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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Forty-fifth Meeting
Montreal, 4-8 April 2005

PROJECT PROPOSALS: CHILE

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

Fumigant

- Phase-out of all the remaining uses of methyl bromide in soil World Bank application pest control (first tranche)

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**PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
CHILE**

PROJECT TITLE	BILATERAL/IMPLEMENTING AGENCY
Phase-out of all the remaining uses of methyl bromide in soil application pest control (first tranche)	World bank

NATIONAL CO-ORDINATING AGENCY:	CONAMA
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LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT

A: ARTICLE-7 DATA (ODP tonnes, 2003 as of February 2005)

Annex E, methyl bromide	274.3		
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B: COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes, 2003 as of October 2004)

ODS	Foam	Ref.	Aerosol	ODS	Solvents	Process agent	Fumigant
				Methyl bromide			274.3

CFC consumption remaining eligible for funding (ODP tonnes)	n/a
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CURRENT YEAR DRAFT BUSINESS PLAN: Total funding US \$1,075,000: total phase-out 45 ODP tonnes.

Project data		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Annex E (ODP tonnes)	Montreal Protocol limits	170	170	170	170	170	170	170	170	170	170	0	
	Annual consumption limit	170	125	84	65	50	43	36	31	0	0	0	
	Annual phase-out from ongoing projects	21	35	0	0	0	0	0	0	0	0	0	
	Annual phase-out newly addressed	1.3	10	41	19	15	7	7	5	31	0	0	
	Annual unfunded phase-out												
Total ODS consumption to be phased out		22.3	45	41	19	15	7	7	5	31	0	0	
Project costs (US \$):													
Total project funding		691,703	534,533	660,920	110,000	110,000	110,000	110,000	110,000	110,000	0	0	2,547,156
Support costs (US \$):													
Total support costs		51,878	40,090	49,569	8,250	8,250	8,250	8,250	8,250	8,250	0	0	191,037
Total cost to the Multilateral Fund (US \$)		743,581	574,623	710,489	118,250	118,250	118,250	118,250	118,250	118,250	0	0	2,738,193
Project cost-effectiveness (US \$/kg)													18.69

SECRETARIAT'S RECOMMENDATION	For individual consideration
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PROJECT DESCRIPTION

Background

1. At its 32nd Meeting, the Executive Committee approved a demonstration and phase-out project for MB soil fumigation for fruit-tree production and replant, at a total cost of US \$805,000, under current implementation by UNDP. The project was approved with agreed conditions for the phase-out of 76.2 ODP tonnes of MB which stipulated, *inter alia*, that the maximum allowable levels of MB consumption in Chile would be 198.0 ODP tonnes in 2002; 170.0 ODP tonnes in 2003; and, 121.8 ODP tonnes in 2006.
2. At its 43rd Meeting, the Executive Committee considered a progress report on the implementation of the MB phase-out project submitted by UNDP (UNEP/OzL.Pro/ExCom/43/18). According to preliminary figures included in the report, 2003 consumption in Chile was 61.8 ODP tonnes above the MB compliance baseline (i.e., 212.5 ODP tonnes), and 104.3 ODP tonnes above the maximum allowable consumption of controlled uses of MB for that year (170 ODP tonnes) as stipulated in the agreement between the Government of Chile and the Executive Committee.
3. Subsequently, the Executive Committee, noting the commitment of the Government of Chile to return to compliance and its undertaking to present a plan of action for that purpose to the 44th Meeting, decided to continue with the implementation of the MB phase-out project for fruit-tree production and replant in accordance with the agreement between the Government of Chile and the Executive Committee that was approved at the 32nd Meeting (Decision 43/13).
4. Pursuant to Decision 43/13, on behalf of the Government of Chile, the World Bank submitted to the 44th Meeting the strategy and the action plan that has been developed by the Government of Chile together with a project proposal for the phase-out of all remaining uses of MB in soil applications (UNEP/OzL.Pro/ExCom/44/32).
5. In discussions with the World Bank, the Secretariat pointed out a number of significant issues related to both the strategy and the project proposal that required additional clarification. Based on further discussions, the World Bank advised the Secretariat that it would require more time to address the outstanding issues and, in consultation with the Government of Chile, agreed to withdraw the strategy and action plan together with the project proposal.
6. Subsequently, the Executive Committee requested the World Bank to submit to the 45th Meeting a national plan for complete phase-out of controlled uses of MB in Chile, including the demonstration and phase-out project for MB soil fumigation for fruit tree production and replant currently being implemented by UNDP. It was agreed that the non-submission of the project proposal should not be taken into consideration in assessing performance against the relevant World Bank business plan targets for 2004, and that the project could be submitted as part of the World Bank's 2005 business plan (Decision 44/48).
7. Pursuant to Decision 44/48, the Government of Chile has submitted, for consideration by the Executive Committee at its 45th Meeting, the strategy and plan of action for Chile for returning to compliance with regard to MB consumption, together with a project proposal for the

phase-out of all remaining uses of methyl bromide (MB) in soil applications. In total, 136 ODP tonnes of MB used as soil fumigant in the production of tomato, pepper and strawberry crops will be phased out.

