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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-fourth Meeting
Montreal, 18-20 July 2001

PROJECT PROPOSALS: URUGUAY

This document consists of the comments and recommendations of the Fund Secretariat on the following project proposals:

Fumigant:

- Phase-out of methyl bromide in horticulture: tomatoes and cut flowers UNIDO

Refrigeration:

- Implementation of the RMP: incentive programme for the commercial/industrial refrigeration end-user sector UNDP
- Implementation of the RMP: demonstration and training project for the use of hydrocarbons as refrigerants UNEP

**PROJECT EVALUATION SHEET
URUGUAY**

SECTOR: Fumigant ODS use in sector (2000): 25.5 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Title:

(a) Phase-out of methyl bromide in horticulture: tomatoes and cut flowers

Project Data	Methyl bromide
Enterprise consumption (ODP tonnes)	24.00
Project impact (ODP tonnes)	24.00
Project duration (months)	48
Initial amount requested (US \$)	502,370
Final project cost (US \$):	
Incremental capital cost (a)	426,700
Contingency cost (b)	42,670
Incremental operating cost (c)	0
Total project cost (a+b+c)	469,370
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US \$)	469,370
Cost effectiveness (US \$/kg.)	19.56
Counterpart funding confirmed?	
National coordinating agency	Comision Tecnica Gubernamental Ozono
Implementing agency	UNIDO

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

PROJECT DESCRIPTION

Phase-out of methyl bromide in horticulture: tomatoes and cut flowers

1. The Government of Uruguay is submitting a project to phase out the entire consumption (24 ODP tonnes) of methyl bromide (MB) used for soil disinfestation in horticulture (88 per cent of total consumption), cut flowers (7 per cent) and other crops (4 per cent). The use of MB for commodity fumigation, quarantine and other applications is negligible. Over the last three years, MB consumption increased from 12 ODP tonnes in 1998 to 25.5 ODP tonnes in 2000.
2. Based on the results from the demonstration project on alternatives to the use of MB as a soil fumigant in protected horticultural crops, seedbeds, and nurseries approved by the Executive Committee at its 25th Meeting (UNIDO, US \$299,200), the technologies selected to replace MB in soil fumigation are: solarization in combination with metam sodium and bio-fumigation (for horticultural crops) and steam (for cut flowers).
3. The use of metam sodium requires additional accessories and modification to the irrigation systems currently available in the greenhouses (US \$108,000), equipment for incorporating organic matter to the soil (US \$72,000), and two boilers for the use of steam (US \$86,000). The project also includes a training programme (US \$190,500). Operating costs were estimated at US \$78,370/year; however, these costs were not claimed by the Government of Uruguay.
4. The country has effective means to control the use and import of pesticide, including MB, through the Ministry of Agriculture, Livestock and Fisheries. The Government proposes to establish additional systems to monitor and control the consumption of MB.
5. The project will be implemented by UNIDO in cooperation with the Ministry of Agriculture, Livestock and Fisheries ("Instituto Nacional de Investigación Agropecuaria" and "Dirección General de Servicios Agrícolas", under the coordination of the Ozone Unit.
6. The estimated time for the implementation of the project is 4 years.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

7. The MB baseline consumption has been established at 11.6 ODP tonnes and the 2000 consumption at 25.5 ODP tonnes. Therefore, it appears that Uruguay will not be able to meet the 2002 freeze, since it requires to phase out 13.9 ODP tonnes by the end of 2001. UNIDO stated that "the Government of Uruguay is aware it will not be able to meet the 2002 MB freeze; however, by implementing this project, the total consumption of MB in soil fumigation (24 ODP tonnes) will be completely phased out by the end of 2005.

8. The Secretariat has sought clarification on the feasibility of sharing requested equipment among various greenhouses, the request for two boilers considering that they will be used in a small surface area (5.5 ha), and the cost of the boilers. UNIDO informed the Secretariat that the number of equipment items requested in the project was based on analysing the farms that would need it to apply the alternative technology. The two boilers are needed to provide treatment to the 70 producers of cut-flowers who are currently using MB. UNIDO agreed to reduce the cost of the boilers (US \$36,000 each).

9. The Secretariat and UNIDO discussed the cost elements of the training programme. Subsequently, UNIDO adjusted the costs to US \$129,500.

10. The project proposal included a proposal for an agreement between the Executive Committee and the Government of Uruguay with the commitments proposed and action plan for the phase out of MB in Uruguay (attached).

RECOMMENDATION

11. The Fund Secretariat and UNIDO have agreed on the total cost of the project (US \$469,370). Based on the above considerations, the Executive Committee may wish to consider approval of the project for Uruguay. The Executive Committee may also wish to request UNIDO to disburse the funds allocated in tranches according to the proposed MB phase out schedule indicated in the project proposal; if Uruguay does not meet the reduction requirements outlined in the proposal, the Multilateral Fund, through UNIDO will withhold funding for the subsequent tranche until such time as the required reduction has been met.

