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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

**OVERVIEW OF ISSUES IDENTIFIED DURING PROJECT REVIEW**



**Projects and activities presented to the 25th Meeting****Submissions by Agencies and Bilateral Partners**

1. The total value of the projects and activities received by the Fund Secretariat from implementing and bilateral agencies for consideration at the 25th Meeting, is US \$82,179,061, including US \$3,557,771 for the remainder of the 1997 share of the World Bank. The total is comprised of:

(a) Bilateral cooperation:

- 3 project proposals were received from Canada and Finland, with a total value of US \$395,382 as submitted;

(b) Amendments to 1998 Work Programmes:

- requests for amendments to 1998 Work Programmes have been submitted by UNDP, UNEP, UNIDO and the World Bank. The proposals include US \$2,069,703 for institutional strengthening projects, US \$172,155 for a methyl bromide information programme in North Korea and US \$693,821 for project preparation and other activities;

(c) Investment projects:

- 126 proposals for investment projects (including demonstration projects for methyl bromide) were submitted to the 25th Meeting by UNDP, UNIDO and the World Bank with a total value, as submitted, of US \$78,904,500.

**Secretariat's review of proposed projects and activities**

2. The review of project proposals by the Fund Secretariat has resulted in the following:

(a) Bilateral projects:

- 2 bilateral projects with a total value of US \$248,030 have been recommended for blanket approval;
- 1 bilateral project with a value of US \$100,000 has been withdrawn;

(b) Activities included in amendments to 1998 Work Programmes:

- 12 institutional strengthening projects with a total value of US \$1,825,647 have been recommended for blanket approval;
- 3 non-investment activities and project preparation activities with a total value of US \$101,700 have been recommended for blanket approval;
- 8 activities with a total value of US \$727,739 are recommended for consideration by the Executive Committee, including a methyl bromide information project for North Korea;
- 3 activities with a total value of US \$151,420 have been withdrawn.

(c) Investment Projects:

- 46 project proposals with a total value of US \$10,137,743 have been recommended for blanket approval;
- 49 project proposals with a total value of US \$41,150,416 are still under discussion and, for the time being, have been listed for individual consideration by the Sub-Committee on Project Review: this includes 9 methyl bromide demonstration projects (see Annex I);
- 7 project proposals with a total value of US \$869,597 did not have the approval of the Government concerned and were not proceeded with at the 25th Meeting;
- 24 project proposals with a total value of US \$24,718,167 have been withdrawn or deferred.

### **Status of the Fund**

3. At the time of preparation of this paper, Multilateral Fund resources available for committal amount to US \$16.9 million. If the recommendations of the Secretariat for blanket approval are taken up and projects and activities for individual consideration were to be approved with their values as submitted, there would be a shortfall of US \$37.04 million.

### **Issues arising from Project Review**

#### **Bilateral Cooperation**

4. The Government of Germany has advised that it wishes to have the flexibility to seek approval of bilateral projects up to the full amount of its 20 percent share of contributions, at any stage up to the end of the current triennial replenishment period.

5. The current modality, on the basis of which the Secretariat provides advice to Parties, is that all bilateral cooperation requests are assigned to the year in which the request was first made, to the year of approval, or to the previous year's contributions to offset previously approved bilateral project under-runs. Parties that wished to credit bilateral activities against future year's contributions or against previous year's contributions where cash payments had already been made, have been advised that this degree of flexibility is outside the current modality.

6. The proposed request from the Government of Germany would have implications for the business planning process of the Multilateral Fund, in particular for the level and degree of certainty of funding available to implementing agencies for future years. Additionally, the Executive Committee might note that if all donors reserved the full extent of their 20 percent bilateral contributions, in circumstances where bilateral projects were delayed beyond the end of the replenishment period there could be a substantial carry-over of contributions from the current to the next replenishment.

7. The Terms of Reference of the Executive Committee require it to assess annually whether the contributions through bilateral cooperation comply with the criteria set out by the Parties as part of the contributions to the Multilateral Fund and to report annually to the Meeting of the Parties. In this regard, the Executive Committee might consider if it is within its terms of reference to take a decision on the request of the Government of Germany, as this issue may require consideration at a Meeting of the Parties.

#### Amendments to 1998 Work Programmes

8. Amendments to the 1998 work programmes approved at the 24th Meeting in March have been submitted by all the implementing agencies. In each case, a number of the proposed amendments have not been recommended for blanket approval by the Fund Secretariat. The Fund Secretariat's comments on each Agency's proposals can be found in documents UNEP/OzL.Pro/ExCom/25/20 to UNEP/OzL.Pro/ExCom/25/23 inclusive.

9. Because the methyl bromide programme is new and guidelines were only adopted at the 24th Meeting, project preparation proposals for methyl bromide activities are to be expected at this meeting. However, more generally, the Executive Committee might agree that following the adoption of the annual business planning cycle, it would not normally expect to see amendments to work programmes, other than for institutional strengthening activities.