MB consumption

8. In 2003, the amount of MB consumed in Chile was 274.3 ODP tonnes, excluding QPS applications, with the following distribution:

Application	MB consumption (ODP tonnes)
Tomatoes and peppers in greenhouses	80.7
Strawberries	71.8
Fruit tree replanting	38.9
Fruit nursery	17.2
Industrial tomato seedbed	27.4
Seedbed, other than industrial tomato	22.4
Tomatoes in open fields	16.0
Total	274.3

9. The MB baseline for compliance is 212.5 ODP tonnes, which is 61.8 ODP tonnes below 2003 consumption (274.3 ODP tonnes).

10. MB imports vary substantially from year to year, particularly since a significant amount of imports occur in the last part of each year. MB imports are therefore sometimes recorded for the current year and, at other times, are officially recorded for the following year. In the last few years, MB consumption has increased mainly in the soil fumigation of strawberry, tomato and pepper crops.

MB phase-out strategy

11. An expanded Inter-ministerial Committee was established in Chile, with the participation of the National Commission of the Environment (CONAMA) and the Ministries of the Environment and Agriculture, to prepare a sustainable national strategy to phase out MB.

12. The MB phase-out strategy includes specific actions related to information, technology transfer, regulations and investment. Considering that the competitiveness of Chilean agriculture is at stake, the proposed actions must be consistent with market conditions and the opportunities for competitor countries to use MB.

13. This strategy is based on the following principles:

- (a) Environmental protection and compliance with international commitments;
- (a) Non-binding participation of those affected by regulatory and investment decisions. A public and private sector advisory committee will be constituted to analyze the strategy's mode of operation (final decisions will only be made by relevant Government authorities);

- (b) Minimization of distortions in Chile's pesticide and agricultural products market;
- (c) Efficiency and effectiveness of actions by the Government; and,
- (d) Consistency with market signals. This principle is highly important in the current regulatory rationale regarding Chilean agriculture. The fact that Chile's forestry and agricultural sector is principally oriented toward end-users and markets that demand quality and sustainability of processes allows for a cost-effective type of regulation, which is also carried out in line with the interests of the manufacturing sector.

14. The text of the strategy and plan of action to return Chile to compliance is attached to the present document.

15. The Inter-ministerial Committee will be responsible for co-ordinating and implementing the phase-out strategy. Specifically, the Office for Agricultural Policy and Studies of the Ministry of Agriculture will be responsible for implementing the policy. The Agricultural and Livestock Service (the national pesticide authority) within the Ministry of Agriculture will play a strategic role in implementing the project, because of its close relationship with pesticide companies and farmers. The State Agricultural Institute, which already has experience in implementing MB demonstration projects, will also participate in the phase-out plan together with public and private universities and research centres. Furthermore, a Public-Private Partnership Committee comprised of agrochemical importer companies will be established, and coordination with all existing farmer's associations will be maintained.

Major project components and costs

16. The project proposal has been designed for the following MB users: industrial tomato seedbeds; nurseries and seedbeds; large farms growing tomatoes in greenhouses and open fields; large strawberry farms; and small greenhouses for production of tomatoes and strawberries which are not currently using large amounts of MB.

17. The following activities are proposed to be implemented:

- (a) Information management system: to develop an information system to monitor the results of the phase-out process by collecting reliable information on MB importation, consumption, stocks and use. This will include the development of relevant software, an on-line system and the required hardware;
- (b) Industrial tomato seedbeds: to co-ordinate work with industrial tomato seedbed companies to introduce, on a voluntarily basis, best agricultural practice agreements. This will include technical and economic analysis of available alternatives to MB;
- (c) Nurseries and seedbeds: to review the current norms enforced by the Government of Chile to control the quality of reproductive material sold by nurseries and

eliminate the strong incentive to use MB (nurseries and seedbeds will be encouraged to shift to the vaporization method);

- (d) Large farms growing tomatoes in greenhouses and open fields: to enhance MB use efficiency through: the use of impermeable plastics during soil fumigation; proper labeling of MB containers to reduce application rates (labels authorized by the Government constitute regulations that must be complied with by farmers and service providers); and the promotion of alternative chemicals, mainly metam sodium;
- (e) Large strawberry farms: to implement a demonstration programme on alternatives to MB in this sub-sector during a two-year period, including technology transfer and training and extension programmes. The main stakeholders will select the most suitable alternative technologies and adapt them to local conditions in Chile; and
- (f) Small greenhouses for production of tomatoes and strawberries: to promote biological control practices, crop rotation and integrated pest management systems.

18. The project duration is 10 years and has the following three main components that will be implemented simultaneously:

- (a) Procurement and distribution of equipment and materials to farmers in all geographic regions of Chile;
- (b) Technical assistance, technology transfer and training and extension programmes; and
- (c) Policy package and enforcement programme. A policy package will be developed and implemented with major stakeholders to ensure the long-term sustainability of MB phase-out.