**AGREED CONDITIONS FOR PHASE-OUT OF METHYL BROMIDE IN
HORTICULTURE: TOMATOES AND CUT FLOWERS IN URUGUAY
(DRAFT)**

1. The Executive Committee agrees to approve in principle US \$469,370 as the total funds that will be available to achieve commitments stipulated in this document for the phase out of the use of methyl bromide in Uruguay subject to the following understandings and considerations:

2. As reported to the Ozone Secretariat, and consistent with information in the project document presented to the Executive Committee, the MB baseline for compliance for Uruguay is 11.2 ODP tonnes, and the MB consumption for 2000 is 24.0 ODP tonnes. Therefore, Uruguay will not be able to meet the 2002 MB freeze. However, the Government of Uruguay proposes to phase out 24.0 ODP tonnes of MB by 2005, according to the following schedule:

2001-2002	20.0 ODP tonnes (reduction of 4.0 ODP tonnes)
2002-2003	12.0 ODP tonnes (reduction of 8.0 ODP tonnes)
2003-2004	4.0 ODP tonnes (reduction of 8.0 ODP tonnes)
2004-2005	0.0 ODP tonnes (reduction of 4.0 ODP tonnes)

3. In addition, Uruguay commits to sustain the phase out of MB by banning its use as a soil fumigant in horticulture, cut flowers and other crops. The specific reductions in consumption noted above would be those achieved through this project. Reductions in accordance with the terms of this project, and the other commitments presented in the project document, will ensure that Uruguay exceeds subsequent phase out requirements of the Montreal Protocol.

4. UNIDO shall report annually to the Executive Committee on the progress in meeting the reductions required by this project, as well as on annual costs related to equipment being purchased with the project funds. UNIDO agrees to manage the funding for this project in a manner designed to ensure that the specific annual reductions agreed are met.

**PROJECT EVALUATION SHEET
URUGUAY**

SECTOR: Refrigeration ODS use in sector (2000): 89.7 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Titles:

- (a) Implementation of the RMP: incentive programme for the commercial/industrial refrigeration end-user sector
(b) Implementation of the RMP: demonstration and training project for the use of hydrocarbons as refrigerants

Project Data	Refrigerant management plan	
	End-user	Demonstration and training project
Enterprise consumption (ODP tonnes)		
Project impact (ODP tonnes)	6.00	
Project duration (months)	72	12
Initial amount requested (US \$)	154,934	65,000
Final project cost (US \$):		
Incremental capital cost (a)	154,934	60,200
Contingency cost (b)		4,800
Incremental operating cost (c)		
Total project cost (a+b+c)	154,934	65,000
Local ownership (%)	100%	100%
Export component (%)	0%	0%
Amount requested (US \$)	154,934	65,000
Cost effectiveness (US \$/kg.)	25.82	
Counterpart funding confirmed?		
National coordinating agency	MVOTMA	MVOTMA
Implementing agency	UNDP	UNEP
Secretariat's Recommendations		
Amount recommended (US \$)	154,934	65,000
Project impact (ODP tonnes)	6.00	
Cost effectiveness (US \$/kg)	25.82	
Implementing agency support cost (US \$)	20,141	8,450
Total cost to Multilateral Fund (US \$)	175,075	73,450

PROJECT DESCRIPTION

Implementation of the RMP: incentive programme for the commercial/industrial refrigeration end-user sector

Implementation of the RMP: demonstration and training project for the use of hydrocarbons as refrigerants

Background

12. The Government of Uruguay has implemented several projects in the foam, halon and refrigeration sectors which have led to the phase out of over 160 ODP tonnes of controlled substances. In 2000, the refrigeration and air-conditioning servicing sector accounted for more than 80 per cent of the total CFC consumption in the country.

13. Uruguay is in compliance with the 1999 CFC freeze level; however, the country needs to implement additional projects in the refrigeration servicing sector to achieve the 2005 and 2007 phase-out targets.

Activities approved in the refrigeration servicing sector

14. The Executive Committee has approved the following projects in the refrigeration sector in Uruguay:

- a) Conservation and demonstration programme for domestic and commercial refrigeration and installation of recovery and recycling equipment, to phase out 22 tonnes of CFCs (UNDP, US \$197,750).
- b) CFC-12 recovery and recycling demonstration programme in MAC systems and refrigerated trucks, to phase out one tonne of CFC-12 (Government of the United States as part of a Global Project, US \$28,500).
- c) CFC-12 recovery and recycling network in maintenance and repair workshops of industrial refrigeration, to phase out 4 tonnes of CFC-12 (World Bank, US \$99,0410).
- d) Implementation of the RMP, with the following sub-projects: (i) training of refrigeration technicians in good servicing practices; (ii) training of customs officers to enforce import bans on CFCs and CFC-based equipment; and (iii) implementation of a license/quota system to guarantee a better control on CFC imports (Government of Canada, US \$145,770).

