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

Nineteenth Meeting
Montreal, 8-10 May 1996

PROJECT PROPOSAL: CHILE

This document includes the Comments and Recommendations from the Fund Secretariat on the following project:

- Montreal Protocol implementation program - Phase II

World Bank

SECTOR: MULTI ODS use in sectors (1994): 962 ODP tonnes

Average cost-effectiveness threshold: N/A

Montreal Protocol Implementation Program, Phase II

Secretariat's Recommendations	
Amount recommended (US \$)	
Project impact (ODP tonnes)	
Cost effectiveness (US \$/kg)	
Implementing Agency support cost (US\$)	
Total cost to Multilateral Fund	

PROJECT DESCRIPTION

1. Because of the innovative nature of this project request, the project proposal is being distributed in its entirety to the members of the Executive Committee. Therefore, the following is a summary of the major points of the project.
2. The Chile ODS I pilot programme, approved in 1992, represents one of the first efforts to allocate Multilateral Fund (Multilateral Fund) resources through market mechanisms.
3. The Chile Phase II Montreal Protocol Implementation Program would build upon the foundation established in the ODS I programme to apply a market based approach and utilizes the capabilities that have been developed at an implementation level by the Ozone Team of Chile's national environmental agency (CONAMA).
4. The objectives of the proposed programme are to:
 - (a) eliminate consumption of approximately 400 metric tonnes of ODS by 1999;
 - (b) develop the regulatory framework for an ODS phaseout by the year 2006; and
 - (c) consolidate the institutional capacity gained by CONAMA in the execution of Chile's Montreal Protocol programme.
5. The total cost of Phase II is US \$5.1 million which is broken down into US \$4.8 million for supporting the programme and US \$300,000 for technical assistance. The average cost-effectiveness of the programme is US \$10.62/kg. which is estimated at 90 per cent of the average cost-effectiveness thresholds of the Multilateral Fund.
6. The Mechanism for Awarding the Grants under the programme provides for a project review process which covers the relevant criteria and guidelines of the Multilateral Fund.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

1. The Fund Secretariat provided written comments on the project proposal and communicated them to the World Bank. The Bank responded in detail to the comments by the Secretariat.

COMMENTS

1. A pilot programme was approved in 1992 by the Executive Committee as part of an ODS Phase I project to experiment the employment of the market-based instruments to manage the ODS phase out in Chile. The essential data about the pilot phase are as follows:

- Total financing approved: US \$496,000
- Cost-effectiveness ceiling: US \$2/kg. for consumers above 10 MT and a grant of up to US \$20,000 for small consumers.

2. According to the World Bank's report, the pilot phase was not implemented until July 1995 and "as of March 1996, applications have been received for US \$501,000", about US \$5,000 over the approved funding level. Based on these applications, it is expected that TECFIN funds will be completely committed in the first half of 1996.

3. Although the pilot phase was targeted on the participation of larger companies, the World Bank reports that:

"the TECFIN program under the Phase I project has so far attracted mostly small companies with low ODS consumption."

Indeed, of the twelve proposals so far applying to the programme, only two have ODS consumption of more than 10 tonnes, the target group of the pilot phase.

4. Because of the greater participation of small companies than originally expected, the Bank reports:

"The grant effectiveness will therefore be somewhat lower than initial estimates, which were based on the participation of larger companies. Average grant effectiveness of the Phase I project is now estimated to be around US \$4 per kg. ODS phase-out."

RECOMMENDATIONS

1. The Secretariat recommends that the Executive Committee take into consideration the status of implementation of the pilot phase as stated in the preceding paragraphs in considering the project request from the World Bank.

MONTREAL PROTOCOL

PROJECT COVER SHEET

(March 25, 1996)

COUNTRY	CHILE
PROJECT TITLE	Montreal Protocol Implementation Program - Phase II
ODS CONSUMPTION:	1,357 MT (1994)
ODP WEIGHTED CONSUMPTION:	962 MT (1994)
PROGRAM IMPACTS:	Expected reduction of approximately 400 tons of ODS over 4 years. Establishment of regulatory framework for ODS phaseout.
PROGRAM DURATION:	4 years
PROJECT COSTS	Grant Auction Program: US\$4,800,000 Technical Assistance for Regulatory Action, Training, etc.: US\$300,000 for 4 years
TOTAL PROPOSED GRANT:	US\$5,100,000 to be released to World Bank in two tranches: (1) US\$2,350,000 after approval; and (2) US\$2,750,000 upon presenting evidence of commitment of first tranche and an evaluation of auction results
AVERAGE GRANT EFFECTIVENESS (multiple sectors):	US\$10.62/kg (or better)
IMPLEMENTING AGENCY:	World Bank
COORDINATING NATIONAL AGENCY:	CONAMA - Ozone Team
BENEFICIARIES:	ODS Consuming Firms

CHILE

MONTREAL PROTOCOL IMPLEMENTATION PROGRAM - PHASE II PROPOSAL TO THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND¹

Introduction

Chile does not produce ozone depleting substances (ODS), and all consumption is traceable to imports the largest of which are CFCs 11 and 12. With respect to the 1989 baseline consumption data reported in the 1992 Country Program, ODS consumption in 1994 has declined by 10 percent due largely to the decreased consumption of halons. Annex A provides a description of the composition of current ODS consumption and explains market conditions underlying the consumption changes.

