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Executive Committee of
the Multilateral Fund for the
Implementation of the Montreal Protocol

Twelfth Meeting
Montreal, 28-30 March 1994

COUNTRY PROGRAMME: MALAWI

This document consists of:

- (a) Country Programme Evaluation Sheet (prepared by the Fund Secretariat)
- (b) Transmittal Letter from the Government of Malawi
- (c) Country Programme Cover Sheet
- (d) Country Programme

MALAWI COUNTRY PROGRAMME EVALUATION SHEET

National Implementing Agency: Ozone Unit, Department of Research and Development

Status of ratification of the Vienna Convention and the Montreal Protocol

	Signature	Ratification	Entry Force
Vienna Convention (1985)		09/Jan/91	09/Apr/91
Montreal Protocol (1987)		09/Jan/91	09/Apr/91
London Amendment (1990)			
Copenhagen Amendment (1992)			

Production of controlled substances: 0 metric tonnes (mt)

Consumption of controlled substances (1992): 51.5 metric tonnes
60.0 weighted tonnes (ODP)

<i>Substance</i> (ton)	CFC						Halon			Solvents			M-Br
	11	12	113	114	115	Total	1211	1301	Total	CTC	MCF	Total	
ODS	8.5	35.4			2.8	46.7	4.8		4.8				
ODP	8.5	35.4			1.7	45.6	14.4		14.4				

Source: Country Programme (1994)

Distribution of ODP by substance:

CFC: 76.0% Halon: 24.0% CTC, MCF:

Distribution of ODP by sector:

Sector:	Aerosol	Foam	Halon	Other	Refrig.	Solvent
Consumption (tonnes):		2.5	14.4		43.1	
Percent of total:		4.2%	24.0%		71.9%	

Country Programme

Duration of country programme: 4 years (1994-1997)

ODS phase-out target:

Step-wise phase-out of ODS between 1995 and 2007, when all ODS will be phased-out

Phase-out priority area:

Refrigeration sector

Cost of activities in country programme: \$470,000

Strategy:

The implementation of the action plan would lead to a decrease in the consumption of CFC and halons starting in 1996, with a complete phase-out by 2006. The CPG relies on economic means, prices and other indirect measures in phasing-out the use of ODS. Improving awareness and information dissemination will be the primary means of the Govt. to enhance phase-out. The Govt. is prepared to impose bans, duties and licences to counter the possible adverse developments.

COMMENTS AND RECOMMENDATIONS OF THE FUND SECRETARIAT

COMMENTS

1. The Country Programme of Malawi presents adequate information which would provide the basis for developing activities and projects for phasing out ODS. It describes the industrial activities which are mainly confined to refrigeration and air conditioning servicing. The use of methyl bromide, though not currently controlled under the Protocol for Article 5 countries, is a source of concern to the Government due to high level of consumption of the chemical (about four-fold that of the total consumption of all controlled substances) in the tobacco industry.

2. In view the of anticipated scarcity of CFCs, the Government has proposed a project for CFC stockpile estimated at US \$20,000 in the Country Programme. However, no request for funding was made.

3. Figures 3.4.1 and 3.4.2 and Annex I require some clarification to make them more meaningful. This clarification was, however, not forthcoming.

Projects in the Country Programme for which Approval is Requested

4. The Government is requesting approval of funding for the following projects:

- (a) Institutional Strengthening project (US \$100,000)
- (b) Training on refrigeration and air conditioning (US \$120,000)
- (c) Retrofitting refrigeration equipment (US \$250,000)

5. The institutional strengthening project was reviewed taking account of the extent of ODS consumption and the ODS-using industrial structure of the country. No project proposals were submitted on the other two projects.

RECOMMENDATIONS

The Fund Secretariat recommends as follows:

1. To approve the Country Programme of Malawi. Approval of the Country Programme does not denote approval of the projects therein or their funding levels.

2. To approve the amount of US \$77,000 and US \$10,010 support costs for institutional strengthening to be included in the UNEP 1994 Work Programme.

3. To request UNEP to cooperate with the Government of Malawi to identify implementing agency (agencies) for the preparation of the identified projects in the Country Programme.



Ref. No. 32/2/36

8th February, 1994

The Chief Officer
Secretariat of the Multilateral
Fund for the Implementation of the
Montreal Protocol
1800 Mc Gill College Avenue
Montreal
Canada H3A 3J6

Dear Sir,

I have the honour to submit the country programme of Malawi, for the consideration and approval of the multilateral fund for the implementation of the Montreal Protocol.

Malawi acceded to the Montreal Protocol in April, 1991. The country's per capita consumption of ozone depleting substances is 0.003kg and qualifies as operating under Article 5 of the Montreal Protocol.

I would like to express the Government appreciation to UNEP for the assistance extended to the Government, through the UNEP/PAC programme, which greatly facilitated the preparation of the country programme. I would also like to express the Government's commitment in implementing the actions contained there in.

It is Government's intention to monitor compliance with the protocol. Where necessary, amendments to the actions specified will be made and the country programme updated and submitted to the executive committee accordingly.

We hope that the Executive Committee will approve the request for assistance made in respect of the following:-

- (a) Institutional Strengthening
- (b) Training on Refrigeration and Air Conditioning
- (c) Retrofitting Refrigeration Equipment.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'J. Chiteyeye'.

J. Chiteyeye
for SECRETARY TO THE TREASURY

THE GOVERNMENT OF MALAWI

Department of Research and Environmental Affairs

National Working Committee on Ozone Depleting Substances

COUNTRY PROGRAMME

Phasing out the Ozone Depleting Substances in Malawi

JANUARY 1994

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COUNTRY:

MALAWI

LEAD NATIONAL AGENCY:

Ozone Unit

PARTICIPATING IMPLEMENTING AGENCIES:

UNEP IE/PAC

PHASE-OUT SCHEDULE

SUBSTANCES	Current Consumption (1992) ODP	Planned Cumulative Consumption Until Phase-out (ODP)		
		Article-5 (1) schedule	Accelerated schedule	Planned year of phase-out
CFC-11	6.5	192	395	
CFC-12	42.6	820.9		2007
CFC-115	1.7	46.2		
Halons 1211	14.4	105.4	64	2007
TOTAL	65.2	1 164.5	459	

(1) Projected consumption through the year 2000

ACTION PLAN

Year	Description of Action	Intended Effect	Sector
	I. Institutional Strengthening		
1994/1997	Establishment of the ozone unit	Coordination, control, technical support, monitor	All
1994/1996	Training Programme on Refrigeration and Air-conditioning	Training	Refrigeration and Air Conditioning
	II. Industrial Sector Activities		
1995/1998	Retrofitting the largest cold stores and central air-conditioning systems to use non-ODS on refrigerant/ coolant	Retrofitting	Refrigeration and Air Conditioning
	Stockpiling CFC-12	Stockpiling	Refrigeration and Air Conditioning

PROJECT SUMMARY

YEAR	TYPE OF PROJECT	PROJECT DESCRIPTION	AGENCY	PROJECT COST (US\$)
1994-1997	Institutional Strengthening	Establishment of appropriate institutional frame work, public awareness, monitoring	UNEP	100,000
1994-1996	Training	Training of refrigeration and air conditioning technicians	UNEP	120,000
1995-1998	Industrial Sector Activities	a) Retrofitting cold rooms and central air conditioning systems b) Stockpiling CFC-12		250,000
	TOTAL COST			470,000

EXECUTIVE SUMMARY

Background

Malawi has an area of approx. 118 sqkm with a population of approx. 10 million. The population density is approx. 85 persons per sqkm. The urban population represents some 14 % of the total. GDP is approx. USD 230 per capita. Agriculture accounts one third of GDP, industry 20 % and service sector 45 %.

