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Executive Committee of the
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Implementation of the Montreal Protocol

Fifth Meeting
Montreal, 18-22 November 1991

UNDP
1991 PROGRESS REPORT
AND
1992 WORK PROGRAMME

UNITED NATIONS DEVELOPMENT PROGRAMME

1991 Work Programme

As Approved by the Executive Committee of the Interim Multilateral
Fund for the Implementation of the Montreal Protocol
(Fourth meeting, 17-18 June 1991, Nairobi)

Progress Report

In its role as an implementing agency, UNDP is assisting Governments in the planning, preparation and implementation of country programmes and projects for the replacement and phaseout of CFCs, halons and other ozone-depleting substances. This assistance includes provision for on-site/in-country technical training, preparation of feasibility and pre-investment studies and implementation of demonstration projects.

At the Fourth Meeting of the Executive Committee (17-18 June 1991, Nairobi), UNDP's 1991 work programme was approved which included activities in 16 countries (Argentina, Bangladesh, Costa Rica, Egypt, Ghana, Iran, Jordan, Kenya, Malaysia, Mexico, Nigeria, Philippines, Thailand, Trinidad & Tobago, Uruguay, Venezuela) as well as UNDP headquarters technical support and programming activities.

A legal Agreement between UNDP and the Interim Multilateral Fund covering the scope of cooperation outlined above was officially signed by the Chairman of the Executive Committee and the Administrator of UNDP on 21 August 1991. UNDP's Division of Finance then established a Montreal Protocol Trust Fund and by mid-September a new accounting system had been finalized within UNDP for the Trust Fund.

Since only six weeks have elapsed since then, not all country work programmes have been initiated since discussions are underway in several countries through the local UNDP Offices to determine appropriate execution modalities for these activities.

It is anticipated that by end-December 1991 UNDP will commit around 90% of its \$1.26 million work programme with some activities extending into the first quarter 1992. One difficulty has been the overcommitment of the limited number of qualified experts available to assist member countries. For instance, UNDP's proposed late-1991 industry workshop in Nigeria has been delayed to early 1992 due to the the unavailability of qualified experts and the inability of UNEP to contribute to several workshops simultaneously.

This progress report details developments to date under UNDP's 1991 work programme.

(WPLAN3D)

ARGENTINA

Project number: ARG/91/G62

Project budget: \$ 25,000 plus support costs

Project status

The 1991 work programme comprises a reconnaissance survey by national experts to determine ODS production and consumption patterns as an input to the country study. Ongoing discussions between the Ministry of External Relations and the relevant environmental bodies/agencies has somewhat delayed finalization of the above programme. In the meantime, the country study which is being prepared by two national consultants for the National Commission of Environmental Policy (CONAPA) has already conducted a preliminary review of ODS consumption patterns. No official response has been received as to whether additional assistance is required in the reconnaissance survey phase.

Since the UNDP consultant who visited Argentina during 9-10 October has assisted the Government formulate its request for UNDP technical assistance during 1992, it is proposed to roll over the above funds into UNDP's 1992 technical assistance programme in Argentina.

BANGLADESH

Project number: BGD/91/G63

Project budget: \$ 55,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Bangladesh during 3-5 October for discussions with the Department of Environment, Ministry of Environment and Forests, the Ministry of Industries, private industry and universities. The programme which would be fully implemented in 1991 comprises two elements:

A reconnaissance study will focus on ODS consumption in refrigeration in the fishing industry and cooling in the rayon mills in Chittagong as well as evaluation of the need for a demonstration ammonia filling facility utilizing high pressure cyclinders. UNDP prepared the terms of reference for the study which were approved by the Government in late-October. A national consultant has been proposed to implement the study. It will start in November 1991.

The training component will comprise participation of two staff at the International Workshop on ODS Alternatives (Philadelphia, Dec. 1991), and a study tour of three staff to Asian countries to review specific country projects and programmes in the planning and implementation of ODS phaseout policies. This will be complemented by Ministry/industry representatives attending the UNEP Regional Workshop on the Implementation of the Montreal Protocol (26-29 Nov. 1991, Bangkok).

COSTA RICA

Project number: COS/91/G64

Project budget: \$ 20,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Costa Rica during 23-24 September 1991 for discussions with the Ministry of Natural Resources, Energy and Mining (MINIREM), the Ministry of Economy, Industry and Commerce, the Ministry of External Relations and the National Meteorological Institute.

The Government has selected a national firm, CEMSO S.A., to conduct the reconnaissance study under the UNDP work programme. CEMSO will determine the distribution of ODS consumption by end-use sector and, with the help of a UNDP international consultant, will prepare a draft country study. The project will start in November 1991 and will conclude by March 1992 at the latest.

EGYPT

Project number: EGY/91/G65

Project budget: \$ 126,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP Task Manager during his visit to the Egyptian Environmental Affairs Agency (EEAA) during 31 July - 3 August 1991. It comprises two components.

The first is the training component. The ozone policy study tour during 4-15 November and will cover industrial companies and Government ministries/departments in Denmark, Germany, Switzerland and the U.K. The 6-member team comprises industry, EEAA, finance and legislative members and was selected following intensive discussions between the Government, UNDP and the Chief Officer of the Fund Secretariat. Two smaller technical study tours, one covering the air-conditioning/refrigeration sectors and the other covering the foams/solvents sectors are being finalized. This training component comprises almost half the work programme.

The second component comprises two pre-feasibility studies, the first on substituting hydrocarbons for CFCs in aerosol applications, and the second in the construction of ice plants (using ammonia) to substitute for refrigerated trucks. Consideration of these studies has been delayed due to the recent reorganization of EEAA. UNDP is also discussing with the World Bank the possibility of combining all feasibility studies in Egypt into a single package to be implemented in early 1992.

GHANA

Project number: GHA/91/G66

Project budget: \$ 99,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Ghana during 2-4 October for discussions with the Environmental Protection Council, the Ministry of Finance and industry representatives.

UNDP and the Government are discussing modalities for establishing a demonstration shop/programme to teach correct servicing procedures for refrigeration and air-conditioning units. UNDP has agreed to reduce the international training expert's duration from 45 to 30 days and to use the resulting savings for the recruitment of a qualified Ghanaian national expert. UNDP has received and evaluated a proposal received from Trans-Mond Environment (Finland) and expects to receive additional proposals from the U.K. and from UNIDO which, under Swedish financing, has already undertaken a study on CFC use in Ghana and has also indicated its capability to implement the above programme. These will be submitted to the Government for review and decision. It is probable that project activities could start in late-November 1991.

IRAN

Project number: IRA/91/G67

Project budget: \$ 30,350 plus support costs

Project status

The 1991 work programme has been under discussion between the UNDP/Iran office and the Department of Environmental Protection. Clearance is being awaited from the Government for the mission by the international consultant who, together with two national experts, will fully discuss with both Government and industry the provisions of the Montreal Protocol, determine the situation with respect to ODS production and consumption, and assess technical assistance requirements. The Government has submitted candidates for the posts of national experts. Work programme implementation will begin as soon as Government clearance is obtained.

