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

Tenth Meeting
Montreal, 28-30 June 1993

COUNTRY PROGRAMME: GUATEMALA

This document consists of:

a) Country Programme Executive Summary;

b) Country Programme Evaluation Sheet (prepared by the Fund Secretariat);

c) Country Programme Cover Sheet (prepared by the Fund Secretariat);

d) Transmittal Letter from the Government of Guatemala.

GUATEMALA COUNTRY PROGRAMME EVALUATION SHEET

The Guatemala Country Programme was revised in accordance with the "Procedures for Presentation of Country Programmes and Project Proposals to the Executive Committee" (UNEP/OzL.Pro/ExCom/5/5/Rev.2). It consists of:

- Letter of transmittal from the Government of Guatemala;
- Country Programme Cover Sheet;
- Executive Summary;
- ODS consumption, forecast demand for ODS, industrial infrastructure, institutional and policy frameworks;
- National strategy, action plan and project proposals;
- Implementation of the first phase of the country programme (1993-1996) through:
  i) institutional strengthening, and
  ii) specific projects in the industrial sector.

Guatemala does not produce controlled substances. Between 1986 and 1990 the country's average annual consumption of CFC (mainly CFC-11 and CFC-12) was 435.1 tonnes. In 1991, consumption of ODS was reduced to 278.5 tonnes since CFC in the aerosol sector were eliminated. Of this amount, 277.3 tonnes were CFC and 1.2 tonnes halons.

Distribution of ODS per sector, in 1991, was estimated as follows:

- 80.5 per cent in the refrigerator sector;
- 16.2 per cent in the foam sector (rigid and flexible foams);
- 2.9 per cent in the solvent sector; and
- 0.4 per cent for fire extinguishers.

The larger CFC consumer industries in Guatemala include:

- Refrigua, S.A., the largest refrigerator manufacturing industry, consuming nearly 20 tonnes of CFC per year. Some of the products are exported to other Central American countries;

- Tappan, the second largest refrigerator manufacturing industry, consuming about 5 tonnes of CFC-12 per year;

- American, which manufactures, upon request, cold storage rooms and industrial refrigeration; and

- Several companies manufacturing rigid and flexible foam products.

The Government of Guatemala proposes to eliminate 35 per cent of its ODS consumption between 1993 and 1995, by implementing training programmes for servicing technicians in the refrigerator sector; training programme in the foam sector and replacement of CFC-11 with

methylene chloride in the production of flexible foams; and training in the replacement of ozone depleting halons. The remaining 65 per cent of ODS consumed, will be phased-out by the year 2007.

The Government's action plan is based on the following actions:

1. Creation of the Governmental Ozone Commission (COGO) and its Consultative Committee;

2. Development of an ozone seal;

3. Establishment of a public awareness programme; and

4. Development of technical programmes by sector (i.e., training, recycling).

The principal government agencies responsible for the implementation of the Montreal Protocol are the National Commission for the Environment (CONAMA) and the Ministry of Foreign Affairs as the liaison between the Government and the international organizations. UNEP and UNDP are designated as the implementing agencies for the implementation of activities in the country programme.

The implementation of the first phase of the action plan is based on the following projects, at a total estimated incremental cost of US $349,000:

1. Institutional strengthening (US $191,000):
   - Establishment of the Governmental Ozone Commission, COGO;
   - Public awareness programme; and
   - Development of the ozone seal.

2. Industrial projects (US $158,000):
   - Recovery during installation, revision and recharge process for the foam sector;
   - Recovery during recharge process in the fire extinguishing sector;
   - Recovery during recharge process for domestic and commercial refrigerators;
   - Recovery during installation, revision and recharge processes for air conditioning equipment; and
   - Inventory and training for the process conversion in industrial refrigeration.

COGO, responsible for the implementation of the country programme, will provide technical assistance to the Government in all issues related to the Montreal Protocol; will co-ordinate the implementation of the activities proposed in the action plan; will propose necessary changes in the legislation; will provide technical assistance to the Ministries related to the Montreal Protocol; and will encourage signing of agreements among industries.

The other elements of the institutional strengthening are development of an ozone seal for labelling ozone friendly products, and an education and awareness campaign, which will instruct the public on the threats to human health and the environment due to the ozone layer depletion.

Recommendations

The following recommendations are made for the consideration of the Executive Committee:

1. Approval of the country programme;

2. Approval of funding level of US $172,000 for the institutional strengthening programme, including the establishment of the Governmental Ozone Commission (COGO), public awareness programme, and development of the ozone seal;

3. To request UNDP to collaborate with the Government of Guatemala to further develop the first phase projects and include them in its future work programme or work programme amendment.

COUNTRY PROGRAMME COVER SHEET

Country: Guatemala
Lead National Agency: Governmental Ozone Commission (COGO)
Participating Implementing Agencies: UNEP, UNDP

Phase–out schedule

Substance	Current consumption (tons x ODP) in 1991	Planned cumulative consumption till phase–out (ton x ODP)		Planned year of phase–out	
		Article 5 schedule (1)	Accelerated schedule (2)	Article 5 schedule	Accelerated schedule
CFC–11	45.0 x 1.0 = 45.0	770.9		2010	2007
CFC–12	224.3 x 1.0 = 224.3	3,842.3		2010	2007
CFC–113	8.0 x 0.8 = 6.4	109.6		2010	2007
Halon 1211	0.4 x 3.0 = 1.2	22.1		2010	2007
Halon 1301	0.8 x 10.0 = 8.0	147.3		2010	2007
CTC	0.0 x 1.1 = 0.0	0.0		2010	2007
TOTAL	284.9	4,892.2	2,284.0		

(1) Projected at an annual rate of 4.0 per cent through the year 2010.

(2) 35 per cent of ODSs will be phased out in 1993–1995. The remaining 65 per cent will be phased–out between 1996–2007

Government Action Plan

Year	Description of Action	Intended Effect	Sector	Agency	Estimated cost (US $)			
					1993	1994	1995	Total
I. INSTITUTIONAL STRENGTHENING								
1993–1995	Establishment of the Governmental Ozone Commission (COGO)	Co–ordination, control, technical support	All	Govt.	40,000	26,000	26,000	92,000
1993–1995	Public awareness programme	Public awareness on the impacts due to ozone layer depletion	All	COGO	28,000	12,000	12,000	52,000
1993–1995	Development of the ozone seal	Use of the ozone seal in products	All	COGO	31,000	8,000	8,000	47,000
	Sub–total cost				99,000	46,000	46,000	191,000
II. INDUSTRIAL SECTOR ACTIVITIES								
1993–1994	Recovery during installation, revision and recharge processes for the foam sector	Training (changes in percentages of mixtures)	Foam	UNDP	25,000			25,000
1993–1994	Recovery during recharge of fire extinguishers	Training	Halon	UNDP	16,000			16,000
1993–1994	Recovery during recharge of domestic and commercial refrigerators	Training	Refrigeration	UNDP	69,000			69,000
1993–1994	Inventory and training for conver– sion in industrial refrigeration	Training	Refrigeration	UNDP	24,000			24,000
1993–1994	Recovery during installation, revision and recharge processes of air conditioning units	Training	Refrigeration	UNDP	24,000			24,000
	Sub–total cost				158,000			158,000
	TOTAL COST				257,000	46,000	46,000	349,000

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Project Summary

Year	Type of Project	Project Description	Agency (1)	Project cost (US$)
1993–1995	Institutional strengthening	Establishment of appropriate institutional framework, development of an ozone seal and public awareness programme	COGO	191,000
1993–1994	Industrial projects	CFC recovery and recycling in refrigerator equipment; training in the foam and halon sectors	COGO UNDP	158,000
Total cost				349,000

(1) COGO: Governmental Ozone Commission

The Government of Guatemala proposes to eliminate 35% of its ODS consumption between 1993 and 1995. The remaining 65% of ODS consumed, will be phased–out by the year 2007.