Malawi depends completely on imports regarding the ODSs, and ODS related equipment. Malawi ratified the Montreal Protocol in January 1991 . A National Working Committee on Ozone Depleting substances was established in 1992. This committee has overviewed the preparation of this Country Programme.

Current Situation

Malawi used approximately **28 ODP tons of CFCs and halons in 1991, 0.0028 kg per capita.** From the year 1991 to the year **1992 the consumption doubled** . The substances used are **CFC 11, CFC 12 , CFC 115 and halon 1211.** Malawi is also using approx. **200 metric tons of methylbromide.** Most of the CFC use in refrigeration and air conditioning. Methyl bromide is of vital importance for the tobacco industry in Malawi.

The imports of ODS are through a few companies. The country has recently faced some supply irregularities.

Almost all CFCs used in refrigeration and air conditioning are to recharge the existing equipment. The use of halons to refill fire extinguisher is fluctuating from year to year.

It is forecast that the consumption will develop from its current level of 28 tons and 60 tons in 1991-92, respectively, to approx. 52 tons in 1995 the growth thereafter being quite modest.

The total consumption may increase up to 70 tons in the year 2010.

Implementing Phase-Out

This Country Programme relies mainly on economic means, prices and other indirect measures in out-phasing. Improving awareness and information dissemination will be the primary means of the government to enhance phasing out. The government is prepared to impose bans, duties and licences to counter the possible adverse developments. In order to strengthen the institutional capacity a specific Ozone Unit will be established , for which support from the Multilateral Fund is sought.

To guarantee the initial phase-out on the refrigeration and air conditioning sector the government is proposing that the following two concrete projects will be implemented, in addition to the institutional strengthening :

- * Training refrigeration and air-conditioning equipment operators
- * Retrofitting larger refrigeration and air-conditioning units to use non-ODSs as coolants

Financial support of USD 470000 is sought from the Fund to execute the aforementioned three phase-out projects during the period 1994-1997.

The stockpiling of CFCs coolants as well as the methyl bromide issue will be addressed later. The government is going to approach the Fund and/or other funding agencies with appropriate project proposals.

When applying the phase-out measures it is assumed that the **total consumption of CFCs and halons** will start **decreasing after the year 1995**. All ODSs will be **phased out by the year 2006**.

Project Summary Table

Project no	Title	Costs in USD
1.	Institutional Strengthening/Ozone Unit	100,000
2.	Training of Refrigeration and Air Conditioning	120,000
3.	Retrofitting	250,000
	Total	470,000

1. INTRODUCTION

1.1. Purpose

This Country Programme reflects the commitment of the government of Malawi to comply with the obligations as a party of the Montreal Protocol. The government is supported in its efforts by the industries of Malawi and other private sector companies, which have been involved in the compilation of the programme through close co-operation, negotiation and consultation.

This Country Programme includes data, information and analysis of the ODSs and their use, on which the Action Plan to phase-out the ODSs is based.

This Country Programme also describes the administrative and institutional framework within which implementation of the Montreal Protocol in Malawi will take place, as well as the requested financial assistance from the Fund.

Also this Country Programme specifies the procedure to follow-up and monitor the effectiveness of the actions taken, when implementing this programme.

1.2. Status

The Government of Malawi ratified the Montreal Protocol in January 1991 and this ratification entered into force in April 1991. Malawi is operating under the article 5, paragraph 1, of the Protocol.

This Country Programme has been prepared with the authority and guidance of the Office of the President and Cabinet, and supported by the National Working Committee on Ozone Depleting Substances. The background survey work and compilation of data and information was done by the Department of Research and Environmental Affairs.

The Ministry of Finance has given its consent to implement this Country Programme.

The costs incurred by the government in preparing this country programme are as follows (one USD = 4 Malawi Kwacha):

- * The Department of Research and Environmental Affairs has used approximately 3 professional manmonths for the survey and action plan. The support staff of the Department has used approximately 2 man months. The members of the National Committee, representing the other branches of the government, have used approximately 3 professional and several support staff man months. The members of the National Committee representing non-governmental organisations have also spent approximately 2 professional man months in the survey work and other data collection, as well as in frequent committee meetings during January-August 1993.

- * The direct costs incurred, representing travel, accommodation etc. during the survey work can be estimated to be approx. 20000 Kwacha. Other direct costs representing the international communication with the UNEP IE/PAC, the consultant, Ozone Secretariat and other bodies have been approx. 1000 Kwacha.

The Government of Malawi has conducted a survey on the ozone depleting substances, their import and use. The results and original data of the survey as well as other support material are retained at the Department of Research and Environmental Affairs, and provide a solid base for the forthcoming follow-up and monitoring arrangements.

1.3. Assistance Received

The government of Malawi has received financial and technical assistance from the UNEP IE/PAC to compile this Country Programme. Other direct assistance has not been received, but the in kind support of the organisations participating in the National Committee, has been most useful. UNEP IE/PAC has assisted in the programme compilation by sending a consultant to work in Malawi for two weeks. Also the representatives of Malawi have participated in UNEP/IEPAC supported seminars and workshops. However, it should be noted that the costs incurred while compiling this programme have exceeded all the outside financial assistance so far received.

2. CURRENT SITUATION

2.1. Current and Forecast Consumption of ODSs

2.1.1. Current Consumption

A field survey was undertaken in order to establish a sound base for the Country Programme. Regarding the substance wise consumption both years 1991 and 1992 were analysed and an estimate covering the imports of the year 1986 was also compiled.

The survey was actually initiated in a large national meeting in January 1993. Most of the governmental organisations and private businesses, relevant to the ODS issue in Malawi, were represented in this meeting. The rationale and purpose of the forthcoming country programme was explained to the participants to enhance good co-operation.

The officials of the Department of Research and Environmental Affairs (DREA) paid several visits to the different parts of the country focusing on the few primary importers and their distribution network. The Department of Customs and Excise switched its system of imports registration from the Customs Co-operation Council Nomenclature (CCCN) to the Harmonised Commodity Description and Coding System (HS) in 1990. The department provided the DREA with the imported volumes of the year 1986 (which were not originally classified according to the harmonised system) as well as imports of 1991-1992. To convert the volumes into ODS substances (according to the Protocol) the lists of trade names was used as a support. The largest importer of ODSs, Chemical & Marketing Co. Ltd.(distributor of products made by ICI) was very instrumental in this procedure. It was not possible to identify the imports of the ODS consuming equipment from the customs statistics. The National Statistical Office collected data covering equipment using ODSs. Therefore the import and consumption figures are a combination of import data and data from the end users.

Regarding the end-use segment most of the companies involved in the servicing of refrigeration and air-conditioning equipment have formed an association to work as an interest group, and provided the DREA with valuable data.

Tables 2.1. and 2.2. below indicate distribution of consumption by substance in 1991-92 and by use in 1992.

In 1991 the consumption was 28.2 ODP tons, out of which Annex A Group 1 substances (CFCs) are 82 % and Annex A, Group 2 substances (halon 1211) 18 %. Since the imports and consumption in the particular year of the 1991 can be considered exceptionally low, the consumption of the year 1992 is more typical. In 1992 the total consumption was 60 tons, out of which CFCs were 76 % and halons 24 %.

