrigeration service personnel are aware of the ozone problems and methods to reduce ODS consumption at service by improving maintenance and service procedures and by recovery/recycling of refrigerants. The scheme may also be applied in the service sector for fire fighting equipment.

Awareness campaign

Awareness building directed at the general public comprising information dissemination and product labelling. The purpose of this measure is first of all to influence the demand for ODS based products and to make people understand the necessity of phasing out ODS.

Revision of industry norms and standards, including safety standards

Modification of certain product standards and norms in support of the introduction of non-ODS alternatives in some applications should be considered if requested by involved enterprises, eg purity specifications in the solvents sector and for recycled/reclaimed refrigerants and occupational health standards. These norms and standards should only be introduced after careful consultation with the affected and involved industries and other relevant bodies.

The actions have been evaluated and selected on the basis of the following five criteria:

- Environmental efficiency
- Implementation in a short period of time
- Incentive/behavioural effect on enterprises
- Mobilisation of non-budget resources
- Acceptability for enterprises

Table 3.3 shows the role of each of the administrative and economic instruments in meeting the five criteria.

Table 3.3: Evaluation of Actions to be used in ODS Regulation

Evaluation Criteria / Instruments	Environmental efficiency (ODS reduction)	Implementation in a short period of time	Incentive effect	Mobilization of non-budgetary resources	Acceptability for enterprises
Improvement of customs subclassifications	+	++	-	-	+
Improvement of ODS import licenses	++	++	-	-	+
Introduction of ODS production licenses	++	+	-	-	+
Ban on reexport of ODS	+	++	-	-	+
Sector specific bans on ODS consumption	+	+	-	-	+
Bans on import of selected ODS based goods corresponding to the domestic sector specific bans on ODS consumption	+	+	-	-	+
Non-compliance measures	-	+	+	+	+
Economic support of ODS phaseout activities	++	+	+	-	+

Note: "+" signifies that evaluation criterion is met, "-" that evaluation criterion is not met or instrument does not influence the criterion and "++" that it is not possible to meet the criterion without implementing the instrument in question.

3.2.2 Projects

Table 3.4 summarises the 14 projects which have been identified by April 1995 for funding by the Multilateral Fund (see Appendix VIII for more details). Four or five of these are expected to be ready for submission to the Executive Committee of the Multilateral fund in July 1995.

The projects have to been developed by the enterprises in collaboration with consultants from UNIDO and COWIconsult.

Table 3.4: Status of Romanian ODS Phaseout Projects, March 1995

Sector	Enterprise	ODS consumption 1994 (1993) tonnes	ODS Phaseout Plan	Investment costs 1000 USD	NPV of 4 years Incr. Oper. Costs 1000 USD	Unit Abatement Costs USD/kg-yr	Grant Request 1000 USD	Status of Progress
Refrigeration -domestic	1.ARCTIC S.A. Gaesti	CFC-12 (52.5) CFC-11 (150.0)	CFC-12 to HFC-134a and CFC-11 to HCFC-141b took place Nov 1994. Plans to use cyclopentane					Expected to be ready May 1995
Refrigeration -domestic	2.U.M. SADU Gorj	CFC-12 (9.0) CFC-11 (30.0)	CFC-12 -> HFC-134a (for thermostates not yet clear) CFC-11 -> HCFC-141b	CFC-12: Refr. 437	CFC-12 (life-time): 514		971	Preliminary proposal ready
Refrigeration -commercial	3.S.C. FRIGOCOM S.A.Bucharest	CFC-12 45.0 CFC-11 6.5	CFC-12 -> HCFC-22 CFC-11 -> HCFC-141b	475	(lifetime) 18		418	Preliminary proposal ready
Refrigeration -com. & ind.	4.S.C. TEHNOFRIG S.A.Cluj	CFC-12 3.4 CFC-11 1.4	CFC-12 -> HFC-134a CFC-11 -> HCFC-141b	1,283	1,064		1,878	Preliminary proposal ready
Refrigeration -servicing com. & dom.	5.COMSERVICE S.A. Cluj	CFC-12 (1.2)	CFC-12 -> HFC-134a					to be developed
Refrigeration - servicing: industrial	6.ICPIAF S.A. Cluj	CFC-12 (0.5)	training project for recovery and recycling, and conversion to non-ODS servicing				1,360	Preliminary proposal ready
Refrigeration - servicing: transport	7.TRANSFRIGOTREN Bucharest	CFC-12 10.4	CFC-12 -> HCFC-22	192.2	(lifetime): 30.9 ?			Preliminary proposal ready

