UNITED NATIONS

EP

United Nations Environment Programme

Distr.
LIMITED

UNEP/OzL.Pro/ExCom/41/28/Corr.1
10 December 2003

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Forty-first Meeting
Montreal, 17-19 December 2003

Corrigendum

PROJECT PROPOSALS: CHINA

Replace paragraphs 42 to 50 **with** the following paragraphs:

COMMENTS

42. On 26 November 2003, UNIDO submitted its responses to the Secretariat's comments and observations on the national phase out of MB project submitted by the Government of China. Subsequently, the Secretariat reviewed the document again incorporating relevant responses received from UNIDO. The Secretariat's revised comments appear hereunder.

The MB production sector

43. According to the phase out plan, MB has been produced in China since 1995 by three companies, namely Lianyugang Seawater Chemical Plant, Zhejiang Linhai Jianxin Chemical Corporation and Shandong Changyi Chemical Plant. The Secretariat pointed out, however, that according to the Strategic framework for control of MB in China: Action Plan (January 2000), in 1995 MB was only produced by two enterprises: Lianyugang (with a projected capacity of 3,000 metric tonnes) and Changyi (with a projected capacity of 300 metric tonnes). Furthermore, China's reported production in 1995 was only 171 ODP tonnes. It appears that the production line at Zhejiang Linhai Jianxin Chemical Corporation was installed after 1995. UNIDO informed the Secretariat that Zhejiang Corporation was established in 1988 and started to produce MB in 1989 (this company is also a CFC producer and had received assistance from the Multilateral Fund for closure of its CFC production line). Due to financial and other issues, the company stopped producing CFCs and MB in 1995; by the end of 1998, MB production re-started. This is the reason for not being included as a MB producer in the 2000 Strategic framework.

44. Based on the data reported by the Government of China under Article 7, in 2005 China must reduce its 2002 controlled production of MB by 40.5 ODP tonnes; however, the proposal did not include a funding request for addressing the reduction in the production of MB. UNIDO advised the Secretariat that the costs associated with the reduction in the production of MB were not included in the project proposal since the MB production in China has not been audited. In this regard, China would be requesting additional funding for the phase out of MB production in a separate proposal.

Long-term sustainability

45. Based on information provided in the project proposal, as submitted, the Secretariat prepared a table providing incremental costs and the cost effectiveness associated with MB phase out by crop and application. The original table was subsequently modified based on a clarification by UNIDO on the distribution of the training cost component:

Crop/application	ODP	$capital	$operating	$training	$contingency	$total	US$/kg
Strawberries	312.0	1,642,476	757,531	1,733,780	337,626	4,471,413	14.33
Cucumber	24.0	35,860	-96,484	138,441	17,430	95,247	3.97
Tomato	96.0	541,477	429,993	571,577	111,305	1,654,353	17.23
Eggplant	36.0	44,027	-142,603	213,885	25,791	141,101	3.92
Hot pepper	36.0	199,318	84,058	210,397	40,972	534,745	14.85
Flowers	30.0	1,961,000	213,279	216,998	217,800	2,609,076	86.97
Tobacco	427.8	48,929,674	-27,034,396	774,301	4,970,398	27,639,977	64.61
Commodities	126.0	2,396,750	26,880	292,250	268,900	2,984,780	23.69
Total	1,087.8	55,750,582	-25,761,742	4,151,630	5,990,221	40,130,691	36.89

46. Based on the figures presented in the above table, the Secretariat made the following observations:

(a) The current production of cucumber and eggplant using MB is more expensive and less sustainable than the proposed alternative technology (i.e., operating savings offset the costs associated with the equipment). Therefore, the complete phase out of MB in these two crops should be a priority;

(b) China can achieve the proposed reduction of 389.2 ODP tonnes of MB by phasing out (partially or totally) its use in cucumbers, eggplants, strawberries and/or hot peppers where the most cost-effective and sustainable technologies are available.

UNIDO informed the Secretariat that the Ministry of Agriculture imposed strict conditions for the ratification of the Copenhagen amendment, in particular the need to have a cumulative and large experience on alternative technologies proposed. In this regard, only the use of phosphine in stored grains and the floating tray system in tobacco seedbeds fulfil those requirements. During the project preparation, UNIDO drew the attention of the Chinese authorities on the locally developed non-MB technology for the production of cucumbers and eggplants (based on grafting on black pumpkin) and advised them to give high priority to the phase out of MB in these crops. It was subsequently agreed to phase out the use of MB completely in the production of eggplants and partially (54 per cent of the total MB consumption) in the production of cucumbers.

(c) The least cost-effective technologies proposed are for flowers (US $86.97/kg), tobacco (US $64.61/kg) and commodities (US $23.69/kg) applications. The costs proposed for these technologies are also among the least cost-effective technologies so far considered by the Executive Committee. On this basis, it would appear advisable to postpone MB phase out activities in these applications until more cost-effective and, thus, sustainable technologies are made available in China.