The expansion of Chile's productive sector is expected to continue and will increase ODS consumption in the absence of government intervention. Under the current circumstances, most firms will not convert from ODS to non-ODS technologies due to: (a) the negative rates of return on investment for most ODS conversions; and (b) the absence of clear signals from the Government that ODS use will be restricted in the near future. While current market signals might lead to some voluntary investment in ODS phaseout in certain sectors, these signals alone are insufficient to achieve the level of reductions required under the Copenhagen Amendment ratified by Chile.

The Chile ODS I pilot program, approved in 1992, represents one of the first efforts to allocate Multilateral Fund (MF) resources through market mechanisms. The US\$1.2 million dollar ODS I project was approved for funding by the Multilateral Fund Executive Committee (MFEC) to support the introduction of measures leading to the reduction of ODS consumption through a public awareness campaign, certification of an ozone-seal, a training program and a small pilot grant program for private sector ODS consumers. All components are under implementation and US\$497,000 has been disbursed to date. The grant pilot program has received applications for US\$500,000, thus exceeding the available funds for these projects. Based on these applications, full commitment of funds is expected by mid-1996. With funds committed as forecast, average grant-effectiveness of the Phase I grant program would be US\$4/kg ODS phase-out². The detailed implementation progress of the Chile ODS I pilot program is shown at the end of this report.

The Chile Phase II Montreal Protocol Implementation Program would build upon the foundation established in the ODS I program to apply a market based approach and utilizes the capabilities that have been developed at an implementation level by the Ozone Team of Chile's national environmental agency (CONAMA). The Program combines the development of a clearly defined regulatory regime with an auction system of awarding MF-financed grants for the most cost-effective conversion projects. The successful introduction of this approach is intended to promote further initiatives to phase out the use of ODS through the use of market based instruments (MBI).

Program Objectives

The objectives of the proposed program are to: (a) eliminate consumption of approximately 400 annual tons of ODS by 1999; (b) develop the regulatory framework for an ODS phaseout by the year

¹ This proposal was prepared by a team composed of CONAMA's Ozone Team, World Bank Staff and national consultants.

² The Phase I grant program includes a fixed grant of US\$2 per kg ODS phase-out for consumers above 10 MT and a grant of up to US\$20,000 for small consumers.

2006; and (c) consolidate the institutional capacity gained by CONAMA in the execution of Chile's Montreal Protocol program.

In order to eliminate approximately 400 tons of ODS by 1999, the Phase II Program aims at leveraging the Multilateral Fund's resources by allocating grants in a competitive auctioning process rather than through direct funding of incremental costs. The Program asks firms to bid for conversion grants whose average is capped at 90 percent of the Multilateral Fund's (MF) thresholds adopted at the 16th Meeting of the Executive Committee.

Current market signals and the grant program alone will not be sufficient to achieve the reduction Chile is committed to under the Montreal Protocol. A regulatory framework is necessary for curbing ODS consumption growth and for complying with the Copenhagen Amendment. To develop this regulatory framework, the Phase II Program proposes a plan of action to identify and develop specific regulatory instruments and obtain consensus on their adoption.

Chile's Ozone Team has gained experience over the past two years in managing an innovative government program for global environmental protection. The Phase II Program demands a consolidation and further strengthening of this institutional capacity, particularly because the adoption of regulatory measures will require special skills and resources (e.g., consultation with the private and public sectors, negotiation, knowledge of regulatory approvals, legal expertise).

Program Description

The Program has three main components: (a) a grant program awarded on the basis of auctions to finance conversion projects; (b) a regulatory action plan; and (c) support for the administration and dissemination of the grant program.

The Grant Program

The grants will be allocated by auctions to the companies that can offer projects with the best grant-effectiveness. The competition of the grant auctions will give firms an incentive to reduce the costs of their conversion projects and reveal their "true willingness to accept" grants in return for ODS consumption reduction. The level of these grants that firms would accept in a competitive process is likely to be lower than the costs routinely approved by the MFEC since many firms either: (a) have additional market driven incentives to convert; (b) face possible regulatory measures against ODS use in the future; or (c) have old equipment with a short remaining lifespan. In each of these cases, firms would be willing to accept a grant that is less than the incremental costs as defined by the EC. Thus, a grant auction can potentially improve grant-effectiveness compared to the standard approval process on a project-by-project basis.

Firms will be asked to bid for grants in return for reductions in kgs of ODS. Thus, each bid can be expressed as dollars per kg of ODS to be eliminated. Auctions will be held periodically, about every 6 months. Bidders from all ODS consuming sectors are eligible to participate in these auctions to ensure sufficient competition for funds within each auction. Bidders will be screened to ensure that only users of ODS participate and that other adjustments (e.g., non-Article 5 ownership) required under the existing eligibility criteria of the Fund are met. Once all bids are received, bidders are ranked in ascending order of bid value (i.e., grant requested per kg of ODS to be eliminated). Once the received bids are ranked, a total grant amount is allocated to this auction. The funds for the specific auction would then be assigned to individual bidders in the order of bid value until they are depleted.

An overall grant effectiveness limit for each auction has been set at 90 percent of the MFEC thresholds (see Table 1), weighted by the share of winning bids from the respective sectors. This limit will guarantee that the overall project grant effectiveness exceeds MFEC limits. Successful bidders will be reimbursed on the basis of documented project expenditures up to the amount of their bid. Thus, the actual grant amount would be the minimum of the actual conversion costs and the firm's bid (i.e., its US\$/kg bid times the number of kg eliminated). Annex B details how firms can apply to participate in the auction for grants and how these grants will be awarded.