19. The total cost of the project is US \$4,179,074. Of this amount, the Government of Chile is requesting US \$2,547,156 from the Multilateral Fund.

2005 work programme

20. The following activities are proposed to be implemented in 2005:

- (a) Procurement of equipment and farm material for the replacement of MB to be distributed among farmers in each region of the country;
- (b) Technical assistance, technology transfer and training programme. The project will implement studies and specific training programmes for extension workers, followed by training of farmers. The demonstration phase for the strawberry sector will commence immediately after the project has been approved by the Executive Committee;

- (c) Policy package and enforcement programme. A package of policy measures will be developed and implemented with stakeholders to ensure that MB will be phased out and that it will not be re-introduced later. This project component is critical to help finance implementation costs of the information systems and costs of the enforcement programme.

21. The Government of Chile is requesting US \$691,703 plus support costs of US \$51,878 for the World Bank for the implementation of the 2005 work programme.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

22. The Secretariat noted all the efforts undertaken by interested parties for finalizing the MB phase-out strategy and re-submitting a revised project proposal, in particular those of the Government of Chile, national stakeholders, UNDP and the World Bank (the latter coordinating this work).

Issue related to non-compliance with the Montreal Protocol by Chile

23. At its 16th Meeting, the Parties to the Montreal Protocol noted that Chile was in non-compliance with its obligations under Articles 2C, 2E and 2H of the Montreal Protocol. The Parties requested Chile, as a matter of urgency, to submit a plan of action with time-specific benchmarks to ensure a prompt return to compliance (Decision XVI/22).

24. In this regard, the Secretariat sought advice from the World Bank on whether the plan of action for the complete phase-out of controlled uses of MB prepared by the Government of Chile with the assistance from the World Bank and UNDP had already been submitted to the Implementation Committee through the Ozone Secretariat. Subsequently, on 3 March 2005 the Secretariat received a copy of the message that the Government of Chile had sent to the Executive Secretary of the Ozone Secretariat indicating the submission of the MB phase-out strategy that it had developed.

MB consumption for phase-out

25. It is reported in the project proposal that, of the total current MB consumption in Chile (274.3 ODP tonnes), 82 ODP tonnes will be phased out by the Government of Chile without assistance from the Multilateral Fund. In this regard, the Secretariat sought an explanation on whether or not UNDP and/or the World Bank would provide technical assistance in addition to the assistance included in their respective investment projects, to the Government of Chile for phasing out these 82 ODP tonnes of MB.

26. Subsequently, the World Bank informed the Secretariat that to support the Government of Chile in addressing its unfunded 82 ODP tonnes of MB the Bank could, as appropriate, involve UNEP CAP and identify together with UNDP both the technical information and possible other sources of additional assistance needed. Furthermore, these 82 ODP tonnes of MB

have been incorporated into the agreement between the Government of Chile and the Executive Committee.

Level of funding

27. The World Bank submitted to the 37th Meeting of the Executive Committee a project proposal to phase out 121.8 ODP tonnes of MB in tomato and pepper crops in Chile. When the project came up for discussion by the Executive Committee, all policy and technical issues had been fully addressed, and the level of funding (US \$1,776,300) had been agreed between the Secretariat and the World Bank. However, the Executive Committee decided not to approve the project proposal because Chile already had an approved investment project at the time that would allow the country to achieve the 20 per cent reduction in MB consumption in 2005 (Decision 37/48). The new project proposal submitted by the World Bank to the 45th Meeting does take into account the agreement reached between the Secretariat and the World Bank at the 37th Meeting regarding the funding level.

Issues raised by the technical reviewer

28. During the review of the project, the Secretariat considered in detail the comments raised by the project's technical reviewer. The following issues were further discussed between the Secretariat and the World Bank:

- (a) The project plans to adopt impermeable sheets and put resources/effort into reducing MB doses in tomato and pepper crops. The demonstration project identified alternatives for greenhouse tomatoes, so it should be feasible to adopt alternatives avoiding the cost of making MB reductions first. Therefore, the only technical justification for putting resources into reducing MB doses would be as a very short-term measure to achieve an immediate reduction in national consumption in order to achieve compliance urgently.

The World Bank indicated that the Government of Chile and the Bank had agreed on the use of impermeable sheets for only a very short period to assist Chile to return to compliance as soon as possible. It will be done by changing the product's labelling to match MB doses and concentration.

- (b) Alternatives selected for the strawberry sector are not identified in the project proposal, although the budget indicates metam sodium. The US \$420,000 proposed for demonstration in the strawberry sector is very high taking into consideration that effective MB alternatives for soil fumigation in strawberry crops have been identified and are well known.

