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

Fifteenth Meeting
Montreal, 13-16 December 1994

REQUESTS FOR BILATERAL CONTRIBUTIONS

This document consists of:

- Comments and recommendations from the Fund Secretariat
- Requests from the Governments of Canada and the United States of America

COMMENTS AND RECOMMENDATIONS OF THE FUND SECRETARIAT

REQUEST FOR BILATERAL CONTRIBUTIONS
CANADA

1. Pursuant to Article 10 of the Protocol as amended and decision IV/18 of the Fourth Meeting of the Parties, the Executive Committee is charged with assessing bilateral requests.

2. A request was received from the Government of Canada to submit three bilateral cooperation projects to the Executive Committee for intersessional approval. The Secretariat circulated the request in accordance with the established guidelines. Some members of the Executive Committee requested that these projects should be considered at the Fifteenth Meeting of the Executive Committee. Therefore, those projects are being submitted to the Executive Committee for final action.

3. The request to allow bilateral cooperation as partial contributions to the Multilateral Fund would credit CDN $530,400 (US $392,890 according to the UN exchange rates as at November 1994) in bilateral cooperation with Brazil, Chile and India against Canada's contributions to the Fund.

4. The assistance will be provided for three projects: "Montreal Protocol Technology Transfer Workshop: Phase II" CDN $80,000 (US $59,260) in cooperation with the Government of Brazil (Annex I), "Bromosorb Technology in Commodity Fumigation" CDN $300,000 (US $222,220) in the methyl bromide sector in cooperation with the Government of Chile (Annex II), and "Initiative to Help Phase Out the Release of Ozone Depleting substances by Asian Small- and Medium-Sized Enterprises" CDN $150,400 (US $111,410) in cooperation with the Government of India, UNEP Industry and Environment (Paris), and the International Cooperative for Ozone Layer Protection (ICOLP) (Annex III).

General Comments

Brazil: Montreal Protocol Technology Transfer Workshop: Phase II (US $59,260)

5. This activity consists of a business-to-business workshop with a training demonstration session and company on-site visits for Brazilian officials. The Executive Committee has approved funding for both implementing agencies and other countries providing bilateral cooperation for the participation of representatives from Article 5 countries in workshops for information dissemination and technology transfer.

Chile: Bromosorb Technology in Commodity Fumigation (US $222,220)

6. The second project would provide for the procurement, installation and start-up services, and the training of personnel for a methyl bromide recovery and recycling equipment in existing fumigation facilities in Chile. Decision V/23 "authorize[d] the Executive Committee [to conduct] . . . a limited number of methyl bromide alternative demonstration projects, which should be selected with the assistance of the Technology and Economic Assessment Panel" and ". . . to encourage Parties to provide bilateral support for other methyl bromide studies and projects in developing countries (over and above contributions to the Fund)".

7. Decision VI/11 stated "[w]here methyl bromide is used Parties are urged to minimize emissions and use of methyl bromide through containment and recovery and recycling methodologies to the extent possible" (UNEP/OzL.Pro.6/7, decision VI/11, para. 1c) and "[t]hat adequate resources from the Multilateral Fund for the Implementation of the Montreal Protocol and other sources are needed to facilitate the transfer of non-ozone-depleting technologies for quarantine and pre-shipment applications related to methyl bromide to the Article 5 countries" (Ibid, para. 2e).

8. The proposal from the Government of Canada contains a recommendation from the Chairman of the Methyl Bromide Technical Options Committee that "the demonstration of containment and recovery and recycling needs should be carried out in . . . [a country like] Chile". He also stated that the proposed project reflects the major areas of concern agreed with the Article 5.1 group of representatives on the Methyl Bromide Technical Options Committee."

India: Initiative to Help Phase Out the Release of Ozone Depleting Substances (ODS) by Asian Small- and Medium-Size Enterprises (US $111,410)

9. This project consists of a series of three workshops to be held in three different locations in India (Delhi, Bombay and Bangalore) to target the geographical areas where the sources of ODS are most serious and corresponds to the concentration of Indian industries by sector. The purpose of the workshop is to provide information to small- and medium-size enterprises on new and emerging technologies, training in project preparation and the identification of specific follow-up projects to eliminate the use of ODS.

10. UNEP will seek an additional US $40,000 for its participation in this project to cover the costs of representatives from neighbouring countries and international experts on solvents.

Allocation of funds

11. As reported in its progress report on bilateral activities in document UNEP/OzL.Pro/ExCom/13/7, the Government of Canada has informed the Executive Committee that it is revising the cost of its bilateral offset for the project, "Halon management programme in Venezuela". The project was approved for US $414,000 at the Eleventh Meeting in November 1993. The project is now expected to cost US $270,900 since UNDP will procure the required

Halon 1301 recycling equipment. Canada has requested that the balance of US $143,100 should be offset against future requests from the Government of Canada. Bilateral cooperation with China approved at the Fourteenth Meeting in the amount of US $109,500 has already been applied leaving a balance of US $33,600. Since the proposed cooperation (US $392,890) will exceed the balance of US $33,600, the remainder, US $359,290, should be applied against the Canadian contributions for the year 1994.

Recommendation

12. This request complies with the bilateral contribution guidelines (UNEP/OzL.Pro/ExCom/5/16, paragraph 55) and the criteria for assessing costs as bilateral contributions (UNEP/OzL.Pro/ExCom/7/30, Annex IV). The proposed amount to be applied against Canada's contributions to the Fund does not exceed 20 per cent of Canada's contributions for the year 1994.

13. It is, therefore, recommended that the Canadian Government's request should be approved in the amount of US $392,890 and the Treasurer should be appraised of the funding disposition recorded in paragraph 11 above and credit US $359,290 against Canada's contributions for the year 1994.

REQUEST FOR BILATERAL CONTRIBUTIONS
USA

14. Pursuant to Article 10 of the Protocol as amended and decision IV/18 of the Fourth Meeting of the Parties, the Executive Committee is charged with assessing bilateral requests.

15. A request was received from the Government of the United States to submit two bilateral cooperation projects to the Executive Committee for intersessional approval. The Secretariat circulated the request in accordance with the established guidelines. Some members of the Executive Committee requested that these projects should be considered at the Fifteenth Meeting of the Executive Committee. Therefore, those projects are being submitted, along with additional projects, to the Executive Committee for final action.

16. The Government of the United States of America (Annex IV) is requesting the Executive Committee to credit US $347,000 in bilateral cooperation with Colombia, Malaysia, Mexico, Uruguay and Venezuela against the United States' 1994 contributions to the Fund. The assistance will be provided for six projects: "Project Preparation/Demonstration Project" (US $120,000) in cooperation with the Government of Colombia; "Project Preparation in the Halons Sector" (US$ 45,000) in cooperation with the Government of Malaysia; "Remainder of Institutional Strengthening Grant" (US $65,000) in cooperation with the Government of Mexico; "Training in the Halons Sector" (US $10,000) in cooperation with the Government of Uruguay; and "Training/Technical Assistance to All ODS Sectors in the Venezuelan Military" (US $40,000) and "Demonstration Project in MAC Servicing" (US $67,000) in cooperation with the Government of Venezuela.

17. Progress reports on the current Mexican institutional strengthening project and the first MAC demonstration project are attached to the project proposals for "Remaining Institutional Strengthening Grant" and "Demonstration Project in MAC Servicing", respectively.

18. While the transmittal letter from the Government of the United States refers to the remaining stages in the conversion of a refrigerator line at the Haier refrigerator factory in Qindao, China, subsequent to receipt of that letter, the United States requested the Secretariat to withdraw this project from consideration at this meeting. The transmittal letter also referred to the submission of a request from the Government of Germany. Germany also informed the Secretariat to withdraw its request.

General Comments

Colombia: Project Preparation/Demonstration Project (US $120,000)

19. This request is for the collection and analysis of information about the MAC sector in Colombia, a demonstration of workshop for 10-15 repair shops and the installation of UNDP-

procured recycling machines for the participating repair shops, and a follow-up report on the performance of the demonstration.