Before submitting their bids, companies will have access to information sessions, technical seminars, and other technical assistance by CONAMA that will assist them in selecting adequate conversion technology for their specific case. In addition, CONAMA will facilitate access to technical advice to enterprises from the World Bank's Ozone Operations Resource Group (OORG) prior to bid submission, for example, in the case of complex projects.

TABLE 1 Multilateral Fund Sector and Sub-sector Grant Effectiveness Threshold Values and Chile ODS II Project Ceilings for Grant Effectiveness Value per Auction		
SECTOR/SUBSECTOR	Multilateral Fund Executive Committee Grant Effectiveness Thresholds, US\$/kg ODP	Ceiling for Grant Effectiveness Value per Auction, US\$/kg ODP
FOAM		
General	9.53	8.57
Flexible Polyurethane	6.23	5.61
Polystyrene/Polyethylene	8.22	7.40
Rigid Polyurethane	7.83	7.04
HALON		
General	1.48	1.33
REFRIGERATION		
Commercial	15.21	13.69
Domestic	13.76	12.39
SOLVENT		
CFC-113	19.73	17.76
TCA	38.50	34.66

The Program aims at achieving significant ODS reduction in Chile through the use of a market based instrument. While the project design implies a minimum saving of 10% over the MF grant-effectiveness thresholds, the additional potential savings resulting from competition in the grant auctions could be substantial but are difficult to quantify ex-ante. They also depend on the implementation and the timing of specific regulatory measures. To enable the Multilateral Fund to measure the impact of the program, the MF will be provided with comprehensive data on the outcome of auctions, project implementation and achieved grant-effectiveness in comparison to actual project costs. This information will permit the MF to evaluate the actual costs of conversion in comparison to the grant amount requested through the bidding process and the MF grant-effectiveness thresholds.

The Regulatory Action Plan

The analysis of consumption trends and conversion costs in Chile shows that a program of grants at the level of the established grant-effectiveness limits alone will be insufficient to achieve compliance with Chile's commitments under the Montreal Protocol. In particular, the grant program will not be effective in limiting the entry of new ODS users, which would not be eligible for grants. To address these critical issues, the grant program will be coupled with a regulatory action program. This program will ensure compliance of Chile with the Montreal Protocol and its Amendments and increase the demand for conversion grants, thus, further improving grant-effectiveness.

The phaseout of ODS use by 2006 requires a plan of action to carefully select the regulatory instruments to achieve: (a) a constant and sustained decrease in ODS consumption, and (b) an ultimate total elimination of ODS use in Chile by 2006. Namely, CONAMA's function in this respect would be to:

- Evaluate the legal and administrative feasibility of the following regulatory instruments in the context of CONAMA's institutional capacities:

Substance bans:

a complete ban of CFCs by 2006;
a complete ban of Halons by 2000.

Product-specific bans:

- halons in new facilities starting in 1998.
- CFCs in aerosols (except for medical uses) by 1997³;
- CFCs in hand-held fire extinguishers by 1997;
- CFC-11 in flexible foam mattresses by 2000;
- CFC-11 in insulating panels after 1999;
- CFCs in new refrigeration equipment, after the year 2002;
- CFC-12 in sterilization chambers, after 2001;
- ODSs in new manufacturing processes, after 1998.

Reporting requirements:

- importers and consumers would regularly report to CONAMA the ODS imports and their destiny beginning in 1997;

Trade restrictions:

- bans of equipment imports that contain or require CFCs after 2002;
- guidelines and laws related to the agreements contained in the Copenhagen amendments, such as the restriction on ODS trade with non-MP signatory nations as of 1997.

- Draft the corresponding laws or decrees for those instruments that prove feasible.
- Develop the administrative/functional requirements for enforcement and control.
- Plan the negotiation stage with public entities and users affected by the measure.
- Present regulation proposals for the affected sectors and present the final plan for the drafting of laws or decrees in the first semester of 1997. This proposal should be approved by CONAMA's Directive Council.

³ Although CFC use in aerosols has largely been phased out, this measure is intended to eliminate any residual consumption.

- This stage concludes in March of 1997. The new norms would take effect after August 1997. Satisfactory progress on the Regulatory Action Plan will be an important evaluation criterion for the second-tranche financing request of this Program.

Program Administration

The Ozone Team will manage the grants program and contract out the technical and legal analysis of the regulatory action plan. In addition, the Ozone Team would complete the following tasks during the Phase II Program:

- Issue a bi-monthly informational bulletin directed at decision-makers for the enterprises and public and private institutions, to inform them about the steps taken in the regulatory framework after 1996 and to update information on alternative technologies.
- Create a formal ODS data tracking system (e.g., sample forms for ODS reporting, data register) in CONAMA, to systematically process the information submitted by firms in accordance with reporting requirements that would be introduced in 1997.
- Conduct seminars to implement the tracking system and inform users about regulations and economic incentives for conversion (one in 1996, two in 1997, 1998, and 1999).
- Disseminate information on alternative technologies through site visits with companies, seminars and short brochures.

Grant Program

The US\$4.8 million funding amount being requested from the Multilateral Fund (MF) to carry out the grants program was derived from estimates of the total level of compensatory grants (see Table 2). Average incremental costs per kg reduced for each sector were estimated using a range of technological options reported by industry. These averages represent full incremental costs faced by firms because they were calculated over 10 years (and not over 4 years or less). They are directly comparable to the MF thresholds because they are present values of capital and operating costs discounted at a 10% and divided by annual consumption. Taking into account that the reported investment costs are net of the cost of ODS-using investment alternatives, the magnitude of these costs is high compared to the MF thresholds, reflecting the relatively small scale and thus high cost of Chilean ODS consuming industries.

