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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Fifty-sixth Meeting  
Doha, 8-12 November 2008

**PROJECT PROPOSAL: MOROCCO**

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

Fumigant

- Phase-out of methyl bromide used for soil fumigation in tomato production (sixth tranche) UNIDO
- Phase-out of MB used as a soil fumigant in the production of green beans and cucurbits (first tranche) UNIDO/Italy

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

**PROJECT TITLE** **BILATERAL/IMPLEMENTING AGENCY**

Phase-out of methyl bromide used for soil fumigation in tomato production (sixth tranche)	UNIDO
Phase-out of MB used as a soil fumigant in the production of green beans and cucurbits (first tranche)	Italy/UNIDO

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

**A: ARTICLE-7 DATA (ODP TONNES, 2007, AS OF SEPTEMBER 2008)**

Annex E, methyl bromide	263.8		

**B: COUNTRY PROGRAMME SECTORAL DATA (ODP TONNES, 2006, AS OF SEPTEMBER 2008)**

ODS	Aerosol	Foam	Ref.	ODS	Solvents	Process agent	Fumigant
				Methyl bromide			269.7

<b>CFC consumption remaining eligible for funding (ODP tonnes)</b>	
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**CURRENT YEAR BUSINESS PLAN:** Total funding US \$573,000: total phase-out 52 ODP tonnes.

Project data	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Montreal Protocol limits	697.2	697.2	697.2	697.2	557.8	557.8	557.8	557.8	557.8	557.8	557.8	557.8	557.8	
MB phase-out tomato sector			34.1		39.0	56.4	78.0	86.4	96.0					389.9
MB phase-out green beans/cucurbits									20.0	30.0	28.2	28.0		106.2
Total MB to be phased out			34.1	-	39.0	56.4	78.0	86.4	116.0	30.0	28.2	28.0		496.1
Project cost as originally submitted tomato sector (US \$)														3,957,844
Project cost as originally submitted green beans/cucurbits (US \$)														1,506,093
Final project costs (US \$):														
Funding (tomato sector) UNIDO	400,000			607,513	1,670,995	411,633	424,381	398,427						3,912,949
Funding (green beans/cucurbits) UNIDO								690,000		437,594				1,127,594
Funding (green beans/cucurbits) Italy								310,000						310,000
Total project funding	400,000			607,513	1,670,995	411,633	424,381	1,398,427		437,594				5,350,543
Final support costs (US \$):														
Support cost (tomato) UNIDO	52,000			45,563	125,325	30,872	31,829	29,882						315,471
Support cost (green beans/cucurbits) UNIDO								51,750		32,820				84,570
Support cost (green beans/cucurbits) Italy								40,300						40,300
Total support costs	52,000			45,563	125,325	30,872	31,829	121,932		32,820				440,341
Total cost to Multilateral Fund (US\$)	452,000			653,076	1,796,320	442,505	456,210	1,520,359		470,414				5,790,884
Final CE tomato (US\$/kg)														10.03
Final CE green beans/cucurbits (US\$/kg)														10.62

**FUNDING REQUEST:** Approval of funding for the sixth tranche of the tomato sector project (2008) and the first tranche of the green beans/cucurbits sector project as indicated above.

<b>SECRETARIAT'S RECOMMENDATION</b>	Blanket approval: 6 <sup>th</sup> tranche of the tomato project Individual consideration: 1 <sup>st</sup> tranche of the green beans/cucurbits project
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## **PROJECT DESCRIPTION**

1. On behalf of the Government of Morocco, UNIDO has submitted the following project proposals for the phase-out of methyl bromide (MB) for consideration by the Executive Committee at its 56<sup>th</sup> Meeting:

- (a) A progress report on the implementation of the fifth tranche of the project to phase out 389.9 ODP tonnes of MB used for soil fumigation in tomato production in Morocco, as well as a request for funding for the sixth (and final) tranche of the project, at a cost of US \$398,427 plus agency support costs of US \$29,882; and
- (b) A terminal project for the phase-out of MB used as a soil fumigant in the production of green beans and cucurbits, originally submitted at a total cost of US \$1,506,093 plus agency support costs of US \$89,707 for UNIDO and US \$40,300 for the Government of Italy.

### Background

2. The Executive Committee had previously approved projects to phase out MB use in cut flower and banana production, and in the strawberry sector in Morocco, which amounted to funding of US \$3,196,381. A total of US \$3,514,522 for the first five tranches of the MB phase-out project for the tomato sector, including a technology change component, has also been approved by the Executive Committee.

### **MB used for soil fumigation in tomato production**

#### Progress report

3. In 2008, UNIDO implemented a number of activities. These include extending a contract for logistical support, and organization of field visits to producers as well as training sessions on the selected alternatives to MB; completing the installation of greenhouses (5,000 m<sup>2</sup>); procuring and installing an agro-meteorological station; completing the technology transfer centre (officially inaugurated on 3 July 2008); continuing supervision of the operation of the nursery for the production of grafted seedlings, the application of alternative chemicals and bio-fumigation. Through this project, solarization in combination with alternative chemicals has been demonstrated in three other regions of the country. Training workshops on solarization and biofumigation were provided to about 450 farmers and study tours to Turkey and Spain were also conducted.

