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The Government of TUNISIA
AGENCE NATIONALE DE PROTECTION DE L'ENVIRONNEMENT

UNIDO
United Nations Industrial Development Organization

REFRIGERANT MANAGEMENT PLAN
FINAL ~~INTERIM~~ REPORT

May 1999

EXECUTIVE SUMMARY

This Refrigerant Management Plan aims at developing a comprehensive and detailed programme to phase-out 120 tons of CFCs used for servicing refrigeration and air-conditioning equipment in Tunisia. The current CFC consumption for servicing is 143 tons .The plan follows the phase -out target set in the country programme from 1996.

Tunisia ratified the Vienna Convention and the Montreal Protocol (September 1989) , London amendment (July 1993) and Copenhagen amendment (February 1995) . The country programme was prepared from 1994 to 1996 and approved by the Executive Committee (May 1996). The first Institutional Strengthening Programme has been operational since 1995 to the 31 December 1997 . A second agreement was approved on July 1998 for an extension of two years .

According to the 1996 Country programme the total ODS consumption was 623.7 ODP tons , of which 287 tons in the refrigeration and air conditioning sectors.

The phase-out of ODS has started in the industry. Some 811.4 Tons of ODS in aerosol industries (7 projects) and foams industries (6 projects) has been phased out or are under implementation. Almost all initial charge in the refrigeration (37 tons CFC12 in domestic refrigeration and 10.3 tons CFC 12 in the commercial refrigeration) is phased out or under implementation .

The CFC 12 volumes used for refrigeration is approximately 190 tons by the end of 1997 . Thus the remaining CFC refrigerant consumption , the target volume of the Refrigerant Management Plan , is approximately 143 tons . The 1999 consumption freeze is 117 tons.

By compiling this Refrigerant Management Plan the Government wants to present a comprehensive programme to phase out 120 tons (about 90%) of 143 tons of CFC refrigerants by the end of the year 2004 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 substance . The plan indicates measures and sub-programmes with costs . When approved and funded this plan will serve as a guideline and enable the government to concentrate in effective phase-out measures regarding other ODS like halons and methyl bromide .

This Refrigerant Management Plan has three components :

- **Training Programme on good practices in refrigeration and air-conditioning maintenance**
- **Recovery and recycling of refrigerants**
- **Training of customs officers and development criteria for ODS and ODS consuming equipment import**

The total incremental costs of the implementation of the refrigerant management plan are estimated at USD 1,982,799.

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1. COUNTRY SITUATION

1.1 Status of Tunisia with regard to the Montreal Protocol

Tunisia ratified the Vienna Convention and the Montreal Protocol in 1989 , London Amendment in 1992 and Copenhagen Amendment in 1995 .
Tunisia is classified to operate under 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 1994-1996 and approved by the Executive Committee in 1996 . The Country Programme has served as a general guideline for the Government and environmental authorities in developing phase-out actions and measures supporting them.

The Country Programme targeted at phase-out CFCs to be eliminated according to the planning defined by the protocol.
29 phase-out projects (aerosols, initial charge in refrigeration and foams) are implemented or under implementation.
The Action Plan section included in the 1994 approved Country Programme is in annex 1.

Tunisia has a National Protection Environment Agency (ANPE) which is the highest authority to set policy targets for environmental issues, including the Montreal Protocol, and also oversees implementation of international conventions. The Agency established a National Committee for the Implementation the Montreal Protocol as an advisory body, which Committee has representatives from all relevant governmental, industrial/business sectors and NGO's. The practical operational unit for ODS issues is the Ozone Office, established in 1992, located at the ANPE.

The above described administrative framework operates according the principles set in approved Country Programme.

1.3 Status of the Institutional Strengthening Project

The Institutional Strengthening Project has been operational since 1994. The project is implemented through the Ozone Office located in the National Protection Environment Agency (ANPE) . The Institutional Strengthening Project was originally programmed to run for a period of three years (up to December 1997) and has been extended for two years from July 1998. It is

likely that some of the funds allocated for the project are still available in 1999, but it seems that the Ozone Office is not able to carry out all tasks related to the implementation of the Refrigerant Management Plan (to last approximately 3 years) unless some funds are allocated for the administration of the RMP.

One professional co-ordinator (half-time) two industry professional (full time) and two assistants (full time) operate the Ozone Office . Furthermore, the office is supplied with normal equipment and consumable . This set-up enables the office to run the normal administrative and co-ordination business, reporting etc. The Office has been successful in preparing, co-ordinating and implementing the industrial phase-out projects. The recent and ongoing activities of the Ozone Office are as follows :

- Maintaining the legal framework related to the Montreal Protocol regulatory and control measures.
- Preparation on phase-out projects now under implementation .
- Reporting to the Ozone Secretariat, Multilateral Fund and Implementing Agencies.
- Development of a ODS database.
- Promoting awareness on ODS issue
- Preparation of a survey covering halons and methyl bromide
- Collecting background material for training, & recycling programmes

Since 1994 the Ozone Office has prepared and facilitated the implementation of 29 industrial phase-out projects ,one demonstration project on methyl bromide phase out and two training projects:

- Conversion of the local refrigeration manufacturing industry from CFC12 to 134a (phase-out effect 87.3 ODP tons)
- Conversion the local flexible foam production from CFC 11 to non-ODS blowing agents (phase-out effect 538 ODS tons)
- Conversion of the local aerosol production from CFC 11/12/114 to hydrocarbon propellants and CO2 (phase-out effect 273.4 ODS tons).
- Demonstration Methyl of Bromide phase out in fumigation (8 ODS tons)
- training of operators and technicians of refrigeration manufacturers .

The changing business practices (ODS imports are difficult to track, maintenance business is split in smaller units) and e.g. fluctuating import volumes are difficulties which the institutional strengthening project and the ozone office are facing.