Table 3.4: Status of Romanian ODS Phaseout Projects, March 1995, continued

Sector	Enterprise	ODS consumption 1994 (1993) tonnes	ODS Phaseout Plan	Investment costs 1000 USD	NPV of 4 years Incr. Oper. Costs 1000 USD	Unit Abatement Costs USD/kg-yr	Grant Request 1000 USD	Status of Progress
Foam - rigid	8.METAPLAST S.A. Buzau	CFC-11 (21.5)	CFC-11 -> HCFC-141b					no documents as yet
Foam - flexible	9.SPUMOTIM S.A. Timisoara	CFC-11 (29.4)	CFC-11 -> CO_2 foam-blowing					Expected to be ready May 1995
Foam - semi-rigid	10.CHEMICA S.A. Orastie	CFC-11 12.0	CFC-11 -> HCFC-141b (or possibly CO_2)					Preliminary proposal ready
Aerosol	11.FARMEC S.A. Cluj	CFC-12 700.0 CFC-114 1.0	CFC -> Butane-propane	2,543		0,52	2,543	Expected to be ready May 1995
Solvents - metal degr.	12.S.C. RULMENTUL Barlad	CFC-113 (50.0) MCF (3.0)	Conversion to alcohol-based metal degreasing					Preliminary proposal ready ?
Institutional strengthening	13.MINISTRY OF ENV. Bucharest	na						Expected to be ready May 1995
Information dissemination	14.TERRA NOSTRA Bucharest	na						Expected to be ready May 1995

ANNEX 2

PROJECT COVER SHEET

COUNTRY:	Romania
SECTOR COVERED:	Refrigeration Maintenance
PROJECT TITLE:	Training for Good Practices in Refrigeration
PROJECT DURATION:	20 months + 2 months for follow-up
PROJECT IMPACT:	350 ODP tons of CFC
PROPOSED BUDGET:	USD 244,000
INCREMENTAL COST:	USD 244,000
IMPLEMENTING AGENCY:	United Nations Industrial Development Organization
NATIONAL COORDINATING AGENCY:	ICPIAF under the supervision of Ozone Office at the Ministry of Waters, Forests and Environmental Protection

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PROJECT DESCRIPTION

1. Background

This project will provide technical information and training to service, maintenance and repair personnel in the refrigeration sector in order to reduce ODS consumption during the servicing of refrigeration and air-conditioning units. In order to reach the objectives as identified in the Country Programme Action Plan and Refrigerant Management Plan, professional training for hands-on service, maintenance and repair personnel is essential. The servicing of refrigeration equipment accounts for approximately 433 ODP tons of CFC 12. Therefore, this training project for refrigeration service technicians is critical to the effective ODS phase-out in Romania since the refrigeration maintenance sub-sector counts for 73 % of Annex A and B consumption in the country.

The other components to phase out CFCs in refrigeration are:

*The recovery and recycling project which is designed to start after this training is initiated.

*The training of customs officers and development of criteria to monitor and control (quotas, bans) imports of ODS consuming equipment (new or second-hand)

*The conversion of refrigeration equipment production from CFCs to non-ODS refrigerants

2. Project Objectives

This project is being proposed to train refrigeration technicians in the country in the proper methods of performing repairs, maintenance and installation of refrigeration and air conditioning equipment to avoid leaks and unnecessary emissions of CFCs. The aim of the project is to improve service and maintenance practices in order to prevent intentional and/or unintentional releases of ODS into the atmosphere, making it possible for refrigeration equipment to operate to the end of its useful life.

The proper and effective recovery will be strongly highlighted since the recovered refrigerants are necessarily a very important source of refrigerants in the future. Training is also needed to support the implementation of the envisioned and rather strict ODS regime.