10. One proposed amendment submitted by UNDP concerns renewal of the institutional strengthening project for Kenya for a two-year period at a cost of US \$116,617 (UNEP/OzL.Pro/ExCom/25/20 paragraphs 5, 6 and 21). The request is consistent with relevant Executive Committee decisions (Decisions 19/29 and 24/23). Separately, the Secretariat had been informed by UNIDO of a significant delay in the implementation of investment projects associated with the clearance of equipment through customs in Kenya. The Secretariat has

written to the Ministry of Environment and Conservation of Kenya on this issue, but no response has yet been received. The Committee might wish to consider whether issues that delay project implementation such as customs clearance for equipment funded by the Multilateral Fund, should be taken into consideration prior to institutional strengthening projects being renewed.

### Investment projects

11. 47 project proposals were still under discussion with the implementing agencies at the time of preparation of this paper. They are listed in Annex I, together with a reference to the relevant evaluation sheet, in which the issues are explained. The outcome of the discussions will be communicated to the Sub-Committee on Project Review. Projects on which agreement is reached will be added to the list recommended for blanket approval. The remainder will be for individual consideration. Those issues which are more general in nature and which will have implication for future projects are discussed below.

### *Quality of project proposals*

12. The task of reviewing projects has again been made more complex by the variability of the data in project documents. In virtually all sectors, initial project analysis by the Secretariat has revealed internal inconsistencies in the data presented. Typical examples are:

- (a) overall consumption not matching the consumption calculated as being used in the relevant industrial process or not matching the claimed levels of production, or not matching the consumption of individual enterprises in umbrella projects;
- (b) lack of clarity on baseline equipment installed, dates of installation and the relationship between installed capacity and levels of production;
- (c) lack of clarity on quantities of chemicals and certain other factors used in calculation of incremental operating costs and savings;
- (d) illustrations of *pro-forma* project preparation where cost or other project information has been copied electronically into several projects and does not accurately reflect the circumstances of the particular enterprise, or the level of costs which may be eligible;
- (e) projects not reflecting current practices and understandings between the implementing agencies and the Secretariat on technical issues;

- (f) specific Executive Committee requirements, such as equipment disposal procedures, counterpart funding guarantees, not being included in project documents.

13. The reasons for this may include:

- (a) projects are becoming smaller and less time may be available for on-site investigation and data verification during project preparation. For instance in umbrella projects, consultants may not be visiting/validating every enterprise;
- (b) local consultants, increasingly being used, may not be familiar with the Executive Committee's rules and policies relevant to the preparation of projects, and thus may not appreciate fully the importance of accurate and consistent information;
- (c) projects prepared one year or more before submission may not reflect current technical agreements and agencies may be reluctant to revise them, or to advise enterprises that eligible costs are lower than expected.

14. The Secretariat could cease working with agencies to correct inconsistencies and inaccuracies in project proposals as part of its review and instead, return the projects, but this would not facilitate the project approval process. However, if the current trend were to continue, given the time limitation between the submission of projects and the dispatch to members, it may not be possible for the Secretariat to continue to provide both a quality control and a review function.

#### *Methyl Bromide demonstration projects*

15. Nine demonstration projects for alternatives to methyl bromide submitted to the 25th Meeting are listed for individual consideration (Annex I). The Executive Committee might note that, notwithstanding the requirements of the guidelines for methyl bromide projects, the projects still retain the same basic structure, in which salary or consultants' costs make up a large percentage of the total project costs.

16. The project documents indicate that during project preparation emphasis was placed on working with national institutions, organizations, local experts and agro-industries. However there are no indications that the participation was sought of experts from Article 2 countries at a reduced cost to the Multilateral Fund - as decided by the Committee. Capital costs in the proposals for various items such as seeds and laboratory analysis seem very high. In one case, it can be deduced that the cost of plastic pipe is over US \$100 per metre.

*Operating costs in previously approved refrigeration projects*

17. Three requests have been submitted seeking incremental operating costs (IOC) for domestic refrigeration projects in Turkey which have now been implemented. The proposals have been submitted on the basis of a decision of the Executive Committee taken at its 13th Meeting which provides that incremental costs could be approved for "one year's duration calculated on the basis of the costs prevailing following the start of operations" (UNEP/OzL.Pro/ExCom 13/47, page 43, paragraph 159). As a basis for calculating the IOC, the World Bank used the number of ODS-based units produced during the year in which the project was approved (Klimasan and Profilo), or the year following the project approval (Arcelik).

18. Noting that there is often steady growth in the levels of production of many enterprises in Article-5 countries, the Secretariat is seeking guidance from the Executive Committee as to whether the "one year's duration" is the year immediately preceding the year in which the project was submitted (CFC-based production), the year in which the project was approved (CFC-based production) or the year immediately following project implementation (non-ODS based production). When incremental operating costs are paid up-front, they are calculated on the basis of production in the year preceding submission of the project (or the average for the preceding three years).

19. Additionally, one of the projects (Klimasan) was approved at the 15th Meeting with a cost effectiveness of 25.4 US \$/kg, for capital costs only, which is already 60 percent greater than the threshold of 15.21 US \$/kg subsequently established for the sub-sector at the 16th Meeting.

