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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Forty-seventh Meeting  
Montreal, 21-25 November 2005

**PROJECT PROPOSAL: MOROCCO**

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

Fumigant

- Phase-out of methyl bromide used for soil fumigation in tomato production UNIDO

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

<b>PROJECT TITLE</b>	<b>BILATERAL/IMPLEMENTING AGENCY</b>
Phase-out of methyl bromide used for soil fumigation in tomato production	UNIDO

<b>NATIONAL CO-ORDINATING AGENCY:</b>	
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**LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT**

**A: ARTICLE-7 DATA (ODP TONNES, 2004, AS OF SEPTEMBER 2005)**

Annex E, methyl bromide	691.2		
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**B: COUNTRY PROGRAMME SECTORAL DATA (ODP TONNES, 2004, AS OF SEPTEMBER 2005)**

ODS	Foam	Ref.	Aerosol	ODS	Solvents	Process agent	Fumigant
				Methyl bromide			QPS 6.0
							Non-QPS 691.2

<b>CFC consumption remaining eligible for funding (ODP tonnes)</b>	n/a
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**CURRENT YEAR BUSINESS PLAN:** Total funding US \$ 1,796,320: total phase-out 166.5 ODP tonnes.

<b>PROJECT DATA</b>	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Montreal Protocol limits	744.0	688.4	612.9	570.7	<b>481.7</b>	425.3	347.3	260.9	164.9	
MB to be phased-out	--	--	34.1	--	<b>39.0</b>	56.4	78.0	86.4	96.0	389.9
Project cost as originally submitted (US \$)	3,957,844									
Total project funding UNIDO (US \$):	400,000	0	0	607,513	<b>1,670,995</b>	411,633	424,381	398,427	0	3,912,949
Total support costs UNIDO (US \$):	52,000	0	0	45,563	<b>125,325</b>	30,872	31,829	29,882	0	315,471
Total cost (US \$)	452,000	0	0	653,076	<b>1,796,320</b>	442,505	456,210	428,309	0	4,228,420
Final project cost effectiveness (US \$/kg)										

**FUNDING REQUEST: Approval of funding for second tranche (2005) as indicated above.**

<b>SECRETARIAT'S RECOMMENDATION</b>	Blanket approval for the second tranche (2005)
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## PROJECT DESCRIPTION

1. The Government of Morocco, through UNIDO, has submitted for consideration by the Executive Committee at its 47th Meeting, a progress report on the implementation of the first tranche of the project for the phase-out of 389.9 ODP tonnes of methyl bromide (MB) used for soil fumigation in tomato production in Morocco.
2. The Government of Morocco has also submitted the work programme associated with the second tranche of the project, at a total cost of US \$1,670,995 plus agency support costs for UNIDO.

### Background

3. The Executive Committee:
  - (a) At its 29th Meeting, approved US \$1,006,652 as the total funds available to Morocco to achieve the complete phase-out of methyl bromide (MB) used in cut flowers and banana production (61 ODP tonnes);
  - (b) At its 32nd Meeting, approved an additional US \$2,189,729 as the total funds available to Morocco to achieve the complete phase-out of MB used in the strawberry sector (additional 151.6 ODP tonnes);
  - (c) At its 34th Meeting, approved in principle an additional US \$3,957,844 as the total funds available to Morocco to achieve the complete phase-out of MB used in the tomato sector (additional 389.9 ODP tonnes), and approved the first tranche of the project (at US \$400,000 plus agency support cost for UNIDO) to phase-out 34.1 ODP tonnes of MB; and
  - (d) At its 44th Meeting, agreed to endorse a change of technology in the tomato sector from the negative pressure steam pasteurization proposed in the original project to grafting technology, and allocated an additional US \$607,513 plus agency support costs for UNIDO as the balance of the first tranche (the total cost of the project was adjusted on the basis of the change of technology to US \$3,912,949).

4. Through the implementation of the above investment projects, the Government of Morocco commits to a permanent reduction in aggregate consumption of controlled uses of MB to no more than the following levels:

Year	Maximum level of methyl bromide consumption by crop (ODP tonnes)				
	Strawberry	Banana, flowers	Tomato	Total phased out	Total
2001	23.4	-	-	23.4	744.0
2002	15.6	40.0	-	55.6	688.4
2003	20.4	21.0	34.1	75.5	612.9
2004	42.2	-	-	42.2	570.7
2005	50.0	-	39.0	89.0	481.7
2006	-	-	56.4	56.4	425.3
2007	-	-	78.0	78.0	347.3
2008	-	-	86.4	86.4	260.9
2009	-	-	96.0	96.0	164.9
Total	151.6	61.0	389.9	602.5	

#### Progress report

5. As reported to the Executive Committee at its 44th Meeting (UNEP/OzL.Pro/ExCom/44/46), implementation of the project for the phase-out of MB in the tomato sector has been delayed due to difficulties in applying some of the alternative technologies that were selected at the time the project proposal was prepared. However, since the approval of the change of technology by the Executive Committee at its 44th Meeting, the project has been implemented according to plan. It is expected that, by the end of 2005, about 39 ODP tonnes of MB used in the tomato sector will be phased out.