402-93-MAS-ace.

NATIONAL ENVIRONMENT COMMISSION
PRESIDENCY OF THE REPUBLIC
GUATEMALA

DIRECCION LOCAL
7A AV. 4-35, ZONA 1
TEL: 532477 - 21816 - 53109

REFERENCE:_____

Guatemala City
April 1993

Secretariat
MULTILATERAL FUND
Montreal Protocol
Montreal

Attn.: Mr. Omar El-Arini

Under the Montreal Protocol on Substances that Deplete the Ozone Layer, the parties are requested to decrease the consumption of controlled substances (Annex A of the Protocol) for the year 2000. An adjustment to the Protocol, which has taken effect, following the presentation of 20 ratifications, requires a decrease in the consumption of new controlled substances (Annex 8 of the Protocol). Countries operating according to paragraph 1 of Article 5 may postpone the above deadline by ten years.

A financial mechanism has been established in accordance with the above-mentioned adjustment in the Montreal Protocol for the purpose of providing necessary resources for countries operating under paragraph 1 of Article 5 so that they can comply with the Protocol, particularly as regards the decrease in the consumption of controlled substances. The Ozone Multilateral Fund (OMF) is operating through an Executive Committee, which makes decisions on different topics related to the operation and running of financial mechanisms.

The implementing agencies (World Bank, UNEP, UNDP) are carrying out activities under the OMF, including country programs, feasibility and pre-investment studies, investment and demonstrator projects, as well as public awareness, dissemination of information and training programs. The IBRD and UNEP are implementing agencies under the Ozone Multilateral Fund and have conducted data collection, as well as prepared Guatemala's country program.

NATIONAL ENVIRONMENT COMMISSION
PRESIDENCY OF THE REPUBLIC
GUATEMALA

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In view of worsening ozone-layer depletion, and considering the availability of funds, our country, which operates under paragraph 1 of Article 5, is committed to decreasing the consumption of controlled substances as quickly as possible, without resorting to the ten-year grace period. Moreover, by implementing the country program that has been developed, Guatemala hopes to decrease consumption and/or emissions by 35% over the next three years (1993-1995).

The undersigned, Mireya Archila Serrano, General Coordinator of the Environment Commission of the Presidency of the Republic of Guatemala, hereby states that the Government Commission for Ozone (COGO) will be created and will perform the technical function of implementing and coordinating the country program and its different components on behalf of the Government. The National Environment Commission (CONAMA) will perform the duties of coordination and political orientation with regard to the implementation of the Montreal Protocol in Guatemala.

The Government of Guatemala has the intention of monitoring compliance with the Montreal Protocol and taking any necessary additional measures to ensure said compliance, as well as of presenting the country program through the implementing agencies, UNEP and IBRD, to the Ozone Multilateral Fund, under the Montreal Protocol.

Sincerely yours,

Ing. Mireya Archila Serrano
COORDINATOR

[SEAL: NATIONAL ENVIRONMENT COMMISSION; PRESIDENCY OF THE REPUBLIC; TEL.: 532477; GUATEMALA, C.A.]

IMPLEMENTATION OF THE MONTREAL PROTOCOL

NATIONAL PROGRAM FOR REDUCING THE CONSUMPTION OF SUBSTANCES THAT DEPLETE THE OZONE LAYER

NATIONAL ENVIRONMENTAL COMMITTEE
CONAMA
PRESIDENCY OF THE REPUBLIC

Republic of Guatemala

April 1993

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Showing its firm intention to end the consumption of substances that deplete the ozone layer, the Government of Guatemala signed the Montreal Protocol in 1987, ratified the same on July 11, 1989, and is presently in the process of ratifying the amendment to the protocol.

Guatemala operates under the status of Article 5, paragraph 1. Therefore, it is eligible for funding from the Multilateral Fund for the Implementation of the Montreal Protocol.

On April 11, 1989, the President of Guatemala, **Jorge Antonio Serrano Elías**, sent Congress Governmental Agreement # 252-89, which prohibits the importation of CFCs and the manufacture of products containing CFCs, with the exception of those intended for essential needs. In practice, this agreement has not been implemented.

The present document provides grounds for the **US $400,000** request for funding of the Program's first years (1993-1995).

A 35% reduction is expected as a result of implementation of the Program's first stage. This reduction will equal approximately 98 tons ODP.

The Guatemalan Government supports a policy of economic development with the participation of private enterprise and the public sector. Its program contains a proposal to move forward the year for final stoppage of consumption from 2010 (the year assigned to our country) to 2007, a three-year advancement with respect to our commitment.

In accordance with the Executive Committee's guidelines for the preparation of Country Programs, this document describes Guatemala's consumption of controlled substances and the program that has been proposed for the purpose of reducing and eliminating their use.

The year 1991 was used as a base. In that year Guatemala consumed 278.5 metric tons of ODS, the equivalent of 286.4 tons ODP. Cuba produces none of the substances listed in Annex A of the Montreal Protocol, and its consumption requirements for these substances therefore correspond to its imports.

From 1986 to 1991, Guatemala used ODS chiefly in foams, aerosols, refrigeration and air conditioning. Only minimal amounts of ODS were detected in the consumption of solvents. There were no available data on the consumption of methyl bromide, despite knowledge that it is used in the agricultural sector.

CONSUMPTION OF ODS FOR DIFFERENT USES

(Tons of ODS)

	1989	1990	1991
Aerosols	250.0	150.0	0.0
Polyurethane	36.0	41.0	45.0
Refrigeration	84.0	126.2	150.8
Solvents	2.0	3.0	7.0
Air conditioning	56.0	84.1	100.6
Halons	1.1	0.8	1.2

It is important to indicate that CFC consumption in aerosols decreased to zero in 1991. However, consumption of these substances in refrigeration and air conditioning has increased.

Data on imports and consumption were collected by a local consultant hired for that purpose. There will be a need for greater precision regarding some figures and/or trends during the implementation process.[1]

Customs codes reveal figures that are different from those presented in this Country Program because the items registered correspond to general headings, including products not controlled under the Montreal Protocol. (See tariff items 29028000, 28308000 and 39020300.)

The most-reliable data were obtained via crossing techniques, projections and interviews with representatives from the major companies in the sector. The main subjects to be undertaken in the first three-year phase are:

a) Consolidation of the almost completed conversion of propellants in the aerosol industry;

b) Technological conversion in the production of flexible foam;

c) Introduction of retrofitting and recycling technologies in refrigeration and air-conditioning maintenance;

d) Conversion for non-essential uses of halons.

To be successful in these programs, Guatemala will have to achieve the objective of decreasing ODS consumption by 35% in relation to the figure for base year 1991. This is the percentage established for the first phase. The 1989 and 1990 data presented in this document indicate an increase in Guatemala's ODS consumption for all sectors, with the exception of aerosols.

The Guatemalan Government directs its economic policy on the basis a free-market economy, with regulatory participation on the part of the Central Government. The Government has been implementing this economic growth strategy for several years, and major changes in this model are not expected.

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1. Annex: *Compendium of Information on Gases that Deplete the Ozone Layer*; charts from local consultant's report and data collection: Neftalí López C.

In keeping with this orientation, the country and Government will tend to encourage private-sector initiatives aimed at implementing the Montreal Protocol, rather than leave management, organization and control of the above in the hands of a strong State ozone apparatus. This is Guatemala's conception of the Government Commission for Ozone (COGO in Spanish).