The World Bank indicated that, since the strawberry sector had not been included in the previous demonstration and phase-out projects implemented in Chile, a demonstration phase for the strawberry sector would be needed and, therefore, it has been included as a project component. The combination of 1,3-D and chloropicrin that has been shown to be an effective alternative for strawberry

production in many parts of the world, and is being adopted in major strawberry producing regions, has already been registered in Chile for soil fumigation.

- (c) The project proposes to put a large amount of resources into information management, primarily to monitor MB imports and use, regulatory changes, management and enforcement. The proposed costs for these activities are very high compared to similar requests in other countries. Although the counterpart funding by the Government of Chile is over 40 per cent of the total cost, and the Government would have flexibility in organizing and implementing the project's components which it deems more important to meet the phase-out of MB, it would be more sustainable if the vast majority of project resources were put into training programmes, and procurement and installation of alternative equipment and farm materials at fumigation companies, farms and greenhouses.

The World Bank indicated that past experience in Chile has proven that a more comprehensive and strategic approach would be needed to bring the country back to compliance and ensure sustainable and permanent reductions in MB use. Most developed countries have a similar information management system as the one proposed by the Government of Chile. However, considering the flexibility in the use of the funds to meet the targets under the project, the Government of Chile may consider shifting resources to additional training programmes as project implementation progresses.

- (d) The proposed project duration is 10 years. There is no technical need for the project to have such a long duration. The alternatives for these crops are well-known and have been adopted already in a number of other countries. The Secretariat also noted that by 2007, about 75 per cent of the total funding would be disbursed and only 38 per cent of the total consumption would be phased out. Also, between 2008 and 2013, 62 per cent of the MB consumption would be phased out with the 25 per cent of the remaining funding. Furthermore, between 2008 and 2013, while the phase-out of MB to be achieved varies from 4 per cent to 23 per cent in the last year, the funding tranches in the project are set at US \$110,000.

With regard to project duration, the World Bank indicated that it has been instrumental in co-ordinating local dialogue between the national agrarian agencies, stakeholders and CONAMA, and the final agreed phase-out schedule (8 years) has been included in the agreement. The most challenging actions would take place during the first years of project implementation. A higher level of funding would be necessary during the 2005-2007 period in order to implement the demonstration phase in the strawberry sub-sector, set up the policy and information management system, and procure all the equipment and farm material required for the replacement of MB with alternative technologies. However, tranches would only be approved by the Executive Committee if the annual consumption targets are effectively achieved. Also, the requested funds for 2008

through to 2011 are less percentage-wise than the committed percentage of tonnes to be phased out in that period.

Agreement

29. The revised draft agreement between the Government of Chile and the Executive Committee for the phase-out of MB is presented in Annex I to the present document.

RECOMMENDATIONS

30. The Executive Committee may wish to consider, without prejudice to the operation of the Montreal Protocol's mechanisms dealing with non-compliance issues, whether to:

- (a) Take note of the strategy and plan of action for Chile for returning to compliance submitted by the Government of Chile;
- (b) Approve in principle the project for the phase-out of all remaining uses of methyl bromide in soil applications at a total level of funding of US \$2,547,156 plus agency support costs of US \$191,037 for the World Bank;
- (c) Also to approve the revised Agreement between the Government of Chile and the Executive Committee for the phase-out of MB used in soil fumigation in Chile contained in Annex I to the present document; and
- (d) Further to approve US \$691,703 plus support costs of US \$51,878 for the World Bank for the implementation of the 2005 work programme for the phase-out of all remaining uses of methyl bromide in soil applications in Chile.

Annex I

DRAFT AGREEMENT BETWEEN THE MULTILATERAL FUND EXECUTIVE COMMITTEE AND CHILE

1. The Executive Committee:
 - (a) At its 32nd Meeting, approved US \$805,000 as the total funds that will be available to Chile to achieve the complete phase-out of methyl bromide (MB) used in the fruit replanting and nurseries sectors (76.2 ODP tonnes);
 - (b) At its 45th Meeting, approved in principle an additional US \$2,547,156 as the total funds available to Chile to achieve the complete phase-out of MB used in the remaining soil fumigation sectors, excluding quarantine and pre-shipment applications (additional 136.3 ODP tonnes).

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 Chile is 212.5 ODP tonnes, and the MB consumption in 2003 was 274.3 ODP tonnes, excluding about 68.6 ODP tonnes which Chile states that it uses for quarantine and pre-shipment applications. Accordingly, Chile must reduce its consumption of MB to 212.5 ODP tonnes to achieve compliance with the Montreal Protocol's 2002 freeze obligation, and to 170 ODP tonnes to achieve compliance with the Protocol's 20 per cent reduction in 2005.

