



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/17/26
30 June 1995

ORIGINAL: ENGLISH

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

Seventeenth Meeting
Montreal, 26-28 July 1995

COUNTRY PROGRAMME: VENEZUELA

This document consists of:

- Transmittal Letter from the Government of Venezuela
- Country Programme Cover Sheet
- Country Programme Executive Summary



FONDO VENEZOLANO DE RECONVERSION INDUSTRIAL Y TECNOLOGICA

Caracas, 9 de junio de 1995.

Apreciado Dr. El-Arini:

Tengo el agrado de dirigirme a usted con la finalidad de remitirle anexo el Programa de Venezuela para la Reducción y Eliminación de la Producción y el Consumo de Sustancias Agotadoras del Ozono 1995-1998.

El Programa de Venezuela fue elaborado por FONDOIN y aprobado, en nombre del Gobierno y del sector privado, por su Junta Directiva, integrada por representantes del Ministerio de Relaciones Exteriores, Ministerio de Fomento, Ministerio del Ambiente y de los Recursos Naturales Renovables, Asociación Venezolana de Industrias Químicas y Petroquímicas y Cámara Venezolana de la Industria de la Ventilación, Aire Acondicionado y Refrigeración.

El Programa de Venezuela trae como anexos cuatro proyectos, incluida la solicitud de renovación del fortalecimiento institucional. Esta última se presenta en esta oportunidad con vistas a permitir la continuidad en el flujo de caja de FONDOIN en 1996.

Mucho le estimaría que la Secretaría a su digno cargo procediera a la revisión y evaluación del Programa de Venezuela y de los proyectos anexos y a su presentación, con las recomendaciones respectivas, a la consideración del Comité Ejecutivo del Fondo Multilateral en su Décima Séptima Reunión, a efectuarse entre el 26 y el 28 de julio próximo.

Agradeciendo sus gestiones, reciba las seguridades de mi mayor consideración y aprecio.

Atentamente,

Dr. Eduardo López
Presidente

Al Señor Doctor
Omar El-Arini
Director de la Secretaría del
Fondo Multilateral para la
Aplicación del Protocolo de
Montreal (FMAPM)

COUNTRY PROGRAM COVER SHEET

COUNTRY:

VENEZUELA

LEAD NATIONAL AGENCY:

Fondo Venezolano de Reconversión
Industrial y Tecnológica (FONDOIN)

PERIOD COVERED:

1995-1998

1. Phase Out Schedule.

Substances	Current Consumption (Tonnes x ODP in 1994)	Planned total consumption till phase-out (Tonnes x ODP)	Planned year phase-out
CFC-11	379.9	2,013	2010
CFC-12	2,577.0	16,992	2010
CFC-113	47.3	94	2010
CFC-114	17.6	82	2010
CFC-115	71.2	449	2010
Halon 1211	0.0	0	2010
Halon 1301	40.0	0	2010
MCF	39.2	290	2015
CTC	22.0	72	2010
Total	3,194.2	19,992	

2. Government Action Plan.

GOVERNMENT ACTION	OBJECTIVE	LENGTH AND PRESENT STATE	AMOUNTS AND SOURCE OF FUNDS
1. Establish an Ad-hoc Inter-Ministerial Group.	Have an entity to co-ordinate the preparation of the Country Study, and to channel initiatives related to the Protocol's financial mechanism.	July 1989 to October 1992. The Group was eliminated when FONDOIN was created.	US\$ 80,000 Government
2. Prepare a Study of Venezuela on ODS production and consumption.	Get input for negotiations on the Protocol's financial mechanism, for the formulation of strategic guidelines, and for initial identification of projects.	October 1989 to January 1991. Concluded.	US\$ 12,500 Government
3. Establish a system to monitor and control ODS production, imports, exports and consumption.	Allow a follow-up of the ODS phase out process and its control.	October 1989 to April 1992. Operating since January 1990.	US\$ 18,000 Government