Consistent with this economic policy, the current Government has decided:

- To establish quotas for the importation of substances that deplete the ozone layer as a means of discouraging possible users. This measure will be implemented in accordance with a timetable based on reductions in the industrial sector and on the country's commitments.

- To formulate public-awareness programs in relation with the shrinking ozone layer and measures taken by the Guatemalan Government.

- To train Guatemalans and transfer new technology in order to reduce levels of ODS consumption and/or emissions in Guatemala's industrial sector.

In this framework, we have prepared an Action Plan that is coherent with the economic policy objectives described above. The following are the governmental activities that constitute the essence of this plan:

1) Creation of the Government Commission for Ozone (COGO);

2) Organization of technical retrofitting programs by specific sectors (training, reclaiming, recycling);

3) Creation of an "ozone-friendly" seal;

4) Implementation of a public publicity and awareness program.

Governmental agreements concerning ODS imports and consumption do exist, but it will be necessary to produce operational regulations for establishing and operating the planned quota system and for dealing with controls and statistical reports.

Implementation of the Ozone Certification Seal activity consists of providing consumers with adequate information on final products that do not harm the ozone layer and thereby having an effect on the demand for such products.

The purpose of the Public Awareness Program is to promote the consumption of products that are less harmful or totally inoffensive to the ozone layer (ozone-friendly products) by providing information through the media and other means on the consequences of damaging the ozone layer.

The Specific Sector Training Program will provide work meetings, seminars and information for specific industrial sectors and will furnish equipment for reclaiming and recycling.

The creation of the Government Commission for Ozone (COGO) will allow for coordination and control of the agreements and of the proposed Action Plan.

We consider that these measures will have an effect on the law of supply and demand so as to reduce the consumption of controlled substances that deplete the ozone layer.

In the following chart we present a summary by sectors of the different governmental measures and the costs associated with each of them.

Governmental Measures

YEARS	DESCRIPTION	SECTORS INVOLVED	OBJECTIVES	COST (US$)
1993-95	Government Commission for Ozone (COGO)	All sectors	Coordinate and control the Country Program	92,000
1993-95	Ozone Seal Program	Aerosols Refrigeration	Develop standard certification levels for products that do not use ODS	47,000
1993-95	Public Publicity and Awareness Program	Consumers	Encourage the consumption of ODS-free products	52,000
1993-94	Specific Sector Training Program	Foams Halons Refrigeration Air conditioning	Provide technical assistance for firms to minimize emissions and/or the use of controlled substances	159,000
1993-95	Consulting and support for implementation	All sectors	At the country's request	50,000
				400,000

IMPLEMENTATION OF THE MONTREAL PROTOCOL

COUNTRY PROGRAMME

FOR THE REDUCTION OF ODS CONSUMPTION

NATIONAL ENVIRONMENT COMMISSION

CONAMA

PRESIDENCE OF THE REPUBLIC

OF GUATEMALA

April 1993

CONTENTS

EXECUTIVE SUMMARY

The government of Guatemala, showing its firm commitment to end consumption of ODS, signed the Montreal Protocol for the Protection of the Ozone Layer in 1987 and also ratified it on 11 July 1989; the ratification of the London Amendments is being processed.

Guatemala operates under Article 5, Paragraph 1, of the Protocol and as such can benefit from the financial assistance of the Multilateral Fund of the Montreal Protocol.

On 11 April 1989, the President of Guatemala, Jorge Antonio Serrano Elias, submitted to the Congress the governmental agreement N 252-89, banning CFC imports, as well as manufacturing of CFC containing products, with the exception of those intended for essential uses. But it has not been fully enforced yet.

The presented document supports the request for 400 000 US$, to finance the initial years of the Programme (1993-1995).

An ODS reduction of 35 % is expected as a result of the implementation of this first stage of the Programme. This reduction is equivalent to approximately 98 tonnes. ODP.

The government of Guatemala supports its economic development policy through the presence of private enterprise and of the public sector. The Programme proposes to phase out ODS in 2007 rather than 2010, meeting its commitment 3 years ahead of schedule.

In accordance to the guide of the Executive Committee on the preparation of the Country Programme, this document describes Guatemala's consumption of controlled substances as well as the proposed programme to reduce their use and phase them out.

1991 has been taken as base year, during which Guatemala consumed 278.5 metric tonnes of ODS, the equivalent of 286.4 tonnes.ODP. Guatemala does not produce any of the substances listed under annex A of the Montreal Protocol which therefore means that its consumption requirements are equal to the imports carried out.

Main uses in Guatemala from 1986 to 1991 were foams, aerosols, refrigeration and air conditioning. Detected solvent consumption is minimal ; there are no data

concerning methyl bromide consumption despite the fact that it is used in the agricultural sector.

ODS consumption per use

(Tonnes of ODS)

	1989	1990	1991
Aerosols	250.0	150.0	0.0
Polyurethane	36.0	41.0	45.0
Refrigeration	84.0	126.2	150.8
Solvents	2.0	3.0	7.0
Air-conditionning	56.0	84.1	100.6
Halons	1.1	0.8	1.2

It should be pointed out that CFC consumption in aerosols was reduced to zero in 1991. Trends in the refrigeration and air-conditioning sectors show an increase in consumed quantities.

Data collection on imports and consumption was carried out by a local consultant specifically hired for this task. Some figures and/or trends are to be more accurately assessed during implementation.(1)

Customs codes reflect different figures from those considered in this country programme,since its sections correspond to generic items, including products which are not controlled by the MP. Customs sections 29028000, 28308000 and 39020300.

Most realistic data were obtained through combination techniques, projections and interviews with the main companies of this sector.

The main issues which will be addressed during this three year phase are:

a) consolidation of the almost complete retrofitting of propellants within the aerosol industry.

b) Technological retrofitting in the flexible foam production processes.

c) Introduction of retrofitting and recycling technologies in the refrigerator and air conditioning maintenance sectors.

d) Retrofitting of non essential halon uses.

The success of these programmes depends largely on whether or not the target of a 35 % reduction in relation to the 1991 base year, figure set for the first phase, is met. Data for 1989 and 1990, showing increases in Guatemala ODS consumption for all sectors except the aerosol industry, are also presented.

The government of Guatemala bases it economic policy on a free-market economy while allowing the central government to play a regulatory role. This growth strategy has been implemented for some years and no essential changes in the model should be expected.

According to this the Country and the Government will promote initiatives for the implementation of the Montreal Protocol coming from the private sector, rather than leave the management, organisation and monitoring in the hands of a heavy public Ozone structure. That is the way the nature of the Ozone Governmental Commission (COGO) has been conceived.

In consistency with the economic policy, the present Government has agreed to:

* establish a quota system for ODS imports as a mechanism to discourage their use, according to a timetable that takes into account the industrial sector's reductions and the commitments of the country.

* design public awareness-building programmes concerning the depletion of the ozone layer and the actions of Guatemala's government.

* promote and transfer, within Guatemala's industrial sector, new technologies which consume and/or emit less ODS.

Within this framework, an Action Plan has been set up in consistency with the afore-mentioned economic policy objectives.

The following Government activities represent the bulk of the Action Plan:

1) Creation of an Ozone Governmental Commission (COGO);

2) Organisation of technical retrofitting programmes for each specific sector. Training, recovery and recycling.

3) Design of an "Ozone Friendly" seal

4) Implementation of an information and public awareness-building programme.

In addition to existing governmental agreements concerning imports and consumption of ODS , it will be necessary to draft an operational regulatory framework including provisions on the establishment and operation of the proposed quota system, controls and statistical reports.

