



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/27/15
22 February 1999

ORIGINAL: ENGLISH

Executive Committee of
the Multilateral Fund for the
Implementation of the Montreal Protocol

Twenty-seventh Meeting
Montreal, 24-26 March 1999

BILATERAL COOPERATION

The Fund Secretariat received the following requests for bilateral cooperation:

- Implementation of RMP in Burkina Faso: Training of Customs Officers (Canada)
- Implementation of RMP in Burkina Faso: Training on Refrigeration and Licensing System (Canada)
- Retrofit and Revolving Fund in Burkina Faso (Canada)
- Application of Diatomaceous Earth (DE) as Alternative to Methyl Bromide Use in Grain Storage Practices in Egypt (Canada)
- Promoting Compliance with the Montreal Protocol in Countries with Economies in Transition (CEITs) in Georgia (Canada)
- Refrigerant Management Plan Formulation Project in Chile (Canada)
- Refrigerant Management Plan Implementation Project: Custom Training in Jamaica (Canada)
- Refrigerant Management Plan Implementation Project: Training of the Trainers in Refrigeration and Certification System of Technicians in Jamaica (Canada)
- Refrigerant Management Plan Implementation Project: Monitoring of Implementation Activities Included in the RMP in Jamaica (Canada)
- Refrigerant Management Plan Implementation Project: Development of systems and a Code of Practice for the Disposal of CFCs and Equipment Containing CFCs in Jamaica (Canada)
- Refrigerant Management Plan (RMP) formulation project in Chile (Canada)
- Refrigerant Management Plan Implementation Project: Training of Customs Officials in Uruguay (Canada)
- Refrigerant Management Plan Implementation Project: Train the Trainers Programme in the Refrigeration Sector in Uruguay (Canada)
- Refrigerant Management Plan Implementation Project: Implementation of a License/Quota System for ODS in Uruguay (Canada)
- Custom Training Manual - Global (Canada)

- Technical Assistance – RMP for Angola (France)
- Halon banking management plan in West Asia Countries (Bahrain, Kuwait, Lebanon, Oman, Qatar and Yemen) (France)
- Technical assistance for country programme and refrigerant management plan preparation in Lao People’s Democratic Republic (France)
- Technical assistance in air conditioning for Ghana (France)
- Technical assistance in air conditioning for Jordan (France)
- Documentary on Traffic in Second-Hand Refrigerators in Côte d’Ivoire (France)
- FAP (Furniture and Plastics) Sarl – Phaseout of CFC-11 by conversion to methylene chloride in the manufacture of flexible Polyurethane foam in Lebanon (France)

- Development of Refrigerant Management Plan in Egypt (Germany)
- Investment Project for Phasing out CFC’s at Chem Tech-Stella Industries, Port Louis, Mauritius (Germany)
- Elimination of CFC-11 and CFC-12 in the manufacture of domestic refrigerators and freezers at China Aerospace Industry Corp. (Germany)
- Halon banking management plan in West Asia Countries (Bahrain, Kuwait, Lebanon, Oman, Qatar and Yemen) (Germany)

REQUESTS FROM THE GOVERNMENT OF CANADA

1. The Government of Canada has submitted requests for bilateral cooperation for a regional project and projects in Burkina Faso (subsequently withdrawn), Chile, Egypt (subsequently withdrawn), Georgia, Jamaica (two of the requests withdrawn), and Uruguay. Canada has requested the cost of the projects (US \$893,900) be offset against the balance of its 1997 through 1999 bilateral contribution to the Multilateral Fund. The Executive Committee decided to allow flexibility in the year for which bilateral projects would be credited provided that bilateral agencies submit their work plans to the first meeting of the year. Canada's 1999 work plan is included in document UNEP/OzL.Pro/ExCom/27/6.

2. The amount requested, including previous approvals offset against Canada's bilateral contributions, does not exceed 20 per cent of Canada's total contributions for the 1997 through 1999 triennium replenishment.

