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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-eighth Meeting
Rome, 20-22 November 2002

PROJECT PROPOSAL: ECUADOR

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

Fumigant

- Technology change for the phase-out of methyl bromide in the rose plant nursery sector World Bank

**PROJECT EVALUATION SHEET
ECUADOR**

SECTOR: Fumigant ODS use in sector (2001): 61 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Title:

(a) Technology change for the phase-out of methyl bromide in the rose plant nursery sector

Project Data	Methyl bromide
Enterprise consumption (ODP tonnes)	37.20
Project impact (ODP tonnes)	37.20
Project duration (months)	36
Initial amount requested (US \$)	1,034,000
Final project cost (US \$):	
Incremental capital cost (a)	940,000
Contingency cost (b)	94,000
Incremental operating cost (c)	
Total project cost (a+b+c)	1,034,000
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US \$)	
Cost effectiveness (US \$/kg.)	27.80
Counterpart funding confirmed?	
National coordinating agency	MICIP
Implementing agency	World Bank

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

PROJECT DESCRIPTION

1. The project is to phase out 37.2 ODP tonnes of methyl bromide (MB) used in the nursery production of rose plants by the company Plantador in Ecuador.
2. In 1999 and 2000, a total of 122.4 ODP tonnes of MB per year was imported into the country; in 2001, the amount of MB imported was reduced to about 61 ODP tonnes (carry-over of some stocks from previous years contributed to lower imports in 2001). The average consumption of the last three years amounts to 102. ODP tonnes (which is more representative of the MB consumption in the country). According to the Ozone Secretariat, the MB baseline for Ecuador is 66.2 ODP tonnes.
3. Presently, 70 per cent of the flowers are exported to countries in the Latin American region.
4. Production under the alternative technology proposed consists of cultivating the graft in a carrier plant, under protected greenhouse conditions; once the graft is strong, it is transplanted into the coconut substrate and wrapped in biodegradable paper. Once the plant reaches maturity, it is stored and prepared for shipping. The plant grown under the proposed alternative is more delicate and requires careful handling during harvesting. In addition, the transportation cost increases because of the higher weight of the plant (wrapped with leaves and hydrated coconut substrate). As a result, the overall production cost of utilising coconut substrate in comparison with MB is about 13 per cent higher.
5. The company is committed to provide additional financial resources associated with the alternative technology, namely civil works and part of the training costs.
6. The Government of Ecuador is committed to reduce the consumption of MB in the country and fully supports Plantador's initiative to phase out MB in the production of cut flower through this project proposal. Furthermore, the Government in consultation with major stakeholders, will develop policy measures to ensure that the MB phased out in this project will not be re-introduced.
7. The project will be administered by the Ministry of Foreign Trade, Industrialisation and Competitive Fishery (MICIP) and implemented by the World Bank.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

8. This project if approved and implemented by 1 January 2005 will have reduced the 2001 MB consumption reported by Ecuador to the Ozone Secretariat to 23.8 ODP tonnes which would represent a 45 per cent reduction for Ecuador's Montreal Protocol baseline for MB.
9. The Secretariat pointed out that the MB dosage rate (1,000-1,100 kg/ha) was very high compared to other similar projects so far approved (i.e., rates of 400 to 500 kg/ha are commonly

applied in roses). Furthermore, crops such as roses last several years in the soil and, therefore, MB is applied once every four to six years if farmers grow roses to sell the flowers or every two years if farmers sell the bushes. The World Bank indicated that the company produces bushes every year and the production cycle is one year (for preparing, disinfecting, planting, grafting, growing and pulling out); therefore, MB is applied annually. In Ecuador, the risk of crop failure is very high if MB is applied every two years. It is also important to note that the product is the plant and not the flower. It is therefore grown in heavy soils which requires higher application rates of MB.

10. The project is proposing to replace open-field production of roses by coconut substrate under greenhouse conditions at a cost of US \$940,835 for a surface area of 5,060 m² (equivalent to US \$186/m²). The majority of the cost is associated with the construction of highly-automated greenhouses. On the basis of technical advice and experience from approved projects, the project appears to use substantial technological upgrade. The cost for a basic greenhouse with metal support beams, plastic covers, including heating, ventilation and irrigation systems, media and fertiliser range between US \$60.00/m² and \$100.00/m². In this regard, the World Bank indicated that in its view it is indispensable to work with a highly-automated equipment because controlled conditions are necessary for growing mini plants. The company is also aware that companies in Africa located in similar climate conditions on the equator are using a similar type of greenhouse as proposed in the project. It is to be noted, however, that none of these companies received Multilateral Fund assistance. Furthermore, the project design reflects the need to ensure appropriate conditions to have a marketable product.

11. The Secretariat noted that the company carried out studies on other alternatives to MB (solarisation, alternative chemicals and substrate), and pointed out that the use of compost with alternative fumigants has proven to be a feasible technology that could be implemented with minimum capital investment, with no additional costs for transportation of the plants. It is also feasible to graft the roses onto rootstock that is resistant to the soilborne diseases present; since the company is already grafting, implementation of this technology would not involve any significant additional cost provided that a resistant rootstock is available. The World Bank reported that the use of compost with metam sodium or basamid will not control the spectrum of pests that exist in the rose nursery in Ecuador. Furthermore, it would be very costly since it entails transport of large quantities of organic matter, incorporation into the soil, application of fumigant and other chemical to control pests. Similarly, resistant rootstocks on their own cannot replace MB in a situation where there is a wide range of stillborn pests; therefore, they would need to be combined with other alternatives, which would also be expensive.

12. The Secretariat and the World Bank are finalising discussions on the project cost. The results of the discussions will be finalised prior to the 38th Meeting of the Executive Committee.

RECOMMENDATION

13. Pending.