20. USEPA in cooperation with Mexico and Venezuela has conducted two similar demonstration projects and the initial review of the data indicates that there is reason for continuing this process in other countries. The demonstration project includes further project preparation through an assessment of needs to ascertain if the original project formulation should be expanded to include the participation of other repair facilities such as bus servicing facilities and refrigerated transport servicing depending upon their cost-effectiveness.

21. It should be noted that this cost does not include the cost for the recycling machines which will be provided by UNDP and will effect the cost effectiveness measurements.

Malaysia: Project Preparation in the Halons Sector (US$ 45,000)

22. This project will identify and prepare proposals in the Malaysian halons sector. Project preparation activities will be coordinated with the World Bank's project, "Servicing, maintenance and recovery of portable extinguishers (halon-1211) and training programme", which was approved at the Sixth Meeting of the Executive Committee.

Mexico: Remainder of Institutional Strengthening Grant (US $65,000)

23. This request is for extending the operation of the ozone protection unit (OPU) until March 1995. As mentioned in the cover letter from the United States, this request and the amount approved at the Seventh Meeting (US $285,000) corresponds to the original estimate (US $350,000) for funding institutional strengthening in Mexico.

24. The request also includes a progress report on the activities of Mexico's OPU. The amount requested is in compliance with the indicative funding levels for OPUs as presented in the paper on institutional strengthening submitted to the Seventh Meeting of the Executive Committee.

Uruguay: Training in the Halons Sector (US $10,000)

25. This project will train fire equipment distributors and critical halon users such as telecommunications companies on a halon 1211 recovery/recharge unit and compressor provided with resources from the Multilateral Fund through UNDP's Global Halons Project.

Venezuela: Training/Technical Assistance to All ODS Sectors in the Venezuelan Military (US $40,000)

26. It is estimated that the Venezuelan military consumes 35 per cent of ODS in Venezuela principally halons. Three technical assistance projects in the Venezuelan halons sector have been approved by the Executive Committee: "Workshops for the recycling and banking of

halons" (UNDP: (US $26,800): "Technical assistance in the halon sector" (Canadian bilateral cooperation: US $270,900 and UNDP Global Halons Project US $143,100); and "Technical assistance in halon 1211 management" (United States bilateral cooperation: US $31,000). Although this project also addresses halon inventories and developing and managing a strategic reserve for halons, it also provides more general guidance about ODS phase-out in the military.

Venezuela: Demonstration Project in MAC Servicing (US $67,000)

27. This project entails the implementation of the second phase of the demonstration in cooperation with a project being proposed by UNDP at this meeting. Both projects are recommended for funding.

Recommendation

28. This request complies with the bilateral contribution guidelines (UNEP/OzL.Pro/ExCom/5/16, paragraph 55) and the criteria for assessing costs as bilateral contributions (UNEP/OzL.Pro/ExCom/7/30, Annex IV). The proposed amount to be applied against the United States' contributions to the Fund in addition to previous approvals against 1994 contributions does not exceed 20 per cent of the United States' contributions for the year 1994.

29. It is, therefore, recommended that the United States Government's request should be approved in the amount of US $347,000 and the Treasurer should credit the requested amount against the 1994 contributions of the United States.

Environment Canada
Conservation and Protection

Environnement Canada
Conservation et Protection

CANADA'S GREEN PLAN
LE PLAN VERT DU CANADA

Dr. Omar El-Arini
Chief Officer
Multilateral Fund for the
Implementation of the Montreal Protocol

Dear Dr. El-Arini,

Attached, please find a request for Executive Committee approval of funding for a new bilateral activity and is part of a follow-up action with regards to Canada's ongoing efforts to assist Brazil in phasing out the use of ODS.

With regard to this funding request, Canada is asking for an offset of $80,000 CDN against our contributions to the Multilateral Fund. This request for approval of new funding relates to additional resources which will be used to meet agreed incremental costs on a project that strictly relates to compliance with the provisions of the Protocol. I should also note the Brazilian government has given its full approval to this project.

If you have any questions regarding this submission, please feel free to have your staff contact me. I sincerely regret the lateness of this proposal.

Sincerely,

Steve Gorman
Head, Technology Outreach
Technology Development
Directorate

Canada

MONTREAL PROTOCOL TECHNOLOGY TRANSFER WORKSHOP ON OZONE DEPLETING SUBSTANCES

PHASE II

TORONTO, CANADA - SEPTEMBER 26 TO OCTOBER 3, 1994

SUMMARY

As a follow-up to the Montreal Protocol Canada-Brazil Technology Transfer Workshop on Ozone Depleting Substances (ODS) and Canada's ongoing efforts to assist developing countries in eliminating ODS, it as been agreed between the two countries that a delegation from Brazil, that would include relevant industry representatives, ABRAVA, SENAI, and BNP , would participate in a workshop in the fall of 1994 (September 26 to October 3, 1994) to meet with Canadian government representatives and representatives of the Environment Canada/HRAI technician training program visit with Canadian industrial counter-parts. The focus of this invitation, as with the first workshop, will continue to be Brazil's ODS reduction program (specifically refrigerant conservation) and will be undertaken as part of the Montreal Protocol's program of bilateral cooperation activities.

BACKGROUND

In the fall of 1993 (September 8-10, 1993), a Canada-Brazil workshop, organized by the Government of Canada as part of a bilateral contribution to the Montreal Protocol Multilateral Fund, was held in Sao Paulo, Brazil. The purpose of this workshop was to provide technical and policy assistance to Brazilian industry and government in the reduction of ODS, utilizing Canadian experience, technology and expertise. This workshop was the first-ever of its type for Canada and Brazil. While structured on the concept of technology cooperation that concentrates on the development of human resources by extending a country's ability to absorb, generate and apply knowledge, the workshop also provided a venue for business opportunities, partnerships and cooperation.

Feedback at the conclusion of the workshop was very positive, with the industry-to-industry format proving to be especially effective. Both Brazilian and Canadian participants hailed the event as an unqualified success, with both sides indicating that promising contacts and leads had been established. Several follow-up activities were identified and are expected to lead to continued Canada-Brazil cooperation, ODS reduction and alliances between Canadian and Brazilian industry.

A definite momentum and enhanced awareness of Canadian capability was established and Brazilian and Canadian companies have been in close contact looking at concurrent ways of using technologies to reduce ozone depleting substances (ODS).

Development of a Brazil National Program (BNP) for control of ODSs is also well underway, with the final approval given at the most recent Executive Committee of the Montreal Protocol Fund.

SCOPE/RATIONALE

This proposal responds directly to the Canada-Brazil Ozone Reduction/Control Program and will focus strongly on ODS Refrigerant Conservation. As a bilateral activity it will not only continue to assist Brazil in the eliminating of ODS, but will also continue to promote the transfer of technology in this important area.

Brazilian companies have indicated that they are committed to doing business with Canada and are anxious to further develop the contacts already established with their Canadian counterparts. They have a keen interest in being able to actively view Canadian technologies first-hand, while at the same time gaining an overall feeling for Canadian business skills, working relationships and possible collaborative efforts.

As an example, one Canadian company, has already linked-up with a partner in Brazil to transfer its relevant technologies in the area of recovery and recycling in the refrigeration and air conditioning sector.

Canadian companies who participated in the Canada-Brazil Workshop have also expressed a strong interest in having Brazilian companies visit their facilities and are looking forward to introducing their technologies and services first-hand.

PROPOSAL

The main focus will be ODS reduction/control (specifically refrigerant conservation) and as such will be a combination of regulatory/policy infrastructure, the Environment Canada/HRAI technician training program (see attachment), recovery and recycle equipment procurement, and pricing/distribution mechanisms for recycled refrigerants. Their will be an opportunity to fit in a business-to-business workshop with a training demonstration session and company on-site visits. The Brazilian delegation will be a mix of industry, government, institutional and educational representatives, with a similar match on the Canadian side.

As the timeframe for this workshop will coincide with the "Emerging Clean Air Technologies and Business Opportunities Conference and Exhibition in Toronto - September 26-30, 1994", it is suggested that the two activities be combined, thereby exposing the Brazilians to an even wide array of expertise and technologies (i.e., Canadian clean air technologies).