Based on the results of the above exercise, a potential 1992 UNDP work programme in Iran would be presented to the Executive Committee at its first session in 1992.

JORDAN

Project number: JOR/91/G68

Project budget: \$ 29,600 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Jordan during 22-24 September and had discussions with the Ministry of Municipal, Rural Affairs and the Environment, the Ministry of Planning and the Department of the Environment.

The work programme calls for two experts, one a chemical engineer to review process engineering problems and the second an industrial training expert to estimate technical training requirements. It was the intention to have them join the World Bank's October 1991 mission to Jordan. This was not possible since the Government has yet to decide whether to accept the proposal made by Trans-Mond Environment of Finland which has been recommended by UNDP. It is expected that the work programme will be implemented before end-December 1991 and that the result would be a detailed identification of industry technical assistance and training requirements to reduce ODS consumption.

KENYA

Project number: KEN/91/G69

Project budget: \$ 115,100 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Kenya during 26-27 September for discussions with the National Environmental Secretariat and with UNEP's Ozone Secretariat.

UNDP and the Government, with the involvement of UNEP/Nairobi, are discussing modalities for establishing a demonstration programme to teach correct refrigeration and air-conditioning servicing procedures as well as CFC recycling procedures. One option is to utilize the services of UNIDO who have been active in this area in Kenya. Interest has also been shown by consultant firms in Europe. National experts are being identified by the Government. While the base study is the May 1990 UNEP case study on costs and strategies for ozone layer protection in Kenya, additional information is essential on the extent to which CFC use in aerosols has been displaced by hydrocarbon propellants and a more accurate estimate of increased refrigeration usage. It is anticipated that implementation would start by end-November 1991.

MALAYSIA

Project number: MAL/91/G70

Project budget: \$ 50,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Malaysia during 26-27 September for discussions with the Department of Environment.

UNDP has been informed that the Government is finalizing the preparation of two technical training project proposals under the above work programme. The first is in the conservation, leakage control and recycling of CFC-12. The second is a demonstration project in the automobile air-conditioning sector. We are still awaiting final details from the Government. Implementation is expected to start by end-November 1991.

MEXICO

Project number: MEX/91/G71

Project budget: \$ 50,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP Task Manager who visited Mexico during 21-22 October together with Mr. Gucovsky of UNDP, World Bank and UNEP representatives, Dr. El-Arini of the Fund Secretariat and the Chairman of the Executive Committee, all at the invitation of the Government, to discuss Mexico's technical assistance, investment and information needs under the Montreal Protocol. Detailed discussions were held with Secretaria de Desarrollo Urbano y Ecologia (SEDUE) on implementation of the above work programme.

The UNDP work programme complements the World Bank programme. Based on discussions with SEDUE, UNDP assistance in 1991 would support SEDUE in formulating the detailed terms of reference (in both Spanish and English) for the eleven projects under Mexico's country programme of activities for submission to the Interim Multilateral Fund. These terms of reference would be based on visits to and discussions with the relevant companies and industries. A detailed work programme of activities for SEDUE's proposed Ozone Protection Technical Information Center during 1992-93 will also be prepared. Implementation will start in November 1991.

NIGERIA

Project number: NIR/91/G72

Project budget: \$ 49,650 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Nigeria during 29 Sept. - 1 Oct. for discussions with the Federal Environmental Protection Agency, the Federal Ministry of Science and Technology, and the UNIDO and World Bank representatives.

UNDP's work programme comprises a joint UNDP/UNEP two-day workshop for 40 industrialists who use ODS in their manufacturing processes. At the 8th October Implementing Agency Coordinating meeting in Washington D.C., it was decided that due to the non-availability of appropriate experts and the inability of UNEP to support several workshops simultaneously, this workshop should be rescheduled to early-1992. Since the World Bank's Technical Study in Nigeria is scheduled to begin in March, it is considered preferable that the above workshop be concluded by that time. Implementation will thus take place in 1992.

PHILIPPINES

Project number: PHI/91/G73

Project budget: \$ 64,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited the Philippines during 23-25 September for discussions with the Department of Environment and Natural Resources and with World Bank representatives.

In late-October UNDP was informed that the Government has agreed to the national NGO (Likhaan Institute Foundation) implementing the project so long as a former government ozone policy expert joins their team to provide the necessary expertise and management guidance. The three components of this training programme are: (a) a national technical workshop on alternative and innovative solutions to ODS problems; (b) a training course on environmentally safe handling of ODS; and (c) a regular ODS training course for 30 service technicians within the refrigeration and air-conditioning sectors. UNDP will recommend the international expert and will evaluate the national experts. Contracts are being drawn up between the NGO, the Government and UNDP covering provision of services and operational responsibilities. Implementation will start in November 1991 and carry on into the first quarter of 1992.

THAILAND

Project number: THA/91/G74

Project budget: \$ 50,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Thailand during 30 Sept. - 2 Oct. for discussions with the Ministry of Industry, the Ministry of Science, Technology and Energy, the Department of Technical and Economic Cooperation, and UNEP.

The UNDP 1991 programme supports the World Bank programme in Thailand. It focuses on provision of national expertise on ozone layer protection, training of staff in the Ministry of Industry (Division of Hazardous Substances) on the planning and implementation of programmes to phaseout ODS, and equipment and subscription to the OZONET system. A work programme has been specified and equipment specifications received. Project funds will be expended before end-December 1991.

TRINIDAD & TOBAGO

Project number: TRI/91/G75

Project budget: \$ 53,800 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Trinidad & Tobago on 30 September for discussions with the Ministry of Environment and National Service, and with industry.

There has been no implementation of the work programme. The approved work programme called for Mexican experts to assist Trinidad & Tobago in determination of control technology appropriate for the domestic aerosols industry, and then to send service technicians to Mexico to observe implementation and adaptation practices. Since Trinidad & Tobago has progressed quite rapidly in the conversion of CFCs to hydrocarbon propellants, the Government requested that the approved funds be used instead to support the formulation of the country programme. As indicated to us by the Chief Officer of the Secretariat, such a decision completely changing the purpose of the funds could only be approved by the Executive Committee. It is thus proposed that these funds be utilized in 1992 as part of the 1992 UNDP work programme.

URUGUAY

Project number: URU/91/G76

Project budget: \$ 13,050 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Uruguay during 14-15 October for discussions with the Ministry of the Environment, the Chamber of Industries, the Technical Laboratory of Uruguay and the University of the Republic.

A detailed UNDP work programme has been specified for 1992. The 1991 work programme is quite small and comprises a two-week visit by a consultant to inform the Government and industry on the provisions of the Protocol and to assess technical assistance requirements. This will be rolled over into UNDP's 1992 work programme.

VENEZUELA

Project number: VEN/91/G77

Project budget: \$ 30,000 plus support costs

Project status

Implementation of the 1991 work programme was discussed by the UNDP consultant who visited Venezuela during 25-27 September for discussions with the Ministry of Environment and Renewable Resources, the Ministry of External Relations, and industry representatives.