1.4 **Current Situation**

Refrigerants

According to the Country Programme the ODS consumption (annex A and B substances only) in 1994 was 427.8 tons . The following table indicates the 1997 consumption figures

annex , group	substances	1994 consumption	1997 consumption
		ODS tons	ODS tons
A I	CFC 11	289.6	720
A I	CFC 12	138.2	190
A I	CFC 113	00	25
A I	CFC 114	80.3	15
A I	CFC 115	00	42
s/total A I		508.1	992
A II	HALON 1211	4.9	15
A II	HALON 1301	00	12
S/total A II		4.9	27
B II	CTC	3.3	2.0
B III	M.Chloroform	00	1.0
C I	HCFC 22	97.8	105
	HCFC 141b	00	30
s/total		97.8	135
E	M.Bromide	9.6	15
TOTAL		623.7	1172

Out of the current total of 1172 tons of ODS approximately 220 tons of CFC consumed in the refrigeration sector (190 tons of CFC 12 and 30 tons of CFC 11) as follows :

User sector	Application	consumption in the country programme	consumption in 1997
Domestic refrigeration	initial charge		37
Commercial refrigeration	initial charge		10.3
Servicing	Recharge		142.7
Total		230*	190

*This CFC12 consumption concerns 1991

Servicing concerns all refrigeration and air conditioning existing equipment which is as follows :

Domestic refrigerators	934,000 units
domestic air conditioning*	200,000 units
hotels	700 units
tourist restaurants	300 units
agricultural storage	510,000 M3 capacity
freeze tunnel	880 tons / day
ice production	690 Tons / day
fish storage	178 units of 101,000 M3 capacity
food storage	52,000 M3 capacity
transport	760 units
industrial and commercial air conditioning*	1,200 units
commercial refrigerators, counters,...*	180,000

* estimation

Equipment

Regarding the number of refrigeration and air-conditioning units a reference is made to the country programme .
Regarding equipment related development since 1994 the following can be noted.
CFC-free, mainly HFC 134a run domestic and small commercial equipment is entering in the market , and start affect marginally on the CFC volumes needed for servicing . However, the servicing requirements of the new equipment are hardly known.

The number of air-conditioning devices is increasing. 30,000 new window type and split units sold during 3 months (end of 1998) ; they run on HCFC 22 . Old centralised systems are hardly operated any more .
A remarkable part of refrigeration equipment used in cold stores and industry as well as industrial chillers are technically . The equipment leaks and maintenance is difficult. Retrofitting of the larger equipment has been discussed when preparing this document. Regarding almost all the equipment the retrofitting of the refrigeration part of the units should be complemented by retrofitting or totally renewing the non-refrigeration components of the systems. For most businesses this is not technically and economically feasible in the current conditions.

Most of the new vehicles , if delivered with air-conditioning units , are CFC-free.

The retail price of virgin CFC 12 is approximately 4.0 USD/ kg remarkably up since 1994 (about 3.0 USD). The sources of supply seem to vary much more than earlier . The price of HFC-134a is not stabilised, but it seems that it is 2-3 times higher than CFC 12 price . The price range is extremely wide depending on volume procured, supply channel etc... The number of importers is about seven.

It can be estimated that some 60% of CFC consuming equipment is concentrated in the capital area , larger towns and tourist areas.

Maintenance

The current maintenance standards of domestic and commercial refrigeration equipment are generally poor. When refilling the equipment actual refrigerant volume used is 2-3 ties more than the final charge volume . Maintenance workshops have no leak detectors , the cleaning and flushing of the system is made by the coolant itself.
Large industrial installations are usually serviced regularly ,but commercial difficulties often result in lowering the standards by using non-professional operators.
There is no recovery and recycling activity . All used refrigerants are vented into the atmosphere.
A remarkable part of the equipment is delivered to the maintenance because the refrigerant has leaked or run out and because compressor and electric motor failures .Thus the refrigerant charge is generally recoverable . However ,the current substandard maintenance practices result in venting these easily recoverable charges into the atmosphere This makes the recovery and recycling an attractive business. It should be noted that the refrigerant (to be) covered due to motor burn outs is highly acidic and requires a good standard recycling equipment for processing.
A survey carried out by the ANPE in 1998 indicates that there is approximately 2,000 refrigeration and air-conditioning workshops, who employ some 5000 people of whom a part work as part-timers. Of these employees (including workshop managers) 1000 have a basic refrigeration and air-conditioning related training . the rest has gained skills on-the-job or in short courses arranged by vocational training centres . It should be noted that the training centres are hardly able to give adequate training because of e.g. almost complete lack of demonstration equipment.

A brief survey made when preparing this document indicated that the workshops rely on rudimentary equipment . Most of the shops miss e.g. vacuum pumps and all tooling is inadequate.
The fact that compressors designed for HFC-134a can (at least temporarily) run on CFC12 is confusing . there is also a temptation to use HFC-134a in compressors designed for CFC 12 which will quite immediately lead to a functional failure.
However , most of the workshop managers have idea about the ozone issues, new non-ODS refrigerants and that their characteristics differ from the old ones . In general there are no preparedness to use new refrigerants

Training

The Vocational Training Centres have training facilities, but the equipment is not modern or functional. The current training covers the non-ODS refrigeration only at a theoretical level.

The Vocational Training Centres located in all major towns have teaching and instruction capacity, but don't generally have demonstration equipment. As mentioned above .
The Training Centres in Tunis, Kbilia and Nabeul are equipped with some basic demonstration equipment . Thus the people participating in refrigeration related courses have to learn the actual skills on-the-job.

It seems that the refrigeration and air-conditioning related training is attractive and the institutions carrying out the training have no problems to recruit trainees. The envisioned employment opportunities in the sector courage young people to seek formal training.

2 . JUSTIFICATION FOR RMP

Tunisia has been able to follow the phase-out schedule set in the country Programme . Tunisia has already phased out all CFC use in aerosol sector. Phasing out CFCs in foam production and refrigeration manufacturing will be reached in near future. In general the Refrigerant Management Plan is needed to keep this very positive development going on .