Even though the conversion of the existing larger refrigeration systems might not present an essential option in the phase-out, the key technical issues related to the conversion will be touched in the training; the characteristics of CFC and non-CFC equipment and the main factors to be taken into consideration.

The training programme will include some theoretical and especially practical hands-on sessions and will cover the following items: Elements of ozone depletion, its effects, and the relation with Montreal Protocol controlled refrigerants; methods for appropriate servicing and maintenance practices for ODS-containing refrigeration equipment, as well as for equipment working with new replacement refrigerants, leak detection; general concepts of refrigerant recovery and recycling; correct handling of refrigerants, government regulations which will affect the refrigeration sector.

The training will ensure permanent use of good refrigeration service and maintenance practices for systems using ozone-friendly substances, and the correct handling of new replacement refrigerants. This project will be co-ordinated with the Recovery and Recycling project being proposed along with the Government's Refrigerant Management Plan.

3. Expected Results and Criteria for Success

It is expected that the following results will be obtained by this project:

*Reduction of ODS consumption due to leaks and poor practices.

*Reduction of ODS consumption by enhancing the introduction of alternative substances and non-ODS equipment

*Training of approximately 400 technicians, who will be responsible to train some 1000 refrigeration technicians/operators on good practices, and inclusion of such training as a permanent part of the curriculum of the vocational training centres

*Reduction in the number of repairs of refrigeration equipment and consequently a reduction in CFC releases into the atmosphere.

*Improved maintenance and servicing practices in the refrigeration sector;

*Improved regulatory framework and licensing for the refrigeration maintenance sector which will enforce good maintenance and servicing practices, as well as the recovery of refrigerants.

It is expected that the trained technicians themselves, and after passing their skills further in the businesses, will save approximately 350 tons of the estimated 433 tons of CFC, which is currently vented into the atmosphere. It must be mentioned that the phase-out is supported by the newer equipment which use less refrigerants and are more and more ODS-free.

*Approximately 500000 domestic units are maintained annually using in average 360 gr. of CFC per operation. The average charge is 100 gr. per unit. Good practices will reduce all the leaks resulting in saving of 260 gr. per unit, i.e. 130 tons p.a.

*Commercial units are maintained regularly but with poor standards. A very clear trend is also the quick replacement of ODS containing units by non-ODS units. Use of recycled refrigerants is easier for commercial units than e.g. for domestic units. It can be estimated that the good maintenance practices will reduce the recharge needs radically within 2-3 years leaving a volume of 10-15 tons, which is needed for old type of commercial units to reach the end of their life span.

*All industrial units are recharged twice a year. It is estimated that each recharge operation is wasting 50 % of the refrigerant used, i.e. one half is charged to the equipment and the other half vented into the atmosphere. This means that the refrigerant consumption can be reduced from 40 tons to 20 tons p.a.

*All refrigerated trucks and wagons are recharged at least twice a year. The average refrigerant charge is 5 kg per unit. Good maintenance will reduce the service needs and result in that the coolant needed corresponds the charge volume. The annual savings are approximately 10 kg per 1000 refrigerated units, i.e. 10 tons p.a.

To be successful a deep commitment from the participating companies is needed. The impact of the training will be supported by a certification system. The Institutional strengthening programme will develop a scheme according to which the issuance of new, and extension/renewal of old workshops' commercial licences will be refused unless there is at least one trained technician among the staff.

4. Target Audience

Romania has currently approximately 1200 refrigeration and air-conditioning technicians who work in approximately 300 workshops which are run by licensed companies in all counties over the country.

The project aims at training approximately 400 technicians who are currently working on the maintenance and have some experience from the practical maintenance business. These people to be trained are recruited evenly throughout the country. It should be mentioned that both the Ozone Office and ICPIAF have made detailed surveys on the business and reaching the trainees and their employers is an easy task.

The technicians left out of the training represent people who are just temporarily in the business, service a very small number of units and thus account for a negligible volume of CFC consumption. It is expected that envisioned certification will force part of these people out of the business.

5. Approach

The refrigeration training center already established at ICPIAF in Cluj-Napoca will be the main organiser of the training. The center has proper equipment and trained trainers.