The launching of a Certifying Ozone Seal implies that adequate information will be made available to consumers on finished products which do not harm the ozone layer and that this information will have an effect on demand.

The public information programme is designed to promote consumption of products that either do less or no harm to the ozone layer (Ozone-friendly products), by advertising through the media and other mechanisms, the consequences of ozone layer depletion.

The specific sectorial training programme includes working meetings, seminars and specific sector information for the industry, as well as recovery and recycling equipment.

The creation of an Ozone Governmental Commission (COGO) will allow to coordinate and control the agreements and the proposed Action Plan.

This is the way we deem supply and demand of ODS will be influenced and hence their use reduced.

The attached table contains a summary of the government's different actions in each sector and the requirements associated to each of them.

Government Actions

Year	Description	Use sector	Objective	Cost in US$
1993/95	Ozone Governmental Comission COGO	All	Coordinate and control Country Programme	92,000
1993/95	Ozone Seal Programme	Aerosols Refrigerants	Development of standard certification levels for ODS free products	47,000
1993/95	Public Awareness Programme	Consumers	Stimulate consumption of ODS free products	52,000
1993/94	Sector specific training Programme	Foams halons Refrigeration Air Conditioning	Provide Technical assistance to companies to minimise emissions and/or use of ODS	159,000
1993/95	Consulting Support Implementation	All	Upon Country Request	50,000
				400,000

1. INTRODUCTION

1 Objective

1. Generally speaking, it can be said that the Government of Guatemala has expressed over the last few years its willingness to create mechanisms for protecting the environment, namely:

- a policy called "Sustained Economic and Social Development together with the Protection and Improvement of the Environment", consistent with the implemented development model.

- the Congress of Guatemala has promulgated Decree N 6886, called the Environmental Protection and Improvement Law, on 28 November 1986.

- in addition, Article 97 of the Constitution of the Republic of Guatemala establishes the obligation for the State, municipalities and the population at large to foster a social, economic and technological development that prevent environmental pollution and maintain ecological balance (Section 7, Chapter II, Social Law).

2. In this context, there is also a desire to have a national environmental policy consistent with the central concerns at the global level.

3. Guatemala has taken an active part in the international efforts designed to protect the ozone layer. Guatemala signed the Vienna Convention in July 1987. In July 1989 Guatemala ratified the Montreal Protocol. And the ratification of the amendments to the Montreal Protocol are now being examined in the Ministry of Foreign Affairs.

4. This document presents the Activity Programme to be undertaken from 1993 to 1995, corresponding to the first stage of the MP controlled ODS phase out. The objective of this country Programme is to end the use of the above mentioned substances by the year 2007, resorting only partly to the grace period for countries under Article 5, Paragraph 1.

5. Guatemala fulfills the requirements for submission of the Country Programme to the Multilateral Fund of the Montreal Protocol and hence request its financial assistance. The cost for the first 3 years of the Programme has been estimated at 400 000 US$ (first phase).

1.2 Status

6. This programme has been prepared by the government of Guatemala through the National Commission for the Environment (CONAMA), represented by Engineer Mireya Archilla Serrano, director. Engineer Adriana Grimaldi, in charge of the Ozone governmental commission (COGO), and Engineer Jose Guzman Shaul, Chief of the Technical Departement also took part in the preparation of this project.

7. The collection of consumption data from the involved industrial sectors was prepared by local consultant Jorge Neptali.

8. This document has been prepared and approved by the Guatemalan National Commission for the Environment (CONAMA).

1.3 Assistance Received

9. During the preparation of this document, assistance was provided by the MP implementation international agencies, the United Nations Environment Programme, UNEP, Mr Sergio Oxman, Mr Chuong N. Phung and Mr Daniel Crisafulli from the W.B.

10. The government sectors which contributed to its preparation at the national level were: the Guatemalan Bank, the Ministry of Finances, the Customs Directorate, the Economic Planning Secretariat (SEGEPLAN), the Ministry of the Economy, the Ministry of Agriculture, and the Ministry for Public Health and Social Affairs.

11. For the private sector it is necessary to stress the collaboration received from: the refrigerator manufacturers, the importers and distributors, the manufacturers of servicing and maintenance equipment and the companies working in this field; the Chamber of Commerce and Industry; the Economic Integration System (SIECA)

2.CURRENT SITUATION

2.1. Current and Forecast Consumption

12. Guatemala neither produces nor exports controlled substances, its consumption therefore corresponds to the estimated total imports.

13 .Data on imports are not complete, but the best estimates reveal an overall consumption of 286.4 weighted tonnes ODP in 1991.

14. With a population of 10.03 millions in 1991 and a consumption of 286.4 metric tonnes, annual per capita consumption amounts to 0,028 kgs.

15. The user sectors are basically refrigeration, foams, solvents, air-conditioning and fire extinguishers. Research was conducted for some uses of these substances , based on interviews with the main industrialists of the specific sector of use.

16. Historical data show a downward trend, basically due to cuts in the aerosol sector, while other sectors' consumption reflect fluctuating increases over time.

The Méndez Herbruger company uses isopropane, butane and propane to manufacture aerosols, all of which are not ozone-depleting products.

17. The collected data could be reliable up to 60-70%, yet it will be neccesary to better define the figures as well as the real uses during implementation.

ODS HISTORICAL CONSUMPTION

(metric tonnes)

	Including Aerosol		Without Aerosol	Aerosols
1986	484.6		184.6	300.0
1987	466.0		1 66.0	200.0
1988	470.0		170.0	300.0
1989	390.1		140.1	250.0
1990	365.0		215.0	150.0
1991	278.5	Base year	278.5	0.0

18. The data collected through surveys and interviews by the local consultant reflect the ODS consumption trend. In surveys carried out by the CONAMA engineers, differences in values and/or omissions of interviews of companies have been observed.

19. The consumption structure of controlled substances is higly concentrated both with distributors and importers and with consumers. Therefore, despite the limits of the basic information, the successof the programme is guaranteed by the technical working group of CONAMA (COGO) and the willingness of the private sector.

20. A large part of the decisions taken in the field of consumption and its fluctuations reflect a strong regional component linked to the world-level policy of transnational companies. For example, ICI and Dupont , which represent the main suppliers of ODS to the region ,and Coca-Cola, which explains in a significant way the regional demand for commercial refrigeration, have very harsh ODS consumption reduction schemes.

21. The main company group specialised in the manufacturing of commercial refrigerators is located in Guatemala, with production plants in Nicaragua and in the Dominican Republic.

TABLE 1: CONSUMPTION ANNEX A; B; C; MONTREAL PROTOCOL

Consumption per Substance
(Metric Tonnes in 1991)

Substance	Consumption in Tonnes	ODP	ODP weighted consumption
ANNEX A GROUP I			
CFC 11	45.0	1.0	45.0
CFC 12	224.3	1.0	224.3
CFC 113	8.0	0.8	6.4
CFC 114	....	1.0	....
CFC 115	....	0.6	....
SUBTOTAL	**277.3**		**265.7**
ANNEX A GROUP II			
HALON 1211	0.4	3.0	2.3
HALON 1301	0.8	10.0	8.4
HALON 2402	....	6.0	....
SUB-TOTAL	**1.2**		**10.7**
ANNEX B GROUP II			
CARBON TETRACLORIDE	....	1.1	....
ANNEX B GROUP III			
1,1,1 TRICLOROETHANE (METHYLCLOROFORM)	....	0.1	....
TOTAL CONSUMPTION IN TONNES	**278.5**		**286.4**

ANNEX C GROUP I			
HCFC - 22	....		....