Legislation, policy measures and new initiatives

15. In the last two years, the Government of Uruguay has implemented additional policy measures, including Law No. 17.283 (15 November 2000) establishing restrictions on the production and import of ODS-based equipment, and Law No. 17.296 (16 February 2001),

which provides the legal framework for implementation of the license system to import ODS. Through these laws:

- a) The Ministry of Housing, Land Arrangement and Environment is responsible for the implementation of the national ODS phase out programme.
- b) As of January 2002, manufacturing, import and/or export of equipment or products manufactured with or containing Annexes A and B substances of the Montreal Protocol is banned.
- c) Trade with non-Parties to the Montreal Protocol on Annexes A and B substances of the Montreal Protocol shall be banned.

16. The Professional and Technical Education Board has established a new technical school (Buceo Technical School) responsible for training and certification of refrigeration technicians (the introduction of a mandatory certification for refrigeration technicians is currently under consideration). The formation of an association of refrigeration technicians with support from the Ministry of Environment and Buceo Technical School has also been proposed.

Results on the implementation of the RMP

17. The training programme for refrigeration technicians has been completed with more than 150 technicians trained; also, through the 75 recovery machines and 26 recovery and recycling machines currently in operation, 9 tonnes of CFC-12 were recovered. It is expected that a larger amount of CFC-12 will be phased out in the future once CFCs prices increase, service technicians improve recovery and recycling operations, and other technicians purchase additional recovery machines with their own resources. Through these activities, CFC consumption in the refrigeration servicing sector decreased from 119 tonnes in 1997 to 86 tonnes in 2000.

18. The continuous implementation of recovery and recycling operations and the additional training for refrigeration technicians and customs officers will ensure a reduction in the consumption of CFCs, a decrease in the illegal entry of CFCs or CFC-based equipment into the country and avoidance the early retirement of CFC-based refrigeration equipment in operation in the country.

Additional activities under the RMP

19. Based on the results and lessons learnt from the implementation of the projects and activities related to the refrigeration servicing sector in Uruguay, the Government has identified the following two additional projects:

- a) Demonstration and training project for the use of hydrocarbon refrigerants (US \$65,000): To provide technical information and necessary training to enable the use of hydrocarbon technology in the different refrigeration sectors, particularly in domestic and small commercial refrigeration units. A training course for refrigeration technicians, representatives from educational and training institutions and relevant Government officials will participate to ensure that the training can be sustained as part of the future technical refrigeration training in Uruguay. Conversion from CFC-12 to hydrocarbon refrigerant of domestic

refrigerators, freezers, displays and milk tanks to hydrocarbon technology will be demonstrated. (the equipment will be monitored for performance by the technicians in the "Laboratorio Tecnológico del Uruguay" and the results will be disseminated through UNEP's information clearinghouse). If the evaluation of the demonstration project is positive, the Ministry of the Environment will take actions to assure availability of hydrocarbons at a reasonable price. Contacts with refrigerant distributors, the National Agency for Petroleum Refinement and Fuels and the Ministry of Industry will work together to implement this technology.

- b) Incentive programme for the commercial and industrial refrigeration end-user sector (US \$155,000): Further to a survey in Uruguay, it has been established that due to the large number of enterprises involved, and the limited financial resources to eliminate ODS consumption in the commercial and industrial refrigeration end-user sector in the period 2002-2007, individual projects involving equipment replacement, retrofit, or "drop-in" refrigerant solutions are neither feasible nor cost-effective for all of the purposes. Therefore, an incentive programme to encourage refrigeration end-users to retrofit or replace, their existing CFC based equipment to use zero-CFC or low-CFC refrigerants, is proposed.

20. These two projects together with the sub-projects approved under the RMP project for Uruguay will lead to an additional phase out of 10 ODP tonnes per year, needed to comply with the targets of the Montreal Protocol.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

21. The request for additional two projects to complement the RMP project under current implementation in Uruguay was submitted for consideration by the Executive Committee through an official letter signed by the Minister of Housing, Land Management and Environment of Uruguay and a letter signed by the Head of the Ozone Office, stating the commitment of the Government to achieve CFC phase out according to the Montreal Protocol schedule. Under these circumstances, the Government has considered as priority the implementation of the demonstration project for the use of hydrocarbons as a refrigerant and the end-user incentive, within the 50 per cent additional funding of the RMP under implementation.

22. Pursuant to Decision 33/13, the Government of Uruguay prepared a comprehensive progress report on the implementation of the projects so far approved on the refrigeration servicing sector, including the RMP project, which provides the results so far achieved and lessons learnt.

RECOMMENDATION

23. The Fund Secretariat recommends blanket approval of the projects with associated support costs at the funding level shown in the table below:

	Project Title	Project Funding (US\$)	Support Cost (US\$)	Implementing Agency
(a)	Implementation of the RMP: incentive programme for the commercial/industrial refrigeration end-user sector	154,934	20,141	UNDP
(b)	Implementation of the RMP: demonstration and training project for the use of hydrocarbons as refrigerants	65,000	8,450	UNEP