20. The third project, Arcelik, was approved in 1992, before modalities for calculation of incremental capital or operating costs were considered. IOC were, therefore, not originally requested. Costs for the project were very high and included a number of significant items which, on the basis of current knowledge and practice would be considered ineligible. Additional details are provided in the Secretariat's evaluation sheet (UNEP/OzL.Pro/ExCom/25/51). The Executive Committee's guidance is sought on how to proceed in this case.

*Polyethylene Foam Projects in China*

21. UNIDO has submitted an umbrella project to phase out the use of CFC-12 at 25 enterprises in China which produce polystyrene foam for net bags. The cost of the project as submitted is US \$7.1 million. It is indicated in the project document that there are about 70 such enterprises with a total of 150 production lines in China. In addition, there are other polystyrene foam production activities such as foam for packaging material and foam sheets which constitute a larger portion of the extruded polyethylene/polystyrene foam sector. When the entire sector is considered, the total call on the Fund could be up US \$65 million.

22. A particular feature of the industry in China appears to be that it is very young. Many of the enterprises are stated to have commenced production in 1994, and 1995 is the first full year for which production figures are available. There is a need for accurate and detailed documentation, inter alia, to establish eligibility requirements in relation to Decisions 17/7 and 20/20 on recently erected plants.

23. In view of the total number of enterprises in the subsector in China, there is a need for consideration to be given to a strategy for the subsector, which could address, inter alia, innovative ways to provide the necessary substitute chemical and capital equipment, including local design or manufacture and bulk purchasing.

#### *Other technical issues*

24. Several technical issues affecting eligible costs in individual projects remain under discussion at the time of preparation of this paper. The Sub-Committee on Project Review will be advised of the outcome. It is relevant to invite the attention of the Executive Committee to the impact of technological developments on project preparation and eligible costs.

25. There are a number of areas, particularly in the foam sector (affecting also the foam part of refrigeration projects) where technological developments are reducing production costs. One example is the improvement in the chemical formulation of CFC-free foams, which now enables foam of the appropriate quality to be produced without the increase in foam density of 10 percent or more which was initially required. Another example is the availability of pre-blended foam chemical formulations which eliminates the need for pre-blending equipment. This and other examples of technological development are being rapidly adopted in industries in developed and developing countries as they reduce capital or production costs.

26. The Secretariat notes that these developments are not always reflected in projects, where they can also reduce the incremental costs, including incremental operating costs. The Secretariat endeavours to monitor such developments and, subject to any guidance from the Executive Committee, will continue to press for projects to reflect the most cost-effective, mature technological options available to enterprises, for the necessary supporting technical information to be provided in project documents and for incremental costs to be calculated accordingly.

#### **Aerosol projects**

27. At the 20th Meeting an aerosol project was approved for JIPCO in Jordan at a nett funding level of US \$102,855. When the project was prepared, incremental operating savings were calculated in accordance with the relevant decision (Decision 17/5) on the basis that the enterprise was filling its own aerosol cans. The enterprise subsequently advised the World Bank that it was also working as a 'contract filler' for other enterprises, in which case there would not

be incremental operating savings for that proportion of the enterprise's activities. The enterprise declined to proceed with the project as approved. After negotiations, the World Bank advised that Jordan wished to either bring forward a proposal for additional funding of some US \$73,000, or cancel the project, return the funds, but request preparation of a new project. The new project would be for the same enterprise, but operating costs/savings would be calculated on the basis of the activities in which the enterprise says it is actually engaged, i.e. the operating savings would be reduced and the level of grant correspondingly increased. The Executive Committee might consider whether it wishes to provide any guidance on this matter.

28. There are indications that, in the future, the Executive Committee could expect to see a greater number of aerosol projects emanating from 'contract fillers,' i.e., without the same level of incremental operating savings. There will be a need for the status of the enterprises as contract fillers to be fully corroborated in project documentation to ensure that incremental operating costs or savings are calculated on the correct basis.

29. Additionally if assistance from the Multilateral Fund is to be provided in a cost-effective way to smaller aerosol enterprises, there will be a need for emphasis to be placed on development of terminal umbrella projects as have already been approved for Malaysia and China.

### **Proposals for change in Technology**

30. Two proposals have been received from implementing agencies to change technology in approved projects: from UNIDO, a commercial refrigeration project in Brazil at Electrofrío S.A., approved at the 20th Meeting; from the World Bank, a flexible foam project in China at Chengdu Plastic No. 7 also approved at the 20th Meeting. Each of the projects was approved before Decision 22/69 on technology transfer was taken by the Executive Committee. No additional costs are being sought for either project. The two proposals do not raise any policy issues. Therefore, in accordance with Decision 22/69 the Secretariat and the implementing agencies have concluded that in each case the change of technology can proceed. In order to notify the Committee, as required by the decision, the letters of request from the two agencies together with the cover sheet for each proposal are reproduced in Annex II.

### **The MAC sector in China**

31. The World Bank has developed a proposal to complete the phase out of the MAC sector in China. In its current form the proposal is in the form of a terminal umbrella project covering separate projects for 12 individual enterprises involved in manufacturing or assembling MAC components. The projects were originally submitted to the 25th Meeting for funding, but are being deferred. However, a detailed brief is included as Annex III to this paper so that the Executive Committee can be advised of the relevant issues. On the basis of the brief, the Executive Committee might wish to provide guidance on future development of the proposal.