3. Reductions resulting from the implementation of this project, together with reductions agreed in the approved project in the tree replant and tree nursery sectors (32nd Meeting of the Executive Committee), will ensure that Chile will meet the reduction schedule listed below. In this regard, Chile commits, through the implementation of these projects, to reduce total national consumption of controlled uses of MB to no more than the following levels of consumption in the years listed below:

Year	Amount of MB to be phased out (ODP tonnes)				Maximum MB consumption excluding QPS (ODP tons)
	Fruit replanting and nurseries	Tomato, strawberry, peppers, nurseries, seedbed	Total phased out	Phased out without MLF funding	
Freeze level					212.5
2003					274.3
MB already phased out	20.2		20.2		
2005	21.0	1.3	22.3	82.0	170.0
2006	35.0	10.0	45.0		125.0
2007		41.0	41.0		84.0
2008		19.0	19.0		65.0
2009		15.0	15.0		50.0
2010		7.0	7.0		43.0

Year	Amount of MB to be phased out (ODP tonnes)				Maximum MB consumption excluding QPS (ODP tons)
	Fruit replanting and nurseries	Tomato, strawberry, peppers, nurseries, seedbed	Total phased out	Phased out without MLF funding	
2011		7.0	7.0		36.0
2012		5.0	5.0		31.0
2013		31.0	31.0		-
Total	76.2	136.3	212.5	82.0	

4. The projects will phase out all soil uses of MB in strawberries, tomato crops, nurseries and seedbeds in Chile, excluding quarantine and pre-shipment applications. Chile commits to permanently sustain the consumption levels indicated above through the use of import restrictions and other policies it may deem necessary. The World Bank and UNDP shall report back annually to the Executive Committee on the progress achieved in meeting the MB reductions required in the fruit replant, tree nursery, strawberries, tomato, nurseries and seedbeds sectors.

5. Funding for the project for the phase-out of MB in tomato, strawberry and pepper crops implemented by the World Bank will be disbursed with the following yearly budget breakdown:

Year	% of MB phase-out under this project	% of funding	Disbursement (US\$)
2005	1%	27%	691,703
2006	7%	21%	534,533
2007	30%	26%	660,920
2008	14%	4%	110,000
2009	11%	4%	110,000
2010	5%	4%	110,000
2011	5%	4%	110,000
2012	4%	4%	110,000
2013	23%	4%	110,000
Total	100%	100%	2,547,156

6. The Government of Chile has reviewed the consumption data identified in this project and is confident that it is correct. Accordingly, the Government is entering into this agreement with the Executive Committee on the understanding that, should additional MB consumption (in any current controlled uses of methyl bromide) be identified at a later date, the responsibility to ensure its phase-out will lie solely with the Government.

7. The Government of Chile, in agreement with the World Bank and UNDP, will have flexibility in organizing and implementing the components of the project which it deems more important to meet the MB phase-out commitments noted above. The World Bank and UNDP agree to manage the funding for the project in a manner designed to ensure the achievement of the specific MB reductions agreed upon. The World Bank and UNDP shall also report back to

the Executive Committee annually on the progress made in meeting the reductions required by these projects.

8. These agreed conditions between the Government of Chile and the Executive Committee have taken into account the already approved methyl bromide phase-out project in fruit replant and tree nursery sectors. Consequently, they supersede the conditions agreed at the 32nd Meeting of the Executive Committee.

RESPONSE TO DECISION 44/48

SECTORAL CONSUMPTION AND REMANING USES

OF

METHYL BROMIDE IN CHILE FOR THE PERIOD 2000 TO 2003

AND

STRATEGY AND ACTION PLAN FOR CHILE

FOR RETURNING TO COMPLIANCE

I refer to EXCOM Decision 44/48 which requests the World Bank to submit to the 45th Meeting a national plan for complete phase-out of controlled uses of methyl bromide in Chile, once significant issues related to both the strategy and the project proposal that had been developed for the 44th Meeting were clarified in consultation with the Government of Chile. The alluded issues were related to: (i) the sectoral consumption of remaining uses of MeBr in Chile for the period 2000-2003, and (ii) the Strategy and Action Plan developed by the country to return to compliance. Both issues are addressed in the attached project document, and copied below for easy reference.

In addition, a draft agreement between the GOC and EXCOM is also attached.

1. REMAINING MeBr CONSUMPTION AND USE IN CHILE

Chile is the sixth largest consumer country of methyl bromide in Latin America after Mexico, Brazil, Argentina, Costa Rica and Guatemala. MeBr is commonly used in Chile as a soil fumigant to control a broad spectrum of pest pathogens, insects, nematodes, and weeds. Imports of MeBr vary substantially on a year-to-year basis. This is mainly due to the fact that a significant amount of imports occurs in the last part of each year. That said, these amounts are sometimes registered in the current year and other times they are officially registered in the following year. MeBr is used the year after the import has been made effective and, thus, import time series show such variations. A two-year average is more illustrative of the trend of annual imports. Table 1 shows Chile's annual MeBr imports over the last decade.