The Government has been avoiding direct intervention. Changing and fluctuating trading patterns and subsequent problems in monitoring and collecting reliable statistics makes the continuation of this policy difficult. It may be said that what can be reached with the non-intervention policy is now reached .The finalisation of the phase-out needs more focusing, both regulatory measures and incentives .

The 1994 Country enumerates e.g. the following actions to be adopted and implemented to reach the phase-out schedule.

- The Government is prepared to consider increased import duties or taxes on the controlled substances in case the planned (reduced) consumption figures are not reached.

- The Government is prepared to introduce bans on foreign manufactured refrigeration and air-conditioning equipment, if the products are obsolete or banned in their home markets to ODS.

- The Government will be liberal and supportive regarding and permits required by manufacturing and service businesses which intend to establish for phasing out ODSs.

- The Government will introduce a licensing system for refrigeration and air conditioning servicing operators in order to enhance better working practices.

*The Government will actively support training and publicity campaigns using the public media, and will encourage the different branches of public administration to co-operate.

*The Government will encourage the participation of voluntary organisations and citizen groups to support the training and

The Government is now starting to implement, i.e. to turn the policies into practical measures with the help of this RMP . It is expected that a well-defined management plan and supportive government policy will serve as an indicator for private businesses and large users to refrain from any adverse operations in regard of the phase-out . The representatives of industry and maintenance business contacted think that the phase-out of ODS is a necessity and Tunisia cannot lag behind the development in the region.

The envisioned training and recovery & recycling programme is very extensive and provides equipment for two thousand workshops. It is also envisioned that the recovered refrigerant presents a financial incentive for businesses . To make this envisioned system operational an appropriate management and control consumption related rules, mentioned above, is a necessity.

The measures proposed will enable the Government and refrigeration businesses to continue the phase-out according to the country programme avoiding future set-backs and high economic and social costs.

3 ASSISTANCE RECEIVED

The compilation of this Refrigerant Management Plan has been supported by UNIDO, which sent a consultant to work for a short period in Tunisia to compile the background information, assess the situation and develop contact with authorities and businesses already involved or to be involved in phase-out actions.
The Ozone Office ,high executives of the National Protection Environment Agency , as well as private businesses have actively supported the compilation of this Refrigerant Management Plan.
The Customs Department has been consulted regarding the control and licensing opportunities . The Vocational Training Centre CENAFFIF (National Centre of Training and Engineering of Training) have been instrumental in compiling the training and recovery-recycling project proposals . Some maintenance workshop owners and CFC dealers have provided valuable practical details .

4 COMPONENTS OF THE PHASE OUT STRATEGY

The Multilateral Fund and the Government have supported the phase-out actions in the other sector than refrigerant . The industrial investment projects have resulted in almost complete phase-out except in the refrigeration maintenance.

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

The Government of Tunisia will focus on achieving an accelerated phase-out with an objective of phasing out ODS consumption in refrigeration and air-conditioning according to protocol phase out planning (after 2004 , minor amounts of CFC 12 to be used for the maintenance old domestic and commercial equipment, which is reaching the end of its economic and technical life span beyond that date) . The recovered and recycled substances will be increasingly used for maintenance.

The regulatory actions to phase-out refrigerants have been and are still almost non-existing, since the government policy is not to interfere in the trade. It seems that the phase-out the refrigeration maintenance needs some regulatory support, which is developed in the connection of this RMP.

5 ACTION PLAN

Based on the experience gained since the preparation of the country programme and on 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 Refrigeration
- Recovery and Recycling Programme
- Training Programme for customs officers and Development of Criteria for ODS and ODS consuming equipment imports.

Training Programme for Good Practices in Refrigeration

This project aims at training 36 local trainers, who will be recruited from the staff of 12 Vocational Training Centres located in the towns of Bizerte, Tabarka, Tunis, Sousse, Sfax, Gabes, Jerba, Tozeur, Nabeul, Kasserine, Beja, Tataouine. The people to be trained as trainers already have a basic training (mainly from the University) in mechanical and electrical engineering and refrigeration thus being able to adopt both the theoretical and practical aspects related to the equipment running both on ODS and ODS-free refrigerants . The training of trainers will be arranged in two batches one for people from the Tunis area and one from the south area.
The estimated duration of the trainers training is one week for each group.
The trainers will be appointed by the Ozone Office to run the training of approximately two thousand (2000) shop-floor technicians during the three years following the trainers training. The shop-floor technicians to be trained are recruited from the practical maintenance businesses. The training courses will be arranged in twelve (12) locations in Tunisia . These training locations will be provided with up-to date equipment and tools enabling the continuation of training after the aforementioned 2000 trainees have passed their courses. The aim is that every regularly working maintenance business will have at least one trained technician /operator after this training exercise is over. The participation in the training will be a mandatory requirement for the extension/renewal of the commercial licence of the maintenance workshops.

The estimated long-term phase-out impact is 80 tons of CFC12 representing the avoidance of wastage of virgin refrigerant when maintaining and refilling the equipment .

The costs of the training are estimated at **USD 375,100** . The project proposal is attached as annex 2.

Recovery and Recycling Programme

This project aims at establishing 23 recycling centres in each administrative area (gouvernorat) in Tunisia and providing 2000 service companies with basic recovery equipment (vacuum pump, recovery cylinders, leak detectors). The

estimated phase-out impact is 40 tons of CFC recovered and re-used to service the CFC consuming equipment .
The costs of recovery and recycling are estimated at **USD 1,535,099.**
The project proposal is attached as annex 3.

Training of Customs Officers

This project aims at training a core team of customs officers in proper recording and detecting of ODS. Refrigerant detecting equipment will be provided . The imports of ODS and ODS containing equipment will be regulated but the measures will be implemented gradually . The development of regulatory system must be in line with the European community and implemented in a way causing a minimum social cost. The phase-out impact is mainly indirect, but without doubt, the awareness, that strict regulatory measures exist, will discourage some traders from harmful trading patterns. The cost of this activity are estimated at **USD 72,600** .
The project proposal is attached as annex 4 .