**ANNEX I****PROJECTS STILL UNDER DISCUSSION OR FOR INDIVIDUAL CONSIDERATION**

Evaluation sheets containing the comments of the Fund Secretariat on the issues involved are included in the country project document.

**Part I: Methyl Bromide demonstration projects**

| COUNTRY  | DOCUMENT NUMBER          | PROJECT TITLE                                                                                                                                                                                                                                                | AGENCY |
|----------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Botswana | UNEP/OzL.Pro/ExCom/25/26 | Demonstration project - three alternatives to the use of methyl bromide: non-soil cultivation techniques, bio-fumigation with solarization, and application of various mixtures of other chemicals in low doses in tomatoes and cucurbits                    | UNIDO  |
| Cameroon | UNEP/OzL.Pro/ExCom/25/28 | Demonstration project - two alternatives to the use of methyl bromide: non-soil cultivation techniques and application of various mixtures of other chemicals in low doses in tobacco                                                                        | UNIDO  |
| Chile    | UNEP/OzL.Pro/ExCom/25/29 | Demonstration project for testing methyl bromide alternatives in soil treatment applications for tomatoes and peppers                                                                                                                                        | IBRD   |
| Croatia  | UNEP/OzL.Pro/ExCom/25/32 | 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  |
| Jordan   | UNEP/OzL.Pro/ExCom/25/37 | Demonstration project: four alternatives to the use of methyl bromide: solarization plus bio-fumigation, steam pasteurization, non-soil combination with an integrated pest management (IPM) in cucumbers and tomatoes                                       | UNIDO  |
| Mexico   | UNEP/OzL.Pro/ExCom/25/39 | Demonstration project: alternatives to the use of methyl bromide in the cultivation of tomatoes, strawberries, tobacco, melons, and cut flowers                                                                                                              | UNIDO  |
| Thailand | UNEP/OzL.Pro/ExCom/25/47 | Demonstration project: alternatives to the use of methyl bromide in grain storage (rice, maize, tapioca, feed grains and pulses)                                                                                                                             | UNIDO  |
| Turkey   | UNEP/OzL.Pro/ExCom/25/51 | Demonstration project: alternatives to the use of methyl bromide as soil fumigant in protected horticulture (tomatoes and cucumbers) and ornamental (carnations) crops.                                                                                      | UNIDO  |
| Uruguay  | UNEP/OzL.Pro/ExCom/25/52 | Demonstration project: alternatives to the use of methyl bromide as a soil fumigant in protected horticultural crops (cucumbers and peppers), seedbeds, and nurseries (vegetables, tobacco and forestry)                                                     | UNIDO  |

**Part II: Other projects**

| COUNTRY | DOCUMENT NUMBER          | PROJECT TITLE                                                                                                                                                                     | AGENCY |
|---------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Phaseout of CFC-11 and CFC-12 by conversion to HCFC-141b (foam) and HFC-134a (refrigerant) technology in the manufacture of commercial refrigerators and display cases at Termisa | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Conversion to HCFC-141b, followed by water, in the manufacture of polyurethane foam at Caloi                                                                                      | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Conversion to HCFC-141b and water-blown technology in the manufacture of polyurethane foam at Cougar                                                                              | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Conversion to HCFC-141b and water-blown technology in the manufacture of polyurethane foam at Gnatús                                                                              | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Conversion to Hexane and LCD Technology in the Manufacture of Polyurethane Foam at Herval                                                                                         | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Phaseout of CFC-11 by conversion to water technology in the manufacture of polyurethane foam at Panther                                                                           | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Conversion to water based technology in the manufacture of polyurethane foam at Refratários Isolamentos e Pinturas (RIP)                                                          | UNDP   |
| Brazil  | UNEP/OzL.Pro/ExCom/25/27 | Conversion to HCFC-141b in the manufacture of polyurethane foam at SSM Tecnologia                                                                                                 | UNDP   |