4. As of August 2007, of the total funding of US \$3,514,522 approved so far, UNIDO has disbursed US \$3,439,751.

#### Plan of action

5. Phase-out of an additional 86.4 ODP tonnes of MB is proposed for 2009. The target will be achieved by continuing to implement the training programmes and technical assistance initiatives in solarization (100 to 125 farmers), alternative chemicals (75 to 100 farmers), and bio-fumigation (50 to 75 farmers), completing installation of the nursery in the northern part of Morocco, and continuing to monitor MB users and the performance of MB alternatives.

### **MB used as a soil fumigant in the production of green beans and cucurbits**

6. About 7,800 ha of green beans are cultivated in Morocco. However, MB is only used by the more intensive producers (cooperatives and individual growers) over an estimated area of 200 ha with a total MB consumption of 78 ODP tonnes in 2008. The use of MB made it possible to have up to three production cycles per year, since only a short time is required between application and planting (2 to 3 days). An additional 28.2 ODP tonnes of MB was used as a soil fumigant for the production of cucurbits, mainly melons, over 130 ha.

7. The project proposes to phase-out 106.2 ODP tonnes of MB used for the production of green beans and cucurbits, representing all the remaining controlled uses of MB by the end of 2012. The alternative technologies selected by all stakeholders for green beans include the application of bio-fumigation and solarisation (for the first cycle), soilless substrate (for the second cycle), and the application of nematicides (for the third cycle) at a cost US \$830,170. The selected alternative technology for melons is the introduction of grafted seedlings at a cost US \$275,550.

8. The project also proposes training in the use of the alternative technologies at a cost of US \$422,400. Operating savings have been estimated at US \$22,027. The total cost of the project is US \$1,506,093 with a cost-effectiveness value of US \$14.20/kg.

## **SECRETARIAT'S COMMENTS AND RECOMMENDATION**

### **COMMENTS**

9. The 2007 MB consumption reported by the Government of Morocco under Article 7 of the Montreal Protocol of 263.8 ODP tonnes was already 83.5 ODP tonnes below the maximum allowable level of consumption of 347.3 ODP tonnes for that year under the agreement between the Government and the Executive Committee. Based on allowable MB quotas issued by the Government, the expected consumption of MB for 2008 is 202 ODP tonnes (i.e., 58.9 ODP tonnes below the allowable level).

#### MB used for soil fumigation in tomato production

10. Upon a request for additional information on the agro-meteorological station that has been established within the technology transfer centre, UNIDO pointed out that it was procured at the request of the farmers' association to enhance the effectiveness of the alternative technology. Good results at the technology centre have led several tomato producers to equip their greenhouses with such a solution.

11. Regarding the introduction of grafted seedlings in the field, UNIDO explained that thanks to extensive promotion of the related technology used in the project this alternative is now widely used by a majority of tomato producers. The project nursery is providing the seedlings at a cost agreed between the association of producers of fruits and vegetables and the management of the nursery. This partnership ensures project sustainability and widespread farmer access to this alternative. A similar approach will be adopted to implement the new proposal for MB phase-out for green bean and melon production.

#### MB used as a soil fumigant in the production of green beans and cucurbits

12. The project proposal indicates that part of the production of vegetables is exported to European markets. However, exports to non-Article 5 countries were not taken into account in the calculation of the cost of the project. Similarly, the proposal reported that green bean cultivation has grown considerably in the past ten years, mainly because of relocation of Spanish producers. On these issues UNIDO reported

that although part of the production is exported to European markets, the project only addresses a very small area where MB is applied (i.e., 200 ha for green beans and 100 ha for melons of the total 78,000 ha being cultivated). Furthermore, local farmers export their products through cooperatives and brokers; and the use of MB represents a barrier to some export markets.

13. The Secretariat also discussed a number of other issues with UNIDO, including the eligibility of some equipment items being requested (rotovator, drainage and irrigation systems, a request for a tractor), the consideration of plastics, organic matter and substrate as operating costs rather than as capital costs, and the high cost of the training programme given the relatively small surface area where MB is used in the production of green beans and cucurbits in Morocco. Subsequently, UNIDO revised the project proposal addressing the issues raised by the Secretariat. The total cost agreed with UNIDO amounts to US \$1,437,594.

#### Revised draft agreement

14. UNIDO assisted the Government of Morocco in drafting a revised agreement between the Government and the Executive Committee. The draft agreement is attached to this document as Annex I.

### **RECOMMENDATION**

15. The Secretariat recommends blanket approval of the sixth tranche of the project for the phase-out of MB used for soil fumigation in tomato production in Morocco at the amount of US \$398,427 plus agency support costs of US \$29,882 for UNIDO.