All CFC 115 imported was an ingredient in R 502.

Carbon tetrachloride and 1,1,1-trichloroethane were imported in such small amounts that the imports and consumption is considered as zero.

In addition to the controlled substances approx. 30 tons of the transitional substance HCFC 22 was imported as a chemical and 2.8 tons as an ingredient in R 502 (mixture with CFC 115).

Malawi is importing some 215 metric tons of methyl bromide.

There is no production of the controlled substances in Malawi.

Also, according to the survey there was no indication of exports from Malawi.

Some users and importers have faced recently irregularities with their conventional suppliers causing thus some stockpiling in Malawi. Anyhow, this stockpiling is of minor quantity and doesn't very much differ from the normal market fluctuations.

Table 2.1. Imports and Consumption of the Ozone Depleting Substances in 1991-92

Substance	Imports = Consumption Metric tons		ODP	Consumption in ODP tons	
	1991	1992		1991	1992
Annex A Group 1					
CFC11	8.5	8.5	1.0	8.5	8.5
CFC12	14.0	35.4	1.0	14.0	35.4
CFC113	-	-			
CFC114	-	-			
CFC115*	1.0	2.8	0.6	0.6	1.7
Subtotal	23.5	46.7		23.1	45.6
Annex A Group 2					
Halon 1211	1.7	4.8	3.0	5.1	14.4
Halon 1301	-	-		-	-
Halon 2402	-	-		-	-
Subtotal	1.7	4.8	3.0	5.1	14.4
Annex B Group 1					
CFC13	-	-			
CFC111	-	-			
CFC112	-	-			
CFC211	-	-			
CFC213	-	-			
CFC214	-	-			
CFC215	-	-			
CFC216	-	-			
CFC217	-	-			
Subtotal	-	-			
Annex B Group 2					
Carbon Tetrachloride	0.0	0.0	1.1	0.0	0.0
Annex B Group 3					
1,1,1-Trichloroethane	0.0	0.0	0.1	0.0	0.0
Total	25.2	51.5		28.2	60.0

*) CFC 115; the amount indicated is the CFC 115 content in R 502.

Table 2.2. Consumption of the Ozone Depleting Substances in 1992 by use

User Sector/Use	Substance	Application	Consumption on in ODP tons
Domestic Refrigeration	CFC 12	Used in Recharging	25.5
Cold Stores and Commercial Refrigeration	CFC 12	Used in recharging	5.5
	CFC 12	Used in initial charging of locally made products	0.4
Cold Stores	CFC 115	Used in Recharging	1.7
Refrigeration Total			33.1
Air Conditioning	CFC 11	Used in Recharg.	6.0
Air Conditioning	CFC 12	Used in Recharg.	4.0
Air Conditioning Total			10.0
Flexible Foam Production	CFC 11	Blowing agent	2.5
Fire fighting	Halon 1211	Portable extinguishers	14.4
All Uses Total			60.0

By use the refrigeration and air conditioning sector account for 72 % of the total consumption. The use of halons in 1992 may have been particularly high.

The use of methyl bromide represents, in fact, a larger ozone depleting potential than all other ODSs.

2.1.2. Forecast Consumption 1991 - 2010

In Malawi the consumption of CFCs has been increasing since 1986, the consumption of halons is fluctuating as indicated below in tables 2.3 and 2.4. It was not possible to compile a user wise consumption structure of the year 1986, except that the halons are naturally used in fire fighting. The fluctuating use of halons reflects the irregular maintenance and upgrading of the fire combating equipment. Also the use of CFCs in larger refrigeration (cold store) units has been fluctuating. This is mainly because there is a tendency to maintain the units at the same time. The CFC use in the household equipment has been developing smoothly balancing the otherwise irregular consumption figures.

In several sectors the need for products and services containing ODSs and manufactured using ODS is not satisfied, but the average consumer cannot afford to buy these products. Should the disposable income increase, it is very likely that the demand for refrigeration and air conditioning equipment would steeply increase. The manufacturing sector is in need to replace and upgrade ODS related equipment.

However, the consumption forecast assumes that no drastic changes in the industrial structure and economic development will take place.

The forecast covers the substances currently used, i.e. assuming that no new controlled substances are entering into the market. The realism of this assumption is based on the fact that public awareness and possible sanctions will make new entries hazardous business wise.

Regarding the use of the substances already on the market the forecast assumes that no attempts are made to comply with the Protocol and that unconstrained quantities of the controlled substances will be available.

It may be noted that the current situation of Malawi doesn't give any solid economic or statistical base for forecasts. The consumption forecast is based on consultations with the representatives of the organisations being the main users. It is assumed that the population will increase approx. 3 % p.a. and the urban population will increase approx. 6 % p.a. by the year 2010. The Electricity Supply Commission of Malawi estimates that the number of electricity consumers will increase by an average of 7 % p.a.. Regarding the ODS use in flexible foam production the estimate (i.e. the consumption stabilizing on the current level) is based on consultation with the single producer in Malawi. The forecast use of halons (stabilizing at the level of 4.5 ODP tons p.a. after the peak year of 1992, 14.4 ODP tons) is based on the opinion of the authorities responsible for the fire fighting and protection.

The forecast consumption of ODSs up to year 2010 is indicated in table 2.3. by substances and in table 2.4 by uses.

Table 2.3. Forecast Consumption 1992-2010 by substance, ODP tons

Substance	1986	1991	1992	1995	1997	2000	2005	2010
CFC 11	4.0	8.5	6.5	9.0	9.4	10.0	11.0	12.0
CFC 12	10.0	14.0	42.6	37.0	39.0	42.0	46.9	50.0
CFC 115	-	0.6	1.7	1.8	2.0	2.2	2.7	3.6
CFCs total	14.0	23.1	50.8	47.8	50.4	54.2	60.6	65.6
Halon 1211	3.6	5.1	14.4	4.5	4.5	4.5	4.5	4.5
Total	17.6	28.2	65.2	52.3	54.9	58.7	65.1	70.1

Table 2.4. Forecast consumption 1992-2010 by use, ODP tons

Use	1991	1992	1995	1997	2000	2005	2010
Refrigeration	12.5	33.1	34.6	35.9	37.9	42.1	44.6
Air Conditioning	8.1	10.0	11.0	12.0	13.8	16.0	18.5
Foam Prod	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Fire fighting	5.1	14.4	4.5	4.5	4.5	4.5	4.5
Total	28.2	60.0	52.3	54.9	58.7	65.1	70.1

2.2. Industry Structure

There is **no production** of the controlled substances in Malawi.

Imports

The **imports** of ODSs to Malawi are through a few companies. The Chemical & Marketing Co. is importing most of the ODSs used in refrigeration and air-conditioning. The only foam manufacturer in Malawi (Robray Co.) imports directly. The major servicing and maintenance companies (Tempcool, Everglo, Electrolite and Blantyre Mercantile) also import directly.

Regarding the import of methyl bromide (almost 216 tons in 1992), the imports are through Shell Malawi, Rhone Poulenc (Malawi), Farmers Organisation Ltd. and ADMARC Co.

The imports are nowadays from three countries, Switzerland, the United Kingdom and the Republic of South Africa. Imports from South Africa are the largest (more than 50 %), the British source (ICI) amounting to less than half, and Switzerland having a negligible part. Products imported from South Africa are actually originating from countries such as Israel, Germany and USA, but it has not been possible to establish a detailed list of these countries of origin nor a list of producers.