The programme implementation will be arranged in four phases as follows:

Phase I:

Preparation of a detailed 3-4 days curricula for the trainees. This curricula will be developed by ICPIAF. It is further proposed that an external expert, familiar with the refrigeration issue in the region (and in CEIT countries) will be recruited for a short period to support ICPIAF in including all necessary issues in the curricula.

The training aids produced e.g. by the UNEP's Ozone Action Programme will be utilised.

Phase II:

Recruitment of trainees. The training will be arranged in Cluj-Napoca. ICPIAF will be responsible for the recruitment, supported by the Ozone Office.

Phase III:

Actual training in the ICPIAF's training center in Cluj-Napoca. The training will be organised in approximately 70-80 batches, 5-6 participants in each. Each training batch will last 3-4 days, i.e. one training batch in one week. Thus the all activity (400 trainees) can be carried out in approximately 15-16 months.

Phase IV:

Development and enforcement of a certification regime and criteria how the training certification is applied in the licensing system. This phase must be initiated in cooperation with the Ozone Office and ICPIAF at the same time as phase I. Only service businesses whose technicians (at least one person) are trained would be eligible to receive the proposed recovery and recycling equipment. This phase will require the Ozone Office/ICPIAF to produce an evaluation report on the results of the programme and suggested corrective measures, if applicable.

6. Time Frame

It is expected that the first phase can start at mid-1999, second phase during the third quarter of 1999 and the actual training during the last quarter of 1999.

The actual training, phase III, should be finished during the first quarter of 2001 and the activity with certification regime and evaluation by the mid of 2001.

7. Co-operation Partners

The Training will be arranged using the training facilities available at the ICPIAF. The trainers will come also from ICPIAF.

When preparing this proposal several key player and companies involved an the refrigeration maintenance an initial recovery business were contacted and consulted. It is expected that businesses will actively support the

implementation of the activity. The professional (academic) association of refrigeration engineers (AGRF) will be involved in the activity to enhance the positive long-term repercussions of the training in the business.

The criteria (and regulatory measures) for ODS and ODS containing equipment imports are being developed at the same time as the training activity is carried on. Therefore, the Customs department should be aware of the development regarding training to assess the proper and relevant regulations and their timely implementation.

8. Supporting and Follow-up Actions

The licensing/certification procedure for service companies will be developed jointly by the Ozone Office and the National Committee for the Implementation of the Montreal Protocol within 6 months from the initiation of the training. The content of this licensing is shortly, that a service company must have trained technicians on pay-roll to have a license. To participate in the recovery and recycling programme and to receive the necessary equipment service company's participation in the training is obligatory.

After the training is over the Ozone Office and ICPIAF will carry out an evaluation of this training activity. The evaluation will elaborate results achieved, how the activity contributed to the phase-out. Also the evaluation will give recommendation for further improvements of training and the refrigerant regime. Conclusions will be reported to UNIDO and MF according to the issued guidelines.

9. Budget

COST ITEM	TOTAL USD
Local arrangements, logistics, recruitment of trainees 16 months	64,000
Compensation for local trainers, 40 training courses 3 days each	20,000
International consultant, travel, DSA	4,000
Training material for shop-floor trainees (400) including translations into Romanian	20,000
Office supplies, photocopying of material	5,000
DSA and travel for trainees 400 people x 4 days x 50 USD	80,000
Training facilities, classrooms, equipment, maintenance for 12 months	24,000
Local consultant, monitoring and evaluation of the project, two months	5,000
Sub-total	222,000
Contingencies 10% of the above	22,000
Total	**244,000**

ANNEX 3

PROJECT COVER SHEET

COUNTRY:	Romania
SECTOR COVERED:	Refrigeration Maintenance
PROJECT TITLE:	Recovery and Recycling
PROJECT DURATION:	24 months + 6 months for follow-up
PROJECT IMPACT:	50 tons of CFC
PROPOSED BUDGET:	USD 373,840
INCREMENTAL COST:	USD 373,840
IMPLEMENTING AGENCY:	United Nations Industrial Development Organization
NATIONAL COORDINATING AGENCY:	ICPIAF under the Supervision of the Ministry of Waters, Forests and Environmental Protection

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PROJECT DESCRIPTION

1. Background

This project will provide approximately three hundred (300) refrigeration workshops with the basic tools needed in recovering the used refrigerant. Currently all almost all used refrigerants are vented into the atmosphere. The volume of used, recoverable CFC-refrigerants is estimated at 50 ODP tons p.a.