Refrigerant Management Plan Formulation Project in Chile (US \$33,900)

Project description

3. This project will develop a refrigerant management and proposals for non-investment activities including the development of a national regulatory and legislative framework, a train the trainers proposal for training service technicians in good management practices in refrigeration, and a training of enforcement and customs officials in control measures concerning the import and export of ODS, including the development of import-export licensing systems, labeling requirements, and the development of a harmonized customs code.

4. The project is to be implemented by UNEP. Therefore, the US \$30,000 in project cost is supplemented by US \$3,900 for agency fees at a rate of 13 per cent.

Comments

5. The Government chose an auction mechanism for funding projects under the Multilateral Fund. Associated with the auction programme that is now in the second tranche of the second phase is institutional strengthening and other non-investment projects. In the project document for the current auction programme, the Government notes that it has initiated the process of controlling the import of ODS by the use of licenses through customs administration. The Executive Committee also approved a "Demonstration programme for service centre technicians on CFC-11 venting and leakage from refrigerators during operation and servicing" project for Chile in February 1992 for UNDP implementation. It approved a "Demonstration project on MACs and refrigerated transport" in May 1996 for USA implementation. It also approved a "Recovery and recycling programme at Central de Servicios Tecnicos" in June 1992 for World Bank implementation.

6. The Executive Committee will be considering other requests for RMP formulations for medium and large ODS consuming countries in the context of other bilateral requests and work programme requests from the implementing agencies.

Promoting Compliance with the Montreal Protocol in Countries with Economies in Transition (CEITs) in Georgia (US\$33,900)

Project description

7. This project is for Georgia's participation in the development of a regional survey and the provision of training at the regional level on the establishment of harmonized import and export licensing systems for the monitoring and control of ODS.

8. The project activities include:

- (a) development of a regional survey on existing policies and regulations dealing with ODS imports, exports, sales and handling;
- (b) organization of a regional training workshop for national ozone focal points focused on the establishment of national import and export licensing systems to monitor and control ODS and the development of a regional cooperative network among CEITs;
- (c) organization of a regional training session for customs officials on the development, implementation and enforcement of national import/export regulations and policies, and establishment of a regional cooperative network amongst CEIT customs officials;
- (d) technical policy assistance in the development of national phase-out policies and strategies with emphasis placed on the enforcement of legislation, regulations, and economic instruments at the national level, and development of a harmonized system at the regional level;
- (e) strengthening national policy instruments to improved the effectiveness of investment projects already underway funded by the Multilateral Fund of the Montreal protocol.

9. The project is to be implemented by UNEP. Therefore, the US \$30,000 in project cost is supplemented by US \$3,900 for agency fees at a rate of 13 per cent.

Comments

10. This request is to allow Georgia to participate in a regional survey and workshop already approved by the Global Environment Facility for non-Article 5 countries. Moldova's participation in the regional survey was approved at the 25th Meeting as part of the overall implementation of its refrigerant management plan (RMP).

11. Georgia received funding for training in the monitoring and control of ODS at the 23rd Meeting of the Executive Committee as part of its RMP for UNEP implementation. Canada's project will enable Georgia to harmonize its national efforts with other countries in the region.

12. This project will allow Georgia to participate in two regional workshops, one in December 1998 and the other in June 1999. Therefore, part of the funds requested for this project is for retroactive funding.

Jamaica: Implementation of the refrigerant management plan (US \$93,000)

13. The Executive Committee approved, at its 18th Meeting a recovery and recycling project for Guatemala and allocated US \$172,465 to UNDP for its implementation and at its 23rd Meeting, a MAC demonstration project as bilateral cooperation by the United States (US \$130,000).