| COUNTRY   | DOCUMENT NUMBER          | PROJECT TITLE                                                                                                                                                                                                     | AGENCY |
|-----------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Brazil    | UNEP/OzL.Pro/ExCom/25/27 | Phaseout of CFC-11 by conversion to water and HCFC-141b technology in the manufacture of polyurethane foam at Delta Pack                                                                                          | UNDP   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion of refrigerator manufacture to cyclopentane foam blowing agent and HFC-134a refrigerant at Shanghai Haiou Electrical Appliance General Factory - Haiou                                                 | IBRD   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion of refrigerator manufacture in Changhe Group to HFC-134a as refrigerant and cyclopentane as foam blowing agent.                                                                                        | IBRD   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion to cyclopentane and isobutane in the manufacture of domestic refrigerators at Hangzhou Household Electrical Appliance Industrial Corporation (HHEAIC)                                                  | UNDP   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion to HCFC-141b in the manufacture of rigid and spray polyurethane foams at Daqing Petroleum Organization Bureau                                                                                          | UNDP   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion of PU slabstock manufacture to forced cooling and methylene chloride at Wuxi New Type Raw Material Plant                                                                                               | IBRD   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion of refrigerator manufacture in Foshan from CFC-11 to cyclopentane foam blowing agent in the production of PU insulation panels.                                                                        | IBRD   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion from CFC-11 to methylene chloride and forced cooling system in the manufacture of flexible polyurethane foam (slabstock) at Cangzhou New-Type Foam Decoration Material Plant                           | UNDP   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Conversion of rigid and spray polyurethane foam manufacture from CFC-11 to HCFC-141b foam blowing agent at Victory Petroleum Organization Bureau                                                                  | UNDP   |
| China     | UNEP/OzL.Pro/ExCom/25/30 | Elimination of CFC-12 in manufacturing of EPE foam packaging nets at 25 enterprises (umbrella project)                                                                                                            | UNIDO  |
| India     | UNEP/OzL.Pro/ExCom/25/35 | Elimination of CFC-11 and CFC-12 by converting to HCFC-141b and HFC-134a in the manufacture of domestic refrigerators at BPL Refrigeration Ltd.                                                                   | IBRD   |
| India     | UNEP/OzL.Pro/ExCom/25/35 | Elimination of CFC-11 and CFC-12 converting to HCFC-141b and HFC-134a in the manufacture of commercial refrigeration equipment at Prashant Refrigeration Appliances                                               | IBRD   |
| India     | UNEP/OzL.Pro/ExCom/25/35 | Elimination of CFCs in the manufacture of commercial refrigeration equipment at Sandeep Refrigeration                                                                                                             | IBRD   |
| Indonesia | UNEP/OzL.Pro/ExCom/25/36 | Conversion project to CFC-free technology in the manufacture of commercial refrigeration equipment at PT Aneka Froze Citratama                                                                                    | UNDP   |
| Indonesia | UNEP/OzL.Pro/ExCom/25/36 | Supply conversion project to CFC-free technology in the manufacture of commercial refrigeration equipment at PT Gaya Teknik                                                                                       | UNDP   |
| Indonesia | UNEP/OzL.Pro/ExCom/25/36 | Elimination of use of CFC-11 and CFC-12/R-502 conversion to HCFC-141b (foam) and HFC-134a/R404a (refrigerant) technology in the manufacture of commercial refrigerators and display cases at P.T. Interma Pacific | UNDP   |
| Malaysia  | UNEP/OzL.Pro/ExCom/25/38 | Conversion to water based and HCFC-141b technology in the manufacture of polyurethane foam at Gorich                                                                                                              | UNDP   |
| Malaysia  | UNEP/OzL.Pro/ExCom/25/38 | Conversion to water based and HCFC-141b technology in the manufacture of polyurethane foam at Minply                                                                                                              | UNDP   |
| Morocco   | UNEP/OzL.Pro/ExCom/25/41 | Conversion to LCD technology in the manufacture of flexible foam (Slabstock) to replace CFC-11 at Bonbino Confort                                                                                                 | UNDP   |
| Pakistan  | UNEP/OzL.Pro/ExCom/25/43 | Elimination of CFC-11 and CFC-12 converting to HCFC-141b and HFC-134a in the manufacture of refrigeration equipment at United Refrigeration Industries Ltd.                                                       | IBRD   |
| Pakistan  | UNEP/OzL.Pro/ExCom/25/43 | Elimination of CFC-11 and CFC-12 by converting to HCFC-141b and HFC-134a in the manufacture of commercial refrigeration equipment at Shadman Electronic Industries P. Ltd.                                        | IBRD   |
| Pakistan  | UNEP/OzL.Pro/ExCom/25/43 | Elimination of CFC-11 and CFC-12 by converting to HCFC-141b and HFC-134a in the manufacture of commercial refrigeration equipment at Dawlance P. Ltd.                                                             | IBRD   |
| Pakistan  | UNEP/OzL.Pro/ExCom/25/43 | Terminal Umbrella - conversion to HCFC-141b and water blown technology in the manufacture of rigid polyurethane foam (thermoware)                                                                                 | IBRD   |
| Sri Lanka | UNEP/OzL.Pro/ExCom/25/45 | National programme for the replacement of carbon tetrachloride with n-butane in the activated carbon industries (6 companies)                                                                                     | UNDP   |
| Thailand  | UNEP/OzL.Pro/ExCom/25/47 | Umbrella project to convert CFC-12 commercial refrigeration to HFC-134a, and CFC-11 to HCFC-141b as the blowing agent for foam insulation at 224 small and medium sized enterprises.                              | IBRD   |

