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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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Geneva, 5-7 July 2000

Addendum

PROJECT PROPOSALS: TURKEY

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

Fumigant

- Phase-out methyl bromide in the dried fig sector in Turkey

World Bank

PROJECT EVALUATION SHEET TURKEY

SECTOR: Fumigant ODS use in sector (1999): 50 ODP tonnes

Sub-sector cost-effectiveness thresholds: N/A

Project Titles:

(a) Phase-out methyl bromide in the dried fig sector in Turkey

Project Data	Methyl bromide
	Dried figs
Enterprise consumption (ODP tonnes)	
Project impact (ODP tonnes)	30.00
Project duration (months)	26
Initial amount requested (US \$)	522,500
Final project cost (US \$):	
Incremental capital cost (a)	393,400
Contingency cost (b)	39,340
Incremental operating cost (c)	46,300
Total project cost (a+b+c)	479,040
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US \$)	
Cost effectiveness (US \$/kg.)	15.97
Counterpart funding confirmed?	
National coordinating agency	Technology Development Foundation of Turkey
Implementing agency	IBRD

Secretariat's Recommendations	
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 methyl bromide in the dried fig sector in Turkey

MB consumption

1. MB consumption in Turkey increased from 420 ODP tonnes in 1995 to 790 ODP tonnes in 1998. The Government of Turkey has decided to phase out 25 per cent of the use of MB by 2005 with a complete phaseout by 2008. The Government of Turkey has established an import/export regulation and licensing system; hence, the necessary regulatory measures are in place to control and reduce import of MB.
2. The World Bank is submitting a project to demonstrate the use of carbon dioxide under pressure (modified atmosphere) and magnesium phosphide in combination with heat as alternative technologies for MB used for the fumigation of dried figs. As part of the project, the Government of Turkey will be responsible for the complete phaseout of MB in dry fig fumigation by 2003, estimated to be 30 ODP tonnes with no additional request for funding.
3. MB is used to control pests during the storage of the product. However, fumigation is repeated after packing and once again prior to shipment. The pest control process using MB takes 2-3 hours in a fumigation chamber under vacuum or 24 hours in a chamber without vacuum.
4. Most of the fig production is exported, mainly to Europe.

Alternative technologies and costs

5. The modified atmosphere technology uses carbon dioxide (CO₂), an inert gas that kills pests by asphyxiation and dehydration, at a very high pressure (20-30 bars pressure) for a short period of time (2 to 3 hours). It requires field trials before being introduced into routine fumigation systems, and thus it is proposed to undertake semi-field studies using a modified atmosphere fumigation chamber. The cost of one chamber is US \$275,600.
6. Magnesium phosphide is activated by atmospheric moisture to produce the fumigant gas hydrogen phosphide. The time required for treatment varies from 48 to 96 hours in most cases. Magnesium phosphide is a substance registered and available in Turkey. There are no significant capital costs involved in the use of magnesium phosphide.
7. The project also proposes activities for ensuring technology transfer, training and dissemination of information directed to MB users in the dried fig sector, at a cost of US \$78,00. The cost effectiveness of the project is US \$17.42/kg.
8. The project will be implemented by the Agricultural Faculties of Ankara and Ege Universities. The Aegean Exporters' Union and the Union of Agricultural Sales Cooperatives

(TARIS) will provide infrastructure, laboratory facilities and technical personnel, and will be responsible for disseminating project results to stakeholders.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Executive Committee approved at its 25th Meeting (July 1998) a project to assess the feasibility of five alternative methods to the use of MB in protected horticultural crops and cut flowers in Turkey and allocated US \$314,600 to UNIDO for its implementation. The Committee also approved at its 29th Meeting (November 1999) a project for the introduction of alternatives to MB in protected strawberry, pepper and eggplant crops with a total phaseout of 50 ODP tonnes of MB, and allocated US \$366,440 to the World Bank for its implementation.

Export component and quarantine and pre-shipment uses

2. According to the current strategy and guidelines for projects in the MB sector, "the size of the eligible grant could be reduced depending on the degree of export to non Article 5 countries of the finished product or the participation of multinational corporations". The export component has not been considered in the calculation of the eligible cost of the project. The World Bank informed the Secretariat that export is through members of the Aegean Exporters' Union and not by those implementing the project itself.

3. Upon a request by the Secretariat the World Bank confirmed that MB for fumigation of dried figs has not been considered as quarantine and/or pre-shipment uses.

Alternative technologies

4. The World Bank informed the Secretariat that the time factor during processing was the single most important factor considered during discussions with the fig processors, and therefore this was a key parameter in the selection of the alternative technology. The modified atmosphere technology can accomplish treatment in a 2 to 3 hour period. The use of magnesium phosphide at a high temperature, or magnesium phosphide in combination with temperature and CO₂, would take 24 to 48 hours and thus its use would be limited due to time constraints. The World Bank also informed that the use of this technology discolors figs, leading to a lower value and grading of the final product.

5. The World Bank also stated that retrofitting the baseline MB fumigation chambers is neither technically nor economically viable because they would not be able to withstand the 20-30 bars of pressure required for CO₂ treatment.

Incremental costs

6. The Secretariat and the World Bank also discussed issues regarding the level of incremental capital and operating costs associated with the proposed alternative technologies,

including costs for personnel. The World Bank informed the Secretariat that the costs of manpower were based on actual time needed for implementing the project, and reflected the different tasks and skills to be carried out. The operating costs associated with the use of modified atmosphere chambers about 10 per cent higher than MB. Further to the discussion on this matter, incremental costs of the project were adjusted (US \$479,040).

7. One modified atmosphere chamber will not be sufficient to phaseout the entire consumption of MB for the fumigation of figs. In this regard, the World Bank informed the Secretariat that the Government of Turkey will absorb any additional cost that it may realize for phasing out the 30 ODP tonnes of MB used for fumigation of dried figs.

Conclusion

9. The Fund Secretariat and the World Bank have agreed on the incremental cost of the project. The export component has not been taken into consideration. Based on the above considerations, the Executive Committee may wish to consider the level of funding of the project.

10. The Executive Committee may also wish to request the World Bank to submit an annual progress report on the implementation of the project to the Fund Secretariat.