UNDP is supporting the National Seminar on CFC Usage in Air-conditioning Systems: Alternatives to Reduce or Substitute this Usage. It will be held during 11-12 November in Caracas and during 14-15 November in Valencia. UNDP assistance comprises international lecturers, documentation and other support services. This activity will be completed in November 1991.

UNDP/HEADQUARTERS TECHNICAL SUPPORT AND PROGRAMMING ACTIVITIES

Project number: INT/91/G61

Project budget: \$ 289,500 plus support costs

Project status

This budget will be overspent during 1991 due to consultant missions to help Parties in Asia, Africa, the Middle East, Latin America and the Caribbean formulate their requests for UNDP technical assistance during 1992-1993. It had originally been planned to cost these items in UNDP's 1992 budget submission. The Executive Committee's request at the end of its fourth meeting that implementing agencies present their 1992 work programmes in November 1991 necessitated that these missions take place in 1991. The expenditure on consultants fees and travel costs will thus be higher than forecast. UNDP participation in the October 1991 Mexico consultations and at the UNEP Regional Workshops on Implementation of the Montreal Protocol in Bangkok (November 1991) and Cairo (December 1991) had also not been planned for and will increase staff travel costs.

Preliminary estimates for 1991 expenditures are as follows:

<u>Item</u>	<u>1991</u>	
	<u>Approved budget</u>	<u>Expected Expd.</u>
1. Professional and clerical staff costs	\$ 117,500	\$ 117,500
2. Staff travel costs	30,000	45,000
3. Consultant fees	87,000	125,000
4. Consultant travel costs	35,000	50,000
5. Miscellaneous	20,000	20,000
Total	<u>289,500</u>	<u>357,500</u>

Approval by the Executive Committee of the additional (\$68,000) UNDP/HQ programming and support expenditures in 1991 is requested.

It had been anticipated in June 1991 that UNDP centralized administrative services could have been employed to implement the above component. However, as per the legal agreement between the Executive Committee and UNDP signed on 21 August, Trust Fund procedures require the designation of a specific executing agency for programme funds. Therefore UNDP/OPS has been designated as executing agency for the above component.

Actual 1991 expenditures will be reported in April 1992 as per UNDP accounting procedures. Since consultancy missions to formulate 1992 UNDP work programmes have already taken place, consultancy requirements and costs under UNDP's 1992 work programme will be correspondingly reduced.

EXECUTIVE COMMITTEE OF THE INTERIM MULTILATERAL FUND
FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

(Fifth Meeting, 18-22 November 1991, Montreal)

PROPOSED 1992 WORK PROGRAMME

OF

THE UNITED NATIONS DEVELOPMENT PROGRAMME

7 November 1991

UNITED NATIONS DEVELOPMENT PROGRAMME

PROPOSED 1992 WORK PROGRAMME

Submitted to the Executive Committee of the Interim Multilateral
Fund for the Implementation of the Montreal Protocol
(Fifth meeting, 18-22 November 1991, Montreal)

UNDP's 1991 work programme was approved in mid-June 1991, the legal agreement signed in late-August and financial modalities finalized in mid-September. Not all country work programmes have been initiated since discussions are underway in several countries through local UNDP Offices to determine appropriate execution modalities for these activities.

To assist recipient Parties determine their technical assistance priorities and needs during 1992 and thereby help UNDP develop its 1992 work programme, regional missions were fielded during mid-September to mid-October 1991. The consultants spent 2-3 days in each country, with the exception of Brazil and China which took longer. The countries covered were:

Africa: Ghana, Kenya, Nigeria,

Asia: Bangladesh, China, Malaysia, Philippines, Sri Lanka, Thailand

Middle East: Jordan, Turkey

Latin America and the Caribbean: Argentina, Brazil, Chile, Costa Rica, Mexico, Trinidad & Tobago, Uruguay, Venezuela.

Detailed work programmes are presented for 19 countries comprising Argentina, Bangladesh, Brazil, Chile, China, Costa Rica, Ecuador, Ghana, Jordan, Kenya, Mexico, Nigeria, Philippines, Sri Lanka, Thailand, Trinidad & Tobago, Turkey, Uruguay and Venezuela.

The work programme for Egypt has to be finalized and is presented in summary only. The work programme for Iran would be presented to the Executive Committee at its first session in 1992.

These work programmes, formulated jointly with Government and industry representatives, reflect official views and priorities. In several cases, country-specified requests have been modified to conform to Executive Committee guidelines for UNDP programme implementation. Public awareness campaigns and data-related activities would be implemented jointly with UNEP utilizing UNDP's Field Office network for implementation of these activities. Following the completion of UNDP 1991 country work programmes, it will be possible to specify the precise time frame of 1992 activities based on both consultant availability and the work schedules of our partner implementing agencies.

(WPLAN4A)

UNDP 1992 WORK PROGRAMME SUMMARY BUDGET

<u>Country</u>	<u>US\$</u>
Argentina	 125,000
Bangladesh	 125,000
Brazil	 206,000
Chile	 140,000
China	 1,730,000
Costa Rica	 90,000
Ecuador	 50,000
Egypt	 370,000
Ghana	 160,000
Jordan	 101,000
Kenya	 160,000
Mexico	 205,000
Nigeria	 188,000
Philippines	 155,000
Sri Lanka	 85,000
Thailand	 135,000
Trinidad & Tobago	 30,000
Turkey	 186,000
Uruguay	 75,000
Venezuela	 100,000
Country Subtotal	<u>4,416,000</u>
UNDP/HQ technical support and programme activities	<u>600,000</u>
Programme Subtotal	<u>5,016,000</u>
<u>add</u> 13% support costs	652,080
PROGRAMME TOTAL	<u>5,668,080</u>

ARGENTINA

1. BACKGROUND

A UNDP consultant visited Argentina during 8-11 October. Meetings coordinated by UNDP/Buenos Aires were held with the National Commission on Environmental Policy (CONAPA), the Ministry of Foreign Relations, the National Meteorological Service, the Commission on Plastics and the Environment, the Argentine Chamber of Refrigeration and Air-conditioning Industries, and the Polyurethane Foams Commission.

Argentina produces 4,000 tonnes annually of CFC-11, CFC-12 and HCFC-22. Around 80% of this amount is consumed locally and the rest is exported. CFC imports of CFC-113, 115 and 502 account for less than 5% of total consumption. The major consuming sectors are refrigeration and air-conditioning, flexible foams and plastics. The country study, which is being prepared by two national consultants for CONAPA, has already conducted a preliminary review of ODS consumption patterns.