Timing was agreed upon for the week of September 25th, coinciding with the Clean Air Technology Conference providing the Brazilian delegation with the opportunity to attend part of the conference/exhibition, participate in Canada's national training program in the area of ODS, and the possibility for on-site visits with Canadian companies, and the final segment would be to meet with Canadian government representatives (i.e., departing October 3/4,

1994).

EXPECTED RESULTS

- With the recent approval of Brazil's National Program (BNP) for the control of ODS's, Brazil will be looking to begin implementation its ODS program. The continued establishment, development and reinforcement, on the part of both Brazil and Canada to enhance current working relationships, leading to stronger collaboration and possible technology transfer will lead to the further depletion/elimination of CFCs.

- Establishment of a training program with SENAI. SENAI has been collaborating in the development of the BNP in order that the training program be directly incorporated into the National Action Plan. Brazil has clearly indicated that the Canadian training program (Environment Canada/HRAI) should be the one which is used. Continued cooperation with ABRAVA, SENAI and BNP will ensure use of the Canadian training program as the model for the Brazil program. As a result, we would hope that approximately 40,000 Brazilian technicians will receive much needed training with respect to technologies and methods which protect the ozone layer.

ATTACHMENT

The Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) is the trade association that represents Canadian manufactures, suppliers, wholesalers, contractors and associates in the heating, ventilating, air conditioning and refrigeration industry.

HRAI developed, under contract to Environment Canada, the national training program "CFC/HCFC/HFC Control In The Refrigeration and Air Conditioning Industry". It was worked with community colleagues and other association partners to deliver this environmental awareness course to over 20,000 technicians in Canada. HRAI manages the national data base for individuals trained through this course.

HRAI has directed activities related to this training initiative and have participated in the development of federal and provincial regulations in the area.

HRAI participated in bilateral Montreal Protocol workshops in Brazil in order to share the expertise and experience of Canadian industry in the areas of CFC environmental awareness and technical training with the industries of these countries.

In 1993, HRAI was presented with the EPA International Stratospheric Ozone Protection Award for its leadership in ozone protection.

Environment Canada
Conservation and Protection

Environnement Canada
Conservation et Protection

CANADA'S GREEN PLAN
LE PLAN VERT DU CANADA

Dr. Omar El-Arini
Chief Officer
Multilateral Fund for the
Implementation of the Montreal Protocol

Dear Dr. El-Arini,

Attached, please find a request for Executive Committee approval of funding for a new bilateral activity in the Methyl Bromide sector was developed with the assistance of the World Bank and the government of Chile.

With regard to this funding request, Canada is asking for an offset of $300,000 U.S. against our contributions to the Multilateral Fund. This request for approval of new funding relates to additional resources which will be used to meet agreed incremental costs on a project that strictly relates to compliance with the provisions of the Protocol. I should also note the Government of Chile has given its full approval to this project.

If you have any questions regarding this submission, please feel free to have your staff contact me. I sincerely regret the lateness of this proposal, however given the importance of completing this project for November, which is the time at which Chile uses its fumigation chambers the most, I feel that it is important that we move as fast as possible.

Sincerely,

Steve Gorman
Head, Technology Outreach
Technology Development
Directorate

Canada

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BROMOSORB TECHNOLOGY IN COMMODITY FUMIGATION

The Bromosorb technology has been designed to work in conjunction with fumigation chambers for the recapture and recycle of methyl bromide used in commodity fumigation. As illustrated in the attached diagram, the Bromosorb unit is attached to the air exhaust from the fumigation chamber. The chamber is loaded with the commodity to be fumigated and sealed. The required amount of methyl bromide is then injected into the chamber to achieve the concentration level specified for treatment. In the case of cherries, the concentration is sixty-four grams per cubic metre. The commodity and methyl bromide fumigant are resident in the chamber for a specified time period, in the case of cherries, two hours.

At the end of this period the fans are turned on the exhaust the chamber. At this point, rather than being exhausted to the atmosphere, the exhaust gases flow through the bromosorb unit and over the halozite adsorber cells that are connected in series. The number of cells is determined by the size of the chamber being used for fumigation. The exhaust from the adsorber cells is then cycled back into the chamber. This closed cycle continues for a period of time with the concentration levels of methyl bromide in the air stream being measured regularly. After approximately an hour and a half, the concentration of methyl bromide at the point of entry into to adsorber cells should be the same as the concentration in the air stream being returned to the chamber. This level of concentration should be approximately five hundred ppm. When equilibrium is established in these two measurements, the adsorber cells are saturated with methyl bromide. The balance of the methyl bromide is then vented to the atmosphere to achieve the five ppm deemed safe for human entry into the fumigation chamber.

The concentration in the chamber at the start of the fumigation is approximately sixteen thousand ppm. Roughly 20 percent of the fumigant is absorbed or reacts with the commodity being fumigated and with the containers holding the fumigated commodity. This leaves an exhaust concentration of approximately twelve thousand eight hundred ppm of which twelve thousand three hundred ppm are absorbed on the halozite sieve, leaving a residual concentration of five hundred ppm. Under this scenario, the recovery efficiency of the system is 96.1 percent.

Once the halozite absorber is saturated, the bromosorb unit is sealed off from the fumigation chamber. At this point the heater is turned on and the fan is engaged to move the heat to the heat exchanger. There is closed circuit that can cycle the air through the absorber beds without passing through the chamber. The air is heated to between 200° and 350° F. This heated air is then cycled through the halozite adsorber beds causing the methyl bromide to desorb off of the beds. After approximately 45 minutes the absorber beds are fully desorbed and the air stream containing the desorbed methyl bromide is cooled and cycled back into the fumigation chamber. At this point sufficient virgin methyl bromide is injected to compensate for the methyl bromide that was absorbed by the commodity in the first fumigation. If we assume the absorbtion rate by the commodity is 20 percent, then the requirement for virgin methyl bromide is reduced by approximately 77 percent, and emissions to the atmosphere are reduced by 96 percent.

In Chile, the fumigation chambers operated by the fruit exporters are well suited to incorporating the bromosorb technology. Most fruit processing facilities have more than one fumigation chamber. The bromosorb unit that we describe could be attached to two chambers concurrently, which would add to its efficiency. While one chamber was being exhausted the second chamber could be loaded with the commodity to be fumigated. The methyl bromide adsorbed from the first chamber could then be desorbed into the second chamber while the first chamber was emptied of fumigated commodity and fresh commodity was being loaded in for the next cycle. The size of the chambers, averaging one thousand cubic meters, would allow for a trailer-mounted bromosorb unit which could start in northern Chile and move south as the fresh commodities ripen and are ready for fumigation.

The Bromosorb package proposed would include the following elements:

- molecular sieve adsorption unit
- regeneration and air supply compressor
- proprietary molecular sieve
- heat exchanger
- microprocessor
- turn-key control panel for automatic operation of unit
- GC analyzer for determining purity and concentration of methyl bromide
- installation and start-up services
- training of personnel

This is a turn-key operation with user-friendly technology that proved its efficiency during tests in Washington State. The precise cost of the system will be calculated once the design parameters have been specifically defined.

United Nations Environment Programme

Methyl Bromide Technical Options Committee

18 July 1994

Memorandum to:
The Executive Committee

Potential Methyl Bromide Projects

The following areas are major and important uses of methyl bromide in Article 5.1 countries for which alternatives exist and which appear potentially suitable for demonstration projects under MLF funding:

(1) tobacco seed bed treatment (Basamid, metam sodium and possibly solarisation);

(2) cereal grain stock disinfestation (bag stacks) (improved practice, plus phosphine or CO_2 use).

The technology associated with methyl bromide containment, recycling and recovery is advancing rapidly and a demonstration of this technology on export of perishables (e.g. fresh fruit and vegetables, cut flowers) may also be suitable.

A further area which may eventually be appropriate is for export timber fumigation but, at present, alternative technologies are not adequately developed to be able to recommend alternatives.

Very preliminary costs for demonstrations of each of tobacco seed bed and cereal stock treatment are less than $100,000 US for both capital and running costs, including consultants and supervision. For containment, recovery and recycling of methyl bromide a demonstration project on a large fumigation facility is likely to exceed $200,000, but could well be attractive for bilateral funding.

