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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-seventh Meeting
Montreal, 17-19 July 2002

PROJECT PROPOSAL: EGYPT

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

Fumigant

- Phase-out of the use of methyl bromide in grain storage UNIDO

PROJECT EVALUATION SHEET
EGYPT

SECTOR: Fumigant ODS use in sector (2000): 420 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Titles:

(a) Phase-out of the use of methyl bromide in grain storage

Project Data	**Methyl bromide**
Enterprise consumption (ODP tonnes)	114.00
Project impact (ODP tonnes)	114.00
Project duration (months)	48
Initial amount requested (US $)	950,000
Final project cost (US $):	
Incremental capital cost (a)	1,363,636
Contingency cost (b)	136,363
Incremental operating cost (c)	
Total project cost (a+b+c)	1,499,999
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	750,000
Cost effectiveness (US $/kg.)	13.15
Counterpart funding confirmed?	
National coordinating agency	Ozone Unit/Ministry of Environment
Implementing agency	UNIDO

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

1. About 114 ODP tonnes of methyl bromide (MB) is used in Egypt for the fumigation of grains. The majority of the grain in Egypt is stored by two state-funded marketing boards, the General Company for Silos and Storage (GENCOSS) for imported grain and the Principal Bank for Development and Agricultural Credit (PBDAC) for locally produced grain.

2. GENCOSS owns six silos with bins for a total capacity of 563,000 tonnes. Grain rotation is on average six times a year, allowing to handle about 3 million tonnes of grain. It also manages 6 Shounas (open air storage) with a total storage capacity of 140,000 tonnes. The company consumes 42 ODP tonnes of MB. Storage facilities of PBDAC, is present in 19 governorates of Egypt where grain is produced. Annually, 2.5 millions tonnes of grains are stored; one part is fumigated with MB once or twice depending on the insect infestation. The total MB consumption used by the company is 72 ODP tonnes.

3. The project proposal is to phase out 114 ODP tonnes of MB used in grain storage, representing the total consumption of MB in this application. The alternative technologies selected are phosphine under gas proof sheets and phosphine gas in CO2 for silos. In addition, improvements to storage facilities and enhancement of pest management procedures are needed to prevent development of insect resistance to phosphine and reduce fumigation treatment. The technology has been selected on the basis of the results from the demonstration project on alternatives to the use of MB in grain storage, approved by the Executive Committee at its 26th Meeting (Germany, US $297,000).

4. The capital cost of the project has been estimated at US $1,723,950 which includes, among others, phosphine meters for low- and high-concentration (US $297,230), gas sampling lines (US $19,920) gas-tightness for silo bins (US $110,400); polyurethane sheets in different thickness (US $1,189,150); and miscellaneous equipment (filters, gas masks, fans at a cost of US $107,250). The project also includes requests for a training programme (US $127,500), awareness activities, project co-ordination and implementation costs (US $277,000) and operating costs (US $554,289). Also, US $172,395 are requested as contingency costs.

5. The project will be co-ordinated by the Egyptian Environmental Affairs Agency and implemented by the UNIDO in collaboration with the Ministry of Agriculture and Land Reclamation.

6. Upon approval of the project, the Government is committed to phase out 114 ODP tonnes of MB by end 2006; establish a register of MB importers and to ban any import authorisation over the consumption limits established and revoke the registration of MB as a grain storage fumigant and ban its use once the project has been implemented.

7. The estimated time for the implementation of the project is 4 years.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

8. The MB baseline for compliance for Egypt is 238.5 ODP tonnes; while the 2001 MB consumption is 432.0 ODP tonnes. Therefore, Egypt will not be in compliance with the 2002 MB freeze unless it drastically reduces its consumption in 2002. Additionally, Egypt must reduce its 2001 consumption by at least 241.2 ODP tonnes to achieve compliance with the Protocol's 20 per cent reduction in 2005. The project proposal is to phase out 114 ODP tonnes of MB used in the fumigation of grains. Once the project is completed (in 2006), the MB consumption in Egypt will be reduced by 114 ODP tonnes. However, an additional phase out of 127 ODP tonnes would be required to meet the 2005 compliance target.