Table 2: Project Costs							
Total Expected Financing under Grants Program							
	Kgs ODP	Incremental cost per kg ODP reduced	Chile threshold (\$/kg)	% sector expected to convert	Kilograms converted (1)	Conversion Grant	Average Grant Effectiveness per kg
CFC-11							
Rigid foams	1,580	\$92.49	\$7.05	100%	1,580	\$11,136	\$7.05
Rigid foam panel	30,024	\$7.17	\$7.05	100%	30,024	\$211,578	\$7.05
Flex foam - no mattress	1,437	\$113.27	\$5.61	0%	0	\$0	\$0.00
Flex foam - mattress (1)	142,328	\$2.51	\$8.58	100%	48,328	\$121,449	\$2.51
Comm Refrig - display cases	34,197	\$188.36	\$13.69	60%	20,518	\$280,871	\$13.69
Comm Refrig - minor appl.	79,792	\$49.10	\$13.69	60%	47,875	\$655,366	\$13.69
Domestic Refrigeration	148,682	\$133.67	\$12.38	85%	126,380	\$1,565,086	\$12.38
Total	438,040	\$0.00	\$0.00	0%	274,705	\$2,845,486	\$10.36
CFC-12							
Sterilization	60,000	\$0.33	\$0.00	0%	0	\$0	\$0.00
Comm Refrig - display cases	27,450	\$188.36	\$13.69	60%	16,470	\$225,458	\$13.69
Comm Refrig - minor appl.	64,050	\$49.10	\$13.69	60%	38,430	\$526,068	\$13.69
Domestic Refrigeration	47,000	\$133.67	\$12.38	85%	39,950	\$494,741	\$12.38
Industrial Refrigeration	184,028	\$272.36	\$13.69	0%	0	\$0	\$0.00
Total	382,528	\$0.00	\$0.00	0%	94,850	\$1,246,267	\$13.14
Halon-1301							
Halons (zone 75m3)	6,065	\$26.13	\$1.33	100%	6,065	\$8,078	\$1.33
Halons (zone 85m3)	6,065	\$24.54	\$1.33	100%	6,065	\$8,078	\$1.33
Halons (zone 309m3)	6,065	\$25.92	\$1.33	100%	6,065	\$8,078	\$1.33
Total	18,194	\$0.00	\$0.00	0%	18,194	\$24,235	\$1.33
TOTAL	838,762	\$0.00	\$0.00	0%	387,749	\$4,115,988	\$10.62
Safety Costs (2)						\$720,939	
TOTAL GRANT						\$4,836,927	
Sectoral Summary							
Foams (rigid polyureth)	31,604				31,604	\$222,713	\$7.05
Foams (flex polyureth)	1,437				0	\$0	N/A
Foams General	142,328				48,328	\$121,449	\$2.51
Commercial Refrigerat	205,489				123,293	\$1,687,763	\$13.69
Domestic Refrigerat	195,682				166,330	\$2,059,827	\$12.38
Halons 1301	18,194				18,194	\$24,235	\$1.33
TOTAL	594,734				387,749	\$4,115,988	\$10.62

Footnotes: (1) Excludes phaseout financed under Phase I Project; (2) 35% of conversion grant for domestic refrigeration

Average "Chile Thresholds," i.e., grant thresholds per kg, were established at 90% of the MF's thresholds. The percentage of the sector that would be expected to convert was established based on survey data on willingness to absorb part of technology conversion costs. Firms reported non-financial reasons for considering conversions which reflects how they internally discount conversion costs. Finally, the conversion grants per sector were derived by multiplying the percentage of the sector expected to convert, the sector consumption, and the minimum of the corresponding Chile threshold and the actual incremental costs. The resulting size of the Grant Program is US\$4.8 million. The last column "Average Grant Effectiveness per kg" shows the resulting maximum per kg cost to the MF which is, at the most, US\$10.62/kg for the entire program.

Technical Assistance and Administrative Mechanism

The four-year budget for administration and technical assistance is shown in Table 3. The total four-year costs for administration and technical assistance of US\$450,000 consist of two parts:

- US\$150,000 are designated for routine grant administration. For these costs, which are not included in the present financing request, CONAMA will receive the standard 3% program administration fee (US\$150,000 or 3% of US\$4.8 million).
- In addition to the costs of direct program administration, CONAMA's Ozone Team requires support from the Multilateral Fund for technical assistance linked to the auction mechanism and the development and implementation of the proposed regulatory action plan as well as technology dissemination and technical assistance to enterprises preparing project proposals. US\$300,000 are requested for these activities.

Table 3. Four-Year Budget for Technical Assistance and Administration

	Number of Months	Full/Part Time	Cost US\$/Month	Total Cost (US\$)
CONAMA Ozone Team				
Program Coordinator	48	1	3,034	145,632
Manager	48	1	3,034	143,632
Technical Advisor	33	0,5	827	27,291
Secretary	48	1	607	29,136
Adm. Assistant	48	0,5	143	6,864
Legal Advisor	33	1	772	25,476
Public Liaison	48	1	330	15,840
Equipment	1	1	3,000	3,000
Regulatory Studies				
Economist	3	0.5	5,000	15,000
Layer	4	0.5	5,000	20,000
Assistants	6	0.5	2,600	15,600
Other				529
Total				450,000
Financing for Technical Assistance and Administration Budget				
Program Administration Fee (3% of grants, not included in present financing request)				150,000
Technical Assistance (included in present financing request)				300,000
Total				450,000

Note: Salaries are averages over the 4-year period, based on current salaries plus 10% annual increases.