There are a number of potential venues for the tobacco seed bed project, particularly Brazil, Zimbabwe and Malawi, and several for the cereal grain stock project, specifically in countries in Africa with well developed parastatal organisations in charge of food stocks (e.g. Kenya, Tanzania, Zimbabwe). China and Indonesia already apply suitable alternative non-ODS using technologies for long term storage of grain stocks.

Chair: Dr H.J. Banks, c/- Stored Grain Research Laboratory, CSIRO Division of Entomology, GPO Box 1700, Canberra, ACT 2601, AUSTRALIA (Ph: +61-6-246 4201, Fax: +61-6-246 4202, Email: jb@ento.csiro.au)

Demonstration of containment and recovery and recycling needs to be carried out in an Article 5.1 country with substantial trade in perishables, such as tropical fruit, and well developed infrastructure for fumigation in chambers prior to export. Candidates for this include Chile and Thailand.

The information in this memorandum is drawn from my personal experience as Chair of MBTOC and cannot be taken as comprehensive. Nor has it been extensively discussed. However, the proposed projects do reflect the major areas of concern agreed within the Article 5.1 group of representatives in MBTOC.

Dr H.J. Banks
Chair
MBTOC

Chair: Dr H.J. Banks, c/- Stored Grain Research Laboratory, CSIRO Division of Entomology, GPO Box 1700, Canberra, ACT 2601, AUSTRALIA (Ph: +61-6-246 4201, Fax: +61-6-246 4202, Email: jb@ento.csiro.au)

Environnement Canada Environment Canada

LE PLAN VERT DU CANADA
CANADA'S GREEN PLAN

Technology Development Directorate
425 St. Joseph Blvd., 4th Floor
Hull, Quebec
K1A 0H3

October 27, 1994

Dr. Omar El-Arini
Chief Officer
Multilateral Fund for the
Implementation of the Montreal Protocol

Dear Dr. El-Arini:

Attached please find a request for Executive Committee approval of funding for new bilateral activities and was developed in consultation with the Implementing Agencies and the government of India.

With regard to this funding request, Canada is asking for an offset of $150,400 CDN against our contributions to the Multilateral Fund. This request for approval of new funding relates to additional resources which will be used to meet agreed incremental costs on a project that relates to compliance with the provisions of the Protocol. I should note that the Government of India as given its full approval to this project.

I would also like to take this opportunity to invite a representative from the Secretariat to participate in these workshops. We feel that it is important that the Secretariat be involve in this type of activity.

If you have any questions regarding this submission, please feel free to have your staff contact myself or Mr. Yvon Boucher (613-954-5264). Given that we are proposing that these activities are being undertaken this December, I would request that these projects be put forward for intercessional approval.

Sincerely,

Steve Gorman
Head, Technology Outreach Section

Attachments

Proposal for a Canada/UNEP/ICOLP Initiative To Help Phase Out the Release of Ozone Depleting Substances By Asian SME's

September 28, 1994

Prepared by
Canadian Office for Technology Transfer
and Training in the Environment

1. Introduction

This proposal, for the conduct of three workshops for the phase out of Ozone Depleting Substances (ODS) in India, is presented by the Canadian Office for Technology Transfer and Training in the Environment (COTE) in cooperation with UNEP and the International Cooperative for Ozone Layer Protection (ICOLP) in support of the efforts of the Indian government to meet its obligations under the Montreal Protocol.

COTE has organized and managed similar workshops on Ozone Depleting Substances(ODS) in Brazil and China in 1993.

The Canadian Office for Technology Transfer and Training in the Environment (COTE) has received the mandate of organizing these workshops in cooperation with CII and ICOLP. COTE is an organization established by the government of Canada to assist representatives from less developed countries to learn through training and technology transfer about Canadian management, processes and technologies with application to environmental issues. COTE works under the sponsorship of Industry Canada, Environment Canada and Foreign Affairs and International Trade Canada.

ICOLP is a non-profit organization founded in 1989 by the United States Environmental Protection Agency and international corporations that used ozone depleting solvents in their manufacturing processes. The objective was for these corporations to work together to develop alternative technologies and processes that would accelerate the phaseout of ozone-depleting solvents. Current memberships includes eleven multinational electronics and aerospace corporations and twenty affiliate members from government and non-government organizations around the world, including UNEP.

The UN Environment Programme (UNEP) is one of the four implementing agencies who has received mandate by the Multilateral Fund to provide technical and financial assistance to developing countries that are Party to the Protocol to enable them to phase-out ODS. UNEP was given responsibility for gathering information, holding workshops, training courses, networking, conducting country programmes and acting as an information clearinghouse. UNEP has established the OzonAction Programme has a response to this mandate.

In Canada, the Department of Environment has the lead responsibility for policy direction on environmental matters. Environment Canada is also responsible for negotiating and implementing bilateral arrangements with article 5.1 countries. In the Fall of 1991, Environment Canada initiated dialogue to pursue the provision of technical assistance in the area of Ozone Depleting Substances reduction to selected developing countries through bilateral cooperation provisions under the Montreal Protocol Multilateral Fund. Bilateral programmes under the Multilateral Fund are a key element in Canada's ozone layer protection strategy. They allow Canada to bring its 15 years of collective government and private sector experience, expertise and technology to developing countries to assist them in eliminating ODS.

In India, the responsibility for policy direction on environmental matters rest with the Ministry of Environment and Forests.

2. Background

The Stratospheric Ozone Layer protects organisms from the sun's ultraviolet radiation. Depletion of this atmospheric layer has many possible repercussions: increased risk of skin cancer, immune system disorders and crop damage to name a few. Scientific studies have shown that Chlorofluorocarbons (CFCs) Hydrochlorofluorocarbons (HCFCs), Halons, Carbon, Tetrachloride and Methyl Chloroform contribute to the destruction of the ozone layer.

In response to this, the international community has taken action. In 1987, countries ratified the Montreal Protocol on Substances that Deplete the Ozone Layer. The Protocol calls for the complete elimination of the production and consumption of Ozone Depleting Substances (ODS) over a set period of time, depending on the chemical involved. This international treaty, signed by over 110 nations, thus set a precedent as an international agreement designed to prevent an environmental problem before that problem became a crisis.

India became a party to the Montreal Protocol on Substances that Deplete the Ozone Layer in September 1992.

As a first concrete response to the global challenge of implementing the provisions of the Montreal Protocol, India has developed its Country Program (ICP) which outlines the country's strategy for the Phase Out of Ozone Depleting Substances (ODS).

The ICP shows that, in 1991, the total ODS consumption totalled 10,370 metric tonnes. Solvents was the major user sector accounting for 47.7%, followed by R&AC (19.2%), Foams (15.2%), Aerosols (10.6%) and Fire extinguishing (7.2%).

Under an unconstrained demand scenario, India's Ozone Depleting Substances are expected to reach 184,200 metric tonnes by year 2010, from an estimated 1996 level of 24,170 metric tonnes(see Annex 1).

While SMEs individually consume a small amount of ODS, they collectively represent a significant amount in Developing Countries. In the case of India, about 2/3 of the total consumption of ODS is in the SMEs sector. The phase out of ODS in these sectors is of great concern as these industries do not have adequate linkages with multinationals neither do they have the required access for information related to the technology and policy options. These workshops are expected to provide the required information for SMEs and help them with projects to phase out ODS.

With proper funding assistance and available substituted technology, India intends to progressively and totally eliminate the consumption of ODS by year 2010 (see Annex II).

The selection of ozone depletion industrial sources covered in each of the three workshop locations (Bombay, Delhi and Bangalore) has been determined in collaboration with UNEP and the Confederation of Indian Industries (CII). It targets the geographical areas where the sources of ODS are most serious and corresponds to the concentration of Indian industries by sector (see annex 111).

Thus, in Delhi, we antipate covering R&AC, Foams, Aerosols and Solvents sectors; in Bombay, R&AC, Aerosols, and Foams; and in Bangalore, R&AC, Foams and Solvents.

