



United Nations Environment Programme



Distr.
LIMITED



UNEP/OzL.Pro/ExCom/10/28
28 May 1993
ENGLISH
ORIGINAL: SPANISH

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

Tenth Meeting
Montreal, 28-30 June 1993

COUNTRY PROGRAMME: PANAMA

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);
- c) Transmittal Letter from the Government of Panama.

PANAMA COUNTRY PROGRAMME EVALUATION SHEET

The Panama 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 Panama;
- 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.

Panama does not produce controlled substances. In 1991, the amount of ODS consumed was estimated at 229.2 tonnes. Of this amount, 227.2 tonnes were CFC and 2.0 tonnes halons. In that same year, 8.5 tonnes of methyl bromide were consumed.

The ODS distribution per sector, in 1991, was estimated as follows:

- 83.3 per cent in the refrigerator sector;
- 14.2 per cent in the foam sector;
- 1.6 per cent in aerosols; and
- 0.9 per cent for fire extinguishers.

The larger CFC consumer industries in Panama are:

- Grupo Friolín (Friolín, S.A., and Friomax, S.A.), the largest servicing refrigeration company with about 80 per cent of the total market;
- Termofon, S.A., Plastifon, S.A., and Productos de Foam S.A., the largest foam manufacturing industries; and
- Firemaster, S.A., Luis Varcacia, S.A., and Grupo Simplex, the principal halon distribution companies, with about 90 per cent of the market.

The Government of Panama proposes to eliminate 35 per cent of its ODS consumption between 1993 and 1996, by implementing several training programmes in the aerosol, foam, halon and refrigerator sectors. The remaining 65 per cent of ODS consumed, will be phased-out by the year 2010.

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

1. Creation of the Governmental Ozone Commission (COGO) and its Consultative Committee;
2. Establishment of an appropriate regulatory framework to strengthen the actions proposed in its country programme and
3. Development of a certification "ozone seal";
4. Establishment of an education and awareness programme; and
5. Development of technical programmes by sector (i.e., training, recycling).

The principal government agencies responsible for the implementation of the Montreal Protocol are the Ministry of Health and the Ministry of Foreign Affairs as the liaison between the Government and the international organizations. UNDP and UNEP are designated as the implementing agencies for the implementation of the 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 \$474,000:

1. Institutional strengthening (US \$309,000):
 - Establishment of the Governmental Ozone Commission, COGO;
 - Development of regulatory measures;
 - Development of the ozone seal;
 - Public awareness programme; and
 - International technical assistance.
2. Industrial projects (US \$165,000):
 - Conversion to propellant in the aerosol sector;
 - Reduction on the use of CFC in the foam sector;
 - Establishment of a halon bank;
 - Recovery during maintenance in domestic and commercial refrigerators; and
 - Improvement during installation, revision and recharge processes for mobile air conditioning.

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 continue with the ODS data collection and analysis; 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 preparation of regulatory measures to comply with the obligations of the Montreal Protocol; 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 \$172,500 for the institutional strengthening programme, including the establishment of the Governmental Ozone Commission, COGO, development of regulatory measures, public awareness programme, and development of the ozone seal;
3. To request UNDP to collaborate with the Government of Panama to further develop the first phase projects and include them in its future work programme or work programme amendment.

COUNTRY PROGRAMME COVER SHEET

Country: Panama

Lead National Agency: Governmental Ozone Commission (COGO)

Participating Implementing Agencies:

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	84.23 x 1.0 = 84.2	1,527.1		2010	2010
CFC-12	142.99 x 1.0 = 143.0	2,592.5		2010	2010
Halon 1211	1.98 x 3.0 = 5.9	115.3		2010	2010
Halon 1301	0.02 x 10.0 = 0.2	3.9		2010	2010
TOTAL	233.4	4,238.7	2,180.0		

(1) Projected at an annual rate of 1.9 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 and 2010.

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.	42,000	28,000	26,000	96,000
1993-1994	Development of regulatory measures	Regulatory measures to comply with the obligations of the Montreal Protocol	All	COGO	2,700	6,300		9,000
1993-1995	Development of the ozone seal	Use of the ozone seal in products	All	COGO	32,000	18,000	18,000	68,000
1993-1995	Public awareness programme	Create awareness among the public on the impacts due to ozone layer depletion	All	COGO	39,000	25,000	22,000	86,000
1994-1995	International technical assistance	Technical assistance	All	COGO		30,000	20,000	50,000
	Sub-total cost				115,700	107,300	86,000	309,000
II. INDUSTRIAL SECTOR ACTIVITIES								
1993	Conversion to propellant in the aerosol sector	Training	Aerosol	UNDP	12,000			12,000
1993-1994	Reduction on the use of CFC in the foam sector	Training	Foam	UNDP	2,000	14,000		16,000
1993-1994	Establishment of a halon bank	Training, establishment of a halon bank	Halon	UNDP	10,000	27,000		37,000
1993-1994	Recovery during maintenance in domestic and commercial refrigerators	Training	Refrigeration	UNDP	69,000			69,000
1993-1994	Improvement during installation, revision and recharge processes for mobile air conditioning	Training	Refrigeration	UNDP	10,500	20,500		31,000
	Sub-total cost				103,500	61,500		165,000
	TOTAL COST				219,200	168,800	86,000	474,000

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, regulatory measures, education and awareness programme	COGO	259,000
1993–1994	Industrial projects	CFC recovery and recycling in refrigerator equipment; training in the aerosol, foam and halon sectors	COGO	165,000
1993–1994	International technical assistance	Technical assistance during implementation of the country programme		50,000
Total cost				474,000

(1) COGO: Governmental Ozone Commission

The Government of Panama proposes to eliminate 35% of its ODS consumption between 1993 and 1996. The remaining 65% of ODS consumed, will be phased-out by the year 2010.

Republic of Panama

Panama
May 10, 1993

Ministry of Health
No. 2210-DMS/225-SA

Apartado 2048
Panamá 1, Panamá
No.

Mr. Omar El-Arini
Chief Officer
SECRETARIAT
MULTILATERAL FUND
MONTREAL PROTOCOL

Dear Mr. 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 demonstration projects, as well as public awareness, dissemination of information and training programs. UNEP, the implementing agency under the Ozone Multilateral Fund, has conducted data collection and prepared Panama's country program.

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 34% over the next three years (1993-1995).

"Health for All" "Health in Liberty"

The undersigned, Dr. Guillermo Rolla Pimental, Health Minister of Panama, is hereby informing you 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 Environmental Health Department of this Ministry will perform the duties of coordination and political orientation with regard to the implementation of the Montreal Protocol in Panama.

The Government of Panama 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 agency, UNEP, to the Ozone Multilateral Fund, under the Montreal Protocol.

Sincerely yours,

[SIGNATURE: ILLEGIBLE]

Health Minister

[SEAL: REPUBLIC OF PANAMA; OFFICE OF THE MINISTER; MINISTRY OF HEALTH]

PANAMA

MONTREAL PROTOCOL

COUNTRY PROGRAM

IMPLEMENTING AGENCY

UNITED NATIONS ENVIRONMENT PROGRAMME

UNEP

**-UNEP Consultant:
Sergio Oxman**

May 1993

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EXECUTIVE SUMMARY

Showing its firm intention to end the consumption of substances that deplete the ozone layer, the Government of Panama signed the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on January 3, 1989. The London Amendment to the Protocol is currently in the process of ratification.

Panama 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.

