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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 PROPOSALS: KENYA**

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

Fumigant:

- Technology transfer leading to methyl bromide phase-out in soil fumigation (horticulture component) Germany
- Technology transfer leading to methyl bromide phase-out in soil fumigation (cut flower component) UNDP

**PROJECT EVALUATION SHEET  
KENYA**

SECTOR: Fumigant ODS use in sector (2001): 111 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

**Project Titles:**

- (a) Technology transfer leading to methyl bromide phase-out in soil fumigation (horticulture component)  
 (b) Technology transfer leading to methyl bromide phase-out in soil fumigation (cut flower component)

Project Data	Methyl bromide	Methyl bromide
Enterprise consumption (ODP tonnes)	97.00	97.00
Project impact (ODP tonnes)	34.00	63.00
Project duration (months)	66	66
Initial amount requested (US \$)	0	1,590,319
Final project cost (US \$):		
Incremental capital cost (a)	810,043	1,470,938
Contingency cost (b)	64,282	119,381
Incremental operating cost (c)		
Total project cost (a+b+c)	874,325	1,590,319
Local ownership (%)	100%	100%
Export component (%)	0%	0%
<b>Amount requested (US \$)</b>		
Cost effectiveness (US \$/kg.)	20.00	20.00
Counterpart funding confirmed?	Yes	Yes
National coordinating agency	National Environment Management Authority	
Implementing agency	Germany	UNDP

<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 \$)		

## **PROJECT DESCRIPTION**

1. The Government of Kenya is submitting a project to phase out 97 ODP tonnes of methyl bromide (MB) used for soil disinfestation in cut flowers (63 ODP tonnes) and nurseries, seedbeds and vegetables (34 ODP tonnes) representing 87.2 per cent of the total consumption in Kenya. The remaining 14.2 ODP tonnes are used for storage of grains and fumigation of structures.
2. The project is to replace MB with steam pasteurisation and soilless media for cut flower crops, alternative chemicals (including metam sodium) for horticultural crops and a floating tray system in seedbeds. A demonstration project on alternatives to the use of MB in cut flower crops was approved by the Executive Committee at its 24<sup>th</sup> Meeting at a total cost of US \$328,900 (UNIDO).
3. Steam pasteurisation technology requires 8 boilers and bunkers for steaming the substrate for roses (at a cost of US \$533,500). The use of soilless media includes the use of cocopeat as substrate, receptacles for the media, an irrigation system including injection systems (US \$1,358,500). The alternative chemical (metam sodium) requires modification of the irrigation systems (US \$102,000). The floating tray system requires the construction of micro-tunnels, manual seeders and conductivity meters (US \$25,300).
4. The project also includes a request for a training programme and technology transfer (US \$426,346) and policy development (US \$18,000). Incremental operating costs were not estimated.
5. The project proposes to develop policy measures to ensure that the MB phased out will not be re-introduced at a later stage. Under the direction of the Ozone Unit, an action plan will be developed for each crop with the participation of MB users, other stakeholders and relevant Government departments.
6. The project will be implemented jointly by the Government of Germany (bilateral co-operation) and by UNDP in co-operation with the Horticultural Crops Development Authority, the Flower Council, the Fresh Produce Exporters Association and the Agro-Chemicals Association under the national co-ordination of the Ozone Unit.
7. The estimated time for the implementation of the project is 5.5 years.

## **SECRETARIAT'S COMMENTS AND RECOMMENDATIONS**

### **COMMENTS**

8. The MB baseline consumption for Kenya is 202 ODP tonnes. As reported in the project proposal, MB imports have decreased since 1998 due to, among others, pressure from foreign supermarkets for implementation of integrated pest management practices. As a result, large

multinational-owned cut flower farms have converted to steam pasteurisation and soilless media (substrate). The small-size farms that are still using MB as a fumigant do not have the resources to change to MB alternatives.