3. Project Description

This proposal calls for the implementation, in India, of three workshops under the Montreal Protocol (Delhi, Bombay and Bangalore) that use Canadian and international expertise to respond to the needs of Asian companies in the fight to reduce ozone depleting emissions.

This initiative is supportative of, and consistent with the objectives and national action programme of the "India Country Programme (ICP) for the Phase Out of Ozone Depleting Substances" (ODS's).

The proposed workshops would target small and medium size firms(large companies are expected from the solvents sector also), involve awareness building of new and emerging technologies, training on project preparation and the possible identification of specific follow-up projects to eliminate the use of ODS.

The project will primarely focus on solvents but also cover various other areas of ozone depletion industrial sources;refrigeration and air conditioning, foams, aerosols. Halons has been excluded since the India Defence Institute of Fire Research has organized a national workshop on this subject.

While the country of concentration is India, at the suggestion of UNEP, other neighbouring countries such as Pakistan, Nepal, Maldives, Bangladesh, Mauritius, Myanmar and Sri Lanka will also be invited to participate (a final list will be established in consultation with UNEP). The participation from these countries would include a representative from the small scale industries and the focal points/National Ozone Unit heads who could benefit from this process and initiate similar activities in their own countries. These participants would attend the workshops in any one location.

Funding for the workshops will be provided from Canada's bilateral contribution to the Montreal protocol ($ 150,400 CDN) and $ 40,000 US for UNEP which will cover the costs of representatives from neighbouring countries and up to two international experts. UNEP will support from its own budget the costs associated with the participation of Nepal. ICOLP ($ 40,000 US) will fund the participation of the experts on solvents and cover part of local arrangement expenses associated with the solvents sector.

The other international implementing agencies (UNDP, UNIDO and World Bank) involved in the project will also cover the expenses of their staff.

4. Project Objectives

To assist companies and organizations in India and other neighbouring countries to meet their obligations as signatories of the Montreal protocol;

To increase the level of awareness on ODS amongst SMEs;

To help SMEs in the selection of substitute technology;

To identify possible investment projects;

To help SMEs preparing project proposals;

To contribute to world reduction, recovery, and replacement of ozone depleting substances;

5. Workshops Structure

The project consists of organizing three" two day workshops" (Delhi, Bangalore and Bombay) to be held from December 5 to December 14, 1994. The location of the workshops have been determined in collaboration with UNEP, ICOLP and CII and corresponds to the concentration of Indian industries by sector (see Annex III)

The following proposed workshop structure and location has been developed in consultation with CII and UNEP:

First day (morning): (plenary)

- Introductory remarks
  Resp: COTE, MOEF, CII.

- Overview of Montreal Protocol and OzoneAction Programme
  Resp: UNEP

- Overview of Multilateral Fund and financial mechanisms
  Resp: Montreal Secretariat

- Role of Implementing Agencies in ODS Programme in India
  Resp: UNDP, UNIDO and WB

- India's ozone-related program
  Resp: CII

First day (13:30- 15:00): (working groups)

- New and emerging technologies to reduce ODS:
  . overview of all technologies with advantages and disadvantages
  . global acceptability
  . sources
  . group discussions to assess suitability of various technologies in context of India and neighbouring countries
  . implementation program needed in support of technology

First day (15:30- 17:00) plenary

Montreal Protocol and elements of incremental costs

Resp: Montreal Protocol Secretariat

Second day: (09:00- 11:00) working groups

Approach to project preparation
Resp: UNDP, UNIDO, WB (IDBI)

Second day: (11:30-12:30 and 13:30-15:00) individual meetings

One to one meeting with companies on project proposals

Second day: (11:30-12:30 and 13:30-15:00) Canada Seminar

Presentation by Canadian companies on their products and technologies

Second day: (15:30- 17:00): (plenary)

- Plenary discussions on follow-up initiatives

Technical Presentations

Delhi:

Refrigeration and Air Conditioning
Resp: Trish MacQuarrie (Environment Canada)

Foams
Resp: G. Barkaus (Canada)
Rob Stein, ICI Polyurethane

Aerosols
Resp: Geno Nardini, Instituto Int. del Aerosol

Solvents
Resp: ICOLP

Bangalore:

R & AC
Resp: Trish MacQuarrie (Environment Canada)

Solvents
Resp: ICOLP

Foams
Resp: G. Barkaus(Canada)/
R. Stein, ICI Polyurethane

Bombay:

Aerosols
Resp: Geno Nardini, Instituto Int. del Aerosol

Foams
Resp: G. Barkaus(Canada)
R. Stein, ICI Polyurethane

R&AC
Resp: Trish MacQuarrie (Environment Canada)

6. Organizing Partners

a) COTE

The Canadian Office for Technology Transfer and Training in the Environment (COTE) will be responsible for the project coordination and implementation.

b) UNEP

UNEP will be involved in planning the project; providing financial assistance for the participation of two representants for each of the neighbouring countries and two international expert speakers; and facilitating group discussions.

c) Confederation of Indian Industries (CII)

The Confederation of Indian Industry (CII) serves as the National point of reference for the industry in India. CII has over 2700 member companies-small, medium and large from public and private sectors. CII acts as a catalyst for industry action in regard to quality, productivity and human resources development. Within CII, the Environment Management Division is established to assist Indian industry in becoming increasingly "ECO EFFICIENT" and to discharge its environmental obligations effectively. EMD is making special efforts to serve small scale units and pollution intensive industries.

d) ICOLP

ICOLP will be responsible for making presentation on solvents, and funding the participation of these experts. ICOLP will also cover part of the local arrangements expenses associated with the solvents sectors, and the costs of a consultant who will be gathering background information on participating Indian industries and interfacing with CII on organizational arrangements.

e) Ministry of Environment and Forests (India)

The Ministry of Environment and Forests (MOEF) is the coordinating agency in India for all matters relating to the Montreal Protocol. MOEF is fully supporting this initiative.

f) Department of Environment (Canada)

In Canada, the Department of Environment has the lead responsibility for policy direction on environmental matters. Environment Canada is also the lead government department on all aspects of the Montreal Protocol including bilateral activities.

g) Implementing agencies

Staff from UNIDO, UNDP and World Bank (IDBI) will cover the presentation and training on project proposals.

Staff from the Montreal Protocol Secretariat will be invited to cover the overview on the Montreal Protocol and elements of incremental costs.

7. Participants

a) Canadian participants

A total Canadian delegation of approximately eleven persons is anticipated:

Companies representatives/ subject experts	8
Environment Canada	1
COTE (project management)	1
Liaison and administrative consultant	1

b) Regional participants (India and neighbouring countries)

Approximately 100 participants, including 15-20 medium size companies from each sector, in each of the workshops.

UNEP proposes that the country representative from neighbouring regions come from the small scale industries and the focal point/ National Ozone Unit Head responsible for ozone related matters.

c) UNEP

UNEP will delegate one or two participants. UNEP will also fund (travel and accomodation) the participation of the neighbouring countries representatives and up to two international experts.

d) ICOLP

ICOLP is expected to delegate and provide funding for four experts on solvents. ICOLP will also cover part of the local arrangement costs associated with the solvents sector.

e) UNDP, World Bank (including IDBI) and UNIDO

UNDP (foams), World Bank and UNIDO (R&AC, solvents and aerosols), including their representatives in India, will be responsible for the presentation and training on project preparation.

8. Management

Overall project management will be provided by COTE.

Local arrangements (marketing, selection of participants, registration, room reservations, local travel, meals, etc) will be the responsibility of CII.

UNEP will manage its own participation and look after the non-Indian countries.