The present document provides grounds for the US \$474,000 request for funding of the Program's first years (1993-1995). A reduction of 81 metric tons is expected as a result of implementation of said Program.

The Government of Panama supports a policy of economic development with the participation of private enterprise and the public sector.

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

The following are data concerning ODS imported in 1989 and 1991 and their breakdown by usage (in metric tons ODP):

	<u>1989</u>	<u>1991</u>
Aerosols	14 tons	4 tons
Polyurethane, foams	40 tons	32 tons
Refrigeration	115 tons	135 tons
Air conditioning	54 tons	56 tons
Extinguishers	9 tons	6 tons

Engineers from Panama's Department of Environmental Health (Ministry of Health) interviewed and visited the major importers, distributors and companies that use ODS. The above estimates of consumption and breakdown by usage were based on the information obtained from those sources. It will be important to take note of differences in consumption and uses during the implementation of the present program.

Background information on the consumption of these substances, as presented in the annexes, shows an erratic consumption pattern and distorted values in kilos and tons. Customs information also lacks reliability in terms of consumption and the possibility of breaking down the different uses.

Engineers from the Ministry of Health's Environmental Health Department collected data on imports and consumption through interviews with importers, distributors and users. (See Annex II.¹)

1. *Informe del Consumo en República de Panamá de Sustancias Controladas por el Protocolo de Montreal*; Ministry of Health, Department of Environmental Health; January 1993.

Annex III contains information on the contacts made with representatives of the Government and private sector in the process of developing the Country Program.

It is important to indicate that CFC consumption in the form of aerosols decreased to 1.9 tons in October 1992, according to the data collected. However, consumption of these substances in refrigeration and air conditioning has increased.

The year 1991 was used as a base. In that year Panama consumed 229.22 metric tons of ODS, or 233.36 tons ODP. Of that total, 36.1% were CFC-11; 59.7% were CFC-12; and 2.6% were halons. The consumption of methyl bromure was 8.5 metric tons.

The breakdown by usage comes from estimates made by the Ministry of Health's Department of Environmental Health (COGO) on the basis of interviews with the industrial sector.

Panama produces none of the substances listed in Annex A of the Montreal Protocol, and its consumption requirements therefore correspond to its imports.

Primary uses in Panama between 1986 and 1990 were foams, aerosols, refrigeration and air conditioning. Since 1991, the main sectors for consumption have been refrigeration, air conditioning, halons and foam. Nevertheless, halon consumption remains below two tons per year.

If Panama had not signed the Montreal Protocol, projected consumption for the year 2010 would have been 492 metric tons, based on a 4% annual growth rate.

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) Technological conversion in the production of flexible foam;
- b) Introduction of retrofitting and recycling technologies in refrigeration and air-conditioning maintenance;
- c) Conversion for non-essential uses of halons;
- d) Consolidation of the almost completed conversion of propellants in the aerosol industry.

To be successful in these programs, Panama will have to achieve the objective of decreasing the consumption of controlled substances by 81 metric tons in relation to the figure for base year 1991. This is the figure established for the first phase. The 1990 and 1991 data presented in this document indicate an increase in ODS consumption for the areas of refrigeration and air conditioning.

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

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.

Consistent with this economic policy, the current Government has decided to **establish the Government Commission for Ozone (COGO in Spanish)**, whose role will be one of coordination and implementation on the part of the private sector. For this purpose, the following proposals have been put forward:

- **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 Government of Panama.
- **To train Panamanians and transfer new technology** in order to reduce levels of ODS consumption and/or emissions in Panama'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 **Action Plan**:

- 1) **Creation of the Government Commission for Ozone (COGO);**
- 2) **Establishment of standards and regulations in accordance with the country's commitments to the Montreal Protocol;**
- 3) **Creation of an "ozone-friendly" seal;**
- 4) **Implementation of a public publicity and awareness program;**
- 5) **Organization and implementation of technical retrofitting programs by specific sectors, including training 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.

For the purpose of establishing and operating the planned **Import Quota System** and for dealing with controls and statistical reports, it will be necessary to produce operational regulations. Governmental agreements concerning ODS imports and consumption do exist.

Implementation of an **Ozone-Friendly Certification Seal** would make it possible to provide consumers with adequate information on final products that do not harm the ozone layer and thereby have 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.

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.

At the request of the Government of Panama, technical assistance in the preparation of this Country Program was provided by the **United Nations Environment Program (UNEP)** through consultant **Sergio Oxman**.

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

<u>YEARS</u>	<u>DESCRIPTION</u>	<u>SECTORS INVOLVED</u>	<u>OBJECTIVES</u>	<u>COST (US\$)</u>
1993-95	Government Commission for Ozone (COGO)	All sectors	Coordinate and control the Country Program	96,000
1993	Changes in standards and laws	All sectors	Obtain a coherent set of regulations	9,000
1993-94	Ozone Seal Program	Foams Refrigeration Air conditioning	Develop standard certification levels for products that do not use ODS	68,000
1993-94	Public Publicity and Awareness Program	Consumers	Encourage the consumption of ODS-free products	86,000
1993-94	Specific Sector Training Program	Foams Refrigeration Air conditioning Halons	Provide technical assistance for firms to minimize emissions and/or the use of controlled substances	165,000
1993-95	Consulting and support for implementation (5)	All sectors	At the country's request	50,000
				474,000

PANAMA COUNTRY PROGRAMME

IMPLEMENTATION OF THE MONTREAL PROTOCOL

UNITED NATIONS ENVIRONMENT PROGRAMME

May, 1993

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EXECUTIVE SUMMARY

The government of Panama, showing its firm commitment to end consumption of ODS, signed the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol, on January 3 1989; the ratification of the London Amendments is being processed.

Panama operates under Article 5, Paragraph 1, of the Protocol and as such is eligible for financial assistance from the Multilateral Fund of the Protocol.

The present document supports the request for 474 000 US\$, to finance the initial years of the Programme (1993-1995). An ODS reduction of 81 tonnes is expected as a result of the implementation of this Programme.

The government of Panama has based its economic development policy on the respective roles of private industry and of the public sector.

This document describes Panama's consumption of ODS as well as the proposed programme to reduce and phase them out, in accordance to the guidelines of the Executive Committee on preparation of Country Programmes.

Consumption of imported ODS by user sector for the years 1989 and 1991 was the following:

	1989	1991
Aerosols	14 tonnes	4 tonnes
Polyurethane Foam	40 tonnes	32 tonnes
Refrigeration	115 tonnes	135 tonnes
Air conditioning	54 tonnes	56 tonnes
Fire extinguishing	19 tonnes	6 tonnes

Visits and interviews were carried out by engineers from the Department of Environmental Health of the Panama's Ministry of Health in order to survey the main ODS importers and distributors as well as companies using them, the reported consumption and its distribution by user sector having been estimated on the basis of this information. The important task of adjusting consumption and application figures will be carried out during implementation of the present programme.

Past ODS consumption, as presented in the annexes, show a random path and distorted values in kilos and tonnes. In addition, information provided by Customs is not reliable in terms of both consumption and distribution by user sector.

The collection of import and consumption data was done by engineers from the Department of Environmental Health of the Panama Ministry of Health, who surveyed importers, distributors and users. (see Annex II).

The contacts that were established between the private and public sectors during preparation of the country programme are presented in Annex III.

It is necessary to point out that CFC consumption for aerosols was reduced down to 1.9 tonnes in October. On the other hand, the trend for refrigeration and AC shows an increase of consumed quantities.