14. On March 1, 1998, the Government banned the importation of CFC-based domestic and commercial refrigeration units and air-conditioning systems; halon-based fire-fighting equipment; and aerosols, foams, and solvents using CFCs. Regulations requiring the labelling of products that are "ozone friendly" are currently under development by the Jamaica Bureau of Standards and are expected to be approved by the Parliament in mid-1999. The Ministry of Commerce and Technology has revised its motor vehicle import policy effective April 14, 1998 to allow only cars manufactured in 1994 or later to be imported into the country. The Ministry of Finance and Planning will consider issuance of duty waivers on equipment such as retrofit kits for mobile air conditioning units on a case-by-case basis. The Jamaica Air-conditioning, Refrigeration and Ventilating Association was reactivated with assistance from the Ozone Unit in July 1997 to assist in the training of service technicians in the use of recovery equipment and to promote the use of recycling centres. The Association is working with local training institutions to upgrade/revise courses for refrigeration technicians.

15. The recovery and recycling of refrigerants project has been implemented since April 1997. Three one-day training seminars were held for service technicians; two fully equipped recycling centres have been established and seventy recovery machines have been made available to refrigeration workshops. However, after 13 months of operation, only 48 kilograms (out of 16.7 tonnes) of CFC-12 has been recovered. Due to insufficient recovery equipment, technicians who have a recovery unit do not know how to use them properly; there are no incentives to encourage recovery operations and the cost of virgin CFCs is relatively low.

16. UNEP prepared an RMP for Jamaica, which includes: (i) a training programme for customs officers (US \$80,000) to identify and develop techniques for collecting and reporting consumption of ODS import and ODS-based refrigeration equipment and to provide ODS identification kits (US \$13,000); (ii) train the trainers programme in good servicing practices in refrigeration (US \$97,500); (iii) assistance for development of a system and code of practice for the disposal of CFCs and equipment containing CFCs (US \$25,000); and (iv) monitoring of

implementation of activities included in the RMP (US \$20,000). The RMP will be implemented by the Government of Canada.

17. The level of funding requested for the customs training programme was adjusted after excluding the ODS identification kits. The Secretariat also discussed costs associated with consultants and logistic arrangements and modalities for implementation of the activities proposed in the RMP and the monitoring and evaluation roles of the Ozone Unit. The Government of Canada also agreed to withdraw the requests for development of a system and code of practice for the disposal of CFCs and CFC-based equipment, and monitoring of implementation of activities included in the RMP.

Uruguay: Implementation of the refrigerant management plan (US \$129,000)

18. The Executive Committee has approved three recovery and recycling projects. The project for the MAC sector supported through bilateral cooperation by the United States (completed in March 1997), provided five service workshops with recovery and recycling machines, leak detectors and appropriate cylinders. The project for the domestic and commercial refrigeration service sub-sector, implemented by UNDP (US \$175,000), established 60 recovery units at small and medium size workshops and 6 at commercial workshops covering the entire country. The project for the industrial refrigeration service sector, under the World Bank's work programme (US \$87,647), is being initiated and is intended to cover 15 workshops.

19. The Government has enacted a decree for establishing rules for the Ozone Friendly Seal and 36 co-operation agreements with ODS-consuming enterprises to phase-out CFCs and halons through Multilateral Fund projects. While a new decree banning the import of goods containing or requiring CFCs is expected by March 1999, several government institutions have already banned the purchase of CFC-based equipment. Additional measures need to be further elaborated, including a national license system to import and/or export ODS and a mandatory certification scheme for the refrigeration service field.

20. It was found from the implementation of these projects that recovery and recycling of refrigerants is a costly operation because the workshops have to pay for returning used refrigerants to the recycling centres (up to 60% of the price of virgin refrigerant) for getting their recovered refrigerant recycled. Once recycled, they can reuse the refrigerant free of charge. Nonetheless, venting to the atmosphere is a common practice, especially when small refrigeration systems are concerned. The results of this project were evaluated in July 1997 in a national meeting, and appeared to be unsatisfactory. It is necessary to stimulate refrigerant recovery operations, increase the new refrigerant market price and/or decrease the recycling service cost; and to develop an RMP.