There is an import duty on CFCs and other ODS substances, at a rate varying from 10 % to 25 % depending on the country of origin. With the current imports the average duty is 20 %.

Domestic and industrial refrigeration, freezing, cooling and air-conditioning equipment have an import duty of 25 % to 75 %. Commercial equipment such as display counters and cooling/freezing cabinets have a duty varying from 10 % to 25 %. The rate depends on the country of origin. The import duties are of a purely fiscal nature.

Users

Refrigeration sector

Approx. 31 tons of CFC 12 are currently used by 50 companies in servicing existing household and commercial equipment. The amount of household equipment in Malawi is estimated approx. 150000 units. A few hundred kilograms is used to charge purpose built refrigerators and freezers by Tempcool Co. All service businesses are privately owned, but rely for their business partially on government funded contracts. Service standards are rather low excepting the largest operators.

5.5 tons of CFC 12 are currently used in **recharging large cold stores** and industrial type units. Malawi has a total of approx. 60 large cold stores/cold rooms. The main owners of cold store facilities are

- * Malawi Hotels Co.
- * ADMARC Co.
- * Cold Storage Co.
- * University of Malawi Co.
- * Hospitals
- * Local authorities (City councils)
- * Malawi Army

Most refrigeration units are located in the main towns, Blantyre, Lilongwe, Mzuzu and Zomba.

There are approx. 20 trucks in Malawi equipped with cooling/freezing equipment. Malawi State Railways organisation doesn't have refrigerated equipment.

Approx. 0.4 tons of CFC 12 is used as an initial charge in commercial units manufactured in Malawi by Tempcool Co.

Air Conditioning

Approx. 6.0 tons of CFC 12 and 4.0 tons of CFC 11 is used in the recharging of **household and central air-conditioning units**.

A CFC air-conditioning unit is still quite uncommon in a Malawi household. It can be estimated from the survey and from statistical information that there are max. some 60000 air-conditioning units (window type) in individual houses, offices, and governmental buildings. Some larger banks and office blocks are running central air-conditioning systems, however, the number of these systems is not more than 15 in the whole country. The maintenance of small air-conditioning units is usually done by the same workshops that maintain refrigerators.

The percentage of cars equipped with air-conditioning units is approx. 25 %. Almost half of the new cars sold are fitted with air-conditioning equipment.

Due to the climatic conditions in Malawi the need for air-conditioning equipment is not continuous, which reduces the amount of maintenance required.

Foams

Approx. 2.5 tons of CFC 11 is consumed by Robray Foam Co. The company is mainly using water based mixtures as a blowing agent.

The company is in private ownership.

The company has modern facilities, both the buildings and machinery, located in Limbi (near Blantyre) and in Lilongwe.

Fire extinguishing

Approx 14.4 tons of halon 1211 was used in the year 1992 for refilling portable fire extinguishers for automobiles and garages. Malawi Railways organisation has a small total flood system in covering its central computer facilities.

Approximately 3.0 tons of halon was imported to Malawi by Amavihu Co. in filled fire combating cylinders in 1993.

Other Uses

216 tons of methyl bromide is used to treat the seed beds of tobacco. The methyl bromide is used by approx. 80000 individual tobacco farms.

2.3 Institutional Framework

Malawi established a specific **Department of Research and Environmental Affairs (DREA)** within the Office of the President and Cabinet in 1991. The Department has currently four divisions, i.e. Administration and Support Services, Research, **Environmental Affairs** and Documentation. The environmental affairs are thus given a very high status by the government.

The tasks of the Environmental Affairs Division are defined as follows:

- * Pollution Control
- * Environmental Education and Information
- * Environmental Monitoring
- * Environmental Impact Assessment

In Malawi there are also two policy formulating bodies regarding environmental issues, i.e. National Committee for Environment (NCE) and National Research Council. The first one oversees the work of the Environmental Affairs Division.

The Environmental Affairs Division will be the National Focal Point in issues related to the Montreal Protocol and ozone depleting substances. The forthcoming Ozone Unit will also be established in the Environment Protection Division.

In late 1992 a specific body, **National Working Committee on Ozone Depleting Substances** was formed to support the Environmental Affairs division in the ODS issue. This committee has representatives from the following governmental organisations:

- * Ministry of Finance
- * Ministry of Trade and Industry
- * Economic Planning Department of the Office of the President and Cabinet
- * Department of Customs and Excise
- * National Statistical Office

The non-governmental or semi-governmental organisations are represented as follows:

- * Malawi Bureau of Standards
- * The University of Malawi
- * Chemical & Marketing Co.
- * Tobacco Association of Malawi (TAMA)

The role of the National Working Committee is to be the main consultative body in all ODS and Montreal Protocol related issues in Malawi and it is responsible for preparation of governmental/publicly supported measures to phase-out the ODSs in Malawi. The committee has overviewed this Country Programme.

It is also worth mentioning that the representatives of the main refrigeration and air-conditioning companies have formed an association to support the phase out of ODSs

During the Country Programme work the National Working Committee created good working relationships with businesses and organisations being relevant in the ODS phase-out in Malawi.

In Malawi several UN related organisations are operational, like UNDP and UNIDO. These organisations have been consulted and their staff, contacts and relevant experience may be utilised in the implementation.

Malawi is currently formulating a **National Environmental Action Plan**, supported by the World Bank. The phase out of ODSs will be taken into consideration in this action plan.

2.4. Policy Framework

The economic and industrial policy of Malawi has relied largely on command and control measures. Since the late 1980s the government has started to distance itself from extensive licensing systems etc. and has abolished for e.g. import licences covering refrigeration and air-conditioning equipment and related chemicals. However, the government is prepared to impose licenses, quotas, bans and higher/lower import duties to prevent non-appropriate imports, if needed.

The Ministry of Trade and Industry (responsible for the possible licensing) and the Ministry of Finance (responsible for import duties) representatives have been consulted regarding the forthcoming actions possibly needed.

2.5. Government and Industry Responses to the Protocol

The government of Malawi ratified the Montreal Protocol on January 1st, 1991 and it entered into force on April 1st, 1991.

The Office of the President and Cabinet has established a special **National Working Committee for Ozone Depleting Substances** as described above.

The government has approached UNEP regarding the possible initial assistance and this has been provided by the said implementing agency. The representatives of several ministries, semi-governmental and non-governmental organisations have been participating, since the beginning of 1990s, in the seminars and workshops arranged by the implementing agencies.

While initiating the studies on ODSs in Malawi, a **large seminar** was arranged in January 1993, at which the general background of the ozone depletion issues, the mechanism of the Montreal Protocol, as well as the practical aspects concerning Malawi were elaborated. In the seminar some 40 persons participated representing all key governmental agencies, semi-governmental organisation and major private companies.

The **companies** operating in the maintenance and service of refrigeration and air-conditioning equipment have established a **voluntary working group** to cope with the forthcoming development. The working group has participants from all the main companies operating in this sector, and is also supported by the Associated Chambers of Commerce and Industry of Malawi. The first meeting of this working group was held in June 1993. In this initial meeting the general and technical management of all major operators in this sector participated. Since then some interaction has taken place and the companies have also established a steering committee to co-ordinate the companies' actions. The working group had the second meeting in July 1993 elaborating the targets of the country programme.

It is evident that in industry the international development is closely followed by the ODS and equipment suppliers as well as through other channels.