16. Further, the Executive Committee may wish to consider:

- (a) Approving in principle the terminal project for the phase-out of MB used as a soil fumigant in the production of green beans and cucurbits, at a total cost of US \$1,437,594 plus agency support costs of US \$84,570 for UNIDO and US \$40,300 for the Government of Italy, on the understanding that no additional funding will be provided for Morocco for the phase-out of controlled uses of methyl bromide in the country;
- (b) Approving the revised draft agreement between the Government of Morocco and the Executive Committee for the phase-out of controlled uses of methyl bromide contained in Annex I to the present report; and
- (c) Further approving the first tranche of the terminal project for the phase-out of MB used as a soil fumigant in the production of green beans and cucurbits, at a total cost of US \$690,000 plus agency support costs of US \$51,750 for UNIDO and US \$310,000 plus agency support costs of US \$40,300 for the Government of Italy



**Annex I**  
**REVISED AGREED CONDITIONS FOR PHASE OUT OF METHYL BROMIDE IN MOROCCO (DRAFT)**

1. The Executive Committee:
  - (a) At its 29<sup>th</sup> Meeting, approved US \$1,006,652 as the total funds that will be 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 32<sup>nd</sup> Meeting, approved additional US \$2,189,729 as the total funds that will be available to Morocco to achieve the complete phase-out of MB used in strawberry sector (additional 151.6 ODP tonnes);
  - (c) At its 34<sup>th</sup> Meeting, approved in principle additional US \$3,957,844 as the total funds that will be available to Morocco to achieve the complete phase-out of MB used in tomato sector (additional 389.9 ODP tonnes);
  - (d) At its 44<sup>th</sup> Meeting, agreed for a change of technology, to replace the negative pressure steam pasteurization with grafting technology, adjusting the funding level of the project to US \$3,912,949 to achieve the complete phase-out of MB used in tomato sector; and
  - (e) At its 56<sup>th</sup> Meeting, approved in principle an additional US \$1,437,594 as the total funds that will be available to Morocco to achieve the complete phase-out of MB used in green beans and cucurbits (melon) sector (additional 106.2 ODP tonnes).
  
2. As reported to the Ozone Secretariat, the MB baseline for compliance for Morocco is 697.2 ODP; the 2007 methyl bromide consumption was 263.8 ODP tonnes. Accordingly, Morocco has achieved compliance with the Montreal Protocol's 2002 freeze obligation and it is in compliance with the Protocol's 20 per cent reduction in 2005.
  
3. 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	ODP tonnes					
	Strawberry	Banana and cut flowers	Tomato	Green beans and melon	Total phased out	Total consumption
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	20.0	116.0	86.2
2010	-	-	-	30.0	30.0	56.2
2011				28.2	28.2	28.0
2012				28.0	28.0	
2013				0		
<b>Total</b>	<b>151.60</b>	<b>61.00</b>	<b>389.90</b>	<b>106.2</b>	<b>708.7</b>	

4. Upon completion of the projects, controlled uses of MB in Morocco will be completely phased out. Morocco also commits to permanently sustain the consumption levels indicated above through the use of import restrictions and other policies it may deem necessary. UNIDO shall report back each year to the Executive Committee on the progress achieved in meeting the reductions required by the projects.

5. For the phase-out of MB in the tomato sector, funding will be disbursed by UNIDO in accordance with the following schedule, and with the understanding that a subsequent year's funding will not be disbursed until the Executive Committee has favourably reviewed the prior year's progress report:

Year	US \$
2001	400,000
2004	607,513
2005	1,670,995
2006	411,633
2007	424,381
2008	398,427
Total	3,912,949

6. For the phase-out of MB in the green bean and melon sector, funding will be disbursed by UNIDO and the Government of Italy in accordance with the following schedule, and with the understanding that a subsequent year's funding will not be disbursed until the Executive Committee has favourably reviewed the prior year's progress report:

Year	UNIDO (US \$)	Italy (US \$)
2008	690,000	310,000
2010	437,594	
Total	1,127,594	310,000

7. The Government of Morocco has reviewed the consumption data identified in the cut flower, banana, strawberry, tomato, green beans and cucurbits sectors 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 for controlled uses be identified at a later date, the responsibility to ensure its phase-out will lie solely with the Government.

8. The Government of Morocco shall have flexibility in the implementation of the different project components, which it considers important to meet its phase-out commitments. UNIDO and Italy agree to manage the funding for the projects in a manner designed to ensure that the specific annual reductions agreed are met.

9. These agreed conditions between the Government of Morocco and the Executive Committee have taken into account the already approved MB phase out projects in the cut flower, banana, strawberry and tomato sectors and, therefore, supersede the agreed conditions at the 32<sup>nd</sup>, 34<sup>th</sup> and 44<sup>th</sup> Meetings of the Executive Committee.

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