| COUNTRY  | DOCUMENT NUMBER          | PROJECT TITLE                                                                                                                                                             | AGENCY |
|----------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Thailand | UNEP/OzL.Pro/ExCom/25/47 | Conversion to low index/additive (LIA) technology and methylene chloride in the manufacture of flexible PU boxfoam (FBF) at Cityfoam                                      | UNDP   |
| Thailand | UNEP/OzL.Pro/ExCom/25/47 | Conversion to water based and HCFC-141b technology in the manufacture of polyurethane foam at World Plaster/Euro Plan Furniture Co.                                       | UNDP   |
| Tunisia  | UNEP/OzL.Pro/ExCom/25/50 | Conversion to LCD technology in the manufacture of PU flexible foam and HCFC-141b with water in PU rigid foam at Sotim                                                    | IBRD   |
| Turkey   | UNEP/OzL.Pro/ExCom/25/51 | Conversion from CFC-11 and CFC-12 into cyclopentane and HFC-134a for commercial refrigerators -incremental operating costs at Klimasan Klima Sanayii ve Ticaret A.S.      | IBRD   |
| Turkey   | UNEP/OzL.Pro/ExCom/25/51 | Conversion from CFC-11 and CFC-12 into cyclopentane and HFC-134a for domestic refrigerators -incremental operating costs- at Peg Profilö Elektrikli Gereçler Sanayii A.S. | IBRD   |
| Turkey   | UNEP/OzL.Pro/ExCom/25/51 | Conversion from CFC-11 and CFC-12 into cyclopentane and HFC-134a for domestic refrigerators -incremental operating costs at Arcelik                                       | IBRD   |
| Turkey   | UNEP/OzL.Pro/ExCom/25/51 | Conversion project from CFC-12 into HFC-134a and HFC-404a for commercial refrigeration at Safkar                                                                          | IBRD   |



# ANNEX II



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
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## MONTREAL PROTOCOL BRANCH

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## FACSIMILE TRANSMISSION

|                                                                                                                  |                         |                                                                              |
|------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------|
| Dr. O. E. El-Arini<br>Chief Officer<br>Multilateral Fund for the Implementation<br>of the MP<br>Montreal, Quebec | No. of Pages<br>1 of 16 | Drafter: <i>[Signature]</i><br>G. Anestis is<br>Cleared by:<br>S.M. Si Ahmed |
| Fax: (1514) 282 0068                                                                                             | Date:<br>3.6.1998       | Reference:                                                                   |

Dear Dr. El-Arini,

Subject: BRA/REF/20/INV/54 (MP/BRA/96/208) - Phasing out CFC-12 by HFC-134a as refrigerant and CFC-11 by cyclopentane as foam blowing agent in commercial refrigeration equipment for supermarkets at Eletrofrío S/A

The subject project was approved by the Executive Committee at its 20th session for an amount of US\$ 690,033 (including 13% A.S.C.) to phase out 47 ODP tonnes.

The project at that time proposed HFC-134a as a replacement for CFC-12. Following negative results during field tests with the originally confirmed substitute, ELETROFRIO requests to change the technology. The substitutes are cyclopentane as approved and HCFC-22 and R404A instead of HFC-134a as originally approved. The conversion of the foam part has already started.

We are herewith submitting the project document for considering of technology change alongside the above-indicated alternative, namely to use now HCFC-22 and R404A instead of HFC-134a.

Best personal regards.

Yours sincerely,

*[Signature]*  
S.M. Si Ahmed  
Acting Director  
Montreal Protocol Branch

MULTILATERAL FUND 1911

Recd: *[Signature]* June 3/98 Ref No: *[Signature]*

To: *[Signature]*

CC: *[Signature]*

Officer: *[Signature]*

Adm: *[Signature]*

UNIDO

ELETROFRIO in Curitiba, BRAZIL  
 Commercial Refrigeration, Rigid foam

## PROJECT COVER SHEET

**COUNTRY:** Brazil

**IMPLEMENTING AGENCY:** UNIDO

**PROJECT TITLE:** Phasing out CFC-12 with HCFC-22 and R404A as refrigerant and CFC-11 with cyclopentane as blowing agent in commercial refrigeration equipment for supermarkets at ELETROFRIO S/A company

**PROJECT IN CURRENT BUSINESS PLAN:** Yes ☒ No ☐  
 Already confirmed 1996; Resubmission due to change in technology

**SECTOR/SUB-SECTOR:** Commercial Refrigeration, Rigid foam

**ODS USE IN SECTOR:** 3,300 tonnes ODP

**PROJECT IMPACT:** 47 tonnes

**PROJECT DURATION:** 2 years

**TOTAL PROJECT COST:**

|                            |                     |
|----------------------------|---------------------|
| Incremental Capital Cost:  | US\$ 463,960        |
| 10% contingency            | US\$ 46,396         |
| Incremental Operating Cost | US\$ 100,293        |
| <b>TOTAL PROJECT COST</b>  | <b>US\$ 610,649</b> |

**LOCAL OWNERSHIP:** 100% Brazilian

**EXPORT COMPONENT:** Only to Latin-American countries

**REQUESTED GRANT:** US\$ 690,033

**COST EFFECTIVENESS:** US\$12.99 / kg

**STATUS OF COUNTERPART FUNDING:** Confirmed by counterpart

**NATIONAL COORDINATING AGENCY:** Ministry of Environment

### Project Summary

This project has been confirmed at the 20th Meeting of the ExCom in October 1996 proposing HFC-134a as a replacement for CFC-12. Following negative results during field tests with the originally confirmed substitute, ELETROFRIO requests to change the technology. The substitutes are cyclopentane as approved and HCFC-22 and R404A instead of HFC-134a as originally approved. The conversion of the foam blowing equipment has already started. ELETROFRIO has stopped the conversion of the refrigeration equipment until approval of the change in technology. Following project completion the eliminated CFC consumption will contribute to the country's 1999 CFC consumption freeze.