Base year for the study is 1991, during which Panama consumed 229.22 tonnes of ODS, equivalent to 233,36 ODP weighted tonnes. Of this, 36.1 % is CFC 11, 59.7% is CFC 12 and 2.6 % are Halons. That year, 8.5 tonnes of Methyl Bromide were consumed.

Distribution according to user sector was estimated jointly by the Department of Environmental Health of the Panama Ministry of Health and the Ozone Governmental Commission (COGO) on the basis of data obtained when the industrial sector was being surveyed.

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

Main user sectors in Panama from 1986 to 1990 were foams, aerosols, refrigeration and air conditioning. Beginning in 1991 the highest consumption levels were found in refrigeration, air-conditioning, halons and foams. Consumption of halons is less than 2 tonnes per year.

In the absence of the Montreal Protocol, and considering an annual growth rate of 4 %, the projected consumption for the year 2010 would be of 492 tonnes.

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

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

- a) Technological retrofitting in flexible foam production process.
- b) Introduction of retrofitting and recycling technologies in the refrigerator and air conditioning maintenance sectors.
- c) Retrofitting of non essential Halon uses.
- d) Consolidation of the almost complete retrofitting within the propellant aerosol industry.

The success of these programmes depends largely on whether or not the reduction of 81 tonnes in relation to 1991, which is the target set for the first phase, is met.

The government of Panama has been implementing, over the last few years, a free-market-oriented economic policy. This growth strategy should continue to be applied with no foreseeable changes of the model.

According to this, the Country and the Government will promote initiatives for 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.

Consistent with the economic policy, the present Government has agreed to establish the Ozone Governmental Commission (COGO), while granting the private sector a role in terms of coordination and implementation. For achieving this goal, it is suggested to:

- * establish a quota system for ODS imports as a mechanism to discourage their use, according to a timetable that takes into account both the industrial sector's reductions and the commitments of the country.
- * design public awareness programs concerning depletion of the ozone layer and the actions of Panama's government.
- * promote and transfer, within Panama's industrial sector, new technologies which consume and/or emit less ODS.

An Action Plan has been set up within this framework consistent with the aforementioned economic policy objectives.

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

- 1) Creation of an Ozone Governmental Commission (COGO)
- 2) Setting up standards and regulations consistent with the provisions of the Montreal Protocol
- 3) Design of an "Ozone Friendly" seal
- 4) Implementation of an information and public awareness program.
- 5) Organisation of sector specific technical reconversion programmes. Training and recycling.

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

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, as well as on 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, thereby affecting market preferences.

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

The sectorial training program includes work meetings, Workshops and sector specific information for industry, as well as recovery and recycling equipment.

This is the way in which we intend to influence supply and demand of ODS in order to reduce their use.

Technical assistance for preparation of the Country Programme was made available by UNEP, following the request of the government of Panama, through its consultant, Dr. Sergio Oxman.

1. INTRODUCTION

1.1 Objective

1. During the last few years, the government has shown its will to create mechanisms in order to protect the environment. This is why various scientific meetings have been organized, in which the environment/mankind balance was discussed, several commissions having been created to deal with this problem.

2. Additionally, there is also concern for having a national environmental policy consistent with the prevailing world-wide preoccupation.

3. Panama has been actively present in the international efforts designed to protect the ozone layer; it signed both the Vienna Convention, and the Montreal Protocol, in January 1989, while ratification of the Montreal Protocol amendments is currently being discussed by Parliament.

4. This document presents the Activity Programme to be undertaken from 1993 to 1995, corresponding to the first phase of the ODS phase out. The objective of this country Programme is to end the use of the above mentioned substances by the year 2010.

5. Panama fulfils the requirements for submission of the Country Programme to the Multilateral Fund of the Montreal Protocol and hence requests its financial assistance.

6. The cost for the first three-year phase of the Programme has been estimated at 474 000 US\$.

1.2 Status

7. This programme was prepared by Maria Eugenia Ulloa and Alberto Parilla, engineers of the Panamanian Ministry of Health, Department of Environmental Health.

8. Collection of consumption data from the involved industrial sectors was carried-out with the technical assistance of Maria Eugenia Ulloa of the Ozone Governmental Commission (COGO), and from engineers of the Department of Environmental Health.

9. This version has been approved by the Ministry of Health and the Ministry of Foreign Affairs.

1.3 Assistance Received

10. Assistance for the preparation of this document was provided by Sergio Oxman, UNEP Consultant.

11. Other sectors which were instrumental in its preparation at the national level were:

Government: Republic's General Controller Office,
Ministry of Health,
Ministry of Foreign Affairs,
Ministry of Agricultural Development,
Fire Department.

Private Sector: W. H. Doel Agencies (ICI); Refrigas
and Additives (DuPont); Friocanal
S.A; Gaseco S.A; Commercial Packaging
S.A; Quimetc S.A; Foam Products;
Termofon S.A; Plastifon S.A; Nestle
S.A; National Tobacco Manufacture
S.A; Istmena Tobacco Manufacture S.A;
Agrochemical Services S.A.

2. CURRENT SITUATION

2.1. Current and Forecast Consumption

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

13. Data on imports are not complete due to lack of reliable Customs statistics, the surveys conducted among users providing only estimated data; the best estimate reports a total consumption for 1989 of 233.4 ODP weighted tonnes.

14. Panama's population was 2 466 228 in 1991. Annual consumption of ODS amounted to 0,10 Kg per capita, equivalent to 233.4 ODP weighted tonnes.

15. The user sectors are basically refrigeration, foam manufacturing, air-conditioning and fire extinguishing. With regard to uses, sector specific research was conducted, based on interviews with the main industry managers.

16. Historical data is shown in the tables contained in Annex II as well as distribution of consumption according to the visits and interviews.

1991 Consumption by substance ²

Tonnes	Consumption	ODP	ODP weighted Consumption
Substances			
Group 1 Annex A			
CFC 11	84.23	1.0	84.23
CFC 12	142.99	1.0	142.99
CFC 113		0.8	
CFC 114		0.6	
CFC 115			
Sub-total	227.22		227.22
Group 2 of Annex A			
Halon 1211			
Halon 1301	1.98	3.0	5.94
Halon 2402	0.02	10.0	0.20
Sub-total	2.00		6.14
Methyl Chloroform			
1.1.1 Trichloroethane			
Overall consumption in Tonnes	229.22	Total ODP	233.36

Substance	Consumption	ODP	ODP weighted Consumption
Methyl Bromide	8.54	0.7	5.98

Source: Data collection, Environmental Health Department, Ministry of Health. Panama 1993

²/ 1986/1991 CFC-12 average consumption. Reported data reflect double counting. Source, Annex II; Table 15 data according to visited companies
Annex I: base year 1989

1991 Consumption by substance ³

Substance	Use	ODP weighted Tonnes	Percent
CFC 11	Refrigeration	67.38	28.87
	- Domestic		
	- Commercial		
CFC 12	Flexible foam	16.85	7.22
	Rigid foam		
	Polystyrene foam	15.54	6.70
CFC 12	Refrigeration	68.02	29.15
	- Domestic		
	- Commercial		
CFC 12	Air conditioning	55.65	23.85
	Maintenance		
	Servicing		
CFC 12	Aerosols	3.68	1.58
Halon 1211	Fire extinguishers	5.94	2.55
Halon 1301	Fire extinguishers	0.20	0.09
		233.36	100.00

3/ Consumption distribution, estimated according to visited company records during Information Collection, Annex II

2.1.2 Forecast Consumption

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

18. The GDP growth rate was 4.6 in 1990, 0.4 in 1989 and -15.9 in 1988; it is assumed that the increase in demand for these substances will follow the GDP growth rate.