21. The training standard of the approximately 1,000 refrigeration service technicians ranges from certified technicians in larger servicing workshops to self-trained technicians in one-man workshops servicing domestic refrigeration and air-conditioning units, covering 50% of all

refrigeration services. There is no refrigeration technician association, which could improve professional standards.

22. UNEP prepared an RMP for Uruguay, which includes: (i) a training programme for customs officers (US \$180,000) to identify and develop techniques for collecting and reporting consumption of ODS import and ODS-based refrigeration equipment and to provide ODS identification kits and laboratory equipment (US \$113,000); (ii) train the trainers programme in good servicing practices in refrigeration (US \$75,000); and (iii) assistance for implementation of a license/quota system for ODSs (US \$18,000). The RMP will be implemented by the Government of Canada.

23. The level of funding requested for the customs training programme was adjusted after excluding the ODS identification kits and laboratory equipment. The Secretariat also discussed costs associated with consultants and logistic arrangements and modalities for implementation of the activities proposed in the RMP and the monitoring and evaluation roles of the Ozone Unit. The Government of Canada also agreed to withdraw the request for development of a system and code of practice for the disposal of CFCs and CFC-based equipment.

Global: Development of an Import/Export Customs Training Manual (US \$60,000)

24. The Government of Canada has submitted a request for the development of an import training customs training manual aimed at familiarization of customs officials with the provisions and phase-out schedules of the Montreal Protocol and its Amendments; provision of an overview of customs codes, common ODS trade names and standard labeling practices for ODS; license systems; examination of customs systems used in the control of ODS imports in selected countries; provision of information related to the chemical composition of ODS, and identification of ODS equipment for refrigerants and in mislabeled containers; issues surrounding the smuggling of ODS; use of identification.

25. The aim of this activity is to develop a manual that will build upon the training that has been provided to Article 5 countries through the implementation of regional control and monitoring workshops and to allow for a standardized training programme focused on the monitoring and control of ODS and ODS-containing equipment for imports/exports to be developed and subsequently implemented under the auspices of RMPs. It will be used in all customs training projects under the Montreal Protocol. It will be translated into French and Spanish, with 200 copies printed in each language.

RECOMMENDATION

The Fund Secretariat recommends that the Executive Committee through its Project Review Sub-Committee:

1. Consider the request for an RMP formulation in Chile (US \$33,900) in the light of the comments above.

2. In the light of recommendation (1) above, approve Canada's requests as indicated below and request the Treasurer to offset this amount against the balance of Canada's bilateral contributions for the period 1997 through 1999.
 - Promoting Compliance with the Montreal Protocol in Countries with Economies in Transition (CEITs) in Georgia (US\$33,900)
 - Jamaica: Implementation of the refrigerant management plan (US \$93,000)
 - Uruguay: Implementation of the refrigerant management plan (US \$129,000)
 - Global: Development of an Import/Export Customs Training Manual (US \$60,000)

REQUESTS FROM THE GOVERNMENT OF FRANCE

26. The Government of France has submitted requests for bilateral cooperation for projects in Angola (subsequently withdrawn), Ghana, Laos, and Jordan and for two regional projects one in West Africa and one in West Asia. France has requested the cost of these projects, (US \$290,250) should be offset against the balance of its 1997 through 1999 bilateral contributions to the Multilateral Fund. The Executive Committee decided to allow flexibility in the year for which bilateral projects would be credited provided that bilateral agencies submit their work plans to the first meeting of the year. France's 1999 work plan is included in document UNEP/OzL.Pro/ExCom/27/6.

27. The amount requested, including previous approvals offset against France's bilateral contributions, does not exceed 20 per cent of France's total contributions for the 1997 through 1999 triennium replenishment.