2. COUNTRY PROGRAMME

The World Bank has taken the lead in proposing a country programme. UNDP will collaborate closely with the World Bank and will play a key role in training and technical assistance activities.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Assistance in the completion of the country programme (-). Two national experts would be recruited for a total of 16 weeks to define, analyze and evaluate the technical, policy and other options available to Argentina to meet its obligations under the Montreal Protocol. The \$25,000 cost will be funded from UNDP's approved 1991 work programme for Argentina.
- B) Public education campaign (\$30,000). It will comprise: (a) a seminar for journalists, communications professionals and community organizations. This would be implemented by one international and one national expert; and (b) design and production of a televised public message with television time donated or sponsored by the Government. This would be a joint UNDP/UNEP activity.
- C) Workshops for foam producers (\$40,000). Following a review of the technologies currently used, two technical workshops on substitute technologies will be held. The Polyurethane Foams Commission will play a key role and seminar lecturers/experts would comprise both international and national experts. This would increase technical awareness of the potential, technology availability and costs of CFC substitutes in the foam industry.

- D) Workshop and demonstration for the refrigeration and air-conditioning industry (\$30,000). The workshop, targeting service technicians, will focus on the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. This will be followed by a hands-on demonstration of recycling and conservation practices described in the workshop. This workshop/demonstration would both increase technical awareness and demonstrate the technical capabilities of available instruments/technologies to further reduce emissions from systems that use current refrigerants.
- E) Pre-feasibility study for the plastics industry programme (\$25,000). This study will survey CFC usage in refrigeration systems in the plastics industry. It would be conducted jointly by an international and a national expert in collaboration with the Plastics and the Environment Commission of the plastics industry organization. It would identify, evaluate and recommend actions to reduce CFC consumption in process cooling. If successful, the substitution programmes can be replicated by the plastics industries in other developing countries.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

Since both the World Bank and UNDP have recently started activities in Argentina, coordination during 1992 will focus on the integration of the results of technical assistance programmes into the country programme. UNDP and UNEP would joint run information dissemination activities specified above.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) Assistance in the completion of the country programme (\$25,000 from UNDP's 1991 programme)	-
b) Public education campaign	30,000
c) Workshops for foam producers	40,000
d) Workshop and demonstration for the refrigeration and air-conditioning industry	30,000
e) Pre-feasibility study for the plastics industry programme	25,000
Total	<u>125,000</u>

BANGLADESH

1. BACKGROUND

A UNDP consultant visited Bangladesh during 3-5 October 1991. Meetings coordinated by UNDP/Dhaka were held with the Department of Environment in the Ministry of Environment and Forests, with the Ministry of Industries, with the Bangladesh Chemical Industries Corporation (BCIC) and the Bangladesh University of Engineering and Technology (BUET). The approved outline of the Government's requested UNDP 1992 work programme has been elaborated below.

Preliminary estimates show that Bangladesh consumes around 200 tonnes of ODS per year. They are used in refrigeration, air-conditioning and in aerosols. UNDP's ODS reconnaissance study under its 1991 work programme will significantly increase information on ODS consumption patterns.

2. COUNTRY PROGRAMME

No country study yet exists. Based on UNDP's reconnaissance study, a proposed country study would likely cover the status and forecast of ODS consumption, the cost and benefits of measures to control ODS emissions, the formulation of policy strategies, and technical assistance requirements. It is likely that UNEP would take a lead role in its preparation in close cooperation with UNDP. The Government has indicated that its immediate priorities include: (a) to rapidly increase public official and industry knowledge of the provisions and implementation mechanisms of the Montreal Protocol; (b) to increased coordination between the Ministry of Environment and Forests and the Ministry of Industries, and to foster better links with industry and universities; and (c) to learn from and utilize, to the extent feasible, experiences from neighbouring countries in South-East Asia.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Study to determine an effective administrative structure for Montreal Protocol implementation (\$5,000). This study to be undertaken by a national expert will recommend the administrative structure necessary to coordinate measures and disburse funds required to implement the Protocol in Bangladesh. It would particularly address Inter-Ministerial coordination and government-industry interaction.
- B) Seminar for concerned policy-makers and industry (\$20,000). The objective of this 3-day seminar is to have around 20 concerned public sector policy-makers and industry representatives discuss the ozone issue and the goals of the Montreal Protocol, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss institutional requirements for implementation of the country programme. The experts (1 international, 1 national, 1 from the region) will discuss policies implemented in other countries vis-a-vis the situation in Bangladesh and will facilitate the discussion on an appropriate policy framework.

- C) Training programme for staff in the Ministry of Environment and Forests and the Ministry of Industries (\$40,000). The three components are: (a) internal training courses for concerned technical, policy and regulatory staff on the the provisions of the Protocol, review of ODS uses and applications, the availability and cost of substitutes, development of appropriate national policies, and guidelines for the development of enforcement mechanisms. They would be run by one international and one national/regional expert; (b) participation of selected staff at international/regional meetings covering relevant ODS technical and policy issues; and (c) two brief study tours within the region to evaluate the planning and implementation of ODS phaseout programmes.
- D) Training for home refrigerator servicing technicians (\$20,000). This would address the venting and leakage from refrigerators occurring during operation and maintenance. It will include a demonstration and training session for selected service shops which would then serve as demonstration points for other service operations in the area. One international and one national expert would be involved.
- E) Training/demonstration programme in the industrial refrigeration sector (\$25,000). A workshop targeting service managers and technicians will cover the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. This will be followed by a hands-on demonstration of recycling and conservation practices described in the workshop, focussing on the testing and repair of industrial refrigeration systems. One international and one national expert will support this activity.
- F) Public awareness campaigns (\$15,000). These campaigns would comprise: (a) a one-day information seminar for journalists, communications professionals and community organizations; (b) a media campaign covering posters, pamphlets, newspaper articles, etc. stressing the effects of refrigerant emissions on the ozone layer and techniques that air-conditioner/refrigerator service technicians can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP is cooperating with UNEP in the above programme.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) Study to determine the needed administrative structure for Montreal Protocol implementation	5,000
b) Seminar for concerned policy-makers and industry	20,000
c) Training programme for staff in the Ministry of Environment/Forests & the Ministry of Industries	40,000
d) Training for home refrigerator servicing technicians	20,000
e) Training/demonstration programme in the industrial refrigerator sector	25,000
f) Public awareness campaigns	15,000
Total	125,000

BRAZIL

1. BACKGROUND

A UNDP consultant visited Brazil during 2-8 October, an extended mission since UNDP did not have a work programme for Brazil in 1991. Meetings coordinated by UNDP/Brasilia were held with member bodies of the Inter-Ministerial Ozone Technical Group (GIO) and included:

In Brasilia: with the Department of International Affairs, Ministry of Economy and Planning, with the Environment Division of the Secretariat of Science and Technology (SCT), with the Brazilian Institute of Environment and Natural Renewable Resources (IBAMA), with the Secretariat of the Environment, with the Environment Division and the Brazilian Cooperation Agency of the Ministry of External Relations, and with the National Bank for Economic and Social Development (BNDES).

In Sao Paulo: with a roundtable of industry representatives, with the Department of Technology and other department of the Government of Sao Paulo, and with the National Service on Industrial Education (SENAI).