19. Panama has a population of 2.37 million, with an average annual growth rate of 2.56% and 53% of the population living in urban areas.

20. Agriculture's contribution to the economy has been estimated at 9.9 % of GDP, whereas that of industry and services amount, respectively, to 14.6% and 75.5%.

21. Small farms continue to be poorly equipped and scarcely diversified. The manufacturing industry has experienced large growth but remains uncompetitive in the international market.

22. The literacy rate is 88% both for males and females. The life expectancy at birth in urban areas is 72.08 years. 83% of the population has access to sewage and the number of physicians per thousand is 11.9.

23. The previously assumed ODS annual consumption growth rate of 4%, up to the year 2010, implies that the fruit and fish sectors will continue to grow and that standards of living will continue to rise; these trends point towards an increase in consumption and maintenance for the refrigeration sector, not to mention the increasing needs in terms of services of the Canal Zone.

24. The following table shows unconstrained projected demand up to the year 2010. The assumption was made that demand would growth at a 4% rate, given the consequences in terms of consumption of GDP growth and refrigeration/air-conditioning imports.

YEAR	Metric tonnes	YEAR	Metric tonnes
1992	243	2002	359
1993	252	2003	374
1994	262	2004	389
1995	273	2005	404
1996	284	2006	420
1997	295	2007	437
1998	307	2008	455
1999	319	2009	473
2000	332	2010	492
2001	345		

Assumptions: a 4% annual growth rate in CFC demand, equal to the GDP growth rate.

2.2 Industrial Structure

25. The main ODS importing companies in the country are:

Agencies W.H. Doel S.A. **ICI**
Refrigas and Additives S.A. **DuPont**

These firms final users.

26. Refrigeration Sector

Refrigeration represents a 58,02 % annual share of Panama's total CFC consumption (67.38 tonnes of CFC-11 and 68.02 tonnes of CFC-12) .

The Friolin Group, which is the most important in Panama's refrigeration sector, comprises the following firms:

Friolin S.A.
Friolin Segundo S.A.
Friomax S.A.
Gaseco S.A.

In fact, consumption is equivalent to leaks in operating systems and recharge during maintenance of equipment.

The economic operators within this market are few, main ones representing a 70-80 % share of the market; in addition, the industrial applications do not have any particularly complex characteristics. Their technical level is adequate and they are committed to ozone layer protection while pursuing their economic activities.

According to the 1989 population and housing census there are around 268 389 domestic refrigeration devices in use in the country.

Monthly import of equipment is estimated at 1 853 units by the Republic's General Controller Office, without any distinction between domestic or commercial refrigeration.

Access to technical maintenance services is possible in a direct and cost-effective way through spare parts distributors. This would permit to carry out training courses and workshops on maintenance.

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

This programme suggests that equipment should be acquired in order to start recovery and recycle processes.

27. Foams Sector

Data reveals that there is a 13.92 % use of ODS in foam applications, the technical alternatives are well known in a rather concentrated market.

This sector uses foam in manufacturing mattress, pillows, car seats, etc. The alternatives to be developed would consist of technical programs aimed at reducing the use of ODS.

The main industries identified are:

Termofon S.A.
Plastifon S.A.
Productos de Foam S.A.

28. Air-conditioning sector

Air-conditioning represents a 23.85% annual share, equivalent to 55.65 tonnes, of Panama's total CFC 12 consumption.

Both interviews and collected data show that the country, given its average temperature of 27°C, possesses large quantities of air-conditioning equipment.

According to the Population and Housing Census conducted in 1990 there would be 32 605 domestic air-conditioning units in operation.

Equipment imports are estimated at 2 332 units per month according to the Republic's General Controller Office, but the respective share of domestic and commercial use is unknown.

Monthly motor vehicles imports amount to 8 000; a 40% share corresponds to air-conditioned passenger cars, and the remainder, to commercial vehicles of which only 70% are air-conditioned. This equipment is already fully charged when imported.

29. Halons

Halon 1211 consumption amounts to 5.94 tonnes, equivalent to 2.55% of ODS national consumption, whereas Halon 1301 consumption represents 0.02 tonnes, equivalent to 0.09% of ODS national consumption. They are basically used in fire extinguishers, of which 10% correspond to essential uses.

The main distributors are: Firemaster S.A.; Luis Varcacia S.A.; and the Simplex Group, which as a whole account for 80 to 90 percent of the market. Panama's Fire Department is responsible for setting up market standards and regulations and constitutes a source of essential information for implementation of the programme.

2.3 Institutional Framework

30. Panama's President, Guillermo Endara, has stressed in several seminars and TV interviews, the great importance that should be given to environmental actions, particularly those concerning the atmosphere. The government is aware of the importance of actions which address the ozone layer issue through this program.

31. Government Agencies and the Montreal Protocol

31. The government of Panama has charged both the Ministry of Health and the Ministry of the Interior with the responsibility of dealing with the Montreal Protocol, as far as implementation, follow-up and international contacts are concerned.

32. The Ozone Governmental Commission (COGO), whose headquarters are to be located in the Environmental Health Department offices, will be headed, on a part-time basis, by a government official for the next three years; an engineer specialised in trade and industry will also be incorporated for follow-up, monitoring and implementation of the programmes.

33. 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 Finance and Treasury which will be in charge, through its Customs Department, of establishing registration procedures for international trade of controlled substances.

The Republic's General Controller Office which will be responsible for receiving and sending information reports on controlled substances.

The Ministry of Health which will be in charge, through its Environmental Health Department, of establishing the necessary control and register procedures on imports of controlled substances.

The Ministries of Planning and Economic Policy, of Industry and Trade, of Education, the Legislative Assembly which will also be involved, so as to establish mechanisms and procedures for coordination and information dissemination, as well as providing the technical support in the implementation of the Country Program.

The Ministry of Agricultural Development which will intervene on matters concerning the controlled substance, Methyl Bromide.

34. 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.

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

Also included among its tasks will be the design of the legal framework, that is standards, decrees and/or laws in order to ensure completion of the country programme.

35. 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:

1. Coordinate and supervise the agreements and the proposed Action Plan.
2. To introduce mechanisms to enforce the quota system, with controls on a quarterly basis.
3. Carry out information campaigns and training programs.
4. Promote voluntary agreements among firms.
5. Propose changes to the relevant legislative bodies.
6. Convene meetings for the creation of the ozone seal.
7. Coordinate the relevant ministries and governmental bodies involved.

36. 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 coordinating and convening the involved partners.

37. In designing the program and the action plan's measures the sectorial projects have been classified into two categories: institutional and industrial projects.

38. Industry Associations

The main private industry associations within the country are:

Panama's syndicate of industrials
Chamber of Commerce and Industry
Panama's Association of Executives
National Private Industry Council

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

39. There are very few importers, distributors and users of controlled ODS in each sub-sector affiliated to company associations, with a good knowledge of retrofitting technologies, control of the market and access to financial resources.

40. There are many NGOs or other organisations which presently contribute to environmental actions, ANCON being one of the main ones.

2.4 Policy and Economic Framework for the Implementation of the Country Programme

41. The government of Panama, in its Economic Modernisation and Development Guidelines programme defines the basic tools to be used to support its development model and that includes privatizing several public sector activities and companies; reforms to the Social Security System and liberalisation of international trade, tax reforms and cuts in public expenditures.