Some refrigeration and air-conditioning maintenance companies have already introduced some reduced ODP substances like R-502 and HCFC 22 as refrigerants. The sole flexible foam producer of Malawi has been starting to use water as a blowing agent.

Some tobacco growers have taken an acknowledged business risk by rejecting the treatment of seed beds with methyl bromide and have removed the beds to virgin land. These private industry measures have been obviously taken in anticipation of the forthcoming supply shortages etc.

The active participation of industry in the work of the National Working Committee may also be noted. It is not possible to estimate the monetary value of the costs incurred by the private industry, but they certainly have not been negligible.

The Department of Research and Environment has used the public media to release some articles and interviews on the ozone depletion issue stressing the need to observe the forthcoming development and repercussions.

3. IMPLEMENTING PHASE-OUT

3.1. Strategy Statement by the Government

Since the late 1980's the government of Malawi has been following the development and implementation of the Montreal Protocol. It is clearly understood that the phase-out of the ozone depleting substances is a necessity and that Malawi has to follow suit. Malawi doesn't contribute very much to the depletion of the ozone layer, and depends largely on materials and technologies developed in the industrialised countries. Thus the social and economic burden caused by the phase-out should be shared by the countries which have been instrumental in creating the ozone depletion problem.

Despite the reservations mentioned above, the government of Malawi firmly believes that a quick phase-out programme will best serve the interests of the society, economy, industry, and business and thus prevent the country from continuing with outdated equipment and operations in the future.

Malawi will largely rely on the existing legal framework (with the necessary amendments and modifications) to enhance the phase-out but it is also prepared to introduce stricter laws if the scheduled phase-out programme is endangered by adverse developments.

Despite the aforementioned accelerated phase-out it is understood that the demand for products using ODSs must be fulfilled until affordable substitutes are available. This concerns particularly the tobacco growing and refrigeration sector. Special attention will be paid to balance the phase-out requirements and the need for inexpensive equipment.

The planned phase-out will be also checked against the development needs of local industry.

The demand for halon based fire-extinguishers will be monitored, and interventions by the government will be made according to specific needs.

Since the current and unconstrained consumption of 1,1,1 trichloroethane and carbon tetrachloride are quite negligible, their phase-out are not considered as a strategic issue.

Methyl bromide is of vital importance for the tobacco industry of Malawi. The tobacco industry is the major earner of foreign exchange and thus the phase-out of methyl bromide cannot be promoted unless a reasonable substitute will be available. The performance of the tobacco industry must not be endangered in relation to other tobacco producing economies. The government clearly states that the funding of the methyl bromide phase-out is very essential.

3.2. Action Plan

3.2.1. Government Actions

The preparation of this Country Programme and the forthcoming National Seminar and the involvement of the main users of DOS in Malawi has paved the way for the government's involvement in improving the phase-out. Also bearing in mind that Malawi is completely dependant on the imports of DOS and largely dependant on technologies from industrialised countries, it is believed that possible supply constraints may achieve the planned consumption. So the government actions are regarded as complementary. It can be seen that the government's role is vital in implementing the quick phase-out through supporting the projects mentioned later in chapter 3.2.2. The government's actions are also needed to counterbalance some adverse developments that may arise.

- * A large information workshop will be organised to increase the awareness of top government officials and business people about the targets of this Country Programme.
- * The government is prepared to ban the use of some new controlled substances (i.e. substances that are not presently consumed in Malawi) which might emerge on the market.
- * The government is prepared to consider increased import duties or taxes on the controlled substances in case the planned (reduced) consumption figures are not be 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 due to ODS.
- * The government will be liberal and supportive regarding licences and permits required by manufacturing and service businesses which intend to establish facilities for phasing out of ODS.
- * The government will support a licencing system of refrigeration and air conditioning servicing operators in order to promote better working practices.
- * The government will actively support training and publicity campaigns using the public media, and encourage the different branches of public administration to cooperate.
- * The government will encourage the participation of voluntary organizations and citizen groups to support the training and awareness campaigns.
- * The government will draw the attention of international organisations and NGOs to give support for the phase-out measures and their possible complementary finance.

- * Taking into consideration the limited number of operators in the ODS consuming sector the Government is promoting voluntary agreements, consultations and actions in all issues that may be in need of redress.

3.2.2. Projects

Based on survey results, discussions with the representatives from industry, industry associations and participants in the National Working Group, the following three projects are proposed to be implemented using the support of the Fund and the concerned implementing agency.

The funding for the CFC stockpiling and the initiation of the phase-out of methyl bromide is not yet formally requested, but these two project outlines are attached to this Country Programme.

Institutional Strengthening

The government of Malawi has clearly expressed its commitment to the phase-out targets of the Montreal Protocol, aiming to reach reduction and total phase-out of the ODSs as soon as possible. It is proposed that a specific Ozone Unit will be established within the Department of Research and Environment to enhance the government capacity to follow-up, monitor, prepare possible administrative bans and quotas, taxes, training and awareness campaigns and other measures as expressed in chapter 3.2.1.

- * Industry sector: all uses of ODSs
- * Establishment of an operational unit with one professional, plus one support staff person, to carry out all the necessary functions needed to enhance the implementation of the Country Programme. Equipment such as computers, copy machines, phone and telecommunication facilities will also be provided.
- * Start date: August 1994
- * No specific technical input, other than the equipment mentioned above, is required.
- * the incremental costs of the project will be USD 100,000 for the initial three year period 1994-1996.
- * The different ministries, government agencies, NGOs and major private industries as members of the National Working Group have been consulted regarding the institutional strengthening.

A separate, more detailed document on the institutional strengthening is submitted with this Country Programme.

Training Programme on Refrigeration and Air-Conditioning

As described earlier, the substandard maintenance practices of cold storage and industrial refrigeration equipment, and especially of smaller domestic refrigeration and air-conditioning units in small workshops, are a major source of leakage and waste of money regarding ODSs in Malawi. The maintenance operations are run by a rather limited number of companies (approx. 50) in Malawi. Most of these companies are aware of the forthcoming constraints and difficulties in CFC use. Also the management of several maintenance companies participated in the country programme work being obviously well motivated to participate in the training programmes. To enhance the use of trained operators in maintenance a certification scheme is needed making the use of non-trained operators less attractive. Therefore the following training and certification scheme is proposed:

- * Industry Sector: Refrigeration and air-conditioning
- * Ministry of Labour (Malawi Entrepreneurship Development Institute, MEDI) and Small Enterprise Development Organisation of Malawi (SEDOM) are to participate
- * An organisation of regional training workshops to train the trainers in good maintenance practices. Providing the vocational training centres with appropriate equipment (pressure testing and recovery equipment) to reduce leaks and assess the feasibility of recovery and recycling of ODSs. Scheduling a certification system for maintenance workshops and operators.
- * Planned starting date: September 1994
- * An expert familiar with the maintenance practices similar to those in Malawi is required (for approx. 2 man weeks) to design the programme and organise equipment procurement in conjunction with the responsible organisations.
- * The total incremental cost of the project in 1994-1996 will be USD 120,000.
- * The Ministry of Labour and SEDOM has been consulted during the work of the National Working Committee regarding the rationale and practical implementation of the project.

The government will prepare a separate, more detailed project document on this issue through UNEP. Foreign expertise may be needed for the preparation of the project document.