9. Project Costing

ICOLP

Approximately four experts on solvents	$ 30,000 US
Administrative arrangements	$ 10,000 US
Total	$ 40,000 US

MONTREAL PROTOCOL FUNDING (MPF)

Canadian delegation (COTE)

Airfare:	10 people X $4500	$ 45,000
Accommodation:	10 people X $150 X 12	$ 18,000
Meals:	10 people X $80 X 13 days	$ 10,400
Sub-Total:		$ 73,400

Confederation of Indian Industries

conference arrangements, advertisement, administration	$ 60,000
Sub-Total:	**$ 60,000**
Liaison and administrative consultant	**$ 7,000**
Contingency	**$ 10,000**
Total (MPF)	**$ 150,400 CDN**

UNEP

Two representatives from the neighbouring countries delegation (6) and up to two (2) international experts: airfare and accomodation	$ 40,000 US
Sub-Total	**$ 40,000 US**

Total project:

ICOLP	**$ 40,000 US**
MPF(COTE)	**$ 150,400 CDN**
UNEP	**$ 40,000 US**

10. Expected results

Awareness among SMEs and identification of projects for reduction of ODS use

Industries are able to select amongst suitable substitute technologies

Industries are initiated to preparation of project proposals

Approximately ten project proposals prepared in the workshops

11. Delivrables

Project report and recommendations for follow-up.

ANNEX IV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

31 October 1994

OFFICE OF
AIR AND RADIATION

Dr. Omar El Arini
Chief Officer
Multilateral Fund

Dear Dr. El-Arini,

Attached please find project proposals for which we are seeking final Executive Committee approval. These project proposals are fully described in the attached documentation. We would, however, like to say a few words of overview about the second project, which covers the remaining stages in the conversion of a refrigerator line at the Haier refrigerator factory in Qindao, China. The Executive Committee approved the initial U.S. bilateral request for funding of stage 1a of the Qindao project at its 10th meeting in June of 1993. Stage 1b and 2 of the Qindao project, which are being proposed today, would facilitate the final conversion of the refrigerator line at the Qindao plant to isobutane refrigerant. EPA is working on this project with the German GTZ which is submitting a companion project to this Executive Committee meeting to facilitate the conversion of the same line to cyclopentane foams.

We would like funds finally approved for these projects to be offset against our 1994 contribution to the Multilateral Fund. These bilateral funding requests cover agreed incremental costs for activities that strictly relate to compliance with the provisions of the Protocol. The total funding level that has been requested for bilateral offsets against the U.S. 1994 contribution is well below the allowable 20% threshold for bilateral activities that was approved by the Parties. The countries directly involved have given their approval for us to count these expenditures against our contribution.

Please feel free to call if you have any questions regarding these project proposals.

Sincerely,

Paul S. Horwitz
International Advisor
Stratospheric Protection Division

PROJECT OUTLINE

COUNTRY:	COLOMBIA
PROJECT TITLE:	Project Preparation/Demonstration Project
SECTOR COVERED:	Refrigeration (MACs Servicing)
SECTOR ODS CONSUMPTION:	129 MT (est., 1994)
INCREMENTAL COST:	US$120,000
BILATERAL AGENCY:	USEPA
NATIONAL COORDINATING AGENCY:	Ministerio del Medio Ambiente
DURATION:	1994 - 1995

Description:

US EPA proposes to design and implement an initial activity to reduce the use of CFC-12 in MACs servicing in Colombia. This activity, to be completed over approximately the next 12 months, would include:

- collection and analysis of basic information about the MACs sector
- a demonstration MACs recycling workshop for approximately 10-15 repair shops
- furnishing recycling machines, leak detectors, and related equipment to participating repair shops (to be funded by the UNDP Global MACs project)
- followup data collection and preparation of a report to document the experience of the repair shops with MACs recycling

The proposed project will incorporate the lessons learned during the preparation and implementation of the Mexico and Venezuela MACs demonstration projects, which are being conducted with UNDP, INE(Mexico), and FONDOIN (Venezuela). The Colombia project may include expanded participation by bus servicing facilities as well as refrigerated transport servicing, if during project preparation it is determined to be cost-effective.

PROJECT OUTLINE

COUNTRY:	MALAYSIA
PROJECT TITLE:	Project Preparation
SECTOR COVERED:	Halons
SECTOR ODS CONSUMPTION:	Halon 1211 - 211 MT (ODP-weighted, est. 1990) Halon 1301 - 133 MT (ODP-weighted, est. 1990)
INCREMENTAL COST:	US$45,000
BILATERAL AGENCY:	USEPA
NATIONAL COORDINATING AGENCY:	Malaysia Department of the Environment and Fire Services Department
DURATION:	1994-1995

Description:

Malaysian environmental policy and fire protection experts attended the U.S. EPA/Navy Halon 1211 Recycling Training workshop in Okinawa, Japan, in March 1992. As a followup to this training, Malaysia received two halon 1211 recovery/recharge machines and compressors from UNDP. Malaysia will use these machines as part of its overall halon management program and phaseout strategy. Malaysia has requested assistance from EPA to initiate planning this program and to develop further activities to eliminate the dependency on halons. EPA in conjunction with the U.S. Navy will work with Malaysian environment and fire protection experts to begin developing further cooperative activities.

Project preparation activities will include identifying activities to advance Malaysia's phaseout of halons and to prepare projects in a form suitable for submission to the Executive Committee. Malaysia is planning and implementing its halon phaseout program including a Halon Recycling Project with the World Bank. The project preparation activities will be complementary to this World Bank project.

PROJECT OUTLINE

COUNTRY:	MEXICO
PROJECT TITLE:	Remainder of Institutional Strengthening Grant
SECTOR COVERED:	All Sectors
INCREMENTAL COST:	$65,000
BILATERAL AGENCY:	USEPA
NATIONAL COORDINATING AGENCY:	Mexico's OPU

Description:

This project will fulfill the commitment to Mexico of $350,000 in initial funding for Institutional Strengthening for its Ozone Protection Unit. The funding will be used to allow the OPU to continue, through March of 1995, the work that it has initiated. Such work is described in the attached summary of activities that was prepared by the OPU.

program; and (7) coordinate public information and industry. The OPU has accomplished all of these objectives. These accomplishments are described in detail below. Since 1992, however, the Director General of Normatividad at INE has defined the OPU roles and responsibilities somewhat differently, although they incorporate the activities above. These activities are:

- Develop regulations to implement the 2000 phase-out. Regulations include production limits and import/export restrictions;
- Monitor compliance of Mexican companies with convenios (agreements that the OPU reaches with organizations that have the force of law) and Mexican law and refers violations to the Procuradoria;
- Coordinate government phase-out efforts with the Mexican Secretary of the Interior (Secretaria de la Hacienda) and the customs agency (Aduanas);
- Conduct a program of outreach and training to Mexican industry on phaseout requirements and technical assistance on ODS alternatives;
- Manage and coordinates the Multilateral Fund implementing agencies in Mexico, expedites application processing and review of other Mexican government agencies;
- Represent Mexico at international meetings, conferences, trade shows, and Meetings of the Parties to the Montreal Protocol;
- Manage a study on a marketable permitting system for ODS.

- Completed research reports on the chiller market
- Provided advice and consultations to an average of four companies a week that visit the OPU office for information about the phase-out and for information about alternatives to ODS. Assisted over 200 Mexican companies through individual consultations at the OPU offices.
- Held seven chiller workshops, and two solvent workshops for a total of 700 people.

Instituted National ODS Regulatory Program

Mexico conforms to Montreal Protocol requirements that ODS consumption equals production plus imports minus exports. Each year, according to its phase-out schedule (Attachment 1), the OPU establishes a ceiling for production and import of CFCs. A fixed number of allowances is then assigned to this ceiling. The OPU gives the two producers of ODS in Mexico (Dupont and Quimobasicos) allowances to produce (or import) an amount well below the ceiling for the country. This is based on historical production figures. The balance of the allowances are then provided to importers, again on the basis of historical import patterns. Once the allowances have been given out equal to the national ceiling for the year, no more are distributed.

Allowances are tracked by a computerized database. Under an arrangement with the INE's Direccion de Materiales y Residuos Peligrosos (Division of Hazardous Waste), records of imports and exports of CFCs or feedstock into the country are authorized by the OPU, which enters the data into its tracking system. Compliance is also tracked by spot checks of carbon tetrachloride (CFC feedstock) sales by PEMEX, the national oil company, to Dupont and Quimobasicos. PEMEX is the only domestic producer of carbon tetrachloride -- imports of carbon tetrachloride are tracked in the database.