Program Financing

The proposed allocation of funding of US\$5,100,000 for this Program is to be released to World Bank in two tranches:

- a first tranche after approval at the 19th meeting of the MFEC;

- a second tranche upon presenting evidence of commitment of first tranche and an evaluation of auction results.

In most cases, the grants awarded to the companies will not cover the total conversion costs. The extension of the grants will be conditional on the ability of the firms to arrange financing for the shortfalls, which the companies themselves will be required to meet. Using the assumptions shown in Table 2, the total co-financing by firms would amount to about US\$30 million demonstrating the large potential savings achieved under the proposed approach.

Disbursement Forecast

Table 4. Disbursement Forecast

Category	CY96	CY97	CY98	CY99	Total
Grants Program	200,000	1,700,000	1,500,000	1,400,000	4,800,000
Technical Assistance Program	75,000	100,000	75,000	50,000	300,000
Total	275,000	1,800,000	1,575,000	1,450,000	5,100,000

Justification For The Selected Program Approach

In the proposed program, the allocation of grants to individual firms is based on an economic auctioning mechanism rather than the technical and financial evaluation of each individual project. The use of an economic instrument is in line with the Chilean Government's preference for market based solutions to environmental problems as it has already been applied in the case of trading systems for particulate emissions in Santiago and the allocation of water usage rights. From the standpoint of participation, the program is designed to allow all interested firms access to a transparent and relatively simple process that avoids the need for the Government to judge the detailed technical merits of specific proposals.

The use of an economic mechanism for the allocation of grants has two main advantages. First, the mechanism greatly reduces the administration costs of individual project review at different levels (national implementing agency, executing agency, Executive Committee) while at the same time assuring conversion costs that are equal to or less than those in programs with individual project-by-project reviews. The administrative cost advantage weighs particularly heavy in a country with relatively small scale projects such as in the case of Chile.

Second, the auctioning mechanism reduces the actual grant required for conversion since firms are facing competition for the grant funds and have, thus, an incentive to make every effort to submit a bid low enough to succeed in the grant auction. As a result, firms will: (a) search for the most cost-effective conversion option; and, (b) reveal their true willingness to accept a grant that may be below financial costs due to market demands and other pressures in favor of ODS-free production. Since firms have much more detailed information about their costs, specific technological options and other incentives for conversion than any outside agency, no bureaucratic approval mechanism would be able to replicate these cost savings.

Linking the grant auction program to the introduction of regulatory measures that Chile needs to implement in order to meet its commitment under the Protocol will increase the demand for grant funds

under the project, increase competition in the grant auctions, and thus create incentives for even more cost-effective conversion of ODS-using industries.

Program Impact

Elimination of a major share of Chile's ODS consumption is the most important impact of the project. By 2006, Chile's adherence to the commitments ascribed to in the Montreal Protocol will be met as a result of successful implementation of this project. On its own, the grant program is expected to lead to the elimination of approximately 400 tons of ODS measured by ozone depleting potential by 1999. Implementation of the project is also expected to result in reduced future consumption as a consequence of the establishment of the regulatory framework described earlier. The average grant effectiveness of the grant program alone will be US\$10.62/kg or better (not including phase-out achieved as the result of regulatory measures). On a sectoral basis, grant effectiveness is below the grant effectiveness thresholds established by the Multilateral Fund by 10 percent or more.

Program Execution

The World Bank jointly with CONAMA will supervise all aspects of the program from securing of funds to developing a reliable monitoring and evaluation system. It will be the responsibility of the World Bank to ensure that the Ozone Team has or establishes adequate administrative capacity to carry the tasks under the program. The Bank will also ensure that procurement guidelines are strictly followed and that all aspects of the conversions are carried out in accordance with technically sound practices acceptable to the Bank and the Multilateral Fund.

Context And Experience To Date

The Country Program of the Republic of Chile was written in 1992 after an initial "country study" conducted in 1991. Based on the Country Program, a US\$1.2 million ODS Phase I Project was approved by the Multilateral Fund Executive Committee (MFEC) to support measures leading to the reduction of ODS consumption. These measures and amounts approved are:

- an "ozone seal" (US\$8,000) and a public awareness campaign (US\$378,000) that allows consumers to recognize ozone-friendly products;
- a pilot program of grants that would reward firms for every kilogram of ODS eliminated (the TECFIN program - US\$496,000);
- a training program that would facilitate adoption of alternative technologies (US\$111,000); and
- institutional strengthening to establish a national Ozone Team and support the administration of the program (US\$213,000).

The ozone seal design was developed by public contest with wide participation. The contracting of the company that certifies that products are ODS-free and thus can use the seal has been finalized. The public awareness campaigns that promote the ozone seal and alert the public about the health dangers of ozone depletion have been implemented successfully between September 1995 and February 1996. These campaigns have received wide attention and significantly increased public and corporate awareness of ODS related problems. A formal evaluation of the campaigns' impacts is now underway.