Halon banking management plan in West Asia Countries (Bahrain, Kuwait, Lebanon, Oman, Qatar, and Yemen (US\$311,400: - US\$120,750 component from France; US\$129,150 component from Germany and US\$61,500 component from UNEP)

Project description

28. GTZ and Agence Française de Développement have received an official request from the Governments of Bahrain, Kuwait, Lebanon, Oman, Qatar, and Yemen for the identification, preparation, and implementation of a national Halon Banks within a regional context.

29. The activities under this project include:

- (a) formulation of a regional halon banking management plan (HBMP);
- (b) organization of a workshop for presentation of the results and dissemination among the regional countries,
- (c) demonstration activities for use of alternative and for the recovery and recycling of halons.

30. The project proposal stated that the following goals will be achieved:

- (a) build awareness of the ozone depletion problem;
- (b) commit to phase-out use of newly manufactured Halon;
- (c) reduce unnecessary emissions and uses of Halons;
- (d) switch to alternative fire protection methods;
- (e) develop Halon Bank and recycling;
- (f) eliminate need for newly manufactured Halons.

Comments

31. At its 26th Meeting, the Executive Committee approved a request for a regional halon banking management plan for the English-speaking Caribbean on the understanding that, with the exception of two other similar regional projects that were in the pipeline, no other such projects should be submitted for approval until more experience in their implementation has been gained. It also decided that the countries included in the project should be made aware that no further funding would be made available for the halon sector in their countries (decision 26/16).

32. This project is one of the two projects that were in the pipeline at the time of the decision at the 26th Meeting. The Government of France indicated that the concerned countries were informed through the Regional Network manager about decisions 26/16.

33. Decision 18/22 requires that regulations facilitating import bans should be established six months after the reclamation center for halon banking is set up. The proposal stated that regulations would be in place six months after the reclamation centre is set up.

Technical Assistance for country programme and refrigerant management plan preparation in Laos (US\$31,500)

Project description

34. This request is for the formulation of a country programme including a refrigerant management plan.

Comments

35. UNEP is also requesting US \$50,000 (US \$56,500 including agency fees), as part of its work programme amendments (UNEP/OzL.Pro/ExCom/27/17) for the preparation of a country programme for Laos. The two requests would result in a total cost to the Multilateral Fund of US \$88,000 for this activity. UNEP is also requesting funds for Haiti and Liberia to develop country programmes including RMPs for US \$50,000 each.

36. France indicated that its request will be used to fund survey activities required both for the country programme and the RMP and for the preparation of investment projects to be submitted along with the completed RMP. UNEP will be responsible for the remaining aspects of the country programme and RMP.

Technical assistance in air conditioning for Ghana (US\$31,500)Project description

37. Agence Française de Développement received a request from the Government of Ghana for technical assistance in the air conditioning sector (chillers) for hospitals in Ghana. The objectives of the project are:

- a. to provide technical assistance in order to reduce the CFC leaks (demonstration, training, etc.
- b. to propose retrofitting alternatives and/or drop-in substitutes.
- c. to evaluate the costs of substitute refrigerants versus the cost of equipment modification.

Comments

38. Ghana has already received technical assistance for refrigeration and air conditioning servicing for US \$104,200 implemented by UNEP and UNDP in 1993. UNDP also completed a project (US \$328,000) on improved servicing and maintenance within the refrigeration sector in October 1995.

Technical assistance in air conditioning for Jordan (US\$42,000)Project description

39. Agence Française de Développement received a request from the Government of Jordan for technical assistance in the air conditioning sector (chillers). The objectives of the project are:

- a. to provide technical assistance in order to reduce the CFC leaks (demonstration, training, etc.
- b. to propose retrofitting alternatives and/or drop-in substitutes.
- c. To evaluate the costs of substitute refrigerants versus the cost of equipment modification.

Comments

40. Jordan received US \$30,000 at the 24th Meeting of the Executive Committee for UNIDO to develop a refrigerant management plan. The technical assistance and training requirements for the entire refrigeration sector should be part of the RMP.