Brazil's CFC consumption in 1989 was around 10,000 tonnes comprising CFC-11, CFC-12, CFC-114, HCFC-22, carbon tetrachloride and methyl chloroform. Major uses are in air-conditioning and refrigeration, as a foaming agent for rigid foams, and in solvent cleaning. Halons 1301 and 2402 are imported. CFC use in aerosols is minimal.

2. COUNTRY PROGRAMME

The country programme is being prepared based on prior studies done with USEPA on the Brazil Case Study. Assistance from the World Bank to complete the study may be requested. UNDP, collaborating with the Government and the World Bank, would play a key role in training and technical assistance activities.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Seminar for concerned policy-makers and industry (\$20,000). This 3-day seminar for 40 public sector policy-makers and industry representatives would discuss the goals of the Montreal Protocol, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss institutional requirements and possible enforcement measures. The experts (1 international, 1 national) will discuss policies implemented in other countries and will facilitate the discussion on an appropriate policy framework.
- B) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration (\$36,000). These workshops, targeting service technicians in each of these three sub-sectors, will comprise lectures followed by demonstrations at local use sites. The instruction will focus on new recycling techniques and equipment available for use by technicians servicing air-conditioning and refrigeration systems. Each sub-sector workshop will be designed and taught by one international and one national expert working as a team. SENAI would likely provide training facilities.

- C) Workshops on solvent cleaning (\$25,000). This one-day workshop, repeated in three different cities, will review ODS use in solvent cleaning, analyze appropriate technology alternatives to reduce ODS consumption, and discuss alternative technology options. It would be run by one international and one national expert, with industry organizations providing meeting facilities.
- D) Pre-feasibility study for the commercialization of portable recycling apparatus (\$15,000). This would be an initial technical and economic evaluation of a project proposed to IBAMA - the commercialization of an existing prototype portable recycling machine that needs funding to reach commercialization. It would be coordinated by the Financing Institution for Studies and Projects (FINEP), one of whose goals is to provide assistance for studies/projects for smaller companies.
- E) Establishment of a technical information centre (\$75,000). A centre would be established to compile, translate (when necessary), and disseminate information on new technologies to reduce ODS emissions. Data would come from sources including UNEP's technical information clearing-house system and would be compiled in a form directly usable by producers and consumers. A large portion of the budget would go to salaries of local staff including information processors/analysts. The project would be coordinated by FINEP using industry and university resources. This would be a joint UNDP/UNEP activity.
- F) Public education campaigns (\$35,000). These two campaigns would encourage consumers to make wise choices in obtaining refrigerator and mobile air-conditioner servicing. The campaigns would include posters, pamphlets, newspaper articles, etc. and would stress the effects of refrigerant emissions on the ozone layer and techniques that servicemen can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

Since UNDP had no work programme in Brazil in 1991, there have been no prior consultations. The 1992 UNDP work programme has been designed to complement the activities of the World Bank and reflects the requirements specified by Government, industry and other representatives. Resulting consultations with the World Bank and UNEP will be significant in 1992.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

	US\$
a) Seminar for concerned policy-makers and industry	20,000
b) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration	36,000
c) Workshops on solvent cleaning	25,000
d) Pre-feasibility study for the commercialization of portable recycling apparatus	15,000
e) Establishment of a technical information centre	75,000
f) Public education campaigns	35,000
Total	206,000

CHILE

1. BACKGROUND

A UNDP consultant visited Chile during 16-18 October. UNDP did not have a work programme for Chile in 1991. Meetings were jointly coordinated by UNDP/Santiago and Mr. Sergio Oxman, ozone expert and a consultant to the Government and those met were from the National Commission on the Environment (CONAMA), the Ministry of Land and the Environment, the environmental commission of the national industrial association (SOFOPA), the Agencia Cooperacion Internacional (AGCI), and industry representatives.

Chile's CFC consumption (all imports) in 1989 was around 1,000 tonnes comprising primarily CFC-11 and CFC-12, with smaller quantities of CFC-113, CFC-114, methyl chloroform, carbon tetrachloride, Halon-1211 and Halon-1301. The major consuming sectors are refrigeration, foams and aerosols. Halons consumption is also significant.

2. COUNTRY PROGRAMME

The Government has decided to implement a rapid phaseout programme. This is based both on concern that non-compliance may result in domestic producers facing import barriers in overseas markets, and on Chile's geographic proximity to the expanding ozone hole. CONAMA, which reports to the inter-ministerial committee on the environment, will establish a Government Ozone Team to coordinate the phaseout process. The country study of May 1991 was done by national experts. While the World Bank would support country programme finalization, UNDP is concentrating on identified technical assistance needs.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Seminar for concerned policy-makers and industry (\$20,000). This 3-day seminar for 30 public sector policy-makers and industry representatives would discuss the goals of the Montreal Protocol, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss institutional requirements and possible enforcement measures. The experts (1 international, 1 national) will discuss policies implemented in other countries and will facilitate the discussion on an appropriate policy framework.
- B) Training for home refrigerator servicing technicians (\$20,000). This would address the largest single source of ODS emissions in Chile - the venting and leakage from refrigerators occurring during operation and maintenance. The largest national refrigerator manufacturer will actively participate in this activity. It will include a demonstration and training session for selected service shops which would then serve as demonstration points for other service operations. Provision is made for one international and one national expert.
- C) Seminar in flexible foams (\$15,000). This would be targeted at the 50 or so smaller foam manufacturers in Santiago who need to understand their options to phaseout CFCs. It would be conducted jointly by an international and national expert.

- D) Public education campaigns (\$35,000). The first campaign would comprise a press release kit for newspapers, television, radio stations and consumer magazines to increase public awareness and mobilize effective citizen action. A booklet would also be produced for secondary school students. The second more technical campaign would be aimed at industrialists (SOFOFA involvement). The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.
- E) Workshops on solvent cleaning (\$25,000). This one-day workshop will be repeated three times and will review ODS use in solvent cleaning, analyze appropriate technology alternatives to reduce ODS consumption, and discuss alternative technology options. It would be run by one international and one national expert, with the cooperation of the relevant industry association.
- F) Workshops on halons (\$25,000). This one-day workshop will be repeated three times and is targeted at owners, managers and technical personnel in firms that use ODS in fire protection systems. The international expert, assisted by a national expert, will detail appropriate technology alternatives used in other countries and their properties and relevant costs. Cooperation of the relevant industry association would be solicited.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

Since UNDP had no work programme in Chile in 1991, there have been no prior consultations. The 1992 UNDP work programme has been designed to complement the activities of the World Bank and UNEP. Resulting consultations with the World Bank and UNEP will be significant in 1992, with UNEP contributing to all information dissemination activities.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Seminar for concerned policy-makers and industry	20,000
b) Training for home refrigerator servicing technicians	20,000
c) Seminar in flexible foams	15,000
d) Public education campaigns	35,000
e) Workshops on solvent cleaning	25,000
f) Workshops in halons	<u>25,000</u>
Total	140,000

CHINA

1. BACKGROUND

A UNDP consultant visited China during 7-12 October 1991. Meetings, jointly coordinated by UNDP/Beijing and the National Environmental Protection Agency (NEPA), were held with NEPA officials, the Ministry of Commerce, the Ministry of Light Industry, the Ministry of Public Security, the Ministry of Aero-Space Industry, the Ministry of Chemical Industry, the Ministry of Machinery and Electronics, the State Science and Technology Commission, and World Bank representatives.