Prepared by: Mr. S. Nowotny  
 Reviewed by: Mr. C. Murchoch

Date: 27 May 1998  
 Date: 3 June 1998

THE WORLD BANK GROUP  
Headquarters: Washington, D.C. 20433 U.S.A.  
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## FACSIMILE COVER SHEET AND MESSAGE

DATE: May 19, 1998 NO. OF PAGES: 5 MESSAGE NO.: 1  
(including cover sheet)

TO: Dr. Omar E. El-Arini FAX NO.: (514)282-0068  
Chief Officer  
Multilateral Fund Secretariat  
Montreal, Canada

FROM: Erik Pedersen FAX NO.: (202)522-3258  
Acting Task Team Leader, Montreal Protocol Unit

Telephone: (202)473-5877  
Dept/Div: ENVGC

SUBJECT: Change of Technology, China - Chengdu Plastic No. 7

## MESSAGE:

Dear Dr. El-Arini:

In accordance with Decision 22/79, we request approval for change of technology from Methylene Chloride to LCD for Chengdu Plastic No.7, approved at the 20th meeting of the ExCom. The enterprise has requested permission to change technology before the 23rd meeting, but due to the status of the LCD guidelines at that time, we have been unable to proceed with the request until after approval of the LCD guidelines at the 24th meeting.

When the project was developed and approved, insufficient practical experiences were available. Since then, the LCD technology have been recognised as a mature technology and more cost-effective solution. The reason for technology change is caused by both technical and operational costs. Revised costs tables are attached. The enterprise has confirmed its commitment to finance the additional costs and the financial appraisal confirms that the enterprise has the ability to cover the additional capital costs.

We hope the Secretariat will be able to endorse the request of the enterprise for change of technology.

  
Erik Pedersen

Attachment: Revised tables for capital and operating costs.

|                         |                    |
|-------------------------|--------------------|
| MULTILATERAL FUND       |                    |
| Recd <i>May 19 1998</i> | Ref No <i>0250</i> |
| To: <i>Dr. El-Arini</i> |                    |
| CC: <i>EAR</i>          | <i>SSL</i>         |
| <i>World Bank</i>       |                    |

**THE MONTREAL PROTOCOL ON  
SUBSTANCES THAT DEplete THE OZONE LAYER**

**PROJECT COVER SHEET**

**COUNTRY** : China

**PROJECT TITLE** : Conversion to LCD technology in the manufacturing of flexible (slabstock) polyurethan foam at Chengdu Plastics Factory #7.

**SECTOR COVERED** : Foam Sector, Flexible slabstock

**ODS USE IN SECTOR** : 18,153 MT CFC's (1995)

**PROJECT IMPACT** : 120 MT/year CFC-11,

**PROJECT DURATION** : 2 years

**TOTAL PROJECT COST** : Incremental Capital Costs: US\$ 660,000  
Contingencies (10%) : US\$ 58,000  
Incremental Operating Costs : US\$ (31,084)  
Total Project Cost : US\$ 686,916

**COST EFFECTIVENESS** : US\$ 2.51/kg/y

**PROPOSED OTF FINANCING** : US\$ 301,000 (as approved at the 19th meeting)

**IMPLEMENTING ENTERPRISE** : Chengdu Plastics factory No 7.

**CO-ORDINATING NATIONAL BODY** : State Environmental Protection Agency (SEPA)

**IMPLEMENTING AGENCY** : The World Bank

**PROJECT SUMMARY**

This request concerns the change of technology of an already approved project. No additional fund is requested and the enterprise has committed to cover the additional capital costs.

The project will phaseout 120 MT of CFC-11 in the production of flexible slabstock polyurethan foam at Chengdu Plastic Factory No 7 by using liquid carbon dioxide (LCD) technology. The project requires LCD foaming equipment and storage tank for liquid CO<sub>2</sub> as well as technical support for converting to LCD, formulation and training.

**Technical Assessment of change of technology:** The project has been reviewed and endorsed by the reviewer, Bert Veenendaal.