41. The Government of France indicated that RMPs only focus on the technical and legal aspects of the refrigeration and MAC sectors and does not address the requirements for chillers.

Documentary on Traffic in Second-Hand Refrigerators in Côte d'Ivoire (US\$12,000)

Project description

42. This project will provide input into a documentary entitled BAOBAB that is a weekly television project on the environment financed by the European Community and broadcast in six African countries (Benin, Cote d'Ivoire, Ghana, Guinea, Guinea-Bissau, and Togo). The documentary will address the traffic in second hand refrigerators containing CFCs. This request will provide information on Cote d'Ivoire's refrigerant management plan that was developed by the Government of France.

Comments

43. The total cost of the project is US \$24,000. The Government of France is requesting US \$12,000 from the Multilateral Fund to support its input on Cote d'Ivoire. Additional costs for information on the traffic in second hand refrigerators in the other countries will be obtained from other sources. No further funding will be requested for this activity.

44. The Government of France indicated that it would provide UNEP and any other interested body with a copy of the documentary for dissemination elsewhere. France also indicated that it is difficult to measure the impact of the documentary on the phase-out programme of Cote d'Ivoire, but it felt that the activity would have the impact of promoting the Montreal Protocol.

RECOMMENDATIONS

The Fund Secretariat recommends that the Executive Committee through its Project Review Sub-Committee:

1. Consider the requests for "Technical Assistance for country programme and refrigerant management plan preparation in Laos" (US \$31,500), "Technical assistance in air conditioning for Ghana" (US \$31,500), and "Technical assistance in air conditioning for Jordan" (US \$42,000) in the light of the Secretariat's comments above.
2. Approve the request for Halon banking management plan in West Asia Countries (Bahrain, Kuwait, Lebanon, Oman, Qatar, and Yemen (US \$120,750 for France) with the understanding that the countries included in the project should be made aware that no further funding would be made available for the halon sector in their countries.
3. In the light of recommendations (1) and (2) above, approve France's request as indicated

below and request the Treasurer to offset this amount against the balance of France's bilateral contributions for the period 1997 through 1999.

- Documentary on Traffic in Second-Hand Refrigerators in Côte d'Ivoire (US\$12,000)

REQUESTS FROM THE GOVERNMENT OF GERMANY

45. The Government of Germany has submitted requests for bilateral cooperation for projects in China, Egypt, Mauritius, and Zimbabwe (subsequently withdrawn) and for a regional project in West Asia. Germany has requested the cost of these projects, (US \$2,059,336) should be offset against the balance of its 1997 through 1999 bilateral contributions to the Multilateral Fund. The Executive Committee decided to allow flexibility in the year for which bilateral projects would be credited provided that bilateral agencies submit their work plans to the first meeting of the year. Germany's 1999 work plan is included in document UNEP/OzL.Pro/ExCom/27/6.

46. The amount requested, including previous approvals offset against Germany's bilateral contributions, does not exceed 20 per cent of Germany's total contributions for the 1997 through 1999 triennium replenishment.

Elimination of CFC-11 and CFC-12 in the manufacture of domestic refrigerators and freezers at China Aerospace Industry Corp.

47. The project cover sheet and description as well as the Secretariat's comments and recommendations are included in Annex I.

Development of Refrigerant Management Plan in Egypt (US\$28,700)

Project description

48. The objective of the project is the development of a Refrigerant Management Plan to assist Egypt in meeting its obligation under the Montreal Protocol.

49. The RMP as an integrated and comprehensive national strategy will address both the technical and socio-economic aspects.

Comments

50. The Executive Committee has approved 23 refrigeration projects in Egypt valued at US \$17 million that will lead to the phase out of 671 ODP tonnes. UNIDO received US \$100,000 in March 1993 to develop a strategy in the refrigeration and foam sectors for Egypt. Also, Egypt received recovery and recycling funding for UNDP's implementation within the context of the approval for the Koldair project in October 1992.