4. Promotion and facilitation.	Help potencial beneficiaries to channel projects until the creation of FONDOIN. Disseminate among MPMF potencial beneficiaries information oriented to project prepatation, through workshops, seminars, courses, talks and conferences, editing and distributting technical bulletins and documentation. Implement public awareness campaigns.	Phase 1. January 1991 to March 1993. Concluded. Phase 2. April 1993 to December 1995. In progress. Phase 3. January 1996 a December 1998. To be implemented.	US\$ 30,067 MPMF US\$ 27,000 Government US\$ 118,390. MPMF US\$ 37,515 Other sources US\$ 125,000 MPMF US\$ 39,600 Other sources
5. Prepare strategic guidelines	Have a framework for a coordinated design and implementation of general and sectoral policies oriented to an early technologic and industrial conversion.	February 1991 to October 1992. Concluded.	US\$ 7,500 Government
6. Carry out a study for the establishment of a national coordinating agency.	Determine the appropriate legal form, structure and functions, the installation and operating budgets, the management guidelines and the necessary steps to establish the agency.	November 1991 to January 1992. Concluded.	US\$ 8,100 MPMF

7. Creation, start up and functioning of FONDOIN.	Have a highly efficient and effective agency to lead and coordinate the ODS phase out process.	Phase 1. February to December 1992. Concluded. Phase 2. January 1993 to December 1995. In progress. Phase 3. January 1996 to December 1998. To be implemented.	US\$ 12,000 Government US\$ 329,192 MPMF US\$ 222,548 Other sources US\$ 326,208 MPMF US\$ 307,616 Other sources
8. Prepare sectoral and national programs.	Fulfill MPMF's decisions regarding preparation and presentation of Country Program.	January 1992 to June 1995. Concluded.	US\$ 55,000 MPMF US\$ 3,750 Government
9. Preparation and approval of decrees and regulations.	Restrict ODS use in those sectors where conversion has advance significantly. - Aerosols. - Chillers. - Halons essential uses standards.	Implemented since April 1992. Requested in 1993, still not implemented. Approved in 1994.	NA

Continuation	- Preparation of labeling standards and procedures.. - Other sectors.	Pending. To be determined.	NA
	TOTALS	July 1989 to December 1998.	US\$ 991,957 MPMF US\$ 160,750 Government US\$ 607,279 Other sources US\$ 1,759,986 General Total

3. Projects.

Implemented projects

Sector and date	Name of Project	Incremental Costs US\$	Annual ODS (MT)
Air Conditioning 1992-1993	Installation of 3 new air conditioning units with HFC-134a. (Congress)	46,000	1.8
Air Conditioning 1992-1994	Recovery and recycling of CFC-12 in mobile air conditioning-First Phase	183,150	7.2
Air Conditioning 1991-1994	Workshops and Seminars.	55,867	NA
Refrigeration 1993	Workshops and Seminars.	19,800	NA
Foams 1992-1994	Conversion from CFC-12 to butane in a expanded polystyrene sheets and packaging plant. (MOLANCA).	1,300,000	200.0

Halons 1993	Workshops and Seminars.	43,040	NA
Halons 1992-1994	Recovery and recycling of halon 1211 - First Phase.	109,510	1.1

Projects in progress

Sector and date	Name of Project	Incremental Costs US\$	Annual ODS (MT)
Air Conditioning 1992-1995	Installation of a new central air conditioning unit with HFC-134a and conversion of another from CFC-12 to HFC-134a (IMPRES).	67,000	0.8
Air Conditioning 1992-1995	Conversion from CFC-12 to HFC-134a in three central air conditioning units. (Clínica Atlas).	109,000	1.3
Air Conditioning 1994-1995	Recovery and recycling of CFC-12 in mobile air conditioning - Second Phase.	287,000	70.0
Air Conditioning 1993-1996	Conversion from CFC-12 to HFC-134a in a heat exchanger plant (FAACA).	3,100,000	75.0
Air Conditioning 1994-1996	Conversion from CFC-12 to HFC-134a in a heat exchanger plant (AAISA I)	3,802,000	75.0
Air Conditioning 1994-1996	Conversion from CFC-12 to HFC-134a in a compressor plant (AAISA II).	620,000	NA
Refrigeration 1994-1995	Projects preparation.	40,000	NA
Refrigeration 1994-1996	Recovery of CFC-12 in domestic refrigeration (MADOSA I).	98,000	7.6
Halons 1993-1996	Recovery, recycling and banking of halon 1301 - First Phase.	304,500	3.2
Halons 1994-1995	Recovery and recycling of halon 1211 - Second Phase.	31,000	2.0
Halons 1994	Workshop on inventory and halon bank at the Armed Forces.	40,000	NA