Budget

The following table summarises the costs of actions

Action	Objectives	Total costs USD	Funding MF
1.Training for good practices in refrigeration	training of 36 trainers and 2000 shop floor technicians	**375,100**	**375,100**
2. Recovery and Recycling of refrigerants	procurement of recovery and recycling equipment	**1,535,099**	**1,535,099**
3. Training of the customs officers	monitoring of imports and exports , support to regulatory actions	**72,600**	**72,600**
Total		**1,982,799**	**1,982,799**

Financial support of **1,982,799 USD** is sought from the multilateral fund . Technical assistance is needed for the initiation and implementation of the three projects .It may be noted that part of the technical assistance needs can be recovered by the local expertise.

The time schedule of the activities ,together with the phase -out impact is indicated in chapter 7.

6 INSTITUTIONAL FRAMEWORK

The Ozone Office at the National Protection Environment Agency (ANPE) will implement the Refrigerant Management Plan and its components supported by the national team for the implementation of the Montreal Protocol.
The CENAFFIF will be involved in the training . It is further envisioned that the training can be implemented with initial external technical assistance only.
The monitoring will be carried out by the Ozone Office, supported by the national team regarding first two projects and by the customs department regarding the third project
The Multilateral Fund and UNIDO will receive regular reports on the progress and results.

7. IMPACT

As discussed earlier it is expected that the CFC 12 consumption for maintenance purposes will no more increase from the current 143 tons .
The timing and estimated impact of the implementation of the refrigerant management plan and its components are indicated in the following table .

Action	1999	2000	2001	2002	2003	2004
1-Training for good practices Estimated phase out impact tons of ODP		----- 20	_____ 40	_____ 60	----- 80	
2-Training of customs officers and development of criteria for ODS and ODS consuming equipment imports Estimated phase out impact tons of ODP		--	_____ n/a	---		
3- Recovery and Recycling Estimated phase out impact tons of ODP			_____ 10	_____ 30	---- 40	
4-Total impact tons of ODP		20	50	90	120	
5- Remaining CFC refrigerant consumption for service purposes	143	123	93	53	23	

When implemented the three proposed activities will result in phase-out of 120 ODS tons leaving out a volume of 23 tons , which is needed for service purposes in 2004 and beyond . It is expected that this service tail will be phased out by the end of 2010 by implementing regulatory measures and through scrapping old CFC consuming domestic commercial and industrial equipment .
The impact of the training of customs officers and development of criteria for ODS and ODS consuming equipment imports (and implementation of the subsequent regulations) is indirect.
The combined cost effectiveness of the three projects will be **16.5 USD** per one kg of CFC phased-out.

Annexes

1. **Country Programme Action Plan**
2. **Training for Good Practices in Refrigeration**
3. **Recovery and Recycling Programme**
4. **Training of the customs officers and development criteria for ODS and ODS consuming equipment imports**

Annex 1 : COUNTRY PROGRAMME ACTION PLAN

1.PROJECT MANAGEMENT

Hereafter are listed the institutional actions as recommended to be undertaken by the Tunisian government in order to guarantee an effective implementation of the action plan of the phase out of the ODS in Tunisia. These actions are composed of four key elements among which some were achieved before:

- the creation of the ozone office for the implementing of the action plan (created);
- a controlled system of the usage of ODS by substance and by sector (created);
- the introduction of legislative measures;
- the introduction of a licence for the refrigeration technicians (the permission to ODS import is established in the ANPE).

The total incremental costs of the project will be assumed as follows:

- Equipment , materials and supply:	USD 50,000
- technical co-operation:	USD 115,500
- Operations:	USD 124,500
- Local salaries	USD 154,000
TOTAL:	USD 444,000

The financing of the schema resulted from these expenditures is the following: 65% from the Fund of Montreal Protocol and 35% represents the counterpart of Tunisia.

Montreal Protocol Fund	USD 290,000
Tunisia counterpart	USD 154,000
Total	USD 444,000

1. The creation of the ozone office for the implementation of the action plan: Taking into consideration the importance of the first step , the government with association with the industrial users of ODS has constituted the ozone office for the implementing the action plan. The main objectives of the ozone office are to facilitate and to begin the implementation of the action plan.
This involves the fact that the office is responsible of what follows:

- control of ODS usage .
- the identification , evaluation and arrangement of the project implementation in the principal sectors used , as well in refrigeration , foam and aerosol;

- the management of project and its support from the multilateral fund;
- the appointment of advisers;
- the assistance to ANPE for the preparation and the elaboration of the legislative measures and consultation about the adjustments reverting to;

- the negociation of agreements about the conservation and the ban of the ODS and other affairs related to industrial users;
- the establishment of seminaries and the distribution of information which concerned the ODS and the project's results in the sectors users of ODS;
- the organisation of the popularisation of information and the establishment of awareness actions oriented to the public.

Relating to its organisation , it is forgone that this office and one or many groups of work which are constituted of the following members:

Executive committee of the ozone office:

- 1 representative of the Ministry of Environment and Territory Arrangement (ANPE);
- 1 representative of the Ministry of Economical Development.
- 1 representative of the Ministry of Industry .
- 1 representative of the Ministry of the Finances .
- 1 representative of the Ministry of Agriculture.
- 1 representative of the UTICA.
- 1 co-ordinator of Office for full time and
- 1 representative from the association of consumers.

The ANPE presides the Executive Office .

Group(s) of work:

- representatives of the industrial users (aerosols ,flexible foam , domestic refrigeration, refrigeration and commercial and industrial air conditioning and other unimportant users.) _
- governmental consulting about the norms and safety questions,...
- the ONG.

The Ozone Office has been already established and it will continue to exist as long as these regulated substances were used in Tunisia .