51. The Executive Committee will be considering other requests for RMP formulations for medium and large ODS consuming countries in the context of other bilateral requests and work programme requests from the implementing agencies.

Phasing out CFCs at Chem-Tech, Port Louis, Mauritius (US \$90,400)

52. In 1997, the total consumption of CFCs in the aerosol sector in Mauritius amounted to 16 tonnes, consumed by Chem-Tech in Port Luis, one of the three largest aerosols filling plants in the country. The other two companies have already converted to hydrocarbon (HAP) technology.

53. The project is for the replacement of CFCs (16 ODP tonnes) with hydrocarbon propellant used in manufacturing different types and sizes of aerosol perfumes (226,000 cans /year). The aerosol filling process under operation utilizes a pneumatic filling machines manufactured by AVK, Germany.

54. Conversion entails installation of a gas filling machine and modification of existing equipment, a manual water bath for testing filled cans, explosion-proof lighting systems and forced ventilation. Technical assistance will be provided for performance and supervision of engineering designs, equipment installation and technical documents.

55. The capital cost of the project is US \$87,500 and the operational savings for four years are US \$7,500 (NPV for four years). The enterprise will finance other unclaimed costs (US \$13,500). The Fund Secretariat has not reviewed these costs, some of which would not be eligible.

Halon banking management plan in West Asia Countries (Bahrain, Kuwait, Lebanon, Oman, Qatar, and Yemen (US\$311,400: - US\$120,750 component from France; US\$129,150 component from Germany and US\$61,500 component from UNEP)Project description

56. See project description provided in this document for France.

Comments

57. See comments provided in this document for France.

RECOMMENDATIONS

The Fund Secretariat recommends that the Executive Committee through its Project Review Sub-Committee:

1. Approve the request for Halon banking management plan in West Asia Countries (Bahrain, Kuwait, Lebanon, Oman, Qatar, and Yemen (US \$129,150 for Germany) with the

understanding that the countries included in the project should be made aware that no further funding would be made available for the halon sector in their countries.

2. Consider the request for preparation of an RMP for Egypt (US \$28,700) in the light of the comments above.
3. In the light of recommendations (1) and (2) above, approve Germany's requests as indicated below and request the Treasurer to offset this amount against the balance of Germany's bilateral contributions for the period 1997 through 1999.
 - Phasing out CFCs at Chem-Tech, Port Louis, Mauritius (US \$90,400)
 - Elimination of CFC-11 and CFC-12 in the manufacture of domestic refrigerators and freezers at China Aerospace Industry Corp. (US \$1,451,137)

Annex I**PROJECT EVALUATION SHEET
CHINA**

SECTOR: REFRIGERATION ODS use in sector (1993): 1,750 ODP tonnes

Sub-sector cost-effectiveness thresholds: Domestic US \$13.76/kg

Project Titles:

- (a) Elimination of CFC-11 and CFC-12 in the manufacture of domestic refrigerators and freezers at China Aerospace Industry Corp. (Kunming Refrigerator Factory).

Project Data	Domestic
	China Aerospace
ODS phase-out (ODP tonnes)	93.53
Proposed project duration (months)	24
Incremental capital cost (US \$)	1,694,516
- including contingency (%)	0
Incremental operational cost (US \$)	109,270
Total project cost (US \$)	1,803,786
Local ownership (%)	100
Export component (%)	10
Amount requested (US \$) {Original}	1,963,276
{Revised}	
Cost effectiveness (US \$/kg)	18.576
National Coordinating Agency	State Environmental Protection Agency (SEPA)/Foreign Economic Co-operation Office
Implementing Agency	GTZ (Germany)
Technical review completed?	Yes

Secretariat's Recommendations:	
Amount recommended (US \$)	1,298,322
Project impact (ODP tonnes)	93.53
Cost effectiveness (US \$/kg)	9.02
Implementing Agency support cost (US \$)	152,815
Total cost to Multilateral Fund (US \$)	1,451,137

PROJECT DESCRIPTION

(a) Elimination of CFC-11 and CFC-12 in the manufacture of domestic refrigerators and freezers at China Aerospace Industry Corp.