Retrofitting the largest cold stores and central air-conditioning systems to use non-ODS substances as a refrigerant/coolant

- * Industry Sector: Refrigeration and Air-Conditioning
- * Prepare 1-2 companies to procure and use equipment (compressors and parts) needed to meet the requirements of non-CFC coolants.
- * Planned starting date: January 1995
- * Outside support is needed to procure the suitable parts for retrofitting existing CFC equipment.
- * The reduction of ODP reached within a period of 4 years will be approx. 5 tons annually.
- * Incremental costs will consist of the price of parts needed to retrofit the existing equipment, the price of non-CFC coolant over a transition period of 5 years, and staff training expenses. The incremental cost (indicative only) will be approximately USD 250,000.
- * The prospective companies have been consulted regarding the project.

The government of Malawi and the companies concerned will prepare a more detailed project proposal.

The following are very rough estimates regarding the reduction of the use of the ODS when implementing the projects. The reduction is calculated from the unconstrained consumption estimate.

Project	1995	1996	1997	1998	Substance
Institutional Strengthening	2.6	2.6	2.7	2.8	All
Training on Refrigeration and Air Conditioning	5.0	6.0	7.0	8.0	CFC 11,12
Retrofitting	5.0	5.0	5.0	5.0	CFC 11,12
Total	12.6	13.6	14.7	15.0	

In addition to the three aforementioned projects the government of Malawi will prepare the following four projects:

- 1) **Stockpiling CFC 12 to be used in domestic refrigerators**
- 2) **A study covering the options to guarantee the freezing of methylbromide use in tobacco growing**
- 3) **Phasing out CFC-11 use in the foam sector (Robsay Foam Co) Water/Methylene chloride**
- 4) **Phasing out the use of halons after detail end use survey**

A more detailed description of the projects are included as an annex in this document. At this stage no funds are asked for these projects.

3.3. Roles in Implementing the Strategy

The Department of Research and Environment (DREA) will be the national lead agency responsible for the implementation of the Country Programme. Within DREA a specific Ozone Unit will be established. The Ozone Unit will work for an initial period of three years, and will be the operational unit used to execute all implementation and administrative tasks.

It is envisaged that the Ozone Unit will draw its staff from the group of professionals who have participated in the preparation and compilation of this Country Programme.

DREA and the Ozone Unit will closely co-operate with the National Working Committee on ODSs. The governmental agencies and departments involved will continue their input in the National Committee. These are:

- * Ministry of Finance
- * Ministry of Trade and Industry
- * Ministry of Labour
- * Economic Planning Department
- * Department of Customs and Excise
- * National Statistical Office

Also the following semi-governmental and non-governmental organisations will have a key advisory role:

- * Malawi Bureau of Standards
- * The University of Malawi
- * Tobacco Association of Malawi
- * Chemicals and Marketing Co.
- * Association of Refrigeration and Air-Conditioning Service Firms

Separate discussions will be carried out regarding the role of the Fund's Implementing Agencies, but taking into account the relationship already established with UNEP IE/PAC, it is reasonable that UNEP IE/PAC will act as the Implementing Agency regarding the institutional strengthening and training programmes.

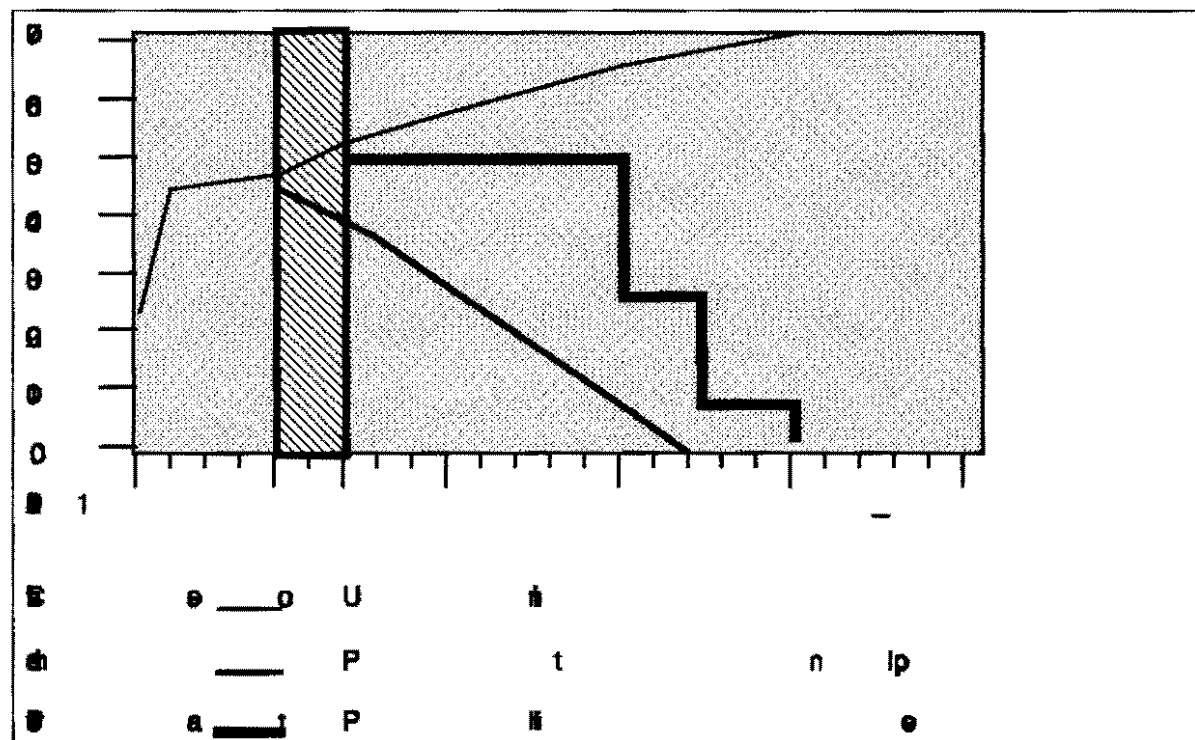
The government may approach some foreign NGOs presently operating in Malawi to obtain help and draw funds for training, and the certification and licensing schemes.

3.4. Timetable and Consumption Implications

Figures 3.4.1 and 3.4.2. illustrate the unconstrained consumption, the protocol phase out profile and planned consumption of CFC 11, CFC 12 and CFC 115, and halon 1211, respectively

Figure 3.4.1 Unconstrained Consumption, Protocol Phase Out Profile and Planned Consumption of CFCs in Annex A, Group 1