In addition to its production and import/export controls on ODS through allowances, further production, import and export controls were inaugurated under a memorandum of agreement (convenio) with all Mexican ODS producers and with 90% of the Mexican CFC distributors and with the only halon distributor in Mexico. These convenios, once signed, have the force of law and obligate the producers to eliminate their production and import of ODS in graduated steps before the year 2000.

The OPU can enter into convenios with individual companies, or with industry associations. By law, every company is required to belong to its industry associations. The associations can voluntarily enter into binding agreements on behalf of their membership with the government. To date, the OPU has relied on convenios to promote the phaseout among producers and users of ODS in Mexico. Some convenios are with individual companies, others are with industry associations. The convenios bolster the OPU's efforts to eliminate the production of ODS in Mexico. Convenios of users focus on educating members, training

- In cooperation with bilateral assistance from EPA, developed two training workshops for solvent users in Tijuana, and contributed substantially to the presentations at a third in Monterrey.

- Supported by EPA, arranged and managed 7 chiller training workshops throughout Mexico for approximately 650 chiller technicians and users. Workshops were held with the Instituto Mexicano de Seguro Social, the national health program. Its medical facilities are the largest single consumer of CFC's for air conditioning in Latin America. Hotels, restaurants, technical schools, and other governmental entities also participated in these workshops.

- Participated in several conferences and workshops organized by Mexican industry.

- Held two press conferences in Mexico City. The first announced the Mexican Solvent Elimination Program (MODSEP) and the second announced the signing of beneficiary agreements with the World Bank and NAFIN (Nacional Financiera), the Bank's fiscal agent in Mexico.

- Prepared several press releases and participated in two radio programs on environmental issues.

Managing and Coordinating Investment Project Implementation through Multilateral Fund Implementing Agencies

OPU staff estimate that they spend up to 70% of their time managing investment projects, Multilateral Fund implementing agencies and bilateral assistance efforts from U.S. EPA. Attachment 2 reflects the current assignments for implementing agencies and EPA in Mexico. As part of this work, the OPU has decided to accomplish its objective of updating the country program through studies in individual sectors and sub sectors as a prelude to inaugurating investment projects. To date, studies have been completed in the mobile air conditioning, solvents, domestic and commercial refrigeration sectors.

In some cases, collaboration with implementing agencies has gone well, in others the collaboration has been difficult. The OPU's investment project work with UNDP has met with some success. In December, 1993, the OPU invited UNDP to work in Mexico. By September 1994, several projects had been submitted to the Executive Committee for between-meeting approval. These included several EPA-prepared projects.

In late 1993 and early 1994, the OPU met on several occasions with representatives of UNIDO and invited them to begin investment project work in Mexico. The OPU also inquired what UNIDO's requirements for investment projects were. UNIDO related that it had no requirements about project size or format. The OPU then submitted a small chiller servicing application as a pilot. UNIDO returned the project to the OPU stating that the

occasionally, by other government ministries. This took time, especially as OPU's legal work competed with the rest of INE's legal work. These INE delays were only compounded by the fact that NAFIN and the Bank changed their requirements for the grants continuously over the course of 1993 and early 1994.

- Negotiations with the World Bank required an immense amount of preparation and pressure on the World Bank for the OPU to secure the Bank's assent to any OPU proposals.

- INE also believes that the World Bank did not and does not to this day understand the needs and capacities of Mexican industry with respect to the phaseout.

- Recent events under the $4.0 million make prospects for its ultimate completion better. With the signing of the beneficiary agreements, many projects have now moved to the bidding stage.

Representing INE at National and International Meetings and Conferences

As part of its responsibilities, the OPU also represents Mexico at international meetings and conferences on the ozone layer. These include the Technical Options and Assessment Panel Meetings, the ODS Officers Network of Central and South America, the International CFC and Halon Alternatives Conference and others. Catalina Mosler has made presentations at these meetings.

The Past Three Years: Lessons Learned

OPUs serve an important role in phasing out ODS. They coordinate the activities of government ministries, distributors and users of ODS, vendors of alternative technology and others. In Mexico, to enact import and export restrictions, as well as production limitations, the OPU coordinates functions within the following Mexican ministries: Secretaria de Desarollo Social (SEDESOL)(Social Development -parent ministry of the National Institute of Ecology), Secretaria de Comercio y Fomento Industrial (SECOFI)(Commercial and Industrial Development), Secretaria de Agricultura y Recursos Hidrologicos (SARH)(Agriculture and Water Resources) and the Secretaria de Salud (SS)(Health). Examples of the coordinating role the OPU plays are: ensuring ODS phase-out policies align with standing environmental law, ensuring that customs officials know, understand and enforce the prohibitions on the import and export of CFCs, ensuring that permits to import, export, and produce CFCs are tracked and that the state oil monopoly, PEMEX, reports on the amount of feedstock of carbon tetrachloride it produces and sells within the country.

Small companies in Mexico require more OPU time and assistance than large companies. Small companies do not have access to their own experts and need assistance in identifying and choosing appropriate vendors of alternative technologies. Implementing agencies do not

strong leadership of the OPU with INE.

- Strong government leadership tied with trade association and industry power is essential to ODS phaseout.

ORGANIZATION OF FINANCIAL AND TECHNICAL ASSISTANCE FOR THE MEXICAN ODS PHASEOUT PROGRAM

Activities	Solvents	Halons	Commercial Refrigeration (end users)	Mobile Air Conditioners (MACS)	Manufacture of Commerc. and Domest. Refrigeration	Foams	Industrial Refrig.
Inventory or Feasibility Study	EPA	UNDP	EPA	UNDP/EPA	UNDP	UNDP	WB
Sectoral Study	EPA	UNDP/EPA	EPA	EPA	UNDP (if needed)	UNDP	WB
Project ID	EPA	EPA/UNDP	EPA	EPA	UNDP	UNDP	WB
Technical Assistance to Industry	EPA	EPA/UNDP	EPA	EPA	UNDP	UNDP	WB
Project Preparation	EPA	EPA	EPA	EPA	UNDP	UNDP	WB
Submission of Projects to the Fund	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP	WB
Managing Bid Process and Equip. Procuremnt. & Payments	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP	WB
Supervision of Equip. Installation project Completion	EPA/UNDP	UNDP	UNDP/EPA	UNDP/EPA	UNDP	UNDP	WB
Project Evaluation and Oversight	EPA/UNDP	EPA/UNDP	UNDP/EPA	UNDP/EPA	UNDP	UNDP	WB

Attachment 2

PROJECT OUTLINE

COUNTRY:	URUGUAY
PROJECT TITLE:	Training
SECTOR COVERED:	Halons
SECTOR ODS CONSUMPTION:	1.8 tons per year of Halon 1211 (installed Halon 1211 is 10 metric tons)
INCREMENTAL COST:	US$10,000
BILATERAL AGENCY:	USEPA
NATIONAL COORDINATING AGENCY:	Government Technical Commission for the Ozone Layer (COGO) of Ministry of Housing, Territorial Regulation and Environment
DURATION:	December 1994

Description:

In December 1993, Uruguay received one Halon 1211 recovery/recharge unit and compressor from UNDP as part of its comprehensive halon management program. Uruguay has requested U.S. EPA/Navy technical assistance to conduct training on the machine. EPA proposes to conduct this training in conjunction with the U.S. Navy in December 1994. The training program will be carried out over a two-day period. It will involve Uruguay's fire equipment distributors and critical halon users such as the telecommunications company.

The principal aim of the training is to provide information to help plan and implement a national halon management and phase-out strategy that effectively utilizes the halon recycling equipment. The training includes information on ozone depletion and halons, the evaluation and availability of halon alternatives, halon inventory and banking, halon recycling and management programs for critical applications, training on the necessary procedures to monitor progress and report on machine utilization. Moreover, the Navy is very familiar with using a variety of ODS recycling machines and is experienced in conducting these halon management and training workshops with EPA.

During the training, EPA/U.S. Navy will also provide guidance in identifying where the halon recovery/recharge equipment should best be located to achieve significant halon emissions reductions, what kind of organizations have the best capacity to run these machines, and also how to address problems that may arise during normal operation (i.e., ensuring adequate electric supply, compressor capacity, noise, humidity considerations).