Romania is using approximately 433 tons of CFC to service refrigeration equipment. Out of this volume approximately more than 60 % is vented into the atmosphere due to bad service practices and lacking equipment. Since there is no operational recovery and recycling scheme for technicians the used refrigerant from the equipment is also vented into the atmosphere. The volume of the used refrigerant wasted is estimated at 100 tons. In case the

service operators would have proper equipment for recovery and recycling some 50 % (50 tons) of this wasted old refrigerant could be saved, treated and re-used. The use of recycled CFC will provide an alternative source from imported virgin CFC. It is expected that by securing this volume of refrigerant, the country's demand for imports of CFC will be reduced.

The other refrigerant phase-out components in Romania are as follows:

*Conversion of refrigeration production to use non-ODS refrigerants and thus phase-out all initial charge (almost finalised)

*Training of refrigeration technicians for good practices

*Training customs officers and development of the current import licensing system

The first action is under implementation.

Training of the technicians is scheduled to start during the second half of 1999. After the training is initiated the distribution of the recovery and recycling equipment to the maintenance workshops/companies to be run by trained technicians can be started, i.e. at the end of 1999.

2. Objectives

The project aims at supplying approximately 300 service companies with basic recovery equipment (vacuum pumps) recovery cylinders and necessary tools. Further seven recovery centres will be established. The locations of these recovery centres will be defined later, but the estimated locations are Bacau, Bucharest, Cluj-Napoca, Constanta, Galati, Rimnicu-Vilca, and Timisoara. These centres will be authorised to collect used refrigerant, treat it and re-sell in the market.

3. Expected Results and Criteria for Success

The following are results expected from this programme:

*the recovery of refrigerant before retrofitting or dismantling and scrapping operations

*creation of the necessary infrastructure within the country for the collection, recycling and distribution of all CFC recovered by whatever means

*encouragement to service workshops and companies to maintain their own systems and/or equipment to recover CFC during servicing.

The impact of the recovery and recycling has been elaborated with the representatives of businesses (Midal Group and Central Europe Trading & Technologies) which already have initiated the experimental recovery and recycling. The volumes expected to be recovered may be considered modest, but realistic; equipment delivered to maintenance are usually run empty. It is also likely that the standard maintenance frequency is increasing very slowly; the maintenance is still a rather expensive for average consumer. The recovered volumes may occasionally increase in case large industrial installation are disassembled. Each of the 300 workshops supplied with recovery machines (vacuum pumps) will recover an average of 185-200 kg of refrigerant per year, 90 % of the recovered material is recyclable; annual recycled volume is approximately 50 tons when the whole system is fully operational.

The implementation of the training programme for good practices in refrigeration is a prerequisite for successful recovery and recycling. The Ozone Office and ICPIAF need to consult the businesses receiving the equipment. The recycling centres should apply reasonable and non-discriminatory policy when receiving and selling back the refrigerant to the workshops.

4. Approach

The quantity of CFC that will not have to be imported in the country (when the training is finalised and basic recovery equipment is on place) is estimated at 50 tons p.a., thanks to the recovery and recycling efforts of this programme, is of economic importance to the country.

The location and operators of recycling centres with machines and associated kits will be determined by evaluating how the prospective operators will be involved in the training programme. Naturally the experience and business wise involvement of prospective operators will be important criteria in successful recovery and recycling.

5. Equipment

Recovery

Each one of 300 workshops participating in the programme would receive a vacuum pump, leak detector, recovery cylinders and associated equipment (especially drilling valve/saddle valve) Leak detectors actually serve the charging (and reduction of leaks in charging), but it is reasonable to provide this with the other basic equipment and tools.