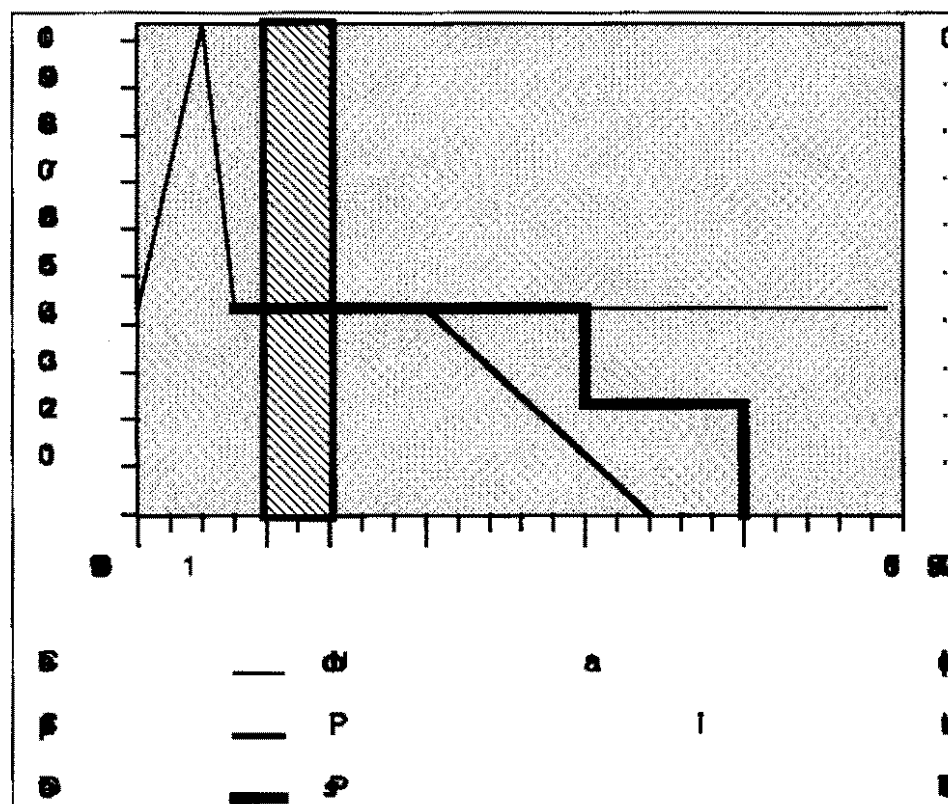
ODP tons



It is assumed that the consumption will slightly increase up to the year 1995 and stabilise at that time when the proposed measures start to take effect. The complete phase-out is targeted at the year 2007.

Figure 3.4.2 Unconstrained Consumption, Protocol Phase Out Profile and Planned Consumption of Halons in Annex A, Group 2

ODP tons



The unconstrained consumption of halons is expected to stay at the current level (4.5 ODP tons) up to the year 2000, after which the supply constraints and price increases will affect the consumption, and it will decrease to zero by year 2007.

The consumption of carbon tetrachloride and 1,1,1-trichloroethane is currently almost zero. No specific phase-out measures are implemented.

The unconstrained consumption of methyl bromide is expected to stay at the current level.

3.5 Budget and Financing Programme

It is assumed that existing tax and duty structure will remain and that the substitutes will be taxed at the same rate as ODSs and ODS containing equipment. Thus the total incremental cost to the government will consist of the proposed three projects.

It is assumed that all the government's assistance will be in the form of grants from the Fund.

Finance and technical support may be sought from other sources.

The table below covers the net cost to the government for the period 1994-1997.

Table 3.5.1 Net costs of the proposed projects in 1994-1997

Year	Cost
1994	130000 USD
1995	160000 USD
1996	135000 USD
1997	45000 USD
Total	470000 USD

Funding Priorities

Reference is made to the chapter 3.2.2. above. To summarise the costs of the projects are as follows

Table 3.5.2. Cost of the projects by year and project in 1994-1997

Project	Start year	Execution period	Assist. from the Fund
Inst. strength.	1994	1994-1997	USD 100000
Refrig./Training	1994	1994-1996	USD 120000
Retrofitting	1994	1994-1997	USD 250000
		Total cost	USD 470000

The aforementioned order of the projects is also the priority order of implementation.

None of the aforementioned projects have been agreed with any Implementing Agency of the Fund.

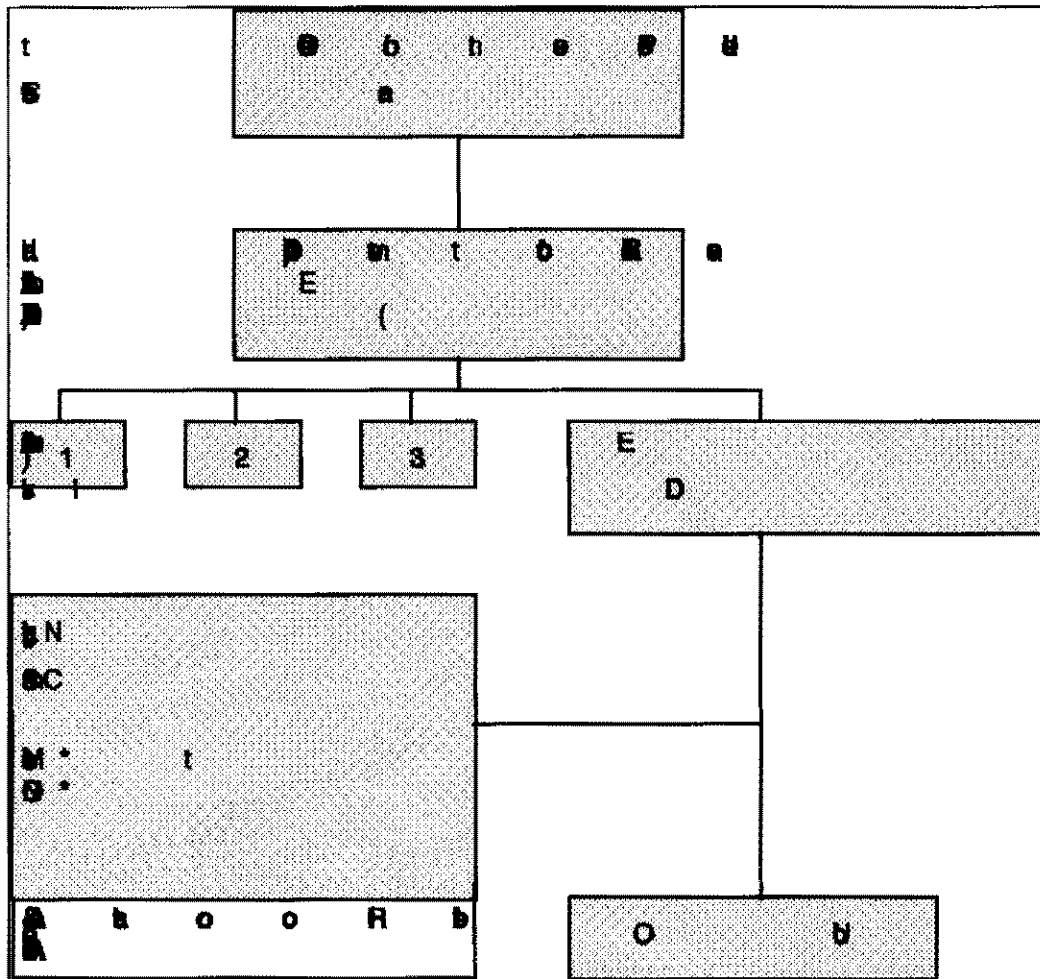
In the refrigeration related training programme some bilateral technical assistance from the existing co-operation programmes may be obtained (from foreign benevolent societies now operating in Malawi).

3.6. Monitoring Arrangements

Within the forthcoming institutional framework, the government, acting through the Department of Research and Environment, National Working Committee on Ozone Depleting Substances, and the forthcoming Ozone Unit, will establish guidelines for reporting the imports and consumption of ODS as chemicals, and products containing ODSs or manufactured using ODS. These guidelines will target the Customs Department and all importers.

Attention will be paid to monitoring the possibly emerging imports of ODSs other than those currently imported. Also the monitoring of imports and use of transitional substances will be enhanced.