In 1990, China's CFC consumption was 40,000 tonnes with half produced locally and half imported. Halons consumption was around 4,000 tonnes with 80% produced locally and 20% imported. China signed the Protocol in June 1991 and has embarked on an ambitious ODS phaseout programme. The approved draft of the Government's requested UNDP 1992 work programme is elaborated below.

2. COUNTRY PROGRAMME

UNDP is the lead agency in China and has been active in this area since 1989 with activities funded under its own budget. A UNDP mission in December 1989 initiated an ODS data collection process. A UNDP mission in May 1990 published, jointly with NEPA, the first detailed study which identified a three-year programme to reduce ODS production and consumption and which included several project proposals. A 9-member UNDP team will visit China during November-December 1991 for the second phase comprising formulation of investment programme feasibility studies to phaseout ODS in the various sectors. UNDP has been requested to assist NEPA in the completion of the country programme. This will be done in the first half of 1992 following the completion of the second phase. The World Bank has contributed to and will be closely associated with development of the country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Assistance in the completion of the country programme (\$200,000). Following completion of the UNDP-funded second phase investment programme feasibility studies in December 1991, it will be possible to specify remaining country programme formulation activities in detail. The above figure reflects the lower estimate of funding needed to complete the country programme following the conclusion of UNDP's second phase activity.
- B) Establishment of four training shop/demonstration programmes in the refrigeration and air-conditioning sector (\$300,000). The four training shop/demonstration programmes would be established in Beijing, Shanghai, Guangzhou and Hubei. They will target service managers/technicians and will cover the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. Demonstrations of recycling and conservation practices will follow, focussed on testing and repair of refrigeration and air-conditioning systems. Provision has been made for four international experts for one month each, national experts, facilities and operational costs, demonstration equipment and support staff.

- C) Study on the application of CFC-134a technology in mobile air-conditioning systems (\$80,000). The use of automobile air-conditioning systems is increasing rapidly and is expected to reach 500,000 units by 1995. In 1990, CFC-12 consumption in this area was 940 tonnes. The study will cover key areas including recovery and handling, stopping the continuous leakage from these systems, the utilization of substitutes and compressor technology. The results would be an input to the design of recovery stations and purchase of recovery equipment that the Government will set up. Provision is made for two international experts for one month each, national experts, and testing equipment and materials.
- D) Technical assistance for two demonstration projects in aerosols (\$150,000). They will be located in Tianjin and Shanghai. There are 70 small plants producing aerosols. The Government has decided that any expansion of production capacity has to use CFC substitutes. Plans are underway to retrofit existing plants to use LPG as the propellant in aerosol cans. One major plant in each region will be retrofitted to use LPG and act as filling centres for smaller plants in the region. These two demonstration projects will demonstrate the viability of the approach which, if extended to the whole of China, could cut emissions by 4,000 tonnes/year. Provision is made for international experts, national experts, facilities, equipment and support staff.
- E) Technical assistance for four demonstration plants for the application of substitute technology in foam production (\$280,000). They will be located in Beijing, Shanghai, Tianjin and Yantai. Extensive contacts have taken place between the Chinese foam blowing industry and counterparts in the USA and Europe. There are around 100 factories producing polyurethane materials and 1990 CFC-11 emissions are estimated at 4,500 tonnes from rigid foams and 1,000 tonnes from flexible foams. Three of the four demonstration plants (Beijing, Shanghai, Yantai) will cover rigid foam production and one (Tianjin) will cover flexible foams. The use of substitute technologies, when spread to all such plants, could cut emissions by 20-25%. Provision is made for international experts, national experts, facilities and equipment, support staff, and an external study tour for four Chinese experts to visit similar plants abroad.
- F) Quality control testing in two plants for the adoption of new CFC-11 substitute technology in domestic refrigeration (\$150,000). This industry in 1990 used 7,300 tonnes of CFC-11. Experiments with substitutes for CFC-11 are well underway under laboratory conditions. It is planned to introduce the substitute technology into the production line by end-1992. Development of CFC-11 substitution is being done in close collaboration with ICI and the target is to reduce CFC-11 use by half. Two of the 40 production lines in China will be selected for demonstration purposes. Estimated total CFC-11 reduction per year when the technology is fully adopted would be around 2,000 tonnes per year. Provision is made for national experts, facilities and equipment, computer equipment, support staff, and an external study tour for six Chinese experts to visit similar plants abroad.

- G) Quality control testing in two plants for the adoption of new CFC-12 substitute technology in refrigeration and rigid foams (\$150,000). This industry in 1990 used 1,400 tonnes of CFC-12. Experiments with a CFC-152a substitute for CFC-12 are well underway and are undergoing international flammability tests. If the tests are positive, production lines in two plants in Shanghai and Guangzhou will be converted for demonstration purposes. Estimated total CFC-12 reduction per year when the technology is fully adopted would be around 1,700 tonnes per year. Provision is made for national experts, facilities and equipment, computer equipment, support staff, and an external study tour for eight Chinese experts to visit similar plants abroad.
- H) Preparatory studies for halons control (\$190,000). The Government has decided that, to reduce halons emissions, all new fire extinguishing equipment must use non-halons agents. The first stage of the studies which would be conducted in Shanghai and Tiensin would be a detailed technical survey of exact halons usage by activity. This would be followed by plant studies on the application of non-halon substitutes, revisions that may be needed for current standards for fire extinguishers, research on new agents such as CFC-124, the technical potential and costs of recycling, and evaluation of halons destruction technology and costs. This will support decisions to be taken on development of a plant for production of halons recycling equipment. Provision is made for two international experts for two months each, national experts, facilities and computer support.
- I) Preparatory study to phaseout CFC-113 in electronics cleaning (\$80,000). A total of 2,340 tonnes of CFC-113 is consumed by around 3,000 enterprises in electronics cleaning. The Government has decided on a strategy to reduce CFC-113 usage by using less harmful CFC or non-CFC agents. It is intended to convert four production lines that use 560 tonnes/year of CFC-113 to substitute agents. The study will evaluate the technical situation with respect to phasing out CFC-113 in the cleaning process, will evaluate the properties and capabilities of non-CFC products, would evaluate implementation technology and would help train local technicians in the new processes. Provision is made for one international expert, national experts, facilities and needed demonstration equipment, and training of national technicians.
- J) Establishment of a clearing-house at NEPA (\$150,000). It has been determined that individual Ministries are strongly supporting specific projects and that in certain cases there is inadequate coordination between Ministries. Given the coordinating role of NEPA, it is considered essential that an ODS information/technology clearing-house be established at NEPA to coordinate information flows, technology transfer and project implementation. This is especially important when several Ministries are interested in phaseout of the same ODS. It would also allow a unified presentation of China's ODS phaseout activities and programmes to the international community. Provision is made for computer equipment (\$60,000), salaries (\$40,000), national experts (\$20,000), needed technical assistance by international experts (\$20,000) and miscellaneous expenses (\$10,000).