2- The controlled system of the usage of ODS by substance and by user sector:

It is recommended to establish a system in order to control the consumption of the ODS in Tunisia with the inspection to direct the disposition with the Montreal Protocol and the national policy of the elimination of the ODS . In addition to this, the system of control will manage to operate as a basic element foe the effective adjustment of the action plan, and within which the

date and the way by which the ODS and their alternatives have to be regulated or forbiden .

The system has to allow the control of imports ,the tendency of prices and the profiles of the consumers of the ODS (by substance and by final user sector.). This system of control has to cover the regulated substances by the protocol; ie ,the CFC , the halons, the methyl chloroform and the tetrachloride of carbon in the same way as the HCFC-22 and other intermediate substances and substitute of chemical potentials.

The Customs Department will have the responsibility to record all the imports and exports of the ODS in their chemical forms and components in these products (refrigerators , aerosol bombs , solutions of foams , isolation sheets, equipment to fight against fire , car air conditioning ,...).This record is shaped according to the system of classification of the international Norms (ISCS).

The Ozone Office's duty will be to control the use of the ODS by the final user sector through the medium of the recordings made by the customs and by the accounts informed to the office and which origins were related to the different distributers and users industries.

2. Legislative measures:

The following legislative measures are considered as the most important and essential in the available implementation of the national strategy for the phase out of the ODS.

a. Ban the use of the ODS for specific ends .Studies were made in order to go through with the detailed profiles of the consumption in association with the users industries of the ODS were necessary in order to establish the final schedule which fixed the dates coming into force with the bans .
On the basic of this report and with the assistance of the institutional adviser and the Executive Office of the Ozone ,the ANPE will introduce the strategy of the elimination of the ODS and it will describe the necessary regulation for the introduction of the bans.

b. Special taxes on the imports of controlled substances. The aim from this tax is to stimulate the initial substitution of the ODS in the easily convertible applications such as the aerosols and the foam .Thus , the incomes of this tax shall furnish the financing of the local projects which objectives is to appoint the ODS and popularisation of information . In these applications, the tax should be higher than the incremental cost of substitution, but it should be

lower than the present sating of the CFC-12 in the local market which can be estimated about 4 dollars per kg . The increase of this tax will be taken into consideration later on in the elimination plan .

c. Exoneration of taxes for the imports of the technologies of the conservation of the ODS .The imports of these technologies of conservation of the ODS such as the recuperation and the recycling of the machines should be exonerated by rights to import as it is the case for the other environmental equipment imported to Tunisia .

The ANPE will be at the head of the agency in the implementation and in the coming into force with the different legislative measures .
Nevertheless , the taxes made on the ODS and the exoneration of taxes will be collected and managed by the Customs Direction.

3. Licences of ODS and the accreditation of the technicians of refrigeration:

The ANPE has already established inside the strict regulation about the phase out of the ODS , a permission to import so that the control of the sale of the ODS in Tunisia will be facilitated .
Concerning the workers who are in charge to maintain the refrigeration, it is advised to join to the licence a system of credit for the technicians of maintenance .Those who can detain this licence are the allowed workers and work shops of maintenance .
In order to get certificate , the technicians of maintenance should have accomplished a term of probation in the manipulation of the ODS in short term (see the project of proposition n° R.2.and R.3) in order to stimulate the recourse at improving the procedure of maintenance and even to the recovery and the refreshing course of the CFC .The certificate can be also annexed at the available equipment such as the exhaustion of pumps, the recovery of equipment...
It is obvious that the probation have to take place for every one before the investment of the licence system.

2. Projects:

There are five projects proposed to be implemented in the financing of the Multilateral Fund. Two in the refrigeration sector , two in the foam sector and the last project in the aerosol sector . All these projects are considered as a preliminary condition for the implementing plan of this ambitious plan of phase out the ODS. The projects comprise the amount of the acquiring equipment ,for the furnishing materials , the technical co-operation , local salaries,...
A brief description of each project is presented hereafter.

The total incremental cost of the projects was estimated USD 1,620,300 on the period 1994 – 1997.
The absolute priority should be put in agreement with the project N° R1 : installation of the prototype test for the HFC 134 a to TABRID , as the costs are due to the impossibility to introduce new refrigerators towards 1996 , these are too significant as far as the loss of exports is concerned and even in terms of the forced replacement of refrigerators.
The second priority should be conceded to the proposed sectors of aerosols (A1) and the flexible foam (F2) , because of that these two sectors are the most profitable in the reduction of the ODS.
The other projects should be realised according to the priorities that follow:F1 and R2.
Component 11 : Project N°R 1 : Installation of prototype test of HFC 134 a at TABRID

The objective of this project is to examine the models of refrigerators based on HFC134 a in the conversion of the production lines towards 1996 , as it is advised in the schedule proposed for the phase out of the ODS.
The project involves the engineering support and the investment of equipment , cells of tests ,...The project is made for TABRID for the reason that this company realised by its own the models of refrigerators and it is the principal producer of refrigerators in the local market and it is even the only export company of refrigerators.

Component 21 : Project N°R 2 : Training of Maintenance staffs of refrigerators:

The aim of this project is to improve the procedures that maintain the domestic refrigerators and to reinforce the awareness about the ozone subject among the workers of maintenance and also to preserve the use of the CFC 12 by recycling and by using nitrogen for purge and cleaning.
It also for objective to introduce advanced practice of maintenance, to teach the technique of conversion and to make ready for the introduction of the technology of refrigeration without C.F.C.
The project includes a preliminary study which describes the domestic sector of the actual refrigeration, the sector of installation and that of the maintenance of the big systems of industrial and commercial refrigeration, it is also constituted of a plan of training , technical assistance for the technicians of refrigeration, And it is presented to the students as well as for the professional technicians of industry, a technical assistance, demonstrative projects and investment by providing the necessary material and equipment for the formation. There is also a number of machines of recuperation and recycling of the C.F.C in order to put them in the biggest work shops and used for the demonstrative courses of the training.