Source: Data collection, Ozone Governmental Comission (COGO),

Substance	Consumption in Tons		ODP weighted consumption
Methyl Bromide[2]	....		....

Source: Data collection, Ozone Governmental Comission, Guatemala 1993

[2] Guatemala uses this substance for soil and agricultural product fumigation. No information is available from the Ministry of Agriculture or from the Bank of Guatemala. Nevertheless, CONAMA-COGO have solicited information and will carry out interviews in the importer and user sectors.

TABLE 2: CONSUMPTION ANNEX A; B; C; MONTREAL PROTOCOL

Use by Sustance

(ODP Weighted Tonnes in 1991)

SUBSTANCE (internal use)	USE	ODP Weighted tonnes	%
CFC 11 (**45.0** T.M)	Rigid Foam - Refrigeration Flexible Foam -Matresses and others -Insulation, injected -Insulation, heater -Other foams Aerosols -Medicinal Circuit cleaning	41.0 4.0	14.3 % 1.4 %
CFC 12 (**224.3** M.T.)	Foams Refrigeration Equipment -Domestic -Comercial -Industrial Aire Conditioning Maintenance -Refrigeration -Air conditioning	.... 15.0 22.0 25.0 32.0 78.0 52.0	.... 5.2 % 7.7 % 8.7 % 11.2 % 27.2 % 18.2 %
CFC 113	Solvents	6.4	2.4 %
Halon 1211 Halon 1301 Halon 2402	Extinguishers Extinguishers Extinguishers	2.3 8.4	0.8 % 2.9 %
CCl4 Carbon tetrachloride	Solvents	....	....
MCF Methylcloroform	Solvents	....	....
TOTAL		**286.4**	**100.0 %**

Source: Data collection, Ozone Governmental Comission COGO Guatemala 1993

**: Consumption distribution estimates

2.1.2 Forecast Consumption

22. Assuming that the Montreal Protocol is not enforced and that there is unlimited availability of ODS, an annual growth of 4% at current prices could be expected for the future.

23. The GDP historical growth rate was of 4%. It is assumed that the evolution in demand follows the growth trends of the economy.

24. Guatemala has a population of 10.03 million inhabitants, with an annual average growth rate of 2.8 % It is estimated that 36.9% of the inhabitants live in urban areas. The economically active population amounts to 28.6 %, 76.9 % of which are male and 24.5 % are female.

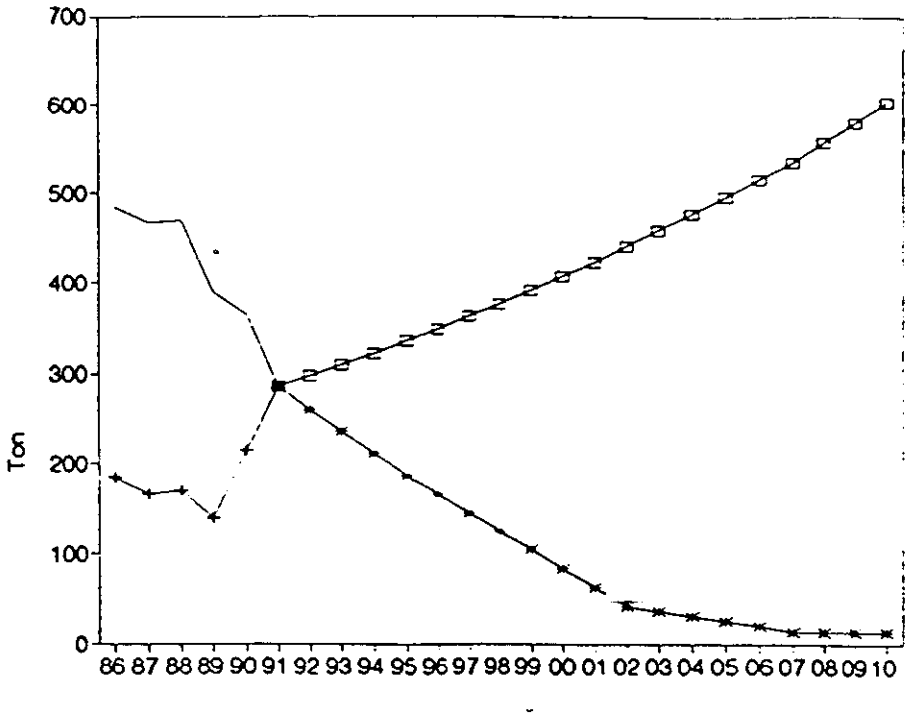
25. During 1991 the GDP figure rose to an average rate of 3-4 % per year, reaching US $ 840.0 per capita. Exports amounted to 1 282 million US dollars in 1991 and imports reached 2 195 million US dollars in 1991.

26. Agriculture's contribution to the GDP has been estimated to 25.8 % , whereas that of industry and services amount respectively to 15.0 % and 59.2 %.

27. In the agricultural sector, the production structure of the small farms continues to be poorly equipped and scarcely diversified. The manufacturing industry has experienced significant growth but remains little competitive on the international market.

28. The literacy rate in the adult population is of 58.0 % both for males and females. The life expectancy at birth is 64.8 years.

29. The following chart shows the decrease foreseen for consumption, according to the country programme.



30. The trend slope is due to the fact that countries producing CFC's are now restricting the supply of these substances.

* The demand growth rate, in the absence of the Montreal Protocol, depends on the estimated economic growth rate (4% a year).

* Total historical consumption, excluding consumtion for aerosols.

* The reduction timetable supposes a linear decrease rate, considering the ten-year grace period up to the year 2010.

* The reduction timetable with a decrease of 35 % by 1995 thanks to the implementation of the programme and afterwards a decrease of 95 % until the year 2007.

* Method used: Collection of state data and interviews with importing companies.

FORECAST CONSUMPTION
ODS PERCENT REDUCTION [3]

Years	ODP tonnes	Base %	Cumulated %
1991	**286**	**BASE YEAR**	
1993	257	10	
1994	223	12	22
1995	186	13	35
1996	163	8	43
1997	143	7	50
1998	123	7	57
1999	103	7	64
2000	83	7	71
2001	63	7	77
2002	43	7	85
2003	37	2	87
2004	31	2	89
2005	25	2	91
2006	19	2	93
2007	14	0	95
2008	14	0	95
2009	14	0	95
2010	14	0	95

Nota: After 2007 a 5 % essential use is consided

[3] Reduction corresponds mainly to CFC. Consumption of halons and MCF is negligible (see table 2)

2.2 Industrial Structure

Refrigeration Sector

31. Refrigeration represents annually 48.8% of the national ODS consumption. From this consumption level, domestic refrigeration reprsents 25%, commercial refrigeration 35%, industrial refrigeration, storing and transport 40%.

32.In fact, consumption is equivalent to leaks in systems in operation, recharge and maintenance of equipment.
The economic agents operating within this market are few, the main ones representing a high percentage of the market; and the industrial applications do not have any particularly complex characteristics.

33. The main import companies are :

ATQUIM (Dupont distributor)
FABRIGAS (distributor)
UNIREFRI (distributor)
DISTRIBUIDORA GRANADA (distributor)
REFRIGUA (refrigerator manufacturer)
TAPPAN (refrigerator manufacturer)
AMERICAN (refrigerator manufacturer)
ICI (polyurethanes)

34. REFRIGUA is the strongest company manufacturing commercial refrigerators on the national market, exporting to Central America.It consumes 20 tonnes of freon-12 and only exports 1 tonne of the same product in the commercial refrigeration equipment it manufactures and sells.