The TECFIN grant program includes a fixed grant of US\$2 per kg ODS phase-out for consumers above 10 MT and a grant of up to US\$20,000 for small consumers. The actual award of grants under the pilot TECFIN was delayed by legal problems. The problems were solved when the Government approved in July 1995 a direct transfer of funds from CONAMA to beneficiaries; thus eliminating the need for a financial intermediary. A call for first proposals was published in November 1995. As of March 1996, applications have been received for US\$501,000, thus exceeding the funds available in this category. Based on these applications, it is expected that TECFIN funds will be completely committed in the first half of CY96. Applications received to-date are shown in Table 5.

The TECFIN program under the Phase I project has so far attracted mostly small companies with low ODS consumption. The grant-effectiveness will therefore be somewhat lower than initial estimates, which were based on the participation of larger companies. Average grant effectiveness of the Phase I Project is now estimated to be around US\$4 per kg ODS phase-out. With funds committed as forecast, the TECFIN program would lead to the phaseout of about 125 MT of CFCs annually (estimated as 45 MT in foams and 75 MT in refrigeration). The additional impact of the ozone seal and the public awareness campaign on ODS consumption are difficult to estimate but are expected to be significant.

As for the training program, CONAMA is currently designing seminars in sequence with TECFIN's implementation to assist firms in evaluating and adopting suitable technologies. The seminars are targeted to plant managers and technical staff and include on-site visits by technical experts.

As of March 1996, US\$497,000 was disbursed out of a grant total of US\$1,206,000. Based on already received project applications, it can be expected that the remaining balance of the grant would be disbursed during CY96. Disbursements to-date by category are shown in Table 5.

An important outcome of Phase I is that the Phase II Program will use the modified institutional structure that has been agreed upon and that is now effective (without financial intermediary, with grants paid directly by CONAMA). Another positive factor enhancing implementation is that no separate Grant Agreement between Chile and the World Bank will need to be developed because the current agreement can be amended to accommodate the new program.

Finally, the institutional strengthening funds of Phase I helped establish an Ozone Team in CONAMA, a young and dynamic institution recently given an expanded role in managing Chile's environmental affairs. The Ozone Team has demonstrated capacity to tackle challenges with professionalism, hard work, and enthusiasm. The Ozone Team has gained in depth understanding of the issues Chile will face when implementing its ODS phaseout objectives.

TABLE 5. CHILE PROGRAM: PHASE I -- STATUS REPORT March 1996

COMPONENTS	PURPOSE	AMOUNT APPROVED US\$	AMOUNT DISBURSED US\$	IMPACT
Ozone Seal	Target attention to products/activities that prevent ozone depletion	8,000	7,400	Ozone Seal being used in publicity campaign and officially registered. Contract awarded to a firm that will certify use of seal in ODS-free products
Public Awareness Campaign	Increase public and industry awareness about ozone depletion	378,000	269,000	Two media campaigns executed 11/95 and 02/96. A formal evaluation is underway to assess the extent of detected increased public awareness on ozone depletion and health effects
Sector-Specific Training	Disseminate non-ODS technologies to current users	111,000	0	Training activities are being sequenced with execution of TECFIN to provide assistance to users about to convert to new non-ODS technologies
Institutional Strengthening	Support national administration unit for program implementation	213,000	138,000	Management Strategy established for Phase I from 01/94 to date
Technology Conversion TECFIN	Partially finance ODS phaseout projects	496,000	0	After legal impediments were solved, TECFIN was officially launched 10/95. See status of applications below
Special Account		0	82,000	
TOTAL		1,206,000	497,000	

TECFIN - Status of Applications as of March 8, 1996

COMPANY	SECTOR	Grant Requested (US\$ '000)	ODS Phaseout (kg)	STATUS
Frigorent	Ind. Refrigeration	20	420	Approved
Mimet S.A.	Ind. Refrigeration	102	51,220	Under Review
Ind. Equis Ltda.	Ind. Refrigeration	20	4,000	Under Review
Metalcargo	Rigid Foam	19	5,600	Under Review
Induvan	Rigid Foam	19	3,700	Under Review
Pey Tumanof	Rigid Foam	20	2,100	Under Review
Frio Real	Rigid Foam	19	5,000	Under Review
Kifafi Ltda.	Rigid Foam	20	3,000	Under Review
Polimin Ltda.	Rigid Foam	20	1,000	Under Review
CST a/	Domestic Refrig.	125	5,380	Under Review
PENTA	Rigid Foam	117	16,809	Under Review
TOTAL		US\$501	98,229	

a/ Recycling in about 50 independent maintenance firms.

ODS Consumption Update And Demand Trends

A.1 Consumption Update

Chile does not produce any of the substances controlled by the Montreal Protocol, thus making it possible to infer the levels of national consumption based on the imports registered each year (assuming stocks remain relatively constant).

Establishing the level of imports per category of ODS is not easy due to the fact that the import statistics encompass a large number of categories which are not homogeneous. In effect, imports of ODS cover a large number of categories and information is not always presented in a homogeneous manner. In some cases, one category will include substances controlled by the Montreal Protocol, as well as other chemicals, making it necessary to filter the information by individual inspection of each of the transactions shown in a single record. There are also cases in which a single substance is classified in different categories for unknown reasons. In general terms, the procedure to collect and classify information, used the Customs categories of Chile and focused on the chemical formula rather than the commercial brand. With some special exceptions (such as HCFC-21, where the commercial brand name contradicts the chemical formula) product name and chemical designation coincide most of the time.

Table 1 and 2 compare the consumption of ODS for 1989 and 1994 in terms of ODP-equivalent units, using the coefficients assigned in the Montreal Protocol guidelines. The tables highlight two important points: (a) Chile has much higher consumption levels than reported in the Country Program; and (b) important changes in the nature of consumption have taken place over the last few years.