Component 12: Project No F.1 Financial help for the conversion of machines in the development of rigid foam:

The objectives of this project is to sustain a logical conversion to the technological isolation of refrigerators without CFCs.
The project is composed of a technical workshop over the weak techniques of isolation based on the CFC, and the investment presented as a line of credit is made by financing the equipment which are modified and by keeping in mind the intention to replace the CFC by the HCFC 141b . The group TABRID will receive the benefit from this project.

Component 31: Project No F.2 Technical training , consultation and demonstration in rigid foam sector:

The aim of this project is to introduce the technologies without CFC and then to facilitate the abolition for the usage of the CFC in the flexible foam sector , and this action can only be achieve the Methylene Chloride and without ignoring the toxic characteristic of this product .
The project is constituted of technical support fixed to the producers of flexible foam in workshop form and individual consultations, there are also demonstrative projects with tests of production in the principal companies.

Component 41: Project No A.1 Technical training and consultation :

This project is established in order help the aerosol companies to select the technologies without CFCs .
The project includes technical support from the workshop for the option that do not need CFCs and which concerned aerosol companies , the consultation of the appropriate technology for each producer. The project is also composed of the investment in its credit line in order to finance the conversion of the factory of aerosol cans , thus in the case that these lasts do not benefit for a period of two or less in order to repay.
The participants in this project are 15 to 20 of the actual producers of the aerosol products in Tunisia.

3.Planning of action plan implementation:

Projects	1995 T1 T2 T3 T4	1996 T1 T2 T3 T4	1997 T1 T2 T3 T4
COMPONENT 11 : project R1	xxxxxxxx	xxxxxxxxxxxxx	xxxxxxx
COMPONENT 21 : project R2	xxxxxxxx	xxxxxxxxxxxxx	xxxxxxx
COMPONENT 12 : project F1	xxxxx	xxxxxxxxxxxxx	xxxxxxx
COMPONENT 31 : project F1	Xxxxxxxxxxxx	xxxxxxxxxxxxx	xxx
COMPONENT 41 : project A1	xxx	xxxxxxxxxxxxx	xxx

Annex 2 : Training for good practices

PROJECT COVER SHEET

COUNTRY	:	**TUNISIA**
SECTOR COVERD	:	Refrigeration Maintenance
PROJECT TITLE		Training for Good Practices in Refrigeration
PROJECT DURATION	:	36 months
PROJECT IMPACT	:	80 ODP tons of CFC
PROPOSED BUDGET	:	USD 375,100
INCREMENTAL COST	:	USD 375,100
IMPLEMENTING AGENCY	:	United Nations Industrial Development Organisation
NATIONAL COORDINATING AGENCY:		Ozone Office National Protection Environment Agency

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 143 ODP tons of CFC 12. Therefore , this training project for refrigeration service technicians is critical to the effective ODS phase–out in Tunisia since the refrigeration maintenance sub-sector counts practically for all Annex A and B consumption in the country after the projects already implemented or being now under

implementation are finalised.The other components to phase out CFCs in refrigeration and air-conditioning 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 imports of ODS consuming equipment .

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 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 training programme will, in the first stage, train 36 trainers, who will then be responsible to act as instructors / trainers to train approximately one thousand (2000) shop floor operators.

The training programme of the trainers component will include theoretical and 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 practises 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 's Refrigerant Management Plan.

A long-range objective is to enhance the refrigeration related courses at the twelve (12) Vocational Training Centres.

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 36 trainers, who will be responsible to train some 2,000 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.

It is expected that the trained technicians will save approximately 30 tons of the estimated 40 tons of CFC, which is currently vented into the atmosphere.

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 there is at least one trained technician among the staff.

4 . Target Audience

Tunisia has currently approximately 4,000 refrigeration and air-conditioning technicians who work approximately 2,000 different service companies and workshops.
The project aims at training 36 technical teachers (working now at the Vocational Training Centers) to work as trainers . These trainers already have basic theoretical and technical training related to refrigeration and air –conditioning and also they have some experience from the practical maintenance business. The people to be trained as trainers will be recruited from
After the trainer's training is over the Ozone Office will identify (with the help of businesses and the National Committee) approximately 2,000 shop-floor technicians working now in the workshop and train them the help of the trained trainers.
It is expected that envisioned certification will force part of the non-participants out of the business.

5 . Approach

The project will be on four phases :

Phase **I a** : Procurement of demonstration equipment for the CENAFFIF (National Training and Engineering training Centre) to execute the trainer's training.
The proposed demonstration equipment (see the budget section) is specified in consultations with the representative of CENAFFIF to serve both the trainer's training programme as well as the long term purpose , i.e. inclusion a more comprehensive and up-to –date refrigeration element in the curricula of CENAFFIF.
The training aids produced e.g. by the UNEP's Ozone Action Programme will be utilised.

Phase **I b :** Training of trainers
This phase will be implemented and co-ordinate by the Ozone Office with the local consultants, and the CENAFFIF.
During this phase an international consultant / trainer will be appointed to facilitate the inclusion of appropriate technical development, alternative substances, retrofitting etc..., in the training curricula.
The training programme of trainers will be organised in three batches, each lasting one week, number of participants in each course approximately 12. The international consultant / trainer will carry out the practical training in co-operating with the CENAFFIF's staff.

Phase **II a** :
Procurement of demonstration equipment for 12 Vocational Training Centres. The training equipment will be basically the same as that one to be procured for the CENAFFIF (see phase **Ia**). The equipment will be left at the centres use after the technicians training is over.

Phase **I b** : Training of shop –floor technicians
This phase will be implemented in approximately thirty months time after the trainer's training programme is finalised and demonstration equipment procured.
The technicians training will consist of approximately two hundred (200) courses, lasting two days each. The number of participants in each course is approximately 10 .