Projects presented to the Executive Committee

Sector and date	Name of Project	Incremental Costs US\$	Annuals ODS (MT)
Air Conditioning 1995-1996	Recovery and recycling of CFC-11 and CFC-12 in central air conditioning.	285,120	26.0
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a in a compressor plant (VECOMESA).	544,166	NA
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a and from CFC-11 to HCFC-141b in a domestic refrigeration plant (CORESMALT).	861,520	65.5
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a and from CFC-11 to HCFC-141b in a domestic refrigeration plant (MADOSA II).	304,124	93.1
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a in a domestic refrigeration plant (ETERNA).	140,723	0.4
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a and from CFC-11 to pentane in a commercial and domestic refrigeration plant (FRIGILUX).	1,008,000	48.8
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a and from CFC-11 to pentane in a commercial refrigeration plant (PINOVA).	565,600	24.3
Refrigeration 1995-1997	Conversion from CFC-12 to HFC-134a and from CFC-11 to HCFC-141b in a commercial refrigeration plant (NUTAL).	218,821	14.5
Foams 1995-1997	Conversion from CFC-12 to butane in an expanded polystyrene sheet and packaging plant (FANDEC).	754,016	9.5
Foams 1995-1996	Workshops and Seminars.	8,630	NA
Halons 1995-1996	1211 and 1301 halon banks.	381,856	NA
Solvents 1995-1996	Workshops and Seminars.	17,260	NA

Multisectoral 1995	Workshops and Seminars.	10,790	NA
-----------------------	-------------------------	--------	----

Projects under preparation

Sector and date	Name of Project	Incremental Costs US\$	Annuals ODS (MT)
Air Conditioning 1996-1998	Recovery and recycling in mobile air conditioning - Third Phase.	560,955	91.0
Refrigeration 1996-1998	Recovery, recycling and reclamation in domestic and commercial refrigeration	485,700	41.0
Refrigeration 1995-1998	Conversion from CFC-12 to HFC-134a and from CFC-11 to HCFC-141b or pentane of 10 commercial refrigeration plants (COUTTENYE, COMERSA, MAVI, KMP, HIELOMATIC, AMERIO, INFRISA, TECOVEN, FRIOBOX, INVERKING).	2,750,000	196.0
Production 1994-1998	Conversion to HFC-134a of a CFC-11 and CFC-12 production plant (PRODUVEN).	57,500,000	5,000.0

Identified Projects

Sector and date	Name of Project	Incremental Costs US\$	Annual ODS (MT)
Air Conditioning 1995-1996	Conversion from CFC-12 to HFC-134a in a compressor plant (DELFA).	300,000	NA

Air Conditioning 1996-1998	Conversion from CFC-12 to HFC-134a in a heat exchanger plant (ROPRATS).	2,000,000	21.4
Refrigeration 1996-1998	Conversion from CFC-12 to HFC-134a and from CFC-11 to HCFC-141b or pentane in 10 domestic and commercial refrigeration plants. (DECOFRIO, REFRIVENCA, FAENCA, EUROPA, INVITREL, NACIONAL, ARTICOLD, NEVELARA, FRIGA, FAMUSA).	2,750,000	136.0
Sterilants 1996-1998	Conversion or replacement of equipments.	441,633	24.7