Annex 1



- 1) Administration and Support Services Division
- 2) Research Division
- 3) Documentation

Annex 2

RETAIL PRICES OF ODSs in MALAWI in 1993

(K = Malawi Kwacha, in August 1993 USD 1 = approx. K 4)

CFC 11	K 20 / kg
CFC 12	K 45 / kg
HCFC 22	K 50 / kg
R 502	K 80 / kg
Halon 1211	K 88 / kg

Annex 3

Tentative Project Proposals

Stockpiling of CFC 12 needed in domestic refrigerations

- * As Malawi is a country fully dependent on the external supply of coolants and equipment it may face difficulties due to future price increases and supply constraints. The land-locked location of the country may emphasise this development. This may affect most seriously the individual consumers. It is therefore proposed that the Fund will finance a stock of half the estimated consumption of household refrigerants (CFC 12) for the period 1996-2000. During this five-year period an amount of approx. 220 tons of CFC 12 (assuming unconstrained use) will be needed to service the domestic equipment. A local agent would be contracted to purchase 100 tons of CFC 12 at the current (1994-95) prices, provided that the agent would give assurances not to sell the stock during 1996-2000 at exorbitant prices. The agent would be entitled to expenses covering the capital invested.
- * The possible effects of stockpiling of CFC 12 are difficult to estimate. The purpose of this project is primarily to safeguard local consumers from the adverse effects of price increase and supply constraints.
- * It can be estimated that a sum of USD 200000 will cover the 50 % of the possible price increase of CFC 12 between 1996-2000.
- * One prospective local agent (Chemical & Marketing Co.) has been consulted on the possible arrangement.

A legal agreement between the government and agent should be drawn up to cover expenses, terms of sale etc. For the contractual arrangement, outside support from some implementing agency is needed.

A study of the options open to tobacco growers when not using methyl bromide

The local tobacco growers use methyl bromide in order to maintain the quality and quantity of their produce. To enable the growers to keep the use of methyl bromide at its current level it is proposed that a study, covering alternative substances, as well as use of virgin land as seed beds should be carried out. This should take into consideration the local conditions, land tenure etc. The study should also increase the awareness of the tobacco industry on possible adverse environmental effects of the continued use of methyl bromide.

- * planned starting date, late 1995
- * The costs of the initial study will be USD 100000.
- * The Tobacco Association of Malawi (TAMA) has been consulted

Outside support is needed to draft the terms of reference.

For the time being no funds are requested for these two projects. The government of Malawi will consult the representatives of the Fund and UNEP/IEPAC regarding the implementation.

PROJECT PROPOSAL: No.1

COUNTRY: MALAWI

PROJECT TITLE: INSTITUTIONAL STRENGTHENING, CREATION OF AN OZONE UNIT

NATIONAL EXECUTING AGENCY: OZONE UNIT UNDER THE DEPARTMENT OF RESEARCH AND ENVIRONMENT/ENVIRONMENT AFFAIRS DIVISION

IMPLEMENTING AGENCY: UNEP

SECTORS COVERED: ALL

ODS CONSUMPTION BY SECTORS COVERED: 60.0 ODP TONS IN 1992 (28.2 ODP TONS in 1991)

PROJECT DURATION: THREE YEARS

PROJECT IMPACT:

- *PREPARATION AND MONITORING (DATA AND INFORMATION COLLECTION) OF PHASE-OUT ACTIVITIES ACCORDING TO THE ACTION PLAN INCLUDED IN THE COUNTRY PROGRAMME
- *IMPROVED CAPACITY OF THE PUBLIC ADMINISTRATION RESPONSIBLE FOR ODS USE AND CONTROL
- *CONTRIBUTION BY THE COUNTRY TO THE PROTECTION OF THE OZONE LAYER

REQUESTED MULTILATERAL FUND CONTRIBUTION : US \$ 100,000

INTRODUCTION

The Action Plan included in the Country Programme will be implemented in cooperation with governmental and semi-governmental institutions as well as with bodies presenting private businesses. It is necessary to create interim structures for the preparation and implementation of specific phase-out projects. The Ozone Unit is one of such structures.

ORGANIZATION OF THE OZONE UNIT

The Ozone Unit comes under the Department of Research and Environment in the Office of the President and Cabinet.

The Ozone Unit is supported by the National Working Committee on Ozone Depleting Substances. Industry associations will be incorporated in the implementation and phase-out measures, especially in proposed projects.

THE OZONE OFFICE TEAM

Technical, administrative and financial support will be provided by the Ozone Unit Team, made up of one professional, and one secretary.

ACTIVITIES AND SCOPE OF THE PROJECT

If the Ozone Unit is to attain the objectives as described in the Country Programme, it will have to undertake several activities, such as follows:

- *Take part in **defining criteria** for setting import bans and/or taxes and duties for substances and products possibly entering on the market, in addition to the substances and products currently used.

- *Establish an effective **cooperation with customs** authorities to **follow-up and monitor the imports of ODSs**, and ODS containing **products**, according to the international harmonized system. Enhance the follow-up of the imports of the **transitional substances and methylbromide**.

- *Prepare an **annual report** to Ozone Secretariat, as required, and set up a **data bank**, covering the imports and use of ODSs and related substances as well as possible **substitutes**.

- *Be responsible for the **preparation and implementation of the training project**, and responsible for the **preparation** of the proposed retrofitting (refrigeration) project.

***Initiate cooperation** with the concerned authorities and institutes to introduce **substitutes/alternatives for halon**.

***Contact representatives of the public media** to distribute information regarding the harmful effects of the extensive ODS use, and information how to reduce and refrain from using ODSs.

***Contact international agencies and other NGOs** operating in Malawi to seek **cooperation and support** in the implementation of the phase-out.

The Ozone Unit will be responsible for developing an effective **systems to monitor and evaluate** the implementation of the projects and other phase-out measures included in the Action Plan. The monitoring and evaluation function will have following components, such as:

***Gathering information** available from the customs authorities and industrial users regarding imports and use and **check** these **against the planned consumption figures**.

***Gathering data and information** from **end users of ODS containing products** and evaluating field **impacts** of the measures implemented.

***Organise work shops** with the **industrial** operators and businesses involved to assess the **feasibility** of phase-out measures.

***Assess the effectiveness and impacts of the projects** to be implemented. **Check impacts against the planned consumption figures**.

***Review and assess in detail the supply situation and prices of coolants** for household and commercial refrigeration equipment to check the possible **stockpiling needed**, and its market impact.

***Review the use of methylbromide** in Malawi and the related international development.

PROJECT BUDGET

The budget to be provided by the Government of Malawi amounts to USD 100,000 over a period of three years. The budget covers the following costs:

- *Office space and furniture, electricity, maintenance
- *Vehicles and drivers, fuel, maintenance
- *Other local transportation costs
- *Basic salaries for the support staff of the office
- *Honorariums and expenses for specialized Malawi consultants

BUDGET REQUESTED FROM THE MULTILATERAL FUND

This budget, which amounts to USD 100,000, is also intended to cover three years.

	Year 1	Year 2	Year 3	Total
Capital Expenditure				
Personal Computer	4000			
Modem & Stabilizer	1000			
Printer	3000			
Software	3500			
Fax-machine	1500			
Typewriter	500			
Subtotal	13500	-	-	13500
Recurring Expenses				
Personnel Incentives Professional Staff	9000	9000	9000	
Support Staff	6000	6000	6000	
Subtotal	15000	15000	15000	45000
Operating costs				
Paper, Printing etc.	6000	4000	6000	
Official Travel	3000	2000	3000	
Telecommunications	6000	4000	4000	
Servicing for Equipment	--	1500	2000	
Subtotal	15000	11500	15000	41500
GRAND TOTAL	43500	26500	30000	100000