The content of the technicians training should fit to the practical skills and experience of the participants . The training will cover the ODS background, phase-out requirements, existing and envisioned international and national regulations, technical trends, alternatives substances and methods. The envisioned national recovery and recycling scheme will be explained. The main part of the training should cover practical aspects of the maintenance like the vacuuming of equipment and recovery of refrigerants (paying specific attention to prevent venting into the atmosphere), recharging, detection of leaks etc ...

Phase **III** : Enforcement of certification system

It is expected that the Ozone Office and the National committee for implementation of the Montreal Protocol will develop a certification scheme concept (as mentioned above) before the technicians training starts. This scheme will be explained to the trainees. The Ozone Office will enhance some public awareness activities explaining to the general public the benefits of using the services of workshops having trained technicians. 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 to produce a progress report on the results of the programme and suggested corrective measures, if applicable.

6 . Time Frame

It is expected that the demonstration equipment for the training centres will be procured in November 1999 and training programme of trainers can take place February 2 000 .

The two day training courses to train approximately 2,000 shop-floor operators will start in March 2000 and the activity will last approximately thirty months to be completed by the beginning of the year 2003 . The inclusion of refrigeration training components in the curricula of the Vocational Training Centres will be starting from the year 2000 .

7 . Co-operation Partners

The Training will be arranged using the training facilities available at the Vocational Training Centres. The trainers to be trained and further appointed to train technicians are coming from the Vocational Training Centres, from equipment manufacturers and (some of them) from the maintenance businesses.

The active, practical monitoring of the activity will be carried out by the National Committee. The Tunisian industries association will be informed about the development of the training, its results and certificates issued to draw practical conclusions concerning the business. The CENAFFIF will be involved in the long-term development of the training activity .

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 Action

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 programme.

The content of this licensing is based on short term, and a given service company must have trained technicians on pay-roll in order to obtain a license. Therefore, the participation of the service company in the training is compulsory to participate in the recovery and recycling programme and to receive the necessary equipment.

After the training is over, the Ozone Office, a national consultant and the representatives of the Vocational Training Centres will carry out evaluation and enhance the continuation of the training as a normal activity.

The implementation of the activity, results achieved and conclusions will be reported to **UNIDO** and **MF** according to the issued guidelines **.**

Item	Budget, USD
Technical training	
International expert (travel , DSA, fee) for technical training , two weeks	6,000
travel , DSA *	5,000
Local organisation	2,000
CFC identification kits 10 X 600 USD	6,000
Training material & aids	4,000
Compensation to trainees (travel , DSA)	5,000
Development of criteria for ODS imports	
international expert /advisor , fee	5,000
international expert /advisor , travel , DSA	3,000
local travel of the expert team	2,000
International travel (in the region) of the selected members of the expert team to network & contact customs /ODS officers	10,000
Local consultants to support the expert team 12 months	18,000
Sub-total	66,000
Contingencies	6,600
Total	**72,600**

* The training will be arranged in Tunis (the location of customs laboratory ; compensation for participants from the other areas of Tunisia.

Item	**Total USD**
Local arrangements, logistics, recruitment of trainees for 36 months*	54,000
International consultant (for training trainers) , one month	10,000
Compensation for local trainers , 400 training days	40,000
International consultant , travel, DSA	6,000
Training material for shop-floor trainees (2000)	40,000
Office supplies , photocopying of material	8,000
Compensations for the 12 Vocational training centers , space rents , facilities for 400 training days	40,000
DSA and travel for non local (recruited from outside of the training centres locations) 200 people x 2 days USD 50 per day	20,000
Demonstration equipment for 12 training centres **	120,000
Local consultant , monitoring and evaluation of the project , two months *	**3,000**
sub-total	341,000
Contingencies 10% of the above	34,100
Total	**375,100**

*) The monthly rates applied are approximately the same as in the institutional strengthening project

**) The composition of the demonstration equipment will be as follows : vacuum pump , charging machine , recycling machine , 2 leak detector (electronic and gas driven), 4 recovery cylinders , service tools , accessories , spare parts . It is assumed that the equipment presents the basic standard equipment available in the market .

Annex 3 Recovery and recycling

PROJECT COVER SHEET

COUNTRY	:	**TUNISIA**
SECTOR COVERED	:	Refrigeration Maintenance
PROJECT TITLE	:	Recovery and Recycling
PROJECT DURATION	:	30 months
PROJECT IMPACT	:	40 tons of CFC
PROPOSED BUDJET	:	**USD 1,535,099**
INCREMENTAL COST	:	**USD 1,535,099**
IMPLEMENTING AGENCY	:	United Nations Industrial Development Organisation

NATIONAL COORDINATING AGENCY: Ozone Office
National Protection Environment Agency

PROJECT DESCRIPTION

1. Background

This project will provide approximately two thousand small workshops with the basic tools needed in recovering the used refrigerant. Currently all used refrigerants are vented into the atmosphere. The volume of used, recoverable refrigerants is rather high because most of the equipment is delivered to the service because of compressor and electric motor failure. This makes the recovery and recycling an attractive issue.

Tunisia is using approximately 143 tons of CFC to service refrigeration and air-conditioning 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 80 tons. In case the service operators would have proper equipment for recovery and recycling some 50 % (40 tons) of this wasted old refrigerant could be saved 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 Tunisia 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 criteria for ODS and ODS consuming equipment import licensing.
- The conversion of an industrial refrigeration system from CFCs to non-ODS Refrigerants

The first action is under implementation
Training of the technicians is scheduled to start during the first half of 1999. After the training is initiated and distribution of the recovery and recycling equipment to the maintenance companies to be run by trained technicians can be started.

2.Objectives

The project aims at supplying approximately 2000 service companies with basic recovery equipment (vacuum pumps) recovery cylinders and necessary tools. Further 23 recovery centres will be established in each administrative area (Gouvernorat) . 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, whether directly included in this programme or not, to recover CFC during servicing

The implementation of the training programme for good practices in refrigeration is a prerequisite for successful recovery and recycling. The Ozone Office needs to consult (supported by the National Team for implementation of the Montreal Protocol) 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 40 tons p.a , thanks to the recovery and recycling efforts of this programme , is of economical importance to the country.