UNIDO informed the Secretariat that the phase out policy established by the Government of China is not to phase out the use of MB for crops unless experience in the use of alternatives at commercial scale has been accumulated over many years (e.g., in tobacco seedbeds and commodities). Regarding the poor cost-effectiveness value of the phase out of MB in flowers UNIDO indicated that the main problem is the large number of farmers with very small-size surface area (on average 375 m^2/farmer); however, after further discussions with major stakeholders it was agreed that the equipment for the steam technology would be share by a larger number of farmers resulting in project savings (cost-effectiveness of US $53.93/kg). The Secretariat notes that the revised proposal for the flower sector is still very expensive and its sustainability is also in doubt. Regarding the phase out of MB in commodities, UNIDO indicated that the current consumption of MB in China is in facilities where phosphine cannot be used since these facilities are located in a high infestation area and/or and not sufficiently tightened. Therefore, additional training is required and extra equipment is needed to upgrade these facilities. The Secretariat noted that not all of the costs associated with the upgrade of the facilities are incremental.

(d) The training cost associated with the phase out of MB in strawberries is about 42 per cent of the total training costs, and is higher than the cost of the capital equipment required for the conversion.

MB application rates

47. The Secretariat noted that the quoted average MB application rates in various crops and commodities are very high compared with dosage rates used for the same crops in other countries (the Secretariat is aware that the dosage rate for any given fumigant depends on a number of factors, such as type of pest, soil characteristics and climatic conditions). In this regard, by reducing the MB dosage rate through introduction of IPM practices, substantial reductions in MB consumption could be achieved. UNIDO pointed out that while IPM practices could decrease consumption of MB, the results could depend on the response from the growers, which is uncertain. Furthermore, UNIDO is of the opinion that to accomplish the phase out of MB, alternatives should be introduced and disseminated among farmers rather than speculating in MB dose reductions that will only allow for partial reduction sin consumption but would not assist farmers to phase out MB.

Specific comments

48. In addition to the above issues, the Secretariat also raised and further discussed specific issues related to the different MB alternative technologies proposed. Specifically for soil fumigation, the lack of registration of 1-3 dichloropropene and chloropicrin in China; the high cost of metham sodium and the high application dose proposed (1,000 l/ha); and the cost of locally-made machines for injection of metham sodium into the soil; the long-term sustainability of steam in flower crops, and the use of phosphine in tablets which is the preferred method of treatment worldwide. UNIDO reported that due to its high-toxicity, 1-3 dichloropropene will not be certified in China; the cost of the locally manufactured injection machine is 56 per cent cheaper than similar machines in already approved projects; and the price of metham sodium is similar to the price in Europe (US $1.40 to US $1.60). The Secretariat noted that applying metham sodium at a similar rate in projects so far approved (750 l/ha) would result in operating savings rather than costs, as indicated in the project proposal.

49. Regarding the phase out of MB in the tobacco sector (representing over 76 per cent of the total project cost), the Secretariat raised the following issues:

(a) The unit cost of trays (US $0.82/unit) is higher that the costs of trays in similar projects that have been approved by the Executive Committee, notwithstanding the economies of scale available.

UNIDO informed the Secretariat that cost of trays was calculated on the basis of the price of pre-expanded polymers in China (US $1,000/tonne which is similar to the international price) plus the costs associated with labour, energy, capital depreciation, losses and transportation (the cost associated with transportation alone could range between US $0.12 and US $0.22).

(b) The project proposes (as submitted) the establishment of micro-tunnels for seedlings growing in a small surface area at a total capital cost of US $25.25 million, and greenhouses for seedlings grown in a larger area (30 ha) at a capital cost of US $23.68 million (for a total capital cost of US $43.98 million). The Secretariat noted that the cost of the proposed greenhouses was extremely high; furthermore, in the case of Brazil, with a similar surface area planted with tobacco using MB (240,218 ha), the phase-out was based solely on the use of micro-tunnels at a much lower cost.

UNIDO pointed out that the proposal for grouping a number of farmers to share common seedlings production facilities was aimed at reducing training costs and ensure consistent results. The operation of more than 20 micro-tunnels in a single village is not manageable; also the risks of having very different performances and dissemination of plant diseases are too high. However, to reduce the cost of the project, it was agreed to use micro-tunnels in 70 per cent of the total surface area producing tobacco seedlings and greenhouses in the remaining 30 per cent of the surface area. The Secretariat notes that still the cost of the production of tobacco seedbeds in greenhouse is extremely high (US $85.19/kg).

(c) The Secretariat also noted that the proposed prices of polyethylene sheets were more expensive than in the project for Brazil. If the price quoted in Brazil were to be used, the capital cost of the project would be reduced by about US $450,000. Also, galvanized steel arches were proposed (at a total cost of US $4.3 million) for the construction of the micro-tunnels; in this regard, the Secretariat sought an advice on the feasibility of using locally available material in China (e.g., bamboo) at a lower cost.

UNIDO indicated that it had requested prices of polyethylene sheets to farmers and sellers in ten provinces in China; based on that information the average price was used in the calculations of the project cost (UNIDO does not know why prices are higher in China). The use of bamboo for micro-tunnels was tested and subsequently discarded because it would need a larger amount of plastic.