Pre-identified Projects

Sector and date	Name of Project	Incremental Costs US\$	Annual ODS (MT)
Air Conditioning 1996-1998	Conversion and replacement of 60 air conditioning units from CFC-12 to HFC-134a.	1,320,000	32.4
Refrigeration 1996-1998	Conversion of commercial refrigeration units to eliminate consumption of CFC-12 and R-502.	ND	ND
Foams 1996-1998	Conversion of rigid and semi-rigid foam plants.	ND	ND
Solvents 1996-1998	Conversion of equipments.	ND	ND

NA: Non applicable.

ND: No data.

4. Costs (1991-1998).

Incremental Costs¹

ODS x ODP phase out

Cost - effectiveness

US\$ 84,456,738.00

11,449 MT x ODP

7.38 US\$ / kg ODP

¹Excluding ODS production, other foams and solvents.

EXECUTIVE SUMMARY

1. Venezuela ratified the Montreal Protocol on February 6th, 1989 and the London Amendments on July 29th, 1993. Venezuela is a country operating under Article 5, paragraph 1 of the Protocol. In 1994 the ODS per capita consumption was 146 grams.
2. The Program of Venezuela is for the period 1995-1998 and reflects the compromise of the Government and the Private Sector, represented in the Board of Directors of FONDOIN, to implement the actions contained in the Program oriented to the acceleration in the ODS phase-out in the country with MPMF and implementing agencies technical and financial cooperation.
3. The Program of Venezuela was prepared by FONDOIN with the MPMF financial support.
4. The ODS consumption in Venezuela in 1994 was 4,973.8 MT, broken down as follows:

Venezuela: ODS consumption in 1994 by substances and source

(In tonnes and ODP tonnes)

Substances	Production	Imports	Exports	Consumption	Consumption in ODS tonnes
Annex A. Group 1					
CFC-11	919.1	0.0	539.2	379.9	379.9
CFC-12	3,700.8	0.0	1,123.8	2,577.0	2,577.0
CFC-113	0.0	59.1	0.0	59.1	47.3
CFC-114	0.0	17.6	0.0	17.6	17.6
CFC-115	0.0	136.0	19.4	116.6	71.2
Annex A. Group 2					
Halon 1301	0.0	4.0	0.0	4.0	40.0
Annex B. Group 2					
Carbon Tetrachloride	0.0	6,056.0	0.0	20.0	22.0
Annex B. Group 3					
Methyl chloroform	0.0	391.6	0.0	391.6	30.2
Annex C					
HCFC-22	1,530.4	0.0	135.1	1,395.3	76.7
HCFC-123	0.0	48.8	0.0	7.2	0.2
HCFC-141b	0.0	0.1	0.0	0.1	0.0
Annex E					
Methyl bromide	0.0	3.4	0.0	3.4	2.4
Total	6,150.3	662.6	1,674.3	4,973.8	3,273.5

¹6,038.0 MT were used as raw material for the CFCs production.

5. The consumption by sectors, including HCFCs and methyl bromide, was as follows: Refrigeration and Air Conditioning 79.58%; Foams 10.3%; Solvents 9.46%; Aerosols 0.51%; Other Uses 0.15%.

6. Venezuela also is a ODS producer. In 1994 production amounted for 919.1 MT of CFC-11, 3,700.8 MT of CFC-12 and 1,530.4 MT of HCFC-22. The only ODS producer is PRODUVEN, a joint-venture owned 50% by the Government and 50% by Elf-Atochem from France.

7. The ODS unrestricted consumption would amount 9,465.7 MT in the year 2.010, while production would reach in year 2.000 its total capacity of 10,000 MT per year.

8. FONDOIN is the institution created by the Government of Venezuela to coordinate the ODS production and consumption phase-out process in the country. FONDOIN is the official link with the MPMF. MRE retains its functions regarding external representation, but usually delegates in FONDOIN, after consultations and depending on the case, the conduction of negotiations in the Montreal Protocol bodies. MARNR is responsible for environmental regulations and controls, but usually acts, in ODS matters, under request of FONDOIN. The link with the Ozone Secretariat corresponds to MRE and MARNR.