Each of the 2 000 workshops supplied with recovery machines (vacuum pumps) will recover an average of 22 Kg of refrigerant per year ; 90 % of the recovered material is recyclable ; annual recycled volume is approximately 40 tons.

The location of recycling centres with machines and associated kits will be determined by evaluating the most effective locations with regards to their access to the largest and consistent volumes of CFC-12. Tentatively the location of machines will be one in each Government :.

5. Equipment

Recovery

Each one 2000 workshops participating in the programme would receive a vacuum pump, leak detector, recovery cylinders and associated equipment. 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 an OFP device and capacity to fill automatically, in one single pass and continuous process a 120 lb 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 cylinder with dual port and OFP device ;
- 1000 lb 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 external expert, local trainers and the Ozone Office.

6. Institutional Arrangement

The Ozone Office will co-ordinate the implementation of this programme . The operators of the 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 Ozone Office will develop some criteria and conditions under which the refrigerants will be received and re-sold .

Units	Recovery and Recycling Equipment	Unit cost USD	Total cost USD
	Equipment for the workshops		
2 000	Vacuum pumps	250	500 000
2 000	Refrigerant recovery cylinders with two ports	65	130 000
2 000	Refrigerant recovery cylinders with two ports and OFP	100	200 000
2 000	Recovery equipment kits including leak detectors	300	300 000
	Equipment for the recycling centres		
23	Recycling machines	7 000	161 000
23	Refrigerant identification kits	600	13 800
23	Vacuum pumps to empty the cylinders	250	5 750
23	100 lb. Refrigeration cylinders with two ports and OFP	200	4 600
23	1 000 lb. Refrigerant cylinders with two ports	1 000	23 000
23	Refrigerant recovery cylinders with two ports	65	1 495
23	Refrigerant recovery cylinders with two ports and OFP	100	2 300
23	Recovery equipment kits including leak detectors	500	11 500
	local consultant to develop the organisation and criteria for receiving and selling the CFC at centres		6 000
	Monitoring the activity for 24 months		36 000
	sub-total		1,395,545
	Contingencies 10% above		139,554
	Total		**1,535,099**

Annex 4 training of customs officers

PROJECT COVER SHEET

COUNTRY	:	TUNISIA
SECTORS COVERED	:	All
PROJECT TITLE	:	Training of Customs Officers and Development Criteria for ODS Consuming Equipment Imports
PROJECT DURATION	:	**18** months
PROJECT IMPACT	:	n / a
PROPOSED BUDGET	:	**USD 72,600**
INCREMENTAL COST	:	**USD 72,600**
IMPLEMENTING AGENCY	:	United Nations Industrial Development Organisation
NATIONAL COORDINATING AGENCY	:	Ozone Office National Protection Environment Agency

Project Description

1 . Background

The institutional structure within Tunisia needs more organised and efficient systems to monitor and control the imports of CFC or CFC 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 CFC , and the lack of specific customs codes for CFC and lack of regulations for their control . Tunisia has approximately 40 import / customs stations .
The Government is thus 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 . The technical aspects of the training will be concentrated in the customs laboratory in Tunisia .
It is imposing discriminatory measures on importation of ODSs . Imposing direct measures on ODS imports like punitive taxes, direct bans, permits, licences or quotas may result in unexpected trading patterns, parallel activities and punish the 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.

To sort out the feasibility of restrictive measures on the imports of ODS and ODS containing equipment, it is proposed that an expert group will be established. This group should analyse the practical possibilities to impose any restrictive measures and their envisioned repercussions on the actual ODS and ODS containing equipment trade.

2 . Objectives

This project aims at :
Training customs officers (inspectors, controllers and customs policemen) to enable them to identify :

- Controlled substances under the Montreal Protocol
- Imported refrigerators , freezers and other refrigeration equipment using CFC.

Providing CFC-detection equipment for major customs entry points in the country.
In addition this project will allow the customs department to create a database on imported ODS.

Developing and imposing clear rules (bans, quotas, licences) to actually restrict ODS and ODS containing equipment imports. The implementation of these activity will be made in a manner and publicity, that 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 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 12 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 project may also define and identify import channels, which need a special attention
One international trainer / expert will be identified to support the core team in using the technical aids but also to elaborate the trade patterns, envisioned irregularities and corrective measures.

The customs department needs to elaborate the repercussions of imports restrictions. When imposed, restrictive measures should be clear and one should envision the actual effects, among which the increasing of parallel activities should be taken into consideration. Unwise, economically and financially impossible conditions will lead to confusions only. It should be noted that the import duties levied currently mainly have a fiscal purpose.

The customs department will established an team to sort out suitable criteria. This team should be allowed to hire some outside expertise familiar with the ODS trade in the region. Also the department should actively collect information from the neighbouring countries and participate in the regional ODS and environment related workshops.

6 . Time frame

The technical training should take place in January-February 2000 . The development of criteria for imports is expected to last approximately one year. The customs department should be technically ready to impose restrictions at the end of the year 2000 .

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 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 National team for the Implementation of the Montreal Protocol will monitor this activity. Since the imposition of restrictions most likely has some policy and fiscal aspects, the National Protection Environment Agency should take a stand on this activity.

Item	**Budget, USD**
Technical training	
International expert (travel , DSA, fee) for technical training , two weeks	6,000
travel , DSA *	5,000
Local organisation	2,000
CFC identification kits 10 X 600 USD	6,000
Training material & aids	4,000
Compensation to trainees (travel , DSA)	5,000
Development of criteria for ODS imports	
International expert /advisor , fee	5,000
International expert /advisor , travel , DSA	3,000
local travel of the expert team	2,000
International travel (in the region) of the selected members of the expert team to network & contact customs /ODS officers	10,000
Local consultants to support the expert team 12 months	18,000
Sub-total	66,000
Contingencies	6,600
Total	**72,600**