42. In accordance with these guidelines, and in order to encourage the progressive phase out of ODS, the government will establish an import quota mechanism. The use of economic policy mechanisms such as taxes and tariffs in order to favour consumption reductions has not been contemplated.

43. Thus, the Ministry of Health, aware of the fact that national ODS consumption is close to 233 ODP weighted tonnes per year, and that its uses are mainly for refrigeration, foams, solvents, cleaning, halons, air conditioning, pledges to implement its future actions through complementary agreements with governmental organisations and with the national private sector.

44. Coordination and information mechanisms are to be established by the State, in order to proceed with the control of data on imports, transfer of technologies and implementation, through the Ozone Governmental Commission, COGO.

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

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

(03/Jan/1989) RR.EE. Adhesion to the Vienna Convention for the protection of the ozone layer. Law nº2.

(03/Jan/1989) Ratification of the Montreal Protocol, relative to ozone depleting substances. Law nº7.

(dd/mm/year) Ratification of the London Amendments (in legislative process)

Panama's Fire Department, through its Safety Office, adopted in February 1993 the following resolutions:

. Ban on Halon 1211 imports beginning 31 December 1993. Suspension of Halon 1211 imports for recharging purposes beginning 31 December 1994. Presentation of regulations on good practices in the use of these substances.

. Presentation of regulations on good practices in using Halon 1301. Submission by companies marketing these substance of cadastral surveys of their facilities.

3. IMPLEMENTING THE PHASE OUT

3.1. Strategy Statement by the Government

47. A progressive phase-out of ODS consumption has been established. For substances included under Annex I, A and B, of the Montreal Protocol.

During the program's first phase, that is between 1993 and 1995, a reduction of 81 tonnes in national consumption is expected in relation to base year 1991.

48. During the first phase, the proposed governmental actions are basically designed to affect the demand in favour of "ozone friendly" products, through launching of the ozone seal, establishment of standards and regulations consistent with the phase-out and the public awareness programme.

49. 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.

50. There exist also medium-term projects that have been considered as specific projects, particularly the Halon Bank one.

51. The strategy consists of preparing and submitting financial assistance requests to the Fund's Executive Committee as soon as more information is available on sectors in which the technological conversion process is to entail greater investments for machinery changes, particularly in domestic/industrial refrigeration and air-conditioning.

52. As planned, the reduction is related to consumption in 1991, which was estimated on the basis of the information provided by the firms.

**Historical adjusted consumption patterns,
in tonnes**

	1989	1991	1992
Aerosol	36.43	3.68	1.91
Foams	15.47	11.82	14.22
Commercial, domestic refrigeration	54.29	68.02	43.08
Air conditioning	54.29	55.65	43.08
Halon 1211	1.82	1.98	1.01
Halon 1301	1.22	0.01	0.28
Methyl bromide	6.99	8.54	16.29

Consumption patterns correspond to surveys carried out in industry, except for refrigeration and air conditioning where reported consumption for these years was adjusted according to what was expressed by industry and importers since they reflect double counting and/or numbers mentioned in the tables of the report. Annex II

COUNTRY PROGRAMME MATRIX

MONTREAL PROTOCOL

Base year 1991 4/

Category 1 (short-term) 1944-1995	Government activity concerning consumption	Reduction ODP Weighted Tonnes	Percent Reduction year 1989	Compliance Fulfilment Deadline
1. Aerosols 5/	Ozone Seal Training Public Awareness	1.9	100	1994
2. Fire Extinguisher Services 6/	Ozone Seal Training Public Awareness	10.2	80.0	1993-95
3. Domestic and Commercial Refrigeration Maintenance	Training Equipment Ozone Seal Public Awareness	27.2	40.0	1993-95
4. Air conditioning Maintenance	Training, equipment Public Awareness	22.3	40.0	1993-95
5. Foams	Ozone Seal Training Public Awareness	19.5	60.0	1993-94
Results Phase One		81.1 tonnes		

4/ Decrease in ODS consumption based on year 1991 for information consistency. Industries reconversion projects establish consumption decreases based on the best quantities prior to 1991

5/ Consumption up to October 1992 as reported by industry. The project considers strengthening in industrial security. Essential uses must be determined, for example aerosols for medical uses.

6/ Fire extinguisher stocks contain an estimated 12.9 tonnes of halon 1211 which could be recovered up to 80%, in non essential uses. Panamas fire department.

3.2 Action Plan and Projects (1993-1995)

53. Work for the formulation of the implementation strategy was done during the preparation of this programme, together with government officials.

54. The central element of this strategy consists of the coordinating role of the Ozone Governmental Commission (COGO). Within this commission, the private sector will be entrusted with the task of implementing the projects and programmes, which are designed to be subcontracted. This is why the projects include follow-up and management items that do not appear in the financing proposal of COGO.

55. Visits were carried out to the main industries and firms, in addition to meetings on country programme information with ODS user sectors.

56. Given the characteristics and size of the industry areas for investment projects were not identified. One of the reasons was the lack of both reliable basic data and specific knowledge about the new technologies. Therefore, the government of Panama will submit later on requests for investment projects should the industry identifies them.

57. For the present period, COGO is working, together with the industrial sector, on the following elements concerning implementation:

- . Terms of reference of the projects
- . Action plan
- . Implementation timetable

58. The action plan to be implemented by the government in order to phase-out controlled substances under the Montreal Protocol, in accordance with the strategy defined under point 3.1, comprises the projects described in sections 3.2.1 and 3.2.2

3.2.1 Institutional Projects

59. Name of the Project: Ozone Governmental Commission, COGO.

Project description:

i) Problem Identification.

Need of creating and putting in operation the Ozone Governmental Commission (COGO) as an institutional measure consistent with the government commitment to the Protocol.

Objective of the project:

The Governmental Commission is designed to:

1. Coordinate and supervise the agreements and the proposed Action Plan.
2. Provide mechanisms to enforce the quota system on imports, with controls on a quarterly basis.
3. Carry out information campaigns and training programs
4. Promote voluntary agreements among firms.
5. Propose the changes to be introduced within the relevant legislative bodies.
6. Convene meetings for the creation of the ozone seal
7. Coordinate the various ministries and the private sector.

iii) Relevant governmental actions accompanying this project:

The government of Panama will provide the Ozone Governmental Commission with fully-equipped premises for operation.

Expected results: Supervision of the country's reduction commitments, amounting to 81 tonnes, the action plan total.

Project Implementation Period:

Years 1993-1994-1995

Estimated costs the Ozone Governmental Commission

Item	1993	1994	1995	Total US\$
Human resources	21.000	21 000	21 000	63 000
Engineer 1	12 000	12 000	12 000	
Engineer 2	9 000	9 000	9 000	
Infrastructure	14 000			14 000
Operations	7 000	7 000	5 000	19 000
Total Project	42 000	28 000	26 000	96 000

Costs Description:

Human resources:

Engineer 1: 1000 US \$ per month x 12 months = 12 000 US\$
 Engineer 2: 750 US \$ per month x 12 months = 9 000 US\$

Infrastructure:

Computer hardware and software,
 laser printer and fax = 14 000 US\$

Operations:

583 US\$ per month for international calls, mail, etc.
 The government will take care of other expenses, such as stationery and local calls.

This is why operation costs have been incorporated to each project including translations, event organization and brochures.

60. Name of the project: Changes in Laws and regulations

Project description:

i) Problem Identification.