Imports of substances controlled by the Montreal Protocol reached 1356.9 MT in 1994. In terms of ODP units, consumption reached 961.6 MT. By contrast, according to Chile's Country Program, the total consumption in 1996 should be 62.6% of the quantity observed in 1989. Therefore, the actual consumption levels are 44% higher than the goal for 1996.

The nature of consumption of ODS has undergone important changes in the last few years. The aggregate consumption of CFCs shows a relative stagnation with respect to the 1989 level, as a result of two opposing forces: the growth of CFC-11 to 25% greater than the 1989 level, and the reduction of CFC-12 to 28% lower than in 1989. HCFCs have also been growing in importance, absolute and relative, as shown by the growth of HCFC-22. However, since the ODP of this substance is low, the use of HCFCs (in ODP units in 1994) only reached 2%. Another chemical agent with growing use is methylchloroform, which reached a 1994 level 115% higher than in 1989. Methylchloroform also has a low ODP, which limits its aggregate impact in ODP units. Halons, although fluctuating from year to year, exhibit a clear tendency toward lower consumption. This trend has a significant impact on the aggregate consumption in Chile (measured in ODP units), and more importantly, explains the lower overall consumption recorded between 1989 and 1994.

In summary, the figures for ODS consumption measured in ODP units, exhibit a modest reduction of 10% between 1989 and 1994. This reduction is principally explained by the reduction in imports levels of halons and CFC-12. The remaining substances, however, show a clear upward trend. It is of particular concern that the consumption of CFC-11 continues to grow systematically.

TABLE 1
Consumption of Substances Controlled by the Montreal Protocol in Chile Adjusted for their Ozone Depleting Potential (ODP) (kilogram equivalents)

Controlled Substance	Ozone Depleting Potential (ODP)	Year 1989			Year 1994		
		Consumption	Adjusted Consumption	% of Total	Consumption	Adjusted Consumption	% of Total
CFC-11	1.000	350,578	350,578	26	438,040	438,040	36
CFC-12	1.000	530,365	530,365	40	382,528	382,528	32
CFC-13	1.000	24	24	0	5	5	0
CFC-113	0.800	16,134	12,907	1	28,307	22,645	2
CFC-114	1.000	1,974	1,974	0	0	0	0
CFC-115	0.600	17,688	10,613	1	15,589	9,353	1
Total CFC		916,763	906,461	68	864,469	852,572	71
Halon-1301	10.000	14,515	145,146	11	1,819	18,194	2
Halon-1211	3.000	26,279	80,186	6	9,808	29,424	2
Total Halons		41,423	225,332	17	11,627	47,618	4
Carbon Tetrachloride	1.100	18,253	20,078	2	13,306	14,607	1
Methyl chloroform	0.100	218,866	21,687	2	467,449	46,795	4
TOTAL		1,193,305	1,173,558	89	1,356,851	961,592	80

Note: % of Total in tables 1 and 2 for both years do not equal 100 due to rounding error.

SOURCE: GERENS Consultants, 1995.

TABLE 2
Consumption of Other ODS Substances in Chile
Adjusted for their Ozone Depleting Potential (ODP) (kilogram equivalents)

Controlled Substance	Ozone Depleting Potential (ODP)	Year 1989			Year 1994		
		Consumption	Adjusted Consumption	% of Total	Consumption	Adjusted Consumption	% of Total
HCFC-21	0.040	80,546	3,222	0	13,162	526	0
HCFC-22	0.055	219,636	12,080	1	338,767	18,632	2
HCFC-131 (1)	0.030	3,483	104	0	0	0	0
HCFC-133 (1)	0.040	50	2	0	0	0	0
HCFC-141 (1)	0.040	0	0	0	0	0	0
HCFC-123 (1)	0.040	0	0	0	0	0	0
Total HCFC		303,715	15,408	1	351,929	19,152	2
Other CFC and HCFC (2)	0.760	30,024	22,678	2	113,145	85,462	7
Methyl Bromide	0.700	181,141	126,799	9	198,971	139,280	12
TOTAL		514,880	164,885	12	664,045	224,742	21

Notes:

1) The ozone depleting potential (ODP) for HCFC 131, 133, 141, and 124 corresponds to the middle point of the range selected for those substances.

2) For "Other CFCs and HCFCs" an ODP was used equal to the weighted average of the CFCs and HCFCs listed in this table by the quantity used in 1989.

Note that % of Total in Tables 1 and 2 do not total 100 due to rounding error.

SOURCE: GERENS Consultants, 1995.

A.2 Final Distribution of ODS Uses

Based on the information compiled in interviews with companies representing each sector, the nature of ozone depleting substance consumption was estimated for 1994. The results are presented in Table 3.