(d) The design of the floating tray system was based on the use of trays with 240 cells. However, trays with larger number of cells (288 cells) can be used with no difference in quality and development of the seedlings (there are economic advantages for farmers to use trays with larger number of cells). For example, using 288 cell-trays the size of the micro-tunnels could be reduced by almost 20 per cent with the corresponding savings in materials and farm inputs.

UNIDO informed the Secretariat that after discussion of this issue with relevant stakeholders, it was agreed to use trays with 288 cells.

(e) In the calculation of the operating costs, the number of seeds needed for both the traditional system and the floating tray system was the same, and differences in price between the regular seeds (US $1.520/ha) and the pelletized seeds (US $11.438) were very high (a much larger number of seeds in the traditional system are required, while in the floating tray system a smaller number of pelletized seeds are required).

UNIDO indicated that tobacco yields in China are on average four to five times lower than in Brazil. This is partly due to the application of a sophisticated technological package which includes hybrid seeds. In China, yields are much lower and seeds are not hybrids. Many companies make some selection, cleaning, disinfecting and packing of seeds which are purchased from selected farmers. Under these conditions, the price of seeds reflects the economic reality of tobacco cultivation in China.

The Secretariat notes, however, that the price of pelletized seeds per surface area in some approved projects was lower than the price of regular seeds while in a few other projects the price of the pelletized seeds was slightly higher (in one case about 56 per cent more expensive). By using the prices of seeds in approved projects, savings associated with the floating tray systems would offset the capital cost. The Secretariat also notes that the type of seed used (i.e., hybrid seeds or otherwise) is not related to the fumigant used and therefore not an incremental cost. Furthermore, the differential in the cost seeds used in traditional seedbeds or in the floating tray system is independent of the type of seed used.

Conclusion

49bis. On the basis of the information provided in the project proposal, the comments raised by the Secretariat, the responses received from UNIDO, and further discussions with UNIDO, it was concluded that:

(a) The proposed reduction of 389.2 ODP tonnes of MB (which is 183 ODP tonnes over the amount required to achieve its 2005 Montreal Protocol's obligations) could be achieved by phasing out (partially or totally) its use in cucumbers, eggplants, strawberries and/or hot peppers where the most cost-effective and sustainable technologies are available;

(b) The Government of China has indicated, however, that it does not want to follow this phase out approach for the reasons indicated above (e.g., not to phase out MB in a sector where there are still doubts or lack of large experience in MB alternatives);

(c) Discussion between UNIDO and major stakeholders resulted in changes in the design of some project components and associated reduction in project costs, mainly the use of 288 cell-trays (instead of 244 cell-trays); the construction of greenhouses using pillars in cement blocks instead of galvanized steel; the use of a cheaper pesticide; and sharing the equipment for the steam pasteurization in the production of flowers among larger number of farmers;

(d) The phase out of MB in the flowers sector and in the production of tobacco seedbeds in greenhouses (the least cost-effective technologies) will be addressed in the future; and

(e) From the information in the project document and in other approved projects, although there are significant capital costs associated with the phase out of MB in tobacco seedlings, the overall incremental cost (incremental capital costs minus incremental operating savings over a 4-year period) would be nil. However, the Secretariat notes that projects for the phase out of MB in the tobacco sector at cost-effectiveness values in the order of US $25.00/kg have been approved.

49ter. The Secretariat subsequently estimated the cost of the first phase of the project proposal (e.g., the phase out of 389.2 ODP tonnes of MB) at US $4,086,600 (US $10.50/kg) taking into consideration that:

(a) The Government of China requires assistance to meet the 2005 MB phase out target and the policy established by the Government to give priority to alternative technologies where experience has been accumulated over many years;

(b) The phase out of MB in flowers (30 ODP tonnes) and tobacco seedbeds in greenhouses (107.0 ODP tonnes) will not be considered at this time;

(c) The capital cost for the production of tobacco seedbed in micro-tunnels is based on the use of trays of 288 cells;

(d) The level of the training and technical assistance programmes is related to the

incremental capital costs (at about 10 per cent);

(e) The dosage rate of metham sodium (as an alternative MB fumigant) for the production of strawberries, tomatoes and hot peppers is reduced to 850 l/ha;

(f) The capital costs requested for the phase out of MB in commodities is reduced, according to similar projects under current implementation;

(g) The Secretariat proposed that the Government of China would have flexibility in utilizing the resources available for the phase out of MB in any crop or application it deems more appropriate.

49quar. UNIDO is still discussing the proposal made by the Secretariat with the Government of China.

RECOMMENDATION

50. The Executive Committee may wish to consider the project proposal for the phase out of 389.2 ODP tonnes of MB in the consumption sector on the basis of the information presented in this document. The Executive Committee way also wish to provide guidance to the Government of China on how to proceed with the development of a proposal for the phase out of MB in the production sector to achieve the 2005 Montreal Protocol's phase out target;

- - - -