35. TAPPAN is a company manufacturing stoves and on a lesser scale produces commercial refrigerators, without exporting them. It consumes 5 tonnes of freon-12.

36. AMERICAN produces with industrial cold rooms, and only works on an order basis.

37. GRANADA is a distributor and supplies to stores such as Lumiere, Magaro, Ingua. It provides services to workshops, like C.R.M. wich represents Dupont.

38. The market is small and concentrated in a few firms. Their technical knowledge requires training seminars which aim to protect the ozone layer, while continuing their economic activities. Access to technical maintenance services is possible in a direct way and is economically effective, allowing for the development of training courses and workshops on maintenance .

39. The economic capacity of these agents is adapted to the market in which they operate and no stimulating measures, subsidies or other similar ones are needed from the Guatemalan government or the United Nations programmes.

40. This programme suggests that equipment should be granted in order to start the recovery and recycling processes and training for the pilot projects.

Foam sector.

41. Data reveal that there is a 15,7 % use of ODS in foam applications, the technical alternatives are well known and the import and distribution market is concentrated, basically in the panamarican ICI company.

42. The total consumption of rigid foams, polyurethane, is stimated to 120 tonnes per year. According to the foam concentrations and densities in Guatemala the CFC 11 component corresponds to a 41 tonne consumption.

43. The CFC 11 consumption in the manufacturing of polyurethane is concentrated in the manufacturing of foams for refrigeration (18 tonnes), construction pannels (20 tonnes) and sport shoes (3 tonnes). A high increase in consumption in the furniture sector is foreseen, together with significant decreases in CFC 11 consumption thanks to the use of new ODS free formulas.

44. The use of CFC 11 is not generalized for flexible foams, given the prize ratio of CFC versus other expansion agents and given the use of TDI with the water. This sector uses foam in manufacturing mattress and car seats.

45. The Central American and Caribbean regional market is basically dominated by ICI which intends to decrease heavily ODS consumption in 1993-1995 in foams and in air-conditioning and refrigeration through "drop-in"techniques.

46. For rigid foams, the main users in the refrigeration industry are Refrigua, American, Elseca and Termomecanica; in the building sector, mainly Construservicio. For flexible foams, the main users are Esponjas SA, Fomtex, Poliform, Olimpia and Latex C.A.

Air-conditioning sector

47. Both interviews and collected data show that the country, given its average temperature of 20-25°C, does not have a great quantity of air-conditioning equipment.

48. Air-conditionning consumption in 1991 accounts for 29.4% of the overall ODS consumption. It basically involves equipement operating in industry and trade and automobiles.

49. 150 tonnes of air-conditionning equipement were imported in 1991. Nevertheless, these imports do not reflect the number of units nor the gas they contain if they arrive charged. Indeed these figures measure the gross weight of the imported equipment. This is a problem which arises when investigations on all substances are carried out for the Customs office trade reports.

Solvents and Sterilization Sector

50. Collected data show a consumption of CFC 113 based solvents equivalent to 2.6%; further analysis is required to asses possible substitution, taking into account the type of process in which they are used.

51. The main distributor is Qarma which markets these products in small quantities to the electronic sector.

Halons

52. Preliminary data show that annual consumption of Halon 1211 and 1301 amount, respectively, to 2.3 and 8.6 tonnes ODP, corresponding to 3.5% of national consumption.

53.The main distributors are FABRIGAS,the Extinguishers Technical Service, INCOSS, and F.Mansilla which control the whole market.

54. In a visit to FABRIGAS, it was said that in August 1992 250 kg of halons were imported. The Extinguishers Technical Service said they had imported 60 kg for the same.

2.3 Institutional Framework

55. Guatemala's President, Jorge Serrano Elias, presides over the National Comission for the Environment and the following are the documents and/or actions related to the environment in force in the Republic of Guatemala.

- Article 97 of the Constitution of the Republic of Guatemala establishes the obligation for the State, municipalities and the population at large to foster a social, economic and technological development that prevent environmental pollution and main ecological balance (Section 7, Chapter II, Social Law).

- a policy called "Sustained Economic and Social Development together with the Protection and Improvement of the Environment", consistent with the implemented development model.

- the Congress of Guatemala promulgated the Decree N 6886, called the Environmental Protection and Improvement Law, on 28 November 1986.

56. The Government of the Republic created through Law Number 68-86, dated 28 November 1986, the National Commission for the Environment, under the Presidency of the Republic.

Government Agencies and the Montreal Protocol

57.The government of Guatemala is addressing the Montreal Protocol question through the National Comission for the Environment, CONAMA.

Its functions are:

"advising and coordinating all of the actions tending towards the definition and implementation of the National Policy for the protection and improvement of the environment, promoting it through the corresponding Ministries of State, General Secretariat of the Economic Planning National Council and decentralized autonomous, semi autonomous, municipal bodies as well as the private sector of the country".

58. The Ministry of Foreign Affairs acts as the governments link with international organizations.

59. The Ozone Governmental Commission (COGO), whose headquarters will be located in the offices of CONAMA, will be headed, on a part-time basis, by a government official for the next three years; additionaly, a specialised engineer will also join the team.

60. The function of COGO will consist in coordinating the present Country Programme's projects with the government and other governmental bodies by acting as a link between the various agencies and ministries involved, namely:

The Ministry of Publlic Finances, in charge, through its Customs Department, of establishing registration procedures for international trade of controlled substances.

The Ministry of Health, in charge, through its Department of Registration and Control of Medicines, of establishing the necessary control and registration procedures on imports of controlled substances.Additionally, this department will carry out, within its usual duties, visits and controls in the industrial sector in Guatemala.

The Central Bank, Department of Foreign Trade in charge of receiving and sending information reports on controlled substances.

The Ministries of Planning and Development, of the Economy, of Education, in charge of establishing mechanisms and procedures for coordination and information provision, as well as the technical support in the implementation of the Country Programme

61. The Ozone Government Commission,COGO, will act as a regulatory structure, providing technical guidance to the government through its operational mechanisms; also, COGO will prepare rules, regulations and procedures supporting the Minister of Health and the government in the necessary legislative initiatives.

62.It will be held accountable for the evaluation, coordination and supervision of all of the governments actions and the corresponding projects.

63. During the first three years of the programme, it is expected that the Ozone Governmental Commission will be staffed by two professionals with administrative support. The professionals responsibilities will be the following:

Professional 1: to coordinate, monitor, control and promote at a national and international level the industrial retrofitting and the reduction of ODS use

Professional 2: to promote the participation of industry in the reduction of ODS use. To monitor, lead and regulate the entry of ODS in the country

64. The central role in diminishing emissions and consumption of controlled substances will be assigned to the private sector who will implement the different designed projects, whereas the Implementation Commission will be responsible for coordination.

65. In designing the program and the Action Plan's measures the sectorial projects have been classified according to: sectorial characteristics, ability for short term phase out, involved conversion costs.

66. The effect of each of the governments actions within the plan included in the country programme will depend on the concerned

Industry Associations

67. The main private industry association within the country is the Chamber of Commerce, Industryand Finance, CACIF.

68. The private sector is willing to participate and coordinate, with the government, the different initiatives required to implement the Country Programme.

69. There are very few importers, distributors and users of controlled ODS in each sub-sector, who have a good knowledge of retrofitting technologies, market control and access to financial resources.

70.The main subsidiary companies which import ODS in the country are the distributors of ICI and Du Pont with particular emphasis on the foam and refrigeration sectors.

2.4 Economic policy framework for implementation of the country programme

71 The government of Guatemala, in its "Social and Economic of the Guatemalan government for the period 1991-1996" document defines the basic tools which it will use to support its development model:

a) individual freedom and initiative;
b) subsidiary action of the state;
c) the provisions for security mechanisms and social protection; and
d) self help.