There are numerous standards and laws issued by ministries which do not function as a coherent system and should therefore undergo relevant changes.

ii) Objective of the project:

Adoption of the required changes of the legislative texts which have to be compatible with the desire to end consumption of controlled substances.

1. Homogenization of the existing legal instruments.
2. Analysis and discussion of the proposed changes.
3. Draft law proposals.
4. Introduction of regulations for the enforcement of the quota system.
5. Standards for the use of "Ozone friendly" labels.
6. Standards for the use and delivery of recovery and recycle equipment in the maintenance of refrigerators throughout the private sector distribution network.

Project to be subcontracted

iii) Relevant governmental actions accompanying this project:

Coordinating work with the private sector.
 Coordination with the various ministries.
 Introduction of the legal changes proposed in the study.

Expected results:

To produce a coherent legal framework for the country programme.

Project Implementation Period:

Local study: year 1993
 Final report: first quarter of 1994
 Enactment of laws: 1994

Estimated costs for the Changes in Laws and Regulations

Item	1993	1994	Total US\$
Human resources	1950	4550	6 500
Lawyer 1 Assistant 1	1500 450	3500 1050	
Material resources	750	1750	2 500
Total Project	2700	6300	9 000

61. Name of the project: Creation of an Ozone Friendly Seal

This project will be carried out through the private sector in one of the professional institutions and/or organizations.

Participation of certifying firms either public or private is essential as well as the design of operational regulations for the application of the Seal to local and imported products.

It is hoped that its dissemination among the population will strongly affect supply and demand of ODS containing products.

This is why the budget of the project has not been added to the Ozone Governmental Commission's operating costs.

Project description:

i) **Problem identification:** Non-existence of a logo ensuring that either local or imported "ozone friendly" products are easily identified by consumers.

ii) **Objectives of the project:** To have a seal for "ozone friendly" products

1. Design of an attractive and ecological ozone friendly seal
2. Adequate dissemination in order to stimulate preferences for ODS-free products.
3. Design of procedures for distribution based on public preferences.
4. To incorporate, through this initiative, the private sector and the relevant certifying agencies.

Project to be subcontracted

iii) **Relevant governmental actions accompanying this project:**

To prepare the terms of reference.

To provide the required legal framework, according to the subcontracted firm's proposal.

Expected results:

To have a seal for "ozone friendly" products.
 To affect demand of products having diminished the use of ODS as feed stock.
 To stimulate productive sectors in which technological changes are being made.

Project Implementation Period:

Year 1993: printing of the ozone seal and preparation of adequate regulations. Carrying out controls of the production processes in order to certify final products as "ozone friendly" ones.

Years 1994-1995: ozone seal operation

Estimated Costs: Certifying "Ozone Friendly" Seal

Item	1993	1994	1995	Total US\$
Creation of the Seal	4 000	4 000		
Research and Design	3 000			
Regulations	1 000			
Printing	8 000			8 000
Distribution	15 000	13 000	13 000	41 000
Follow-up	5 000	5 000	5 000	15 000
Total Project Cost	32 000	18 000	18 000	68 000

Detailed costs:

These are the estimated costs according to the terms of reference for the bidding procedure.

62. Name of the Project: Public Awareness Program

This project envisages the development of general initiatives focused on specific sectors, such as repair and servicing workshops, by means of leaflets containing both descriptions of the new technologies and explanations on the availability of CFC.

It also contemplates information dissemination among young people and other ozone-depletion-minded sectors, which explains why administrative expenses are included in the project's budget.

Moreover, this activity is expected to be subcontracted, so as to a communication service firm design and disseminate the message, thereby increasing the cost-effectiveness of the expense to be incurred for sensitising the public and having an effect on market preferences.

i) Problem identification:

There is a need for different sectors of the community, namely the productive sector, the media, and other ozone-depletion-minded sectors, to get a more specialized knowledge as well as information on the Montreal Protocol.

ii) Objectives of the project:

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 Government of Panama.
3. Design and distribution of information brochures.
4. Obtaining cooperation from the industrial sector, the importers and the media.

This project is to be subcontracted following a bidding process

iii) Relevant governmental actions accompanying this project:

Information on measures and activities carried out by the Panama Government.

Information of the public and other public message carriers in order to achieve the objectives.

Preparation of the terms of reference for subcontracting the campaign.

Technical information provision to the advertising firms in charge of the campaign.

Expected results:

To sensitize the public and have it prefer products that do not harm the ozone layer. Effect on demand.

Project Implementation Period:

Year 1993: Calling on subcontractors to bid. Getting the logo and the advertising campaign designed.

Preparing technical brochures intended for the industrial sector.

Video broadcasting

Years 1994 and 1995: continuation of the campaign. Design adjustments according to the results and the demands of concerned sectors.

Estimated Costs: Public Awareness Program

Item	1993	1994	1995	Total US \$
Publicity campaign				
Consultancy services	10 000	5 000	5 000	20 000
Media	25 000	18 000	15 000	58 000
Secretary and admin	4 000	2 000	2 000	8 000
Total Project Cost	39 000	25 000	22 000	86 000

Detailed costs:

These are the estimated costs according to the terms of reference for the bidding procedure.

63. Consultancy support for implementation

Project Description:

i) Problem identification:

Given the state of permanent technological change taking place in the field of ODS substitutes the government may find itself in need of specialized technical assistance, in order to meet and/or speed-up its commitment in terms of ODS reduction.

ii) Objectives of the project:

Giving support to the Ozone Governmental Commission (COGO) and to the private sector in carrying out the programme as well as making possible the follow-up and training, as far as technology transfers and institutional strengthening are concerned, taking into account the needs of the country.

iii) Relevant governmental actions accompanying this project:

Evaluation of results on a quarterly basis.

Expected results:

5 international technical follow-up assistances.

Project Implementation Period:

Years 1994-1995

Estimated costs:

5 International consultancies

Year:

1994:	3 consultancies	US\$ 30 000
1995:	2 consultancies	20 000

3.2.2. Specific Industrial Sector Programmes

64. Aerosol sector. Category I.

Name of the project: Propellant Conversion

Conversion to non-CFC technologies within the aerosol industry is nearing completion, even though one of the firms still reports having used 1.9 tonnes up to October 1992.

Another factor considered in this proposal is the support that should be given to industry safety, the new propellant being flammable and highly explosive. As consumption is expected to be cut down to zero, the new facilities should be fully adapted to the new propellant.

Year: 1993

Expected results: Reduction of 1.9 tonnes in CFC use

Description of the Project:

Replacement of CFC as a propellant through use of available substitutes: hydrocarbons, mechanical systems, etc.

Governmental relevant actions: Launching of the Ozone seal, training and public awareness programmes.

Estimated costs of the training:

Item	1993	Total US\$
Consultancy	10 000	10 000
External Expert	10 000	
Material Resources	1 000	1 000
Infrastructure	1 000	1 000
Total Project	12 000	12 000

Description of Costs:

Technical expert visit	10 000 US\$
Three-day Workshop	
Four-day visit to firms	
One-day public information campaign	
Documents	1 000 US\$
Preparation of documents and relevant translations	
Visits to industry for the preparation of the implementation phase	
Required for Workshop	
Infrastructure	
Workshop costs	1 000 US\$

65. Refrigeration service area
Domestic and Commercial refrigeration

Name of the project: Recovery during maintenance

Period: 1993-1994

Expected results: Training in recovery processes for domestic refrigeration equipment, and reduction of consumption and emissions through better application procedures.