Table 1. MeBr imported by Chilean companies

Year	MeBr imports (MT)	MeBr imports (ODP)
1994	199.0	119.40
1995	294.7	176.80
1996	393.7	236.20
1997	231.7	139.00
1998	496.8	298.10
1999	178.5	107.10
2000	404.2	242.5
2001	398.3	239.00
2002	275.3	165.2
2003	457.2	274.32
Baseline	354.16	212.5

Source: CONAMA 2003

The use of MeBr for sterilizing soils is linked to the production of tomatoes, peppers, strawberries, and other agricultural processes such as fruit replanting, nurseries, greenhouses and seedbeds. Breakdown of total consumption in the different types of agricultural processes has been estimated through the sales databases of the import companies.

Table 2. Estimated figures for the MeBr use by crop sector

Type of activity	Estimated in 2000 (MT)	Estimated in 2001 (MT)	Estimated in 2002 (MT)	Estimated in 2003 (MT)
Tomatoes and peppers in greenhouses	118.9	117.1	81.0	134.5
Strawberries	61.4	73.2	64.8	119.6
Fruit replanting	98.0	82.3	39.0	64.8
Fruit nursery	29.0	30.2	24.5	28.6
Industrial tomato seedbed	40.3	39.7	27.4	45.6
Seedbed, other than industrial tomato	33.1	32.6	22.5	37.4
Tomatoes in open fields	23.5	23.2	16.0	26.7
TOTAL	404.2	398.3	275.3	457.2

Source: ODEPA

MeBr consumption volumes have risen mainly in the strawberry, tomato and peppers sub-sectors. While the ongoing approved UNDP investment project has not achieved significant reductions of MeBr use in fruit nurseries (28.6 MT in 2003 versus 30.2 in 2001), it has proven to be more effective in the fruit replanting sub-sector, i.e. 17.5 MT reduction compared to year 2001, and 33.2 MT reduction compared to year 2000. This reveals an important reduction trend in those sub-sectors where actions are being taken under the MLF approved investment project.

However, it is also clear that these reductions - though accountable - did not prove to be sustainable and permanent, as seen in comparing the figures for fruit replanting in the period 2000-2003: 98 MT in 2000; 82.1 MT in 2001; 39 MT in 2002 and 64.8 MT in 2003. Although part of the 2003 rise could be explained by stockpiling, the situation calls for an overall approach addressing the entire MeBr consuming sector, for which this current project stands for.

2. STRATEGY OUTLINE

This section summarizes Chile's strategy and action plan to return to compliance in the Methyl Bromide (MeBr) sector and early phasing out its use in the country. As explained below, the strategy combines efforts dealing with information, technology transfer, regulations and investments, in the understanding that the competitiveness of Chilean agriculture is at stake and hence, actions must be in line with the market context and the opportunities of competitor countries in the use of MeBr.

The project proposal submitted by the World Bank to the 45th Executive Committee Meeting on behalf of the government of Chile (GOC), intends to support this strategy through an action plan

outlined in this paper, complementing the approved investment project currently being implemented by UNDP (32nd Meeting of the Executive Committee).

This strategy is based on the following principles:

- ***Environmental protection and compliance with international commitments.*** The objective of the strategy is essentially based on this principle.
- ***Non-binding participation of those affected by regulatory and investment decisions.*** A public and private sector advisory committee will be formed to analyze this strategy's mode of operation. However, final decisions will only be made by government authorities.
- ***Minimization of distortions in Chile's pesticide and agricultural products market.*** The rationale of the country's economic policy is based on this principle, which also translates to the present strategy.
- ***Efficiency and effectiveness of government actions.***
- ***Consistency with market signals.*** This principle is highly important in the current regulatory rationale regarding Chilean agriculture. The fact that Chile's forestry and agricultural sector is eminently oriented toward end-uses and markets that demand quality and sustainability of processes, allows for a cost-effective type of regulation, which is also carried out in line with the interests of the manufacturing sector.

It is important to keep in mind the fact that the market is currently not sending signals with regard to the elimination of methyl bromide use, which obliges the government of Chile (GOC) to enter into an investment rationale associated with a regulatory approach which is complicated to implement due to the highly scattered location of farmers who cultivate most of the crops that use MeBr.

Another important element to be considered is the way in which the sectoral policy operates through agricultural and food chains, which translates into work programs by categories with the participation of the respective workers. This element suggests the need for reliable information on methyl bromide uses and to implement different regulations for each crop.

The strategy of phasing out the use of MeBr in soil fumigation incorporates four areas: information for public decision making, public dissemination, investments and regulation, as described below.

1. Information for decision making

Currently, the only official information on methyl bromide comes from the National Customs Service, regarding the volumes imported for the different formulations and companies that use them. There is a lack of official figures on stock, quarantine use and pre-shipment (although this can be inferred from the formulation), the crop on which MeBr is used, location and farmers who purchase MeBr. To effectively monitor the country's performance with the Montreal Protocol control measures in terms of MeBr, and for undertaking development, investment and regulatory actions in the right direction, a dynamic information system must be implemented to allow the public sector to make quick and effective decisions. This area will develop databases on imports

and distributors of methyl bromide and quantities used in pre-shipment and quarantine treatments.