72. In accordance with these guidelines, and in order to encourage the progressive phase out of ODS, the government will encourage the voluntary agreements which do not distort the free market.

73. Thus, the National Comission for the Environment, aware of the fact that national ODS consumption is close to 286.4 tonnes ODP in 1991 and that its uses are mainly for refrigeration, foams, solvents, halons, air conditioning, pledges to implement its future actions through complementary agreements with governmental organisations and with the national private sector in conjunction with the quota system. The use of tariffs and taxes has not been envisaged to reduce consumption.

74. Coordination and information mechanisms will be generated by the State, in order to proceed with the control of data on imports, on transfer of technologies and on implementation, through COGO.

75. COGO's main efforts will be towards collection and compilation of data, dissemination of technical information and, building of public awareness.

76. It will coordinate the training courses and workshops for the private sector, which will be implemented in industry and technical maintenance services, as well as supervise the technical and education reports which are aimed at reducing consumption and/or eliminating emissions of controlled substances.

2.5 Government and Industry response to the Protocol.

77. The government of Guatemala, with the objective of complying with its commitment towards the environment and the Montreal Protocol, has published the following texts in the Official Gazette:

(16/Jul/1987) RR.EE. Adhesion to the Vienna Convention for the protection of the ozone layer.

(05/May/1989) Bans import and/or consumption of controlled substances under the Montreal Protocol. N°252-89.

(11/Jul/1989) ratification of the Montreal Protocol, relative to ozone depleting substances.

(08/Aug/ 1989) Modification of agreement 252-89 conceding an additional year period, for imports, until inventories are exhausted. N° 537-89.

Ratification of the London Amendments (in process)

3. IMPLEMENTATION OF PROGRESSIVE PHASE OUT

3.1. Strategy Statement by the Government

78. Guatemala, given the world's commitment to ensure a clean atmosphere, will collaborate to the reduction and phase out of ODS. The actions taken, through conventions and further agreements with governmental bodies and with the national private sector, tend to protect and improve the country's environment.

79. The National Environment Commission will coordinate the country programme to reduce ODS, in order to decrease and minimise the environmental effects on the atmosphere.

80. A progressive phase-out of ODS consumption has been established. It is included in Annex I, A and B, of the Montreal Protocol. During the program's first phase, a 35 % reduction in tonnes is expected between 1993 and 1995, in relation to the base year 1991.

81. During the first phase, the proposed governmental actions are basically designed to affect the demand in favour of "ozone friendly" products, through the launching by COGO of the ozone seal and the public awareness programme. On the supply side they consist of training and inclusion of refrigerant and air conditioning recovery and recycle equipment in the servicing sector, as well as introduction of low-ODS containing mixtures.

82. The Commission will act through agreements with the private sector, on a sectorial use basis, establishing an annual import quota system in agreement with the government reduction scheme.

83. There are sectors that will require greater investments for their technical reconversion, change of machinery, mainly in domestic and industrial refrigeration, foams and air conditioning equipment.

A second phase is foreseen to present investment projects for these sectors.

84. The following table summarizes the strategies for the targeted phase I projects and objectives.

3.2 Action Plan and Projects -Phase one 1993-1995

85. The Action Plan which the government will implement in order to phase out controlled substances under the Montreal Protocol includes the following:

Matrix of the Country Programme Project Montreal Protocol

CATEGORY I: 1993-1995 (Short Term)	GOVERNMENT ACTIVITY CONCERNING CONSUMPTION	REDUCTION ODP WEIGHTED TONNES	PERCENT REDUCTION YEAR 1989	COMPLIANCE FULFILMENT DEADLINE
1. Ozone Government Comission (COGO)	Creation of National Consultative Ozone group	Institutional		1993 - 1995
2. Ozone Seal	Private Sector Public Dissemination	Institutional		1993 - 1995
3. Public Dissemination	Ozone Education Public Awareness	Institutional		1993 - 1995
4. Extintguishers Esential Uses	Ozone Seal Training Public diffusion	3 Esential uses	30	1993 - 1994
5. Refrigeration Domestic/Comercial Maintenance	Training and Equipment Ozono Seal Public Diffusion	29	31	1993 - 1994
6. Refrigeration Industrial Maintenance	Training	17	35	1993 - 1994
7. Air conditioning Mantencion	Training Public Diffusion	25	30	1993 - 1994
8. Foams	Training Ozono Seal Public Diffusion	27	60	1993 - 1994
Results		98	35	

3.2.1 Institutional Projects

86. **Name of the Project**: Ozone Governmental Commission, COGO.

Objective:Creation and operation of the Ozone Governmental Commission, COGO. An institutional measure.

Period: 1993-1995

Description: The objective of the Governmental Commission will be to:

1.Coordinate and supervise the agreements and the proposed Action Plan.

2.Propose the changes to be introduced within the relevant legislative bodies .

3.Coordinate the various ministries and governmental bodies involved.

4.Carry out information campaigns and training programmes. .

5.Promote voluntary agreements among firms

6.Initiate the creation process for the ozone seal

7.Provide according to the assesment of the technical conversion projects for category II investment subsidies.

Expected reduction: (Action Plan total)

Estimated costs for the Ozone Governmental Commission COGO:

Item	Year 1993	1994	1995	Total US$
Human Resources	21,000	21,000	21,000	63,000
Engineer 1 Engineer 2	12,000 9,000	12,000 9,000	12,000 9,000	
Basic equipment Office	14,000			14,000
Operations	5,000	5,000	5,000	15,000
Subtotal	40,000	26,000	26,000	92,000

87. **Name of the project:** Creation of an Ozone Friendly Seal

Objective: To provide the country with a seal for "ozone friendly" products

Period: 1993 - 1995

Description:

1. Interinstitutional Ozone Seal Design Project

2. Design of an attractive and ecological ozone friendly seal

3. Adequate dissemination in order to stimulate preferences for ODS-free products.

4. Design of procedures for distribution based on public preference.

5. To incorporate, through this initiative, the private sector and the relevant certifying agencies.

Estimated Costs: Certifying Ozone Seal Changes

Item	Year 1993	1994	1995	Total US$
Creation of the Seal Study & Design Regulations	4,000 1,000			5,000
Printing	8,000			8,000
Diffusion	15,000	5,000	5,000	25,000
Follow up	3,000	3,000	3,000	9,000
Total Project	31,000	8,000	8,000	47,000

88. **Name of the Project:** Public Awareness Program

Objective: To sensitise the public and have it prefer products that do not harm the ozone layer.

Period: 1993-95

Description:

1. Public and sectorial sensitisation and information provision on the meanings of the Protocol and the implications of ozone depletion.

2. Information on measures and activities carried out by the Guatemalan Government.

3. Design and distribution of information brochures.

4. To obtain cooperation from the industrial sector, the importers and the media.

Estimated Costs: Public Awareness Program

Item	Year 1993	1994	1995	Total US$
Publicity campaign				
Consultancy services	8,000	2,000	2,000	12,000
Diffusion to Medio	20,000	10,000	10,000	40,000
Total Project	28,000	12,000	12,000	52,000

3.2.2. Specific Industrial Sector Programmes

89.Fire extinguishing sector category I

Name of the project: Fire extinguishers - essential uses

Period: 1993-1994

Expected results: Reduction of 3.0 tonnes ODP of Halons (15 % for essential uses)

Project description: Training in conservation during servicing and recharging practices of existing systems in large scale systems.

Relevant Government Actions : Ozone Seal, Training and Public diffusion.