### ANNEX III

#### PHASE-OUT OF THE REMAINING PART OF THE MAC SECTOR IN CHINA

1. In 1995, the Government of China developed a strategy for the phase-out of CFC in the MAC sector. The strategy indicated that currently there were 38 separate manufacturers of MAC components, including MAC compressor manufacturers. Several new component producers entered the market in 1995.
2. It is indicated in the strategy that the supply of MACs to vehicle builders in the form of a complete unit is very unusual in China. Statistics provided by the Ministry of Machinery & Industry show that only 5.5 per cent of MAC units are supplied in this way. In the vast majority of cases, auto makers source individual MAC components directly from several manufacturers rather than purchasing complete systems from separate suppliers; in some cases, they source components from abroad.
3. The Government of China has estimated that US \$ 42.48 million would be required for converting the whole MAC industry to HFC-134a technology but has suggested that only US\$ 15.15 million would be requested from the Multilateral Fund for conversion of fourteen factories producing MACs components. The remaining factories would convert with their own resources, would merge their production facilities with other companies or would shut down.
4. Four projects in the MAC sector were approved for China at the 17th and 18th Meetings at a total cost of US \$6.58 million. The information contained in the four projects suggested that the projects covered about 75 percent of the MAC sector in China, as defined in the sector strategy.
5. Three additional investment projects were submitted to the 23rd Meeting, as the second phase of a three-stage conversion of MAC production. The Committee decided to request the World Bank, the Secretariat and the Government of China to re-examine the projects in the light of Decision 17/6 (project proposals in the MAC subsector should emanate from the manufacturers of MAC units themselves, not the manufacturers of component parts) and resubmit them to the 24th Meeting.
6. The World Bank has now prepared a terminal umbrella project covering separate proposals for 12 enterprises in the MAC sector in China with the intention of seeking a single approval from the Executive Committee to complete the phaseout of the remainder of the sector in China. The total cost of the 12 proposals, as prepared, is US \$12,577,740.
7. The following issues are relevant to consideration of the proposal:
  - (a) submission to the 25th Meeting is not consistent with the World Bank's 1998 business plan approved by the Committee at its 24th Meeting. A MAC umbrella

project was referred to in the 1998 business plan, but for submission in 1999. It was listed as a reserve project for 1998, however reserve projects would not normally be brought forward before the last meeting of the year and are intended to be without significant or complex issues;

- (b) as per Decision 20/7, projects over US \$5 million budget should be submitted to the Secretariat in full, twelve weeks in advance of the Executive Committee meeting at which they are to be considered. This terminal umbrella proposal was received eight weeks prior to the meeting. The Secretariat has been discussing issues related to the MAC sector in China with the World Bank since before the 24th Meeting, however the issues raised by the Secretariat are not resolved and 9 of the 12 current project proposals are new;
- (c) as per Decision 19/32, terminal umbrella projects have an upper limit of US \$4 million.

8. Additionally, the terminal umbrella proposal and the 12 projects therein have a number of significant policy, eligibility and cost issues associated with them which will require careful analysis and consideration to resolve. Guidance from the Executive Committee may also be required prior to any submission of a proposal for approval.

9. The main policy issues are:

- (a) The World Bank's proposal would involve funding the manufacturers of component parts, contrary to Decision 17/6. The World Bank has indicated that because of the structure of the industry, there are no manufacturers of complete MAC systems in China;
- (b) Compensation for incremental operating costs has been proposed (US \$3.45 million), contrary to the recommendations of the World Bank OORG MACs Working Group and to all previous MAC project approvals;
- (c) Compensation has been claimed for other components that have not been approved for any other MAC project (e.g., hoses and dryers).

10. The main eligibility issue is that the size and basic characteristics of the MAC sector in China are not clear. The sector appears to be developing rapidly, for example, by changing over to the production of MAC components in factories until recently producing components for other industries. Thus the capacity of the industry which might be eligible for funding is not clear. Information on the MAC sector in China reported in the Strategy report and/or on MAC projects already approved, does not correspond fully with information in the sub-projects under the umbrella project. For instance:

- (a) the strategy study report states that several new MAC component producers started production in 1995 and 1996. However, the start-up date reported in all sub-projects under the umbrella project is before June 1995;
- (b) two sub-projects to convert MACs for buses have been submitted under the umbrella project, although the Yueyang Hengli Refrigeration Equipment MAC project, approved at the 17th Meeting, stated that “the enterprise is the only factory to manufacture large bus MAC compressors and bus MACs in China and accounts for 95% of the nation’s total”;
- (c) the Strategy study report calculated US \$42.48 million conversion of the MAC sector, of which US \$15.15 million would be requested from the Fund. However, the actual cost being requested for the whole sector is US \$19.16 million (including the four investment projects already approved);
- (d) installed capacity and actual production for several enterprises are difficult to determine/assess. Four of the enterprises (ShaanXi Hongling, Jianshe Industries, Yuxin Machinery, Nanjing Xinxing) are not solely manufacturing MAC components for cars and/or buses and, therefore, their total production capacity cannot be claimed as a MAC capacity.

11. There are other significant cost and eligibility issues - which will need examination as the project proposal is further developed.

12. The World Bank subsequently advised that it was not expecting to receive funding for the MAC sector in China at the 25th Meeting. Rather, it was seeking a means to brief the Executive Committee on the issues involved and receive any guidance the Committee might consider appropriate so that progress could be made towards approval of a project late in 1998 or early in 1999.

13. Once agreement has been reached on the composition of the remainder of the MAC sector in China, it will be necessary to consider the optimum modality for completing the sector in one step, as desired by the Government of China. Although presented as an umbrella approach, the proposal so far prepared by the World Bank amounts to 12 separate project proposals. It may be useful to give consideration to use of a sectoral approach for the remainder of the sector, if indeed, the results of analysis indicate that there are incremental costs of sufficient magnitude to warrant a sector approach. This could involve a package deal similar to that use for the halon sector, although significantly smaller in scale. The World Bank has indicated it is amenable to this approach.

14. However, whatever modality is used, further development of the proposal should take place in the light of any guidance the Executive Committee might wish to provide on the policy issues outlined above.