Table 3 Consumption of ODS According to Sector, 1994 Adjusted for Ozone Depleting Potential (equivalent kilograms)				
Controlled Substance	Sector			
	Total	Refriger.	Foams	Other
CFC-11	438,040	262,671	175,369	0
CFC-12	382,528	322,528	0	60,000
HCFC-22	17,815	17,815	0	0
502 Blend	10,171	10,171	0	0
Methyl chloroform	46,745	0	0	46,745
Carbon Tetrachloride	14,637	0	0	14,637
Methyl Bromide	139,280	0	0	139,280
Halon 1301	18,194	0	0	18,194
Halon 1211	29,424	0	0	29,424
Total	1,096,833	613,184	175,369	308,280
Controlled Substance	Refrigeration Sector Breakdown			
	Total	Industrial Ref.	Commercial Ref.	Domestic Ref.
CFC-11	262,671	0	113,989	148,682
CFC-12	322,528	184,028	91,500	47,000
HCFC-22	17,815	15,982	1,833	0
502 Blend	10,171	1,017	9,153	0
Total	593,625	200,927	203,235	189,363
Controlled Substance	Foam Sector Breakdown			
	Total	Rigid Foam	Flexible Foam	Flexible Mattresses
CFC-11	175,369	31,604	1,437	142,328

Table 3. Continued					
Controlled Substance	Other Sector Breakdown				
	Total	Sterilization	Fire	Solvents	Agriculture
CFC-11	0	0	0	0	0
CFC-12	60,000	60,000	0	0	0
HCFC-22	0	0	0	0	0
502 Blend	0	0	0	0	0
Methyl chloroform	46,745	0	0	46,745	0
Carbon Tetrachloride	14,637	0	0	14,637	0
Methyl Bromide	139,280	0	0	0	139,280
Halon 1301	18,194	0	18,194	0	0
Halon 1211	29,424	0	29,424	0	0
Total	308,280	60,000	47,618	61,382	139,280

The Auction Of Grants

The Concept

Each grant consists of a one-time payment to firms that convert their present processes to non-ODS technologies. The grant is expressed in dollars per kilogram of ODS "saved". Grants are allocated in auctions that will be held periodically, about every 6 months. Bidders from all ODS consuming sectors are eligible to participate in these auctions to ensure sufficient competition for funds within each auction. Efficiency is achieved by (a) competition that will lead to firms revealing their true willingness to accept grants in return for ODS phase-out; and (b) the likely effect that low-cost sector project will succeed in earlier auctions while more expensive projects would receive funding only in later auctions.

An overall grant effectiveness limit for each auction has been set at 90 percent of the MFEC thresholds (weighted by the share of winning bids from the respective sectors. This limit will guarantee that the overall project grant effectiveness exceeds MFEC limits. Successful bidders will be reimbursed on the basis of documented project expenditures up to the amount of their bid. Thus, the actual grant amount would be the minimum of the actual conversion costs and the firm's bid (i.e., its US\$/kg bid times the number of kg eliminated).

The Mechanism for Awarding the Grants

The following process is proposed for awarding the grants:

- The Ozone Team will announce the terms and conditions of an auction and invite bids and declare its availability for technical advice and consultation.
- In this pre-auction phase, CONAMA will seek World Bank or OORG technical review for complex projects where appropriate as a service that makes maximum advice accessible to applicant enterprises.
- The bidders must fill out a basic questionnaire which includes, among other background information: a) R.U.T. (tax ID) of the enterprise and address; b) business sector; c) records of annual sales of product (e.g. foams or mattresses) for the last three years; d) purchases of ODS in the last three years backed by the corresponding invoices and receipts. The questionnaire will also include the total amount of the requested grant, the investment in equipment or conversion, and the savings in ODS emissions that will result from the conversion.
- The Ozone Team will verify some background information, such as the address, existence, operation, and possible foreign ownership of the enterprise. The Ozone Team will also analyze that the data supplied in the application is internally consistent, such as the relation between the level recorded in sales and the level reflected in ODS purchases and that the firm meets existing eligibility criteria of the Fund (e.g., non-Article 5 exports or ownership). If discrepancies are found, the application will be returned to the bidder for revision; otherwise, it will be officially accepted in the auction. It is worth noting that, given the rigor of the Chilean tax system, official sales invoices for ODS can be considered reliable proof of purchase. In case, the firm has a share of ownership from or exports to non-Article 5 countries, it will be informed that if its bid is accepted, the grant value will be adjusted for the foreign ownership/export share.

- Once all bids are received, bidders are ranked in ascending order of bid value (i.e., grant requested per kg of ODS to be eliminated). Once the received bids have been ranked, a total grant amount is allocated to this auction in consultation between CONAMA and the World Bank. The funds for the specific auction will then be assigned to individual bidders in the order of bid value until funds are depleted or the average cost-effectiveness of the auction reaches 90% of the average MF grant-effectiveness thresholds.
- After the successful bidders have been determined, they will be notified officially. After signing a formal agreement with CONAMA, they will receive a certificate which commits CONAMA to award them the amount requested after the company demonstrates that project expenditures were incurred. The agreement includes verification procedures, conditions of non-compliance under which the grant has to be returned by the enterprise, and the requirement for the enterprise to demonstrate insurance of financed equipment against safety hazards.
- This verification will take place through a site visit and review of corresponding documents (e.g., invoices of new equipment). Once the purchases are verified, the Ozone Team will disburse the funds against the return of the certificate. A final disbursement tranche is retained until the firm demonstrates that implementation of the full project (including investments paid for by the firm) has actually taken place. The actually disbursed amount will be the minimum of the bid amount and the actual documented expenditures by the company.
- The Ozone Team will follow up implementation with verification of compliance with the agreement between CONAMA and the enterprise which includes provisions for disposal of old equipment, use of new equipment, and actual ODS consumption reduction.

The experience of the first auctions will be carefully evaluated and incorporated in possible changes in the design of subsequent auctions. However, care will be taken to preserve the key elements, among them: a) the information and control mechanisms which ensure that the grants are reaching the enterprises that are consuming ODS (records for the last three years, site visits, etc.); and b) the disposal of used equipment.