Project description: Training in conservation procedures during servicing and recharge of operating domestic systems.

A Practical Workshop on Recovery, Recharge and Recycling is to be organized for training instructors, with the support of an external expert who will also be responsible for conducting a cadastral (technical) survey of Panama's refrigeration industry

Instructors will be selected from the main companies, in the area of gas supply and/or replacement parts, who will then train independent technicians in the use of new maintenance processes.

The brochures to be published as part of the public awareness project will be handed out among distributor/furnishing firms, who additionally will be responsible for the recovery and recycling equipment by means of direct contracts passed with the government or the implementing agency.

Contracts and regulations governing operation, management and maintenance of the equipment should be set up before delivering it, which will have to consider the variety of options and situations arising/to be faced with during operation (e.g. what to do with recovered and contaminated gases and which price incentives should be given to favour recycled gas; etc)

Both the Governmental Ozone Commission (COGO) and the refrigeration industry have a central role to play in the development of operation methods, the selection and training of instructors and the establishment of control measures/monitoring arrangements.

Governmental relevant actions: Ozone Seal, training and public awareness programmes.

Estimated training costs:

Item	1993	Total US\$
Panellists	13 000	13 000
External Expert Internal Expert	10 000 3 000	
Material Resources	2 000	2 000
Equipment	52 000	52 000
Infrastructure	2 000	2 000
Total Project Cost	69 000	69 000

Equipment Details

Recovery 25 units 1 000 US\$ each 25 000

Recycle 6 units 4 500 US\$ each 27 000

Centers of reception and sales of recycled refrigerant gas by
Distributors/importers

Description of other costs

Visit by a technical expert	10 000 US\$
3 day training	
3 days of cadastral survey	
1 day public information	
Local expert: estimated cost	3 000 US\$
Cadastral	
Training	
Material resources	2 000 US\$
Preparation of brochures	
Cadastral material	1 000 US \$
Training input	1 000 US \$
Infrastructure	2 000US\$
Workshop costs	
Transport	
Translations	

66. Air Conditioning Sector.
Commercial, domestic, mobile..

Name of the project:

Reconversion of MACs
Better practises in installation processes, servicing and recharge.

Period: 1993-1994

Expected results: Phase out of 22 tonnes of CFC
(Complete phase out except for essential uses)

Project description: Training in recovery processes during system servicing and recharge. For mobile and fixed air conditioning units.

A cadastral survey is considered to determine the investment project.

Workshop for mobile air-conditioning servicing centers on retrofitting with transitional substances.

The brochures to be published as part of the public awareness project will be handed out among suppliers.²

Relevant government actions: Training, equipment and public awareness programmes.

Estimated training costs:

Item	1993	1994	Total US\$
Cadastral Consultancy	10 000		10 000
Panellists		13 000	13 000
External Expert		10 000	
Local Expert		3 000	
Material Resources	500	1 000	1 500
Equipment		5 000	5 000
Infrastructure		1 500	1 500
Total Project Cost	10 500	20 500	31 000

Detailed costs

Cadaster:

International expert	10 000 US\$
Material ressourcesexpert	500 US\$

Workshop:

Human ressourcesexpert	13 000 US\$
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Material ressources	
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Demonstration documentsexpert	1 500 US\$
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Infrastructure	
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Brochures, documents, translations for the Workshop	2 000 US\$
--	------------

67. Foam sector

Name of the Project: Reduction of CFC Use(s)

Period: 1993-94

Expected results: Reduction of 31.9 tonnes of CFC.
(Complete phase out except for ,,% for essential uses)

Project Description:

Training in methods for reducing CFC uses in foam production, and in low CFC containing mixtures

An external expert will evaluate/asses industry applications and will give advice on replacement techniques. He will also be responsible for evaluating assessing possible investment projects in retrofitting.

Relevant government actions: Training, equipment and public awareness.

Estimated Costs of the Training:

Item	1993	1994	Total US\$
Survey & Panellists	2 000	11 000	13 000
External Expert Internal Expert	2 000	10 000 1 000	
Equipment		2 000	2 000
Infrastructure		1 000	1 000
Total Project Cost	2 000	14 000	16 000

Detail of the costs

Visit of technical expert	10 000 US\$
3 day Workshop	
2 day visit to industries	
1 day of public information	
Equipment:	3 000 US\$
estimated cost of equipment required for demonstration	
Infrastructure:	
Workshop costs	1 500 US\$
Local survey:	
Local expert	2 000 US\$
Workshop:	
Local human ressources	1 000 US\$

68. Fire extinguishing sector category I

Name of the project: Creation of the halon bank

Period: Research 1993
Implementation 1994-1995

Expected results: Reduction of 10 tonnes of Halon 1211
(Complete phase out except for ,,% for essential uses)

Project description: The first phase of this study concerns research on cost and implementation techniques of a halon bank, as well as retrofitting fire extinguishers using halon 1211

Panama's Fire Department has taken resolute action in implementing a halon bank for essential uses. To that end, it has enacted/issued two regulations regarding halon 1211 and halon 1301. It possesses an adequate data bank, the main firms' share representing

Training in conservation, servicing and recharge of large facilities' systems as well as portable ones.

Governmental relevant actions: launching of the Ozone seal, training, public awareness programmes and

Training in conservation servicing and recharging practices of existing systems in large scale or portable systems.

Government relevant action: Ozone Seal, training and public awareness and system design for the halon the bank.

Estimated project cost: Halon bank

Item	1993	1994	Total US\$
Consultancy 1993	10 000		10 000
Workshop 1994		12 000	12 000
Local expert		2 000	
External expert		10 000	
Recovery recycle equipment		12 000	12 000
Infrastructure		3 000	3 000
Total Project Cost	10 000	27 000	37 000

Detail of costs:

External consultancy: 10 000 US\$

Cadaster & visit by expert

Training workshop: 12 000 US\$

External expert 10 000 US\$

Local expert 2 000 US\$

Equipment 12 000 US\$

Estimated costs for 2 recovery and recycle units

Infrastructure: 3 000 US\$

Workshop costs 1 500 US\$

Document and other costs 1 500 US\$

69. Beginning in 1993 these projects are initially expected to last three years with participation of all concerned organizations and agencies nation-wide. Technical assistance will be requested from the implementing agencies of the Multilateral Fund, namely UNEP and UNDP.

3.3. Entities playing a role in the implementation of the strategy.

70. The Environmental Health Department of Panama's Ministry of Health and the Governmental Ozone Commission (COGO), will convene all agencies and organizations to participate in the implementation of this strategy, which has been mentioned in section 2.3 of the present programme.

71. The Panama's Associations of Industry Managers, the Chamber of Commerce and Industry and the Panamanian Association of Executives will be invited to participate, as far as the private sector is concerned. Also, Panama's Fire Department.