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP and the World Bank have been closely coordinating activities and programmes in China. As the lead agency, UNDP has also kept UNEP informed on ODS developments in China. With the rapidly increasing work programme in China that will significantly involve all three implementing agencies, UNDP will strive to increase further implementing agency coordination and consultations.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) Assistance in the completion of the country programme	200,000
b) Establishment of four training shop/demonstration programmes in refrigeration/air-conditioning	300,000
c) Study on the application of CFC-134a technology in mobile air-conditioning systems	80,000
d) Technical assistance for two demonstration projects in aerosols	150,000
e) Technical assistance for four demonstration plants for the application of substitute technology in foam production	280,000
f) Quality control testing in two plants for the adoption of new CFC-11 substitute technology in domestic refrigeration	150,000
g) Quality control testing in two plants for the adoption of new CFC-12 substitute technology in refrigeration and rigid foams	150,000
h) Preparatory studies for halons control	190,000
i) Preparatory study to phaseout CFC-113 in electronics cleaning	80,000
j) Establishment of a clearing-house at NEPA	150,000

Total 1,730,000

COSTA RICA

1. BACKGROUND

A UNDP consultant visited Costa Rica during 23-24 September 1991. Meetings coordinated by UNDP/San Jose were held with the Ministry of Natural Resources, Energy and Mining (MINIREM), the Ministry of Economy, Industry and Commerce, the Ministry of External Relations and the National Meteorological Institute.

Costa Rica reports that a significant phaseout of ODS has already occurred. ODS consumption in 1990 is preliminarily estimated at 300 metric tonnes. While the aerosol sector accounts for the largest consumption of CFCs, it is also the sector where the greatest progress has occurred in ODS phaseout. Other major uses are in refrigeration (manufacturing, servicing, cold storage refrigeration systems), cleaning and in fire extinguishing.

2. COUNTRY PROGRAMME

The Government has selected a national firm (CEMSO) to conduct the reconnaissance study under the 1991 UNDP work programme. CEMSO will determine the distribution of ODS consumption by end-use sector and, with the help of a UNDP international consultant, will prepare a draft country study. It would be completed by March 1992 at the latest. Based on the results of the country study, UNDP would assist the Government in the preparation of the country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Country programme development and seminar for policy-makers (\$30,000).
The country programme would utilize all the technical information contained in the country study by CEMSO. The other elements of the country programme would be strategy and institutional components. In addition to providing expert advice in this area, a 2-day seminar for policy-makers would be held to: (a) fill in current information gaps regarding the type of institutional involvement required to implement the Protocol; and (b) to reach a consensus on the strategy and institutional arrangements to be proposed in the country programme. The Fund Secretariat, the World Bank, UNEP and a Mexican representative would also be invited to attend the seminar and describe Protocol provisions, implementation procedures and neighbouring country programmes. The results of the seminar would be utilized in the preparation of the country programme.

B) Training and demonstration programmes in the refrigeration, foams and fire protection sectors (\$60,000). These three one-week workshops would target service technicians in these three sectors. The specific technologies and applications to be discussed in each programme would be finalized by each respective ODS seminar in activity (B) above. Each would include a demonstration component that would be implemented at a work site. These workshops/demonstrations would both increase technical awareness and demonstrate the technical capabilities of available instruments/technologies.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP has the lead role in Costa Rica. UNEP would be consulted and kept informed of the training and demonstration programmes. The World Bank would be kept informed of any investment proposals that emerge from the country programme.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Country programme development and seminar for policy-makers	30,000
b) Training and demonstration programmes in the refrigeration, foams and fire protection sectors	60,000
Total	<u>90,000</u>

ECUADOR

1. BACKGROUND

UNDP's proposed 1992 work programme has been formulated following discussions with the environmental unit of the Ministry of Foreign Relations of the National Development Council (CONADE) which has the responsibility to prepare an ODS phaseout programme, with the Ministry of Industry which has key implementation responsibilities, and with other concerned parties.

Ecuador is an ODS importer with mainly CFC-11 and CFC-12 being imported. Total annual ODS consumption is estimated at 700 metric tonnes and it has been indicated that in the absence of controls, ODS utilization could increase by 2-5% per year. Aerosols account for almost three-quarters of ODS use, with refrigeration at 13% and foams at 9%.

2. COUNTRY PROGRAMME

The draft country programme has been prepared by CONADE with the assistance of USEPA and the World Bank. Twelve potential projects have been identified. The UNDP work programme, focussing on training and technical assistance activities, is based on the needs identified in the draft country programme and complements the activities being undertaken by the World Bank and USEPA.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Seminar for concerned policy-makers and industry (\$20,000). The objective of this 3-day seminar is to have around 20 concerned public sector policy-makers and industry representatives discuss the ozone issue and the goals of the Montreal Protocol, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss institutional requirements for implementation of the country programme. The experts (1 international, 1 national, 1 from the region) will discuss policies implemented in other countries vis-a-vis the situation in Ecuador and will facilitate the discussion on an appropriate policy framework.
- B) Workshop for private sector managers and engineers in the aerosols, refrigeration and foams sectors (30,000). Three 2-day workshops would be designed for 25-30 private sector managers and engineers of firms in the three largest ODS use sectors: aerosols, refrigeration and foams. Participants will be provided with detailed technical information on technologies and practices to reduce ODS emissions. The seminars, in addition to informing participants on available technologies and substitutes, would discuss technician training programmes most suited to Ecuador in these three areas. The first day would comprise plenary sessions and the second day sector-specific sessions.

- c) Project pre-feasibility studies in four areas (-). The country programme will identify several short-term and long-term projects that can achieve significant reductions in the use and emissions of ODS. It is expected that UNDP would be requested to implement at least four project pre-feasibility studies in areas that could include demonstration, training and investment programmes. These areas will be identified by the Government in mid-1992. Each pre-feasibility study would involve at least one international and one national expert, with specific durations to be determined when the areas are further specified.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

Since UNDP had no work programme in Ecuador in 1991 and since the World Bank has been actively assisting the Government in the preparation of the country programme, the World Bank has the lead agency role. The 1992 UNDP work programme has been designed to complement the activities of the World Bank. It is expected that consultations with the World Bank and UNEP will be significant in 1992.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Seminar for concerned policy-makers and industry	20,000
b) Workshop for private sector managers and engineers in the aerosols, refrigeration and foams sectors	30,000
c) Project pre-feasibility studies in four areas	-
Total	<u>50,000</u>

EGYPT
(Summary Programme)

1. BACKGROUND

UNDP's summary 1992 work programme will be finalized following discussions with the Egyptian Environment Affairs Agency (EEAA) over the next few months.