In order to reasonably recycle CFC recovered from the workshops having basic recovery equipment, seven recycling centres would be established.

Recycling

*recycling machines incorporating a OFP device and with capacity to fill automatically, in one single pass and continuous process a 50 kg cylinder. Each machine will incorporate an oil separator, filters, (for acid, moisture and particles), automatic purging of non condensable gases, appropriate refrigerant gauge, hoses and a weighing scale;

*refrigerant identification kits to identify mixed refrigerants

* refrigerant cylinders with dual port and OFP device;

* 400 kg cylinders with dual port and relief valve;

* vacuum pumps to empty the cylinders;

*leak detectors; and

*maintenance and spare parts for the above.

The actual composition of the recycling equipment should be determined during the initial stage of the training in consultations with the participating businesses.

6. Timeframe

It is expected that the activity could start at the end of 1999 by defining the exact location and terms for the recycling centres which are supposed to be operational during the first quarter of 2000. The operation of the of the centres should be geared to the equipment distribution to the 300 workshops and to the training activity. The fine-tuning of the centers' operation will continue during the whole year 2000 when the volumes recovered and recycled are increasing parallel to the training activity.

7. Institutional Arrangement

The ICPIAF will co-ordinate the implementation of this programme under the guidance of the Ozone Office. The operators of the seven recycling centres will be selected based on consultations.

The operators of the centres will be obliged to keep records on refrigerants received, treated and re-used or re-traded. Since the centres will be in a monopoly position the ICPIAF will develop some criteria and conditions under which the refrigerants will be received and re-sold. The Ozone Office at the Ministry of Waters, Forests and Environmental Protection will confirm these criteria and conditions.

8. Budget

Units	Recovery and Recycling Equipment	Unit Costs USD	Total Cost USD
	Equipment for the workshops		
300	Vacuum pumps	300	90,000
300	12 kg Refrigerant recovery cylinders with two ports	65	28,500
300	50 kg Refrigerant recovery cylinders with two ports and OFP	100	30,000
300	Recovery equipment kits including leak detectors, press gauge set and ratched wrench for unit valves	400	120,000
	Equipment for the recycling centres		
7	Recycling machines	5,000	35,000
7	Refrigerant identification (+acidity test) kits	600	4,200
7	Vacuum pumps to empty the cylinders	300	2,100
7	50 kg Refrigeration cylinders with two ports and safety valve	200	1,400
7	400 kg Refrigerant cylinders with two ports	1,000	7,000
7	Refrigerant recovery cylinders with two ports	65	455
7	Refrigerant recovery cylinders with two ports and safety valve	100	700
7	Recovery equipment kits including leak detectors	500	3,500
	Local consultant to develop the organisation and criteria for receiving and selling the CFC at centres		5,000
	Monitoring the activity for 24 months		12,000
	Sub-total		**339,855**
	Contingencies 10 % of the above		33985
	Total		**373,840**

All operating costs including transportation of cylinders to and from the recycling centres, maintenance of the equipment that will be supplied under the present programme shall be included in the sale price of the recycled refrigerant.

The Ozone Office shall monitor the programme and ensure that the sale price of the recycled refrigerant is balanced in such a manner that no improper practices will occur.

ANNEX 4

PROJECT COVER SHEET

COUNTRY:	Romania
SECTORS COVERED:	All
PROJECT TITLE:	Training of Customs Officers and Development Criteria for ODS and ODS Consuming Equipment Imports
PROJECT DURATION:	2 + 24 months
PROJECT IMPACT:	n/a
PROPOSED BUDGET:	USD 23,100
INCREMENTAL COST:	USD 23,100
IMPLEMENTING AGENCY:	United Nations Industrial Development Organization
NATIONAL COORDINATING AGENCY:	Ozone Office/MWFEP

PROJECT DESCRIPTION

1. Background

The institutional structure within Romania needs more organised and efficient systems to monitor and control the imports of ODS or ODS-containing equipment in the country. Customs statistics may not be as accurate as need be due to customs officers being untrained in recognising and identifying ODS, and the lack of specific customs codes for ODS and lack of regulations for their control.