PROJECT OUTLINE

COUNTRY:	VENEZUELA
PROJECT TITLE:	Training/Technical Assistance
SECTOR COVERED:	All ODS Sectors in Venezuelan Military
SECTOR ODS CONSUMPTION:	Halon 1211: 50 tons (military represents 20 tons) Halon 1301: 80 tons (military represents 30 tons)
INCREMENTAL COST:	US$40,000
BILATERAL AGENCY:	USEPA
NATIONAL COORDINATING AGENCY:	FONDOIN
DURATION:	February/March 1995

Description:

FONDOIN has requested U.S. EPA/U.S. Navy assistance in designing and implementing a 1-2 day workshop for the Venezuelan military regarding how to achieve ODS phaseout in the military sector. Based on the experience of the U.S. military, ODS use in the Venezuelan military would represent up to 35% of total ODS use in Venezuela, principally halons. The first step in reducing the use of halon and other ODS is to develop an inventory of total ODS use in Venezuela's military.

The workshop will offer training on completing an inventory and planning implementation of phaseout activities. FONDOIN may invite participants from Brazil, Colombia, and Ecuador.

Workshop topics will include:

- how to conduct an inventory of halon and other ODS use in the Venezuelan military based on the U.S. military's experience
- guidance on how the U.S. Air Force, Army, and Navy developed and are implementing their ODS phaseout
- guidance on the U.S. military's experience in developing and managing a strategic reserve for mission critical applications of halon and other ODS

PROJECT OUTLINE

COUNTRY:	VENEZUELA
PROJECT TITLE:	Demonstration Project
SECTOR COVERED:	Refrigeration (MACs Servicing)
SECTOR ODS CONSUMPTION:	1486 MT (1993)
INCREMENTAL COST:	US$67,000
BILATERAL AGENCY:	USEPA
NATIONAL COORDINATING AGENCY:	FONDOIN
DURATION:	1995

Description:

US EPA proposes to cooperate with FONDOIN in the implementation of Phase 2 of Venezuela's pilot project to reduce CFC-12 emissions from mobile air conditioning units. EPA's proposed program of activities has been designed with FONDOIN to complement and support the activities of the related UNDP project, also being submitted to the Executive Committee for approval as part of UNDP's work program amendments.

EPA's activities will include the following:

- recruiting bus repair shops to receive training and equipment (automotive shops will be recruited by FONDOIN)
- assisting UNDP with equipment procurement, including revising specifications developed for the Phase 1 project and developing specifications for equipment to be provided to the bus repair shops
- with FONDOIN, conducting training workshops in Venezuela, including curriculum development, development of training materials, coordinating workshop instructors and coordinating workshop sessions
- providing other technical support to FONDOIN as requested

Venezuela MACs Demonstration Project
Progress Report

Background

The project has been conducted by FONDOIN in cooperation with the UNDP and US EPA. US EPA bilateral assistance was approved by the Executive Committee at the 8th and 12th meetings. A full report on the project will be forthcoming in early 1995.

Progress

Seventeen repair shops received training, CFC-12 recovery/recycling machines, and other emissions-reduction equipment in May and June, 1994. FONDOIN has visited the repair shops monthly, providing technical support and collecting monthly data from the shops on the use of the recovery/recycling machines. FONDOIN has organized this data into monthly reports for June, July and August. Reports are also expected for September through November. In addition, an 18th shop has recently been added to the project. EPA visited 15 of the 17 original repair shops in September to interview them in detail about their experience with the equipment and the usefulness of the training and technical support. The shops have indicated a very high level of satisfaction with all aspects of the project.

Emissions Reductions

Based on the data reported to FONDOIN, the recovery/recycle machines are recovering CFC-12 at an annual rate of 7 to 8 tons for the machines as a group. Based on an estimated total project cost of $240,000, cost-effectiveness is approximately $30,000 to $35,000 per ton. During the first three months, the utilization of the machines has increased each month as the shops develop experience with them. Consequently, ultimate cost-effectiveness may be even better.

We believe that the leak-reduction components (i.e., training and provision of electronic leak detectors) of the project are also producing substantial emissions reductions, but we have not yet attempted to quantify them.

Implementation of similar projects in the future will build on the experience of this project and therefore are likely to be more effective while costing less, thus increasing cost-effectiveness.

Lessons Learned.

Some shops use the equipment much more effectively than others. FONDOIN and EPA have observed that this seems to be related to the level of overall organization of the

shops. Future projects will be able to draw on the experience of this project to better screen potential participants, to identify the shops which can use the equipment most effectively, and to better support the less organized shops to help them better utilize the equipment.

Since May 1994 the unit price of CFC-12 paid by the repair shops has increased substantially. However, because the recovery/recycling machines have enabled the shops to reduce their purchases of CFC-12, they have been able to avoid increasing the prices they charge their customers.

EPA and the equipment manufacturer provided posters, originally developed for use in the US, to promote CFC-12 recycling in MACs. Virtually every shop displayed this material prominently, and one shop hired an artist to paint an enlarged mural of one of the posters on the exterior of the shop. Both the posters and the recycling machines have drawn numerous comments and questions from customers and have substantially increased the customers' awareness of ozone-depletion and the role of CFCs. Shop employees, suppliers, and neighboring shops are also now more aware of the problem.

As a consequence of the project, several shops have instituted a policy of charging systems with CFC only after performing complete leak-testing and repairs, as opposed to only "topping-up" systems that have lost some of their charge.

The project has confirmed that there is a very high level of interest in obtaining information and training on HFC-134a systems. Shops reported financial difficulties in making the transition to HFC-134a, particularly because the lubricants are extremely expensive[1]. To service 134a systems also requires purchase of dedicated charging equipment as well as the gas itself. Managing two refrigerants can also present other problems. One shop reported using CFC-12 lubricant (mineral oil) in 134a systems, unaware that this will lead to inadequate compressor lubrication and eventual failure. Also, some owners of 134a systems elect to run the system on CFC-12, because of concerns about the cost and availability of 134a.

Shops are using the equipment in ways not originally contemplated. For example, bus owners learned of the existence of the recovery/recycling machine at a participating bus-servicing shop, and now bring their buses to the shops so the refrigerant can be removed, dried and replaced, which improves system performance. As a consequence of this work, these buses are now also brought to this shop for all MACs servicing, and now the refrigerant is recovered instead of being vented to the atmosphere. In another example of an innovative application, one project participant has allied with neighboring automotive repair shops. When the neighboring shops need to remove refrigerant to perform major engine work, for example, the participating shop brings the recovery/recycling machine, recovers the refrigerant, and returns to recharge the MAC (at a reduced cost) when the

[1] Automobile manufacturers have specified 10 to 20 different 134a lubricants. The smallest available containers cost about $100 in Venezuela. Consequently, a full range of 134a lubricants could cost as much as $2000.

engine repair is complete. Future projects may be able to better support such innovative uses by providing additional training and/or equipment.

The shops were very pleased with the performance of the quick-seal hoses provided by the project (each shop received a set of recharging equipment which included quick-seal hoses). Additional substantial emissions reductions could be achieved in future projects by providing quick-seal hoses for all the recharging equipment used by each shop. Hoses on recharging equipment are an important source of emissions

Utilization of the equipment has been very high at the bus repair shop included in the project and we believe that a higher-capacity machine would be more cost-effective in this and similar applications. Future projects may want to consider including more bus repair facilities.

Perhaps because the training workshop was conducted on Thursday and Friday (two one-day sessions), some shops did not send all of their MACs mechanics to the training. Future projects should consider addressing this potential problem by conducting training in the evening or on Saturdays, or by developing special materials to help trainee teach mechanics who could not attend the workshop.

FONDOIN, UNDP and EPA are able to work very effectively together on projects like this. For example, EPA interviewed US and international experts and US and Venezuelan MACs repair technicians and shop owners to develop equipment specifications for use by UNDP. UNDP further developed the specifications and rapidly conducted the procurement to support the project schedule developed by FONDOIN and EPA. FONDOIN stored the equipment, prepared agreements with the repair shops, and delivered the equipment to the repair shops immediately after they received training.