9. The Secretariat sought a clarification from UNIDO on the basis used for calculating the amounts of MB used for grain storage in the different storage facilities available in the country. UNIDO indicated that MB is applied with each grain rotation in both silos and Shounas (i.e., six times a year, on average). The MB fumigation rate in silo bins (i.e., in bulk) is 40 gr/m3; MB is applied using a heater and a diffusion system.

10. The project was designed on the basis of providing a high level of gas tightness and exposure time of phosphine of 5 to 7 days. Since phosphine fumigation takes about five times longer than that of MB, it was necessary to increase five times the number of the plastic sheets needed for application of phosphine. In this regard, the Secretariat noted that the exposure time of phosphine is related to the ambient temperature (exposure times decrease as ambient temperature increases); since fumigation in Egypt is performed in June and October (where average ambient temperatures in Cairo are 27 oC and 23 oC, respectively), the exposure time would be only two to three days; therefore, the request for five times the plastic sheets could not be justified. UNIDO advised the Secretariat that all stages in the life cycle of stored-product insects have a broadly similar tolerance to MB (a factor of 3 times or so); however, there is a high degree of variation in tolerance to phosphine, with eggs and pupae being much more tolerant than larvae and adults. Mites are difficult to control with phosphine since the egg stage is highly tolerant. Therefore, exposure times of phosphine of 5 to 7 days are needed to kill not only the adult insects but also young eggs and young pupae. The period of exposure is more important than the concentration levels of phosphine. Subsequently, for the calculation of the plastic sheets needed, UNIDO agreed to reduce the exposure time by 35 per cent with the corresponding cost adjustment.

11. The Secretariat indicated that phosphine meters and gas sampling lines could be shared among different storage facilities taking into consideration that the duration of phosphine application is about 2 days and not more than one or two applications/year might be required. UNIDO stated that sharing equipment between storage facilities was not technical and economically feasible because of the long distance between the different locations. Furthermore, most of the fumigation will be carried out simultaneously.

12. The Secretariat sought a clarification from UNIDO on the request to "drastically" increase the number of the fumigation teams (as indicated in the project proposal). Taking into consideration the storage time of the grain (at least two months in silos, and a rotation rate of

6 times every year) and the time required for applying phosphine, the increase in the number of crew members does not appear necessary. UNIDO advised the Secretariat that the number of fumigation teams was calculated on the basis of the number of sites to fumigate (six silos, 447 Shounas and more than 105 warehouses distributed throughout the country). Furthermore, fumigation with phosphine needs to be controlled by daily gas measurements, checking leaks and gas-tightness.

13. The Secretariat and UNIDO discussed the size of the training programme, the request for awareness campaign and the project co-ordination and implementation costs, taking into account the demonstration project approved at the 26th Meeting and implemented by the Government of Germany, and that fumigation is carried-out by staff from the only two grain storage companies in Egypt (GENCOSS and PBDAC), irrespective of fumigant used. UNIDO advised that no training programme was provided with the demonstration project. Furthermore, in addition to the fumigation carried out by PBDAC and GENCOSS, there are many other fumigation companies that need to be addressed through awareness programmes, without providing additional capital equipment. Therefore, the funds requested are for the management of the entire phase out programme including private-owned companies. Subsequently, the size of these project components was adjusted to US $271,500.

14. The Secretariat and UNIDO also discussed the basis used in the calculation of the operating costs (US $554,289). It was noted that in a similar project approved for Syria, operating costs were negative (US $315,000) “mainly because an improved management of fumigated grain, will reduce the need of re-fumigation to only 30% of the grain. Subsequently, UNIDO agreed not to claim operating costs.

15. The revised project cost is US $1,500,000 with a cost effectiveness of US $13.00/kg.

RECOMMENDATION

16. The Executive Committee may wish to consider the project proposal on the basis of the above comments.

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