72. UNEP and UNDP, as implementing agencies of the Montreal Protocol, will lend the necessary support.

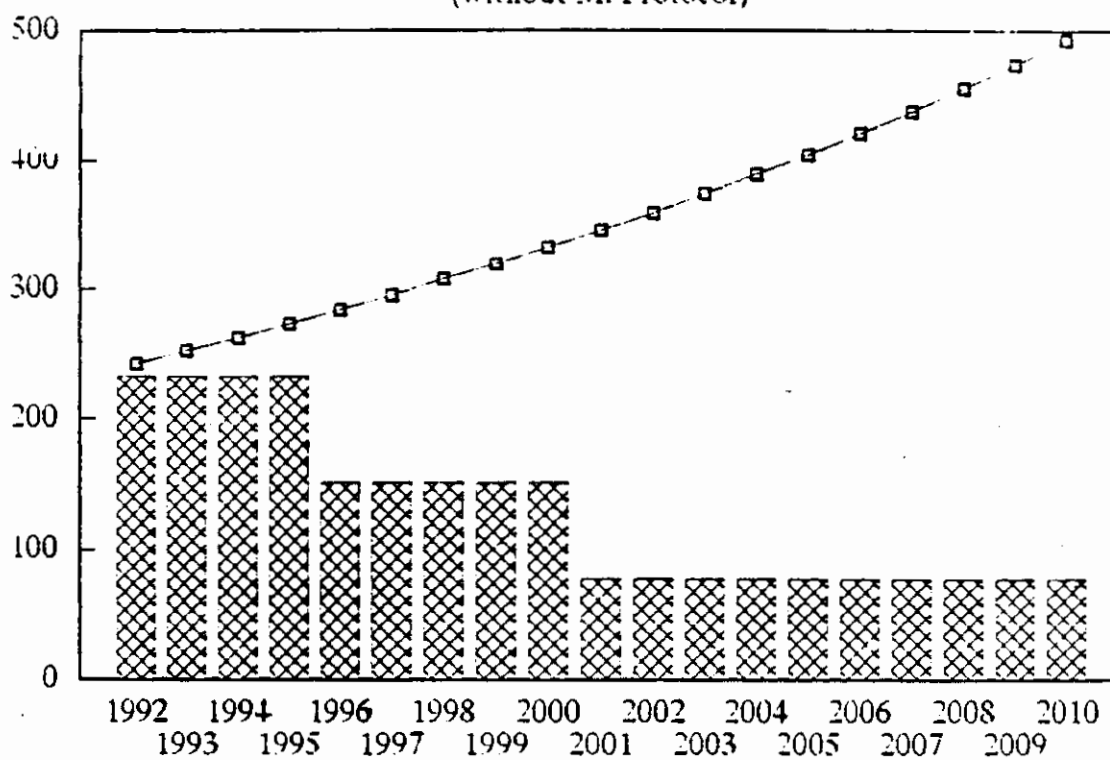
3.4 Timetable and consumption implications

73. Profile of CFC phase out under the Montreal Protocol

The following table presents the possible projected demand of the country up to the year 2010.

PANAMA Phase-Out Schedule

(without M. Protocol)



3.5 Priorities for project financing:

74. This country programme, which intends to cut down current consumption by 81 tonnes within a three-year period, request financing for short-term projects included in category I. This is why their implementation within the industrial sector has been given first priority, together with institutional strengthening in order to ensure that they are implemented.

3.6 Supervision of the agreements

75. The government of the Republic of Panama, through the Governmental Ozone Commission (COGO), will undertake a quarterly control of this programme under the supervision and control mechanisms existing within the relevant agencies and organizations.

76. The Governmental Ozone Commission (COGO) will supervise the efficiency of governmental measures designed to achieve the planned objectives, as well as the implementation of the action plan's projects, and will assess if the consumption remains within the limits set by the Montreal Protocol and to what extent the country is honoring its commitments. The Fund will be kept regularly informed on this matter.

77. The implementing agencies will monitor the process taking into account each component of the programme, and issuing regular statistical and management reports. Implementation is expected to respect the terms of reference, while partial evaluations will be carried out on each component of the programme.

ANNEXES

CONSUMPTION BY SUBSTANCE IN 1989

Metric tonnes	Consumption	ODP	ODP weighted Consumption
Substances Group 1 Annex A			
CFC 11	87.81	1.0	87.81
CFC 12	135.72	1.0	135.72
CFC 113		0.8	
CFC 114		0.6	
CFC 115			
Sub-total	223.53		223.53
Group 2 of Annex A			
Halon 1211	1.82	3.0	5.46
Halon 1301	0.88	10.0	8.80
Halon 2402			
Sub-total	2.70		14.25
Methyl Chloroform 1.1.1 Trichloroethane			
Total consumption in tonnes	226.23	Total ODP	237.79
Methyl Bromide	Consumption	ODP	ODP weighted consumption
	6.99	0.7	4.89

Source: Data collection, Environmental Health Department,
Ministry of Health. Panama 1993

USE BY SUBSTANCE, 1989 **

Substance	Use	ODP weighted Tonnes	Percent
CFC 11	Refrigeration	61.47	25.85
	- Domestic		
	- Comercial		
	Flexible foam	13.17	5.54
	Rigid foam	13.17	5.54
CFC 12	Polysterene foam	13.57	5.71
	Refrigeration	54.29	22.83
	- Domestic		
	- Comercial		
	Air conditioning	54.29	22.83
	Maintenance		
	Servicing		
	Aerosols	13.57	5.71
Halon 1211	Fire extinguishers	5.46	2.30
Halon 1301	Fire extinguishers	8.80	3.70
		237.79	100.00

** : Consumption distribution estimates

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ADDITIONAL INFORMATION

According the 1990 Population and Housing Census, as at May 1990, there were, respectively, 268 389 and 32 605 domestic refrigerators and air-conditioners.

Monthly imports of air-conditioners have been estimated at 2 332 according to data provided by the Republic's General Controller Office.

Monthly imports of refrigerators have been estimated at 1 853 according to data provided by the Republic's General Controller Office.

There are no refrigerators and air-conditioners manufacturers in Panama

According to data provided by the Ministry of Trade and Industry there are:

- 17 mobile air-conditioner repair centers/workshops
- 38 domestic air-conditioner repair centers/workshops
- 18 industrial air-conditioner repair centers/workshops
- 14 mobile, domestic and industrial air-conditioner repair centers/workshops
- 24 mobile and domestic air-conditioner repair centers/workshops
- 10 domestic and industrial air-conditioner repair centers/workshops

According to data submitted by the companies: Panama imports an average of 8 000 cars per month, out of which 40% are passenger cars (100% of them air-conditionned), and 60% commercial (70% of which are air-conditionned).

Companies distributing ODS:

A ENVASADORA COMERCIAL: aerosol manufacturing.

B GASECO, SA: refrigerant distributor (R-11, R-12, R-502)

C FRIOCANAL, SA: refrigerant distributor (R-11, R-12, R-22, R-502)

D AGENCIAS WH DOEL: refrigerant distributor (R-11, R-12, R-22, R-502)

E REDFRIGAS Y ADITIVOS: refrigerant distributor (R-11, R-12, R-22, R-500, R-502)

F QUIMITECSA: manufactures aerosols (R-12)

G SERVICIOS AGROQUIMICOS, SA: Methyl bromide distributor.

H THERMOFON, SA: Foam manufacture (R-11)

I PLASTIFOM, SA: Foam manufacture (R-11)

As of 1990, QUIMITECSA managed to install a deodorized propane-butane cosmetic grade propellant and stopped use of CFC.

Information that is supplied by the different companies is more reliable since it is given by substance, per year, and by use sector as of 1986.

In the case of refrigerants, we cannot compare the data from the General Controllers Office with that from the companies, since the data from the Controllers Office is compiled as freon and is not substance specific.

Data supplied by companies are the ones to be used since they reflect most accurately the information on consumption of ODS in our country.

As far as the 1 756 127.33 Kg amount is concerned (in the first report that was sent to you) and used as the value of the 1991 consumption in the refrigerant sector, it is a mistake, since the values obtained from the General Controllers Office and those of the different companies that were visited were added to each other.