Estimated Training Costs:

Item	Year 1993	Total US$
Panelists	10,000	10,000
External Expert	10,000	--
Material Ressources	2,000	2,000
Equipment	2,000	2,000
Infrastructure	2,000	2,000
Total Project	16,000	16,000

90. Refrigeration sector

Domestic refrigeration. Category I

Name of the project: Recovery during recharging processes.

Period: 1993-1994.

Expected results: Training for domestic refrigeration equipment maintenance and decrease in consumption and emissions through better implementation measures. CFC reduction by 29 tonnes ODP.

Project description: Training in conservation practices during servicing and recharching of existing domestic systems.

Relevant government actions:Ozone Seal, training, equipment and public awareness.

Estimated Training Cost:

Item	Year 1993	Total US$
Panelis	13,000	13,000
External Expert Local Expert	10,000 3,000	
Materiale Ressources	2,000	2,000
Equipment	52,000	52,000
Infrastructure	2,000	2,000
Total Project	69,000	69,000

EQUIPMENT DETAILS

Recovery	25 units US$ 1,000 each	US$ 25,000
Recycling	6 equipos US$ 4,500 each	US$ 27,000

Centers of reception and sales of recycled refrigerant gas by Distribuitors/Importers.

91. Refrigeration Sector

Industrial refrigeration. Category I

Name of the Project: List of industrial facilities and retrofitting trainings for industrial refrigeration processes.

Period: 1993-1994.

Expected Results: CFC reduction by 17 tonnes ODP.

Project Description: Listing of the industrial facilities and training in alternative refrigeration techniques in large plants.

Relevant Government Actions: Ozone Seal, training, equipment and public awareness.

Estimated Costs:

Item	Year 1993	Total US$
Panelists	13,000	13,000
External Expert Local Expert	10,000 3,000	
Material Ressources	5,000	5,000
Equipment	4,000	4,000
Infrastructure	2,000	2,000
Total Project	24,000	24,000

92. Air conditioning Sector. Category I

Name of the Project: Recovery during installation, servicing and recharging processes for mobile air conditioning.

Period: 1993-1994.

Expected Results: Improvement in servicing and recharging practices for air conditioning systems. CFC reduction: 25 tonnes ODP.

Project Description: Training in conservation practices during servicing and recharging of existing systems for mobile air conditioning units.

Costo Entrenamiento Estimado:

Item	Year 1993	Total US$
Panelists	13,000	13,000
External Expert Local Expert	10,000 3,000	
Material Ressources	2,000	2,000
Equipment	7,000	7,000
Infrastructure	2,000	2,000
Total Project	24,000	24,000

93. Foam Sector.

Category I

Name of the Project: CFC use reduction in the production of foams

Period: 1993-1994.

Expected Results: CFC 11 reduction: 27 tonnes ODP.

Project Description: Training in methods design to reduce the CFC use in the production of foams, changing the percentage points in the mixtures.

Relevant Government Action: Training, equipment and public awareness.

Estimated Training Cost:

Item	Year 1993	Total US$
Panelists	13,000	13,000
External Expert Local Experto	10,000 3,000	
Material Ressources	3,500	3,500
Equipment	6,000	6,000
Infrastructure	2,500	2,500
Total Project	25,000	25,000

94. These projects are expected to last at least three years starting mid-1993 and will have a national scope with the participation of all bodies involved. The necessary technical assistance will be asked from the Multilateral Fund executing agencies.

3.3. Bodies that will play a role in the implementation of the strategy.

95. The Guatemala Environment Commission, through the Ozone Government Commission, COGO, will convene the organisations which will take part in the strategy implementation, listed in paragraph 2.3 of this programme.

96. The private sector will participate through the main private industry association of the country, the Chamber of Commerce, Industry and Finances, CACIF.

72. The support by the Montreal Protocole implementation agencies will be given through UNEP, the World Bank and UNDP.

3.4. Timetable and consequences on consumption.

73. Progressive CFC phase-out pattern according to the Protocole.

The chart on page 9 shows possible demand projections for the country consumption until 2010.

3.5. Priorities in the financing of the projects:

97. This Country Programme, committed to reducing current consumption by 98 tonnes in three years, is to finance the category I projects (short term).This is why they should first, as a priority, be implemented the industrial sector, with a strengthening of the institutional sector in order to ensure its fulfillment.

3.6. Agreement monitoring:

98. The Government of the Republic of Guatemala, through COGO, will establish quarterly control of the fulfillment of this programme and will have at its disposal the existing monitoring and control mechanisms of other bodies in order to monitor annual ODS consumption in the country.

99. It will monitor the efficiency of the government measures taken to achieve the set results, the implementation of the projects in the action plan; it will measure whether consumption is within the limits fixed by the Protocole and the commitments taken by the country. The Fund will regularly be informed.
100. The implementation agencies will monitor the process on the basis of each programme component, with regular statistical and management reports. Running is expected to take place on the basis
of terms of reference for each component with partial evaluations.

ANNEX I

DATA COLLECTION

OZONE GOVERNMENTAL COMISSION COGO

GUATEMALA

SURVEY OF ODS PRODUCING COMPANIES

METRIC TONNES

IMPORTING COMPANIES	USE AND TYPE	1986	1987	1988	1989	1990	1991	TOTALES
ICI Panamericana	Refrigeration (R12)	8	8	8	8	8	8	48
ICI Panamericana	Polyurethane (R11)	1	2	3	9	13	17	45
Dupont	Refrigerant (R12)	25	25	25	25	100	100	300
Dupont	Aerosols (R12)	150	150	150	100	0	0	550
Lumeri	Refrigeration (R11)	3.3	3.3	6	6	6	6	30.6
Lumeri	Refrigeration (R12)	7	7	10	10	16	20	70
Refrigua	Refrigeration (R12)	8	10	10	10	12.5	16	66.5
Unirefri	Refrigeration (R12)	35	35	35	35	35	35	210
Unirefri	Refrigeration (R11)	10	10	10	10	10	10	60
Unirefri	Refrigeration (R502)	5	5	5	5	5	5	30
Unirefri	Aerosols (R12)	150	150	150	150	150	0	750
Distribuidora Granada	Refrigeration (R11)	11.27	33.8	0	9.84	1.99	6.1	63.0
Distribuidora Granada	Refrigeration (R12)	71.76	16.48	0	0.69	7.86	8.46	105.2
Fabrigas	Refrigeration (R12)	1	12.69	60.69	12.6	0	35.94	123.0
Fabrigas	Refrigeration (R11)	0	0.79	13.78	7.01	7.01	0	28.6
Garma S.A.	Solvents (CFC 113)	0	0	1	2	4	8	15.0
Fabrigas	Halon 1301	0.98	0.13	0	0.45	0	0.84	2.4
Elseca S.A. (CARRIER)	Refrigeration (R12)	0.9	0.9	0.9	0.9	0.9	0.9	5.4
Servicio Técnico de Ext.	Halon 1211	0	0.2	0.2	0.2	0.2	0.2	1.0
Servicio Técnico de Ext.	Halon 1301	0	0.2	0	0	0.2	0	0.4
Incoss	Halon 1211	0.1	0.1	0.1	0.1	0.1	0	0.5
Incoss	Halon 1301	0.1	0.1	0.1	0.1	0.1	0	0.5
Extinguidores de Guatemala	Halon 1211	0.05	.05	0.05	0.05	0	0	0.2
Abraxa	Halon 1211	0.2	0.2	0.18	0.18	0.18	0.18	1.12

CONAMA
Engineer Mireya Archila Home 730654
Engineer José Guzman Thaul
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