Once agreement is reached (via decree) to eliminate low-volume formulations applied by farmers themselves (in cylinders), a registry of companies that apply MeBr will be set up; this registry will facilitate reliable information on MeBr uses and allow short-term regulatory reactions if needed.

2. Public Dissemination

This component will focus in two lines of action:

- A) The first refers to technology transfer, to be carried out by INIA (“Instituto de Investigaciones Agropecuarias” or the Agricultural and Livestock Research Institute) and INDAP (“Instituto de Desarrollo Agropecuario” or Agricultural and Livestock Development Institute). The GOC has the means for technology transfer, which will incorporate the use of alternatives to MeBr. In particular, the approved and ongoing MeBr phase out project, currently being executed by INIA and UNDP, will fully focus on training the operators of alternative sources in the country’s nurseries. This training will be certified by the relevant authority and mandatory for all nurseries. Thus, once the program is completed, methyl bromide use in this sector can begin to be phased out in a regulatory manner. The GOC also has available an instrument to capture new technologies, co-financing trips to learn techniques developed in other parts of the world. This instrument of FIA (“Fondo de desarrollo de la innovación” or Innovation Development Fund, under the Ministry of Agriculture) may be useful for farmers’ leaders and the country’s technology transfer agents to learn new techniques in the field.
- B) Incorporation of the non-use of methyl bromide in clean production standards. On a voluntary basis, an effort will be made to incorporate this element in two instruments that are currently of great importance in the sector’s sustainable development policy: Clean Production Agreements and Agricultural Best Practices. These standards are utilized by exporters as management systems aimed at opening up high demanding markets and to defend themselves from possible tariff barriers abroad. They are being increasingly applied and are now even beginning to be used for crops aimed at the domestic market. The country has the necessary public and private sector institutional structure to develop this area.

3. Investments in alternative methods

This area requires significant financing that is currently not present in agricultural development instruments. As per approval of this project, a modality for generating service-oriented micro-enterprises will be structured and the existing institutional structure will be utilized (for example, INIA) to carry out disinfection methods alternative to the use of MeBr. In any case, lessons learned from CONAMA’s experience with the industrial sector regarding other ozone depleting substance will be included. This work is essential to shorten deadlines for MeBr phase out and to implement regulations more quickly.

4. Mandatory regulations

If the proper development of the first three areas of the strategy so allows, bans on methyl bromide use will be issued when farmers, especially the poorest ones, have mitigated the incremental cost of methyl bromide alternatives. The rationale would be to implement the regulation in order to avoid setbacks in the progress made. In any case, there are regulations on mandatory compliance that could be implemented in the short term, such as the requirement to modify plastic covers and the registration of a formula for 50% concentration to replace that of 98% for use in the replanting of fruit trees.

Another short-term regulation that could be implemented if the project is approved is the total ban on methyl bromide use in nurseries and seed beds, once the INIA training implemented by UNDP is completed.

Once alternatives and equipment are made available, decrees could be issued on the prohibition of methyl bromide use in other categories, which will take place in parallel to the incorporation of methyl bromide alternatives in management systems for Agricultural Best Practices and Clean Production Agreements.

Finally, following precise guidance from the President of the Republic, the Ministry of Agriculture and CONAMA have elaborated a law project which will enable the regulatory agency to fix annual mandatory import quotas that allow the country to fulfill its compliance promises to the Montreal Protocol. This law project will be sent soon to the Parliament for its approval. In addition, the Ministry of Agriculture keeps negotiating new voluntary compromises with methyl bromide trading companies in order to reach a sustained phase out of methyl bromide usage in the country.

3. ACTION PLAN

According to the criteria explained in the project proposal, there are three main components in the project that will be implemented simultaneously. They are:

Module 1: Procurement of equipment. The main goal is to facilitate the acquisition and distribution of the equipment and materials to farmers in each region.

Module 2. Technical assistance, technology transfer and training/extension: The project will implement studies and training programs for extensionists, followed by a training/extension program. Due to the fact that the strawberry sector was not included in the previous demonstration and phase-out projects, it is necessary to include a demonstration phase for the strawberry sector that would lead to phasing out the use of MeBr by completion of this project.

Module 3. Policy package and enforcement program: A package of policy measures will be developed and implemented with stakeholders to ensure that MeBr will be phased-out and that it will not be re-introduced later. The policy measures will be synergic with

components 1 and 2. In addition, this component is critical to help finance implementation costs of the information systems and costs of the enforcement program.

This phase-out plan simultaneously addresses policy, technical and cultural issues. The project will last 8 years and will be executed in 2 phases, but the modules will be developed simultaneously during both phases.