The Government is seeking to train its customs officers to implement more detailed import classification and in recognising ODS and ODS containing equipment to control and ensure that acceptable products are entering the country. The Customs Department and authorities responsible for compilation of statistics will be involved in this training activity to enhance the co-operation between these administrative units.

Basically, Romania is not imposing any discriminatory measures on foreign trade. Currently the importation of ODSs is free. Imposing direct measures on ODS imports like punitive taxes, direct bans, permits, licences or quotas may result in unexpected trading patterns, parallel activities and burden low-income earners through higher prices and non-availability of service. On the other hand, the importation and local production of non-ODS equipment needs incentives, which talks for the restrictions in imports.

Romania has prepared a rather comprehensive ODS regime, which is not yet comprehensively approved. This regime proposal forms a valid guideline for the training of the customs officers.

2. Objectives

This project aims at:

Training Customs officers (inspectors, controllers) o enable them to identify:

*controlled substances under the Montreal Protocol

*Imported refrigerators, freezers and other refrigeration equipment using CFC.

*provide CFC-detection equipment for major customs entry points in the country

In addition, this project will allow the Customs Department to develop a valid database on imported ODS.

Developing and imposing clear rules (bans, quotas, licences) to actually restrict ODS and ODS containing equipment imports is most likely a necessity in the near future. The training of the customs officers will be made in a manner which supports the training and recovery-recycling projects.

3. Expected results and criteria for success

The implementation of this training project will result in:

*Development of reliable and valid statistics on national ODS consumption

*Identification of ODS, ODS-using and ODS-containing equipment and discouraging parallel activities

*Accurate implementation of restrictive import measures and resulting in decreasing importation volumes

*Enhancement of the local non-ODS equipment production

*Feed-back e.g. to the Ozone Office; needs to modify rules and regulations

The expected result is a more efficient control of ODS and ODS using equipment upon entrance to the country and enhancement of the entry of non-ODS in the market.

The successfulness of this activity can be observed indirectly only. The main issue is to create awareness in the trade and business and direct them to seek for new opportunities with non-ODS instead of continued ODS trade. The imported ODS volumes should continue to decrease steadily.

4. Target audience

The technical training will be directed to a core team of some 10 customs officers and foremen. They should come from the Customs Department and different customs entry points in the country and will be in charge of instructing the officers at customs stations.

5. Approach

The technical training will be arranged in one week's period, during which the core team will be familiarised with the following issues:

*the management and practicalities of the revised Harmonised System

*the technical recognising of virgin and recycled ODS, ODS mixtures

*recognising ODS containing equipment

*use of the equipment necessary for the detection and identification of CFC and CFC mixtures.

Recognising of generally known, irregular, trading patterns will also be discussed.

The UNEP developed "Regulations to control ODS - A Guidebook" and "Monitoring Imports of ODS - A Guidebook" will be used as training aids.

The training may also define and identify import channels, which need a special attention.

One international trainer/expert , familiar with the ODS issues and trading patterns in the Region will be identified deliver lessons and demonstration material. The Ozone Office at the MWFEP will be liable to explain the current and envisioned regulations.

6. Time frame

The technical training will take place at the end of 1999-beginning of 2000.. A longer follow-up period of 24 months is recommended; the follow-up will be geared to then implementation of the ODS regime.

7. Co-operating partners and their role

The customs department will be involved in the development of the content from the start of the project in order to get its input for specific issues in the training agenda. The involvement of business interests, is essential. The participation of Government's finance authorities is expected. When developing criteria to restrict imports, the Customs department and the team should monitor the advancement of the training and recovery & recycling projects. That more further and successfully these projects have advanced that more realistic and effective is the imposition of the import restrictions.

8. Supporting and follow- up actions

The Ozone Office will support and follow-up the activity as a routine part of the Institutional Strengthening programme.

9. Project budget

Item	Budget, USD
Technical training	
International expert (travel, DSA, fee) for technical training , two weeks	6,000
Local organisation	2,000
CFC identification kits 8 x 600 USD;	4,800
Training material & aids, including translation	4,000
Compensation to trainees (travel, DSA)	5,000
Sub-total	21,000
Contingencies	2,100
Total	**23,100**