9. The Government general policy framework is the following:

- The government, through FONDOIN, provides ODS producers and users with all the information they need to make decisions, or the means to acquire it, particularly regarding the legal, institutional, technologic and economic framework of the ODS in which they must perform.
- The decisions on how and when to convert are, in principle, the responsibility of ODS producers and users. If the companies require technical and financial assistance to prepare and carry out their projects, FONDOIN channels them through the implementing agencies.
- FONDOIN promotes an accelerated conversion to substitute through motivation campaigns directed to ODS producers and users. However, the terms and schedules in force are those established in the Montreal Protocol and in the Protocol Amendments ratified by the laws of the Republic, so early conversion is voluntary.
- The government, through MARNR, monitors ODS production, imports, exports and consumption through foreign trade compulsory records and through information provided by ODS producers and distributors. Annual imports are limited to an equivalent of the previous year's amounts, except in fully justified cases.
- Bans on the use of ODS are only issued once the sectors of sub-sectors concerned have totally or mostly converted to substitutes.

10. The strategy is based on three lines of action:

- It is necessary to proceed with an early technological and industrial conversion to prevent supply problems in the different sectors that use ODS, and to ensure an early assimilation of new technologies, all of this at a lower cost for the country and for the MPMF.
- Give priority to conversion in refrigeration and air conditioning.
- It is convenient to produce and export ODS replacements, preferably final zero ODP replacements, that are commercially available, and are used as refrigerants.

11. The basic element of the strategy is to have a conversion process that is as organized as possible. This implies giving precedence to specific sectors at a particular moment or period, striving to convert all companies simultaneously, to avoid as much as possible a noticeable change in their relative position in the market, due to the implementation of the Montreal Protocol. Once most of the companies phase out ODS, regulations that restrict the use of ODS in the sector would be established, whether in products manufactured locally or in imported products, which will force the lagging companies to convert. In order to choose which will be given precedence, FONDOIN has taken into account the presence of all or some of the following factors:

- A high ODS consumption, so that cost-effectiveness is relatively high at the sector or subsector level.
- Availability of proven replacements in the market, particularly those with no ODP, to avoid intermediate conversions.
- The presence of factors that cannot be controlled which force an early conversion, for example a lack of foreign supplies or the effect of corporative policies enforced by multinational companies worldwide.

12. Up to now, the following sectors or subsectors have been given precedence:

- ♦ Air conditioning, particularly:
 - Conversion and replacement of chillers.
 - Conversion of plants that manufacture mobile air conditioning equipment and their components.
 - Recovery and recycling of refrigerants in mobile air conditioning and chillers.
- ♦ Fire protection, particularly recovery, recycling and halon bank.

- ♦ Domestic and commercial refrigeration, particularly:
 - Conversion of plants that manufacture domestic and commercial refrigerators.
 - Recovery, recycling and reclamation of refrigerants in domestic and commercial refrigeration.
- ♦ Foams, particularly conversion of plants that manufacture sheets and packaging of expanded polystyrene.

13. As the previous sectors and subsectors, which concentrate almost all the present ODS consumption in Venezuela, have advanced satisfactorily, more efforts will focus on the following areas:

- Other air conditioners.
- Other foams.
- Solvents.
- Sterilants.
- Miscellaneous.
- ODS production.
- ODS destruction.

In the solvents and aerosols sectors there has been a spontaneous replacement of ODS, which implies that conversion could go on without a significant support from FONDOIN and the MPMF, therefore it is not foreseen giving precedence to those sectors, except if special situations are identified which deserve it.

14. The Government prepared an Action Plan, included in the Program Cover Sheet, that essentially has been completed. Its priorities have been the following:

- Preparation of a national study on ODS production and consumption.
- Creation of a national entity to coordinate and facilitate the ODS phase out process.
- Establishment of a system to monitor ODS production, imports, exports and consumption.

