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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-fifth Meeting
Montreal, 29-31 July 1998

PROJECT PROPOSAL: CROATIA

This document includes the comments of the Fund Secretariat on the following project proposal:

Fumigant

- Demonstration project: 3 alternatives to the use of methyl bromide in tobacco production; namely: solarization plus bio-fumigation, the use of low-dose chemicals, and non-soil cultivation, all in combination with an integrated pest management programme

UNIDO

PROJECT EVALUATION SHEET **CROATIA**

SECTOR: FUMIGANT ODS use in sector (1997): 30 ODP tonnes

Sub-sector cost-effectiveness thresholds: N/A

Project Title:

Demonstration project - Three alternatives to the use of methyl bromide in tobacco production; namely: solarization plus bio-fumigation, the use of low-dose chemicals, and non-soil cultivation, all in combination with an integrated pest management programme.

Project Data	Methyl Bromide
	The Institute for Plant Protection in Agriculture and Forestry
ODS phase-out (ODP tonnes)	-
Proposed project duration (months)	24
Total incremental costs (US \$)	418,000
- including contingency (%)	10
Total project cost (US \$)	418,00
Local ownership (%)	100
Export component (%)	-
Amount requested (US \$) {Original}	444,400
{Revised}	418,000
Cost effectiveness (US \$/kg)	-
National Coordinating Agency	State Directorate for the Protection of Nature and the Environment
Implementing Agency	UNIDO
Technical review completed?	n/a

<i>Secretariat's Recommendations:</i>	
Amount recommended (US \$)	Pending decision of the Executive Committee
Project impact (ODP tonnes)	
Cost effectiveness (US \$/kg)	
Implementing Agency support cost (US \$)	
Total cost to Multilateral Fund (US \$)	

PROJECT DESCRIPTION

Demonstration project - Three alternatives to the use of methyl bromide in tobacco production, namely: solarization plus bio-fumigation, the use of low-dose chemicals, and non-soil cultivation, all in combination with an integrated pest management programme.

1. Consumption of methyl bromide has increased in the last few years and reached 30 tonnes applied over 7,000 ha producing over 11,000 metric tonnes of tobacco leaves in 1997. Methyl bromide consumption data reported to the Ozone Secretariat in 1996 was 17.4 tonnes.
2. Methyl bromide is used only for soil fumigation in the preparation of tobacco seed-beds, since it is illegal to use it in horticultural crops. Before seeding, the soil is treated with 0.454 kg of methyl bromide per 10 square meters under plastic sheeting. The target pests include weed seeds, nematodes and fungi.
3. The project is to demonstrate the technical and economic feasibility of three alternative methods to the use of methyl bromide in tobacco seedling production, namely, non-soil cultivation techniques, application of low doses of other pesticides, and solarization plus bio-fumigation, all in combination with an Integrated Pest Management (IPM) programme.
4. Integrated pest management (IPM) approach for crop protection utilizes a combination of cultural practices, including crop rotation, cover crops, fertilization and plant nutrition; physical methods, including steam, solarization, and heat, and use of chemical compounds. Implementation of an IPM reduces the dosage of mixtures of pesticides and fungicides applied.
5. The demonstrations will be implemented at all the tobacco producing sites using methyl bromide to facilitate its phasing out in the entire tobacco-producing sector. The companies are situated in the northeastern part of the country. For low-dose chemical and solarization with bio-fumigation alternatives, soil preparation will be carried out using traditional methods of the region. Trials with alternatives to methyl bromide will be prepared and performed simultaneously with trials using methyl bromide as well as with blank trials in order to have a control. At each site, a field agronomist will supervise the process on a daily basis and will file a report to be sent to the National Project Coordinator. Soil samples will be analyzed before and after soil treatment and three days after seeding has taken place. Pathogen levels will be indicators of effectiveness.
6. The project will be coordinated by the Tobacco Institute and will be implemented by UNIDO in close cooperation with the Institute for Plant Protection in Agriculture and Forestry, the State Directorate for the Protection of Nature and Environment. The total costs for human resources is US \$286,000 including a subcontract for field work (US \$150,000), and the cost of the equipment is US \$54,000. The project also includes a

request for US \$30,000 for 300 laboratory analysis of nematodes, fungi and bacterial diseases (at US \$100/analysis). A cost breakdown is attached to the project evaluation sheet.

7. The expected results from project implementation are: (i) a technical and economic analysis of utilization of the three proposed alternatives to methyl bromide; (ii) awareness for at least four local specialists of alternative technologies to methyl bromide; and (iii) dissemination of the results of the demonstration project among specialists from top tobacco producers in Article 5 countries.