Summary of planned action lines

Information management	Information management is an overall action line. Gathering, analyzing and using accurate information in all the critical aspects of MeBr phase-out is crucial for the implementation of a proactive and responsive strategy. The information system will allow the control of the MeBr throughout its marketing process and the differentiation of the quarantine use from the soil fumigation use, being an effective instrument for the enforcement of the normative.
Nurseries and Seedbeds	The action plan consists of a combined set of measures intended to promote the phase-out. The main actions include the study and change of the norms enforced by SAG in order to control the quality of the reproductive material sold by nurseries. The regulatory change will eliminate the strong incentive to use MeBr. Nurseries and seedbeds will be encouraged to shift mainly to the vaporization method (among eligible ones).
Tomato Industrial Seedbeds	Since large firms constitute this category, the project will encourage the coordination of official entities with these companies. The work with the companies will follow a voluntary approach in order to implement Agricultural Best Practices (ABP) agreements. This work will include the technical and economic analysis of the available alternatives.
Strawberry large farmers	Includes development of a demonstration phase for alternatives to MeBr in this sub-sector for two years. Experts and producers will select the most adequate alternatives. This category also includes technology transfer, training and extension activities.
Large farmers of greenhouse and open field tomato (in Tarapacá Region)	A gradual strategy has been chosen for this category, since the phase-out implies a great challenge to the farmers. The first phase involves the promotion of efficiency in the use of MeBr. In the long run, the alternatives for this category will be primarily other chemicals such as Metam Sodium, which will be actively promoted. This line included peppers growers, because in many cases the producers are the same.
Small farmers of greenhouse tomato and strawberries	This segment does not currently use large amounts of MeBr but it could increase if left unregulated. The development of these producers is promoted by several government agencies that could promote a shift from extensive to intensive production methods. For this reason, this segment of the project will promote biological control practices, rotation of crops and integrated pest management.

Combination of action lines and components

Components	Component 1	Component 2	Component 3
Overall action lines			
A) Information management	*Software *On-line system *Equipment	*Coordination activities related to the CAP *Training and extension for enterprises, Customs and related institutions	*Information protocol and measures
Specific action lines			
B) Tomato Industrial Seedbeds	*APL establishment and implementation	*Technical assistance *Coordination activities related to the CAP *Training and extension for producers	*APL
C) Nurseries and Seedbeds (other than industrial tomato)	*Equipment purchase	*Technical assistance *Coordination activities related to the CAP *Training and extension for producers	*Validation of studies of current nursery regulations and analysis of possible changes.
D) Large strawberry farmers	*Equipment purchase *Incremental cost for alternatives	*Demonstration phase *Technical Assistance *Coordination activities related to the CAP *Training and extension for producers *Establishment of networks	
F) Large farmers of greenhouse and open field tomatoes (in Tarapacá Region)	*Adjustment of doses for tomatoes and strawberries *Equipment purchase *Incremental cost for alternatives *Enforcement	*Coordination activities related to the CAP *Training and extension for producers *Establishment of networks	*Studies for adjustment of doses and uses *Modification of labels *Enforcement
G) Small farmers of greenhouse tomatoes and strawberries	* Promote New Alternatives *Institutional agreement *Enforcement	*Coordination activities related to the CAP *Training and extension for producers *Establishment of networks	*Enforcement

4. SCHEDULE to RETURN to COMPLIANCE

The MeBr baseline for compliance for Chile is 212.5 ODP T, whereas the MeBr consumption in 2003 stood at 274.3 ODP T. By excluding the 68.6 ODP T that Chile has officially reported it uses for quarantine and pre-shipment applications, Chile must reduce its consumption of MeBr by an additional 35.7 ODP T in order to return to compliance with the agreement reached during

the 32nd meeting of the Executive Committee, as well as with its compliance targets under the Montreal Protocol.

The project has been designed to lead to a sustainable phase-out of MeBr through selected alternative technologies and good practices, and will be supported by policy measures to ensure that the MeBr phased out under this project will not be re-introduced. The training program will be implemented by and with growers' organizations to ensure their active support. The project strategy has been carefully designed and will ensure a permanent and sustainable phase-out of MeBr in the country following the phase out targets indicated below:

Year	MeBr Phased Out per year ODP			Maximum MeBr consumption excluding QPS (ODP tons)
	Fruit Replanting and Nurseries	Tomato, Strawberry, Peppers, Nurseries and Seedbed	Total Phased out per year	
Freeze level				212.5
MeBr already phased out under UNDP project	20.2		20.2	
2005	21.0	1.3	22.3	170.0
2006	35.0	10.0	45.0	125.0
2007		41.0	41.0	84.0
2008		19.0	19.0	65.0
2009		15.0	15.0	50.0
2010		7.0	7.0	43.0
2011		7.0	7.0	36.0
2012		5.0	5.0	31.0
2013		31.0	31.0	-
Total MeBr Phased Out	76.2	136.3	212.5	

5. INTER-AGENCIES COORDINATION

The World Bank and UNDP will act coordinately in the respective implementation of both investment projects to support the GOC's strategy and action lines to meet the annual consumption targets set through the end of 2012.

In this sense, the GOC requests flexibility in the use of funds from both projects and in meeting sub-sectoral reductions of MeBr in order to yearly meet the maximum allowable consumption targets set under the new Draft Agreement with EXCOM.