6. In 2005, UNIDO implemented a number of activities, including:

- (a) The signing of a sub-contract with the Association of Producers and exports of Fruits and Vegetables to provide logistic assistance during implementation of the project, and the hiring of project supervision personnel;
- (b) An awareness and information dissemination meeting targeting the major tomato producers and farmer associations. A study tour to Italy for local project staff was also completed;
- (c) Equipment purchasing for nursery greenhouses (5,000 m<sup>2</sup>) for the production of grafted tomato seedlings. The equipment will be delivered by the end of December 2005 and the installation completed by June 2006;
- (d) The design of a pilot greenhouse for tomato production, which will be the focal point for the implementation of MB alternatives, trials, training and technical assistance. The equipment has not yet been purchased due to the lack of funds (a purchase order will be placed as soon as the third tranche of the project is approved);
- (e) The purchase of 300,000 grafted tomato seedlings, which were distributed among 41 farmers to eliminate 21.6 ODP tonnes of MB use. The remaining 17.4 ODP

tonnes (to achieve the 2005 MB phase-out target of 39 ODP tonnes) were phased out by farmers who had benefited from training and technical assistance under the project;

- (f) Assistance to register the mixture of 1.3 dichloropropane (13D) plus chloropicrin, as an MB alternative technology; and
- (g) A survey on MB consumption in the tomato sector, together with the development of a monitoring system to track MB users.

7. As of September 2005, of the total funding approved so far (US \$1,007,513), US \$973,206 has been disbursed by UNIDO, with a remaining balance of US \$34,307.

#### Plan of action

8. For 2006, phase-out of an additional 56.4 ODP tonnes of MB is proposed. The target will be achieved through: the provision of tomato grafted seedlings; implementation of training programmes and technical assistance activities related to the application of soil solarization combined with metam sodium and crop management of grafted seedlings; and the registration of chloropicrin mixed with 1.3D, with a field test on a commercial scale.

9. The work plan includes the following specific activities:

- (a) Final installation of the nursery and the pilot greenhouse for tomato production that commenced during the previous work programme;
- (b) Recruitment of one additional field expert;
- (c) Implementation of training programmes and technical assistance activities;
- (d) Actual production of tomato grafted seedlings in the nursery;
- (e) Transfer of alternative technologies and trial production of tomatoes in the pilot greenhouse;
- (f) Monitoring MB users and the performance of MB alternatives; and
- (g) Preparation of technical specifications and establishment of international competitive bidding for procurement of the nursery (phase II) and pilot greenhouse (phase II).

10. Of the total funding requested for the 2006 work programme, US \$1,311,686 will be used for the procurement of the equipment needed for the implementation of the various alternative technologies, and the remaining for a sub-contract with the Association of Producers and exports of Fruits and Vegetables, international consultants and study tours.

## SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

### COMMENTS

#### MB consumption levels

11. The Secretariat noted that 2001-2004 levels of MB consumption in Morocco were above the maximum allowable levels established in the agreement between the Government and the Executive Committee, as shown in the table below. Between 2003 and 2004, the reported consumption of MB was reduced by only 6 ODP tonnes. However, according to the progress report, MB consumption in the tomato sector was reduced by 34.2 ODP tonnes in 2003, and an additional 39.0 ODP tonnes are expected to be phased out by the end of 2005. On this basis, the Secretariat concluded that while MB consumption has decreased in the tomato sector, MB consumption has increased in other sectors (i.e., banana, and/or cut flowers and/or strawberries).

Source	MB consumption (ODP tonnes)					
	Baseline	2001	2002	2003	2004	2005
A7 data	697.2	1,621.4	387.0	697.2	691.2	
Agreement		744.0	688.4	612.9	570.7	481.7
Difference		(877.4)	301.4	(84.3)	(120.5)	

12. Subsequently, UNIDO confirmed that while MB consumption has decreased in the tomato sector, it has increased in other sectors as shown in the table below (in ODP tonnes):

Year	Tomato		Strawberry		Banana flowers		Others	Total	
	Cons.	Agreed	Cons.	Agreed	Cons.	Agreed	Cons.	Cons.	Agreed
2000		390		152		61			
2001		390		128		61			744
2002	390	390		113		21			688
2003	356	356	140	92	36	0	165	697	613
2004	356	356	90	50	26	0	219	691	571
2005	317	317		0		0			482

13. UNIDO also indicated that all the MB phase-out projects started only about one year after they had been approved by the Executive Committee (i.e., strawberry project in 2002 instead of 2001, banana and cut flower project in 2003 instead of 2002). In the case of the strawberry sector, MB consumption increased in 2003 because of an expansion of surface area treated with MB. However, since 2004 MB consumption has been decreasing as a result of the introduction of the alternative technologies. UNIDO is expecting to achieve the overall MB phase-out reductions by 2006.

#### Registration of chloropicrin

14. The Secretariat noted that it was the first time that it had been reported that chloropicrin was not yet registered in Morocco. The issue had not been mentioned at the 44th Meeting, when UNIDO submitted a request for the change of some of the technologies for the project for the phase-out of MB in tomato production. UNIDO informed the Secretariat that there are currently two formulations of 1.3D mixed with chloropicrin registered in Morocco ("telodrip" and "telopic"). In these two formulations, the 1.3D: chloropicrin ratio is fixed and cannot be adjusted

according to the type of pests present in the field. UNIDO is therefore facilitating the registration of chloropicrin as a single component for greater application flexibility, more effective fumigation and a reduction in costs.

## RECOMMENDATIONS

15. Taking into consideration that in 2005 implementation of the phase-out activities in the tomato sector would result in the phase-out of 39 ODP tonnes of MB as planned in the revised agreement between the Government of Morocco and the Executive Committee, and that the overall implementation of the phase-out project is in accordance with the proposed plan of action, the Secretariat recommends blanket approval of the of the second tranche of the project for the phase-out of MB used for soil fumigation in tomato production in Morocco as specified in the table below.

	<b>Project Title</b>	<b>Project Funding (US \$)</b>	<b>Support Cost (US \$)</b>	<b>Implementing Agency</b>
(a)	Phase-out of methyl bromide used for soil fumigation in tomato production	1,670,995	125,325	UNIDO

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