- Adaptation of national laws to the terms and demands of the Montreal Protocol, the Amendments ratified by the Congress of the Republic and the decisions of the Parties.
- Adoption of strategic guidelines for technological and industrial conversion.
- Preparation of programs for priority sectors.
- Promotion of early conversion in priority sectors.

15. It is noteworthy that although this strategy has been implemented without setbacks, at present we face serious obstacles due to the financial problems of the MPMF and the resulting restrictions imposed by its Executive Committee in considering and approving the new projects. Given the diversity of companies, particularly in refrigeration and foams, some of them may not reach the cost-effectiveness ratio to qualify, which would hamper the simultaneous conversion of the sector and would introduce significant distortions in the market. Given this situation, FONDOIN is analyzing the possibility of postponing conversions until these restrictions are over, as well as the possibility of using other financial mechanisms.

16. The Program does not have formal phase out goals that are different from those agreed to in the Protocol and in the Amendments ratified by the law, because that is the jurisdiction of the Congress of the Republic. Nevertheless, Government action will translate into a faster reduction of ODS consumption. Likewise, it is expected that the spontaneous reduction of ODS consumption will persist, due to economic and market reasons. Regarding production, the Government of Venezuela interprets the Montreal Protocol in the sense that during the grace period, there are no restrictions to export CFCs and HCFCs to other Article 5 countries. Therefore, production levels will depend not only on the reduction of internal consumption, but also on the demand of other Article 5 countries. In this sense, it must be noted that between 1986 and 1994, Venezuela's ODS exports, mostly to Article 5 countries, have increased at an average interannual rate of 14.4%, and that there has been an acceleration in the 90's.

17. If the technical and financial cooperation of the MPMF continues, the Government considers that the progressive phase out goals will be reached much sooner than the term established by the Protocol and its Amendments. Regarding this, it is expected that in 1998 the use of CFCs will be completely replaced in new air conditioning units, using it only to service the existing park, where a significant proportion will be recycled refrigerants. If the financial assistance of the MPMF continues, by that year the use of CFCs will have stopped in new domestic refrigerators, and decreased by 70% in commercial refrigerators. The use of recycled CFCs is foreseen to service units, but in a smaller proportion than in air conditioning. In foams, it is expected to eliminate the use of CFC-12 by 1998. Regarding CFC-11, it will be eliminated in domestic refrigerators and reduced by 70% in commercial refrigerators. The reduction cannot be estimated for other uses, nor for the solvent sector. However, in the latter case it is possible that the spontaneous reduction in use of the last

years will continue. Finally, aerosols reduction will depend on the development of replacements for the remaining uses, for which there are no acceptable replacements yet.

18. The Board of Directors of FONDOIN considered that, regardless of the Government's commitment to accelerate the reduction of ODS consumption in the country, it was not appropriate to formalize in the Program of Venezuela different terms from those established in the London Amendment, because that would imply invading the jurisdiction of the Legislative Power. It is not appropriate either to present charts or graphs based on the preceding paragraphs.

19. The total costs of the Program for the period 1995-1998 will be US\$ 149.7 millions, of which it is expected that 55% will be provided by the MPMF. The list of specific projects is included in the Program Cover Sheet.

20. FONDOIN's follow up of projects will continue the same as now. In this respect, the Administration prepares bimonthly reports for the Board of Directors, as well as an Annual Report to be presented to the Assembly the first quarter of each fiscal year. These reports are sent also to the implementing agencies and the MPMF Secretariat. The evaluation of Program implementation will be initiated by FONDOIN at the end of each fiscal year. An comprehensive report, including data provided by MARNR and PRODUVEN, will be able the second quarter of each fiscal year. These reports will consolidate data on ODS production, imports, exports and consumption presented by MRE and MARNR to the Ozone Secretariat and data on ODS phase out and recycling obtained by FONDOIN through project monitoring.