1. ODS consumption in the domestic refrigeration sub-sector has decreased from an estimated 1993 level of 8,462 ODP tonnes. According to the recent information, ODS consumption in the domestic refrigeration sub-sector in 1997 was estimated at 7,390 ODP. The Executive Committee approved 27 projects for manufacturers of refrigerators and freezers in the domestic refrigeration sub-sector, phasing out 8,373 ODP tonnes. The target for the complete phase out of CFC consumption in the domestic refrigeration sub-sector in China is 2005.
2. The number of refrigerators and freezers has increased from 8.1 million units in 1993 to 13.4 million units in 1997, an increase represents 65.4%.
3. In 1993, there were about 16 compressor production enterprises in China with a total annual output of 5.9 million units. By 1997, the number of enterprises increased to 20 facilities producing about 7.4 million units per year. The Executive Committee approved a total of US \$ 10.9 million for the conversion of 8 of these enterprises to produce about 11 million units of non-ODS based compressors a year.
4. The proposed project will be implemented by GTZ (Germany) as a bilateral co-operation and will result in the elimination of 79.16 tonnes/year of CFC-11 and 14.4 tonnes/year of CFC-12 by converting to cyclopentane as PU foam blowing agent and isobutane as refrigerant.
5. China Aerospace Industry Corp, Kunming Refrigerator Factory (KRF) is a 100% Chinese state owned enterprise. The company manufactures domestic refrigerators and freezers. In the years 1995-97 the enterprise produced an annual average of 58,792 units. The production is divided into 2 production facilities, called factories (refrigerator and freezer factories) located within one manufacturing area. Each factory has two foaming production lines for foaming operations for cabinets and doors. Each foaming line is equipped with one high pressure foaming machine and jigs and fixtures.
6. The conversion to cyclopentane requires the existing foaming equipment to be replaced or retrofitted. The proposal requests funding for replacement of two foaming machines and retrofitting of two others, installation of the necessary safety equipment, including a cyclopentane storage tank, and other relevant modifications.
7. On the refrigerant part, there are two assembly lines equipped with charging boards, vacuum pumps and leak detectors. Conversion to iso-butane involves re-design and testing of the cooling systems, and changes in manufacturing process. New equipment is requested, including refrigerant charging boards, refrigerant supply system, ultrasonic welding, new leak detection equipment, iso-butane storage facility. The proposal requests also a set of servicing equipment.

8. The proposal includes funding for technology transfer, redesign, prototyping, testing, training and safety certification. Incremental operational costs which are caused by the conversion to the new technologies are requested for a period of six months.

SECRETARIAT S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat discussed with GTZ, Germany the rationalization of the foaming operations in Kunming plant through combining production of cabinets and doors in one production area. Such an approach reduces the potential risk for an enterprise in handling flammable material and also keeps down the cost of safety equipment resulting in cost-effective, safe and sound engineering solutions. Two high pressure dispensers will be within the capacity range of the baseline foaming equipment. This approach was applied in the calculation of the eligible incremental cost for conversion of foam part of the project. The Secretariat discussed also the eligibility and the level of funding of several specific budget items requested under capital and operating cost. The cost of servicing equipment was recognized as ineligible for funding under the proposal. The cost of several items in the refrigerant part were reduced in accordance with the prevailing prices of equipment available on the market. Incremental operating cost was reduced on the basis of local prices for chemicals and components in China.

2. Incremental costs and the administrative costs of US \$152,815 per decision 26/41 were agreed to with GTZ Germany.

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the bilateral proposal from the Government of Germany in the amount of US \$ 1,451,137, including US \$ 152,815 administration cost.