SECRETARIAT'S COMMENTS

1. The project concept follows the Executive Committee's guidelines. Croatia ratified the Copenhagen Amendment on 11 February 1997.
2. UNIDO informed the Secretariat that, during project preparation, special emphasis has been put in working with the institutions, organizations, professionals and agro-industries which are transferring the technology to the farmers.
3. The Secretariat asked if UNIDO had contacted Article 2 countries with a view to recruiting government experts from those countries (as per Decision 24/18). In this regard, UNIDO indicated that "the use of external expertise is needed only when the local institutions require advice in using state of the art techniques of which there is only a theoretical knowledge in Article 5 countries".
4. The Secretariat further discussed with UNIDO issues regarding laboratory analysis and their high costs. Based on a recent quotation received from a local laboratory, these costs were reduced to US \$60.00/analysis.
5. Notwithstanding the emphasis placed by UNIDO on working with local institutions and on seeking to reduce salary costs, the concept and cost structure of this project is similar to projects initially approved by the Executive Committee. Taking this into consideration, the Executive Committee may consider whether it wishes to approve the project with associated support costs at the funding level shown in the table below:

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
Demonstration project: Three alternatives to the use of methyl bromide in tobacco production; namely: solarization plus bio-fumigation, use of low-dose chemicals, and non-soil cultivation, all in combination with an integrated pest management programme	418,000	54,340	UNIDO

ANNEX I

PRELIMINARY EQUIPMENT SPECIFICATIONS

Preliminary equipment specifications and cost breakdown are as follows:

ITEM	DESCRIPTION	COST IN US \$
1	Expendables consisting of different non-soil media	2,000
2	Pesticides, chemicals, small equipment, tools, etc.	2,000
3	Auxiliary equipment consisting of tents, 85 cm. bulb thermometers, polyethylene, latex paint, plastic sheets for tunnels and soil	10,000
4	300 analyses of nematodes, fungi and bacterial diseases	18,000
Total Expendables		32,000
5	Trays, floating beds, fixed beds, conductivity meters, water kit analyzer, thermocouples, etc. to demonstrate 3 different systems of the size required for the demonstration plot, five manual seeders	10,000
Total Non-Expendables		10,000
TOTAL EXPENDABLES AND NON-EXPENDABLES		42,000

ANNEX II

PRELIMINARY TERMS OF REFERENCE FOR THE SUBCONTRACT

The subcontractor is expected to deliver the following services or inputs:

1. Provide the services of 6 local experts over a period of 24 months, namely:
 - Technical Supervisor, specialist in IPM (12 w/m over 24 months)
 - Agro-economist (4 w/m over 6 months)
 - Agronomists, expert in solarization/bio-fumigation,
 - non-soil cultivation, and the use of pesticides (48 w/m over 24 months)
2. Provide free transportation for the local experts from the premises to the demonstration fields.
3. Provide free transportation for the international experts from the central premises to the demonstration fields.
4. Prepare a study of the availability and costs of the chemicals as well as the organic or inert media for non-soil seed-beds.
5. Prepare seed-beds of the size needed to plant one hectare with each alternative to be tested.
6. Prepare the soil and plant at least one hectare with each of the alternatives selected.
7. Provide manual workers to implement the above and for the regular maintenance of the demonstration plots.
8. Prepare a study of the alternatives tested comparing their operational and investment costs with those of methyl bromide.
9. Prepare a paperback publication containing a description of the results obtained.
10. Organize a 2-3 day workshop, with field visits, for 20-25 individuals, including 8-10 participants from Article 5 countries to be invited by UNIDO.

ANNEX III

PROJECT BUDGET

LINE	DESCRIPTION	W/M	US \$
11-51	IPM specialist	3 w/m over 24 months	48,000
11-52	Specialist in solarization/bio-fumigation and low-dose chemicals	2 w/m over 24 months	32,000
11-53	Consultant in non-soil cultivation	2 w/m over 24 months	32,000
17-01	National project coordinator/IPM specialist	12 w/m over 24 months	24,000
21-00	Subcontract for field trials as per Annex II		150,000
32-00	Study tour (7 participants)		36,000
35-01	Workshop		16,000
41-00	Expendables		32,000
42-00	Equipment		10,000
	Subtotal		380,000
51-00	Contingencies (10%)		38,000
	Total Project Costs		418,000
	Overhead costs (13%)		54,340
	TOTAL PROJECT BUDGET		472,340