9. The Secretariat sought a clarification from the Government of Germany and UNDP on export volumes of cut flowers, vegetables and fruits to non-Article 5 countries, and the foreign ownership component of farms where MB is used as a fumigant. The Secretariat was informed that according to data from the horticultural development authority, export of cut flowers, vegetables and fruits from Kenya to non-Article 5 countries (primarily the European Union) was less than 3 per cent of the total production. According to information provided by the national and regional consultants, foreign-owned farms have already phased out methyl bromide. The project proposal covers the small and medium-sized farms which are locally owned.

10. The Secretariat discussed with the Government of Germany and UNDP technical and cost-related issues. Specifically, the basis for the request of 4 large-size and 4 medium-size boilers to replace MB in the cut flowers sub-sector, taking into consideration the small surface area where MB is applied (180 ha in total) and the relatively small size of the farms. In this regard, the Secretariat was informed that the steam equipment will be used for certain types of flowers and nurseries which require a high degree of pest control at deeper soil levels (for example, for cuttings it is necessary to control *Verticillium* using steam treatments of 70°C at a depth of about 35 cm; other pest problems like *Fusarium* require deeper treatments). Therefore, to provide adequate pest control, it is necessary to provide 30-40 kg/m<sup>2</sup> steam from a boiler with a capacity of 3,000 kg steam per hour. This capacity is not technically feasible in small boilers. The area to be treated is at least 180 ha. A boiler can be used to treat 0.5 ha/week (at 10 hours per day). Additional time must be accounted for moving boilers from one farm to another (farms are located in 11 major regions of Kenya, as well as additional small regions), and for maintenance and repairs in case of breakdown. On this basis, it is necessary to have 7.7 boilers to treat 180 ha.

11. The Secretariat also pointed out that the total cost for replacing MB with substrate was very high (US\$16,350/ha) and, therefore, the long-term sustainability of the project proposal was in doubt. The Secretariat was informed that the project cost was revised taking into consideration that bunkers could be constructed at a lower cost (US \$3,630/ha), to be used over a reduced surface area (72 ha); the application rate of cocopeat substrate will be for cuttings and therefore it could be reduced from 600 to 300 m<sup>3</sup>/ha. Also, cocopeat can be mixed with a cheaper local material reducing its cost from US \$37.00 to US \$33.60/ m<sup>3</sup> (during project implementation cheaper local raw materials that can be used for substrates will be further investigated). The cost of the injectors has also been reduced (US \$295/unit, provided that they are ordered in bulk).

12. The Secretariat also indicated to the agencies that the funds requested for training, technology transfer and policy development were very high, taking into account that demonstration and technical assistance programmes have already been approved and implemented in Kenya, the relatively small number of farmers to be trained (500), and given that Kenya has already achieved substantial reductions in the consumption of MB through implementation of alternative technologies and IPM practices. In this regard, the Government of Germany and UNDP reported that the request for training, technology transfer and policy development is appropriate for the amount of work to be done for technology transfer in different crops and conditions and for conducting training in many different regions. The UNIDO flower

demonstration project included small training components that were not fully implemented and, according to the Ozone Unit, the relevant funds were returned to the Multilateral Fund. Therefore, it is necessary for the investment project to provide technology transfer and training for all the small and medium-sized growers, not only in cut flowers but for all the other soil uses of MB. It is also to be noted that previous MB projects implemented in Kenya have not included policy development components.

13. It is to be noted that under the UNEP Compliance Assistance Programme (CAP) two permanent professional experts will be working in the regional offices of UNEP (in Nairobi) to assist Article 5 countries in issues related to ODS policy and regulations and MB issues. The technical assistance that can be provided through the UNEP CAP was not considered in the project proposal.

14. The time frame for the implementation of the project (5.5 years) is very long, taking into consideration the experience already gained in the country with the implementation of the demonstration projects, the amounts of MB that have already been phased out in the country and the alternatives technologies employed to achieve that.

15. The Secretariat, the Government of Germany and UNDP are finalising discussions on the project cost. The results of the discussions will be communicated to the Sub-Committee on Project Review.

## **RECOMMENDATIONS**

16. Pending.

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