



**United Nations  
Environment  
Programme**

Distr.  
LIMITED

UNEP/OzL.Pro/ExCom/34/38  
21 June 2001



ORIGINAL: ENGLISH

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

### **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 for soil fumigation in tomato production (first tranche) UNIDO

**PROJECT EVALUATION SHEET  
MOROCCO**

SECTOR: Fumigant ODS use in sector (2000): 409 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

**Project Title:**

(a) Phase-out of methyl bromide for soil fumigation in tomato production

<b>Project Data</b>	<b>Methyl bromide</b>
Enterprise consumption (ODP tonnes)	390.00
Project impact (ODP tonnes)	390.00
Project duration (months)	60
Initial amount requested (US \$)	6,003,093
Final project cost (US \$):	
Incremental capital cost (a)	3,278,040
Contingency cost (b)	294,804
Incremental operating cost (c)	385,000
Total project cost (a+b+c)	3,957,844
Local ownership (%)	100%
Export component (%)	0%
<b>Amount requested (US \$)*</b>	400,000
Cost effectiveness (US \$/kg.)	10.14
Counterpart funding confirmed?	
National coordinating agency	Ozone Office of the Ministry of Industry
Implementing agency	UNIDO

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

\* First tranche

## PROJECT DESCRIPTION

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

1. In 2000, the methyl bromide (MB) consumption in Morocco was 767.4 ODP tonnes used for soil fumigation for the production of tomatoes (390.0 ODP tonnes), strawberries (155.4 ODP tonnes), curcubits (160.8 ODP tonnes), banana (36.0 ODP tonnes), and flowers (25.2 ODP tonnes).
2. The Executive Committee has approved two investment projects to phase out a total of 216.6 ODP tonnes of MB used in the production of cut flowers, bananas, and strawberries at a total cost of US \$3,196,381.
3. The Government of Morocco is submitting a project to phase out an additional 390 ODP tonnes of MB used for soil disinfection in tomatoes. If the Executive Committee approves this project, only 160.8 ODP tonnes of MB will be used in the country for the production of curcubits.
4. Over 40 per cent of the total production of tomatoes is exported to Article 2 countries.
5. The project is to replace MB with solarization in combination with alternative chemicals (including 1,3-dichloropropene and metam sodium), bio-fumigation and negative pressure steam pasteurisation, in combination with an integrated pest management (IPM) programme. These technologies have been selected on the basis of the results from the demonstration project on alternatives to the use of MB in horticulture approved by the Executive Committee at its 22<sup>nd</sup> Meeting (UNIDO, US \$487,300).
6. The use of chemical alternatives requires modification of the irrigation systems currently available in farms (estimated at US \$835,700 for metam sodium, US \$165,690 for dichloropropene, and US \$294,600 for bio-fumigation). Negative pressure steam technology requires installation of pipes in the soil, electric fans and 8 steam generators (at a total cost of US \$1,652,050). The project also includes a training programme at a total cost of US \$997,600. Incremental operating costs have been estimated at about US \$1,663,000.
7. The use and import of MB is controlled by an authorisation permit issued by the Plant Protection Service which is valid for a one-year period (Law 666-87-1997). Upon completion of the project in 2005, the Government will issue a regulation banning MB in the entire tomato production subsector.
8. The project will be implemented by UNIDO in cooperation with "la Direction de la Protection des Végétaux, des Contrôles Techniques et de la Repression des Fraudes" and the "Institut Agronomique et Vétérinaire Hassan II", under the national coordination of the Ozone Unit.
9. The estimated time for the implementation of the project is 5 years.

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

### **COMMENTS**

10. The Secretariat pointed out that the export component has not been considered in the calculation of the eligible cost of the project. UNIDO informed the Secretariat that the majority of the growers do not export tomatoes themselves.

11. The Secretariat sought clarification for the request of irrigation pipes for application of metam sodium and bio-fumigation, the use of injection Venturi devices and the feasibility of sharing them among farmers, the request for safety kits for application of alternative chemicals, and labour costs associated with irrigation. UNIDO explained that the additional irrigation pipes are required to achieve uniform irrigation for applying the metam sodium. Taking into consideration that metam sodium will be applied by each grower (and not only by the companies applying MB), sharing Venturi devices among farms is not technically viable. This also explains the need for safety kits for the application of chemicals by the farmers. Subsequently, UNIDO agreed to reduce the cost of the kits.

12. The Secretariat and UNIDO discussed issues related with the calculation of the operating costs, including the difference in surface area fumigated with MB and the alternative technologies, labour associated with irrigation, costs of plastics, and operating costs of equipment. Subsequently, it was agreed to adjust these costs to US \$385,000.

13. The Secretariat and UNIDO agreed on the cost of the training programme at US \$330,000 (equivalent to 10 per cent of the cost of the equipment) considering that MB is applied over 5,000 ha, more than 1,000 farmers will be trained and three different technologies will be applied.

14. UNIDO is assisting the Government of Morocco in drafting a proposal for an agreement between the Government and the Executive Committee with the commitments proposed and action plan for the phase out of MB in Morocco. The draft agreement will be finalised prior to the 34<sup>th</sup> Meeting of the Committee.

15. The Fund Secretariat and UNIDO have agreed on the total cost of the project at a level of US \$3,957,844 (the export component has not been taken into consideration).

### **RECOMMENDATION**

16. This project is submitted for individual consideration by the Executive Committee.

----