Egypt is a net CFC importer. Total 1990 CFC consumption is estimated at 1,830 metric tonnes, a decrease of 23% from 1989. This was due in part to a Ministerial Decree that prohibited the use of CFCs in aerosols and mandated the use of LPG instead. CFC end-use consumption is in refrigerants (39%), foams (36%), aerosols (24%) and solvents (1%).

2. COUNTRY PROGRAMME

The Country study was prepared with assistance from USEPA and the country programme is under preparation with assistance from USEPA and the World Bank. The Government has requested UNDP assistance in this effort, the exact nature of which has to be specified.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Design and implementation of seven demonstration projects in the refrigeration and air-conditioning sector (\$370,000). These have been identified jointly by EEAA and the World Bank during 1991. They comprise a package that would demonstrate ODS reduction in three component areas: (a) recycle and recovery; (b) engineering retrofit of existing equipment; and (c) application of newer technology. The seven demonstration projects are:
- household refrigerator recovery and recycling (with the Kiriazi Refrigerator Manufacturing Co.)
 - mobile air-conditioner recovery and recycling (with the Reftruck Co.)
 - chiller servicing (with the Misr Air Conditioning Manufacturing Co.)
 - introduction of alternative refrigerant (with the Zanussi Co.)
 - development and testing laboratory (with Misr Compressor Co.)
 - water cooler retrofit (with Koldair Co.)
 - refrigerator charge reduction (with Ideal Co.)
- B) Assistance in the completion of the country programme. Discussions will be held with the Government as to this requested technical assistance. Potential UNDP assistance would complement existing World Bank assistance in this area.
- C) Establishment of a Bureau to Phaseout CFCs within EEAA. Discussions will be held with the Government as to this requested institutional support. The primary responsibility of this Bureau would be to coordinate activities between Egyptian industry, the Executive Committee and the three implementing agencies. A budget for this activity will be specified following determination of the needed institutional support within Executive Committee guidelines.

- D) Technical assistance (e.g. technology transfer, pre-feasibility studies and information exchange/training requirements under the country programme. Discussions will be held with the Government as to this requested technical assistance. A budget for these activities will be specified following determination of the specific assistance needed. Potential UNDP assistance would complement potential World Bank assisted investment programmes and UNEP programmes.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP and the World Bank are closely coordinating their work programmes in Egypt to avoid duplication of effort. As agreed with the World Bank, UNDP will implement approved demonstration projects while the World Bank will concentrate on investment projects. Both UNDP and the World Bank are cooperating on the information side with UNEP, specifically on UNEP's December 1991 Regional Workshop on the Implementation of the Montreal Protocol to be held in Cairo.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) Design and implementation of a package of seven demonstration projects	370,000
Total	<u>370,000</u>

GHANA

1. BACKGROUND

A UNDP consultant visited Ghana during 2-4 October 1991. Meetings coordinated by UNDP/Accra were held with the Environmental Protection Council (EPC), the Ministry of Finance and Planning, and with industry. The outline of the Government's requested UNDP 1992 work programme is elaborated below.

Ghana is an ODS importer with estimated 1990 ODS consumption of 152 metric tonnes. It comprised CFC-11 (35%), CFC-12 (29%), HCFC-22 (32%) and halons and other agents (4%). The main uses are in commercial, industrial and domestic refrigeration and air-conditioning, in automobile air-conditioning, in aerosol products and in fire protection.

2. COUNTRY PROGRAMME

The World Bank assisted Ghana in an initial review of the ODS situation and in the determination of baseline data. As Ghana is a low ODS consumption country, UNEP proposes to assist Ghana in the preparation of its country programme which could serve as a model for other low ODS consuming countries. UNDP technical assistance, training and institutional strengthening would be an integral component of the country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Establishment of an Ozone Office in the Environmental Protection Council (\$70,000). This new unit would have ODS coordination, training and advisory functions to include: (a) technically and administratively service a National Committee on Ozone Depleting Substances; (b) coordinate and advise on ODS training programmes run by the implementing agencies and other bodies; (c) develop in-house capacity to effectively advise small and medium-scale industry on ODS alternatives; and (d) develop public awareness on this issue. Of the two national technical staff, one will be provided by the Government and one will be hired under the project. The budget provides for participation at 2-3 key ODS technical/policy meetings of special relevance to Ghana and for the hiring of national experts. It also provides for a fax machine, a vehicle, office/computer equipment and operational costs. This would be a joint UNDP/UNEP activity.
- B) Joint seminar for concerned policy-makers and industry (\$20,000). This 3-day seminar organized by the new Ozone Office would have around 30 concerned public sector policy-makers and industry representatives discuss the ozone issue and the situation in Ghana, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss regulatory implications. Two experts (1 international, 1 national) will discuss policies implemented in other low ODS-consumption countries vis-a-vis the situation in Ghana and will facilitate the discussion on an appropriate policy framework.

- C) Continuation of the refrigeration/air-conditioning demonstration shop and technician training programme (\$70,000). Under UNDP's 1991 work programme, the above demonstration shop/training programme would be operational by early 1992. The requested funds would cover the operational and training costs for the rest of 1992. The large National Refrigeration and Air-conditioning Workshop Owner's Association would be directly involved in this activity. It may lead to establishment of an ODS training centre for West Africa but that is not covered under this activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

While the World Bank initiated activities in Ghana, it is anticipated that UNEP would have the lead role due to its role in development of the country programme. UNDP is cooperating closely with both agencies and will avoid any duplication of activities with UNEP.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

	US\$
a) Establishment of an Ozone Office in the Environmental Protection Council	70,000
b) Joint seminar for concerned policy-makers and industry	20,000
c) Continuation of the refrigeration/air-conditioning demonstration shop/technician training programme	70,000
Total	<u>160,000</u>

JORDAN

1. BACKGROUND

A UNDP consultant visited Jordan during 22-24 September 1991. Meetings coordinated by UNDP/Amman were held with the Department of Environment in the Ministry of Municipal, Rural Affairs and the Environment, with the Ministry of Planning and with industry. The outline of the Government's requested UNDP 1992 work programme is elaborated below.

Jordan is an ODS importer with a rough Government-estimated ODS consumption of around 500 tonnes per annum. Most ODS consumption is in refrigeration, air-conditioning and aerosols. There are 33 establishments using ODS in Jordan that include 10 refrigerator companies, 5 flexible foam companies, 1 rigid foam company, 4 companies dealing with fire extinguishers and 2 companies dealing with aerosols.

2. COUNTRY PROGRAMME

The World Bank is assisting Jordan in a reconnaissance/data collection effort that will determine true ODS consumption by end-use applications. This would lead to a country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Training programme for national technical/policy/regulatory staff and industry representatives (\$40,000). This would comprise: (a) internal training/seminars for technical, policy and regulatory staff and industry representatives on the the provisions of the Protocol, review of ODS uses and applications, the availability and cost of substitutes, development of appropriate national policies, and guidelines for the development of enforcement mechanisms. They would be run by one international and one national/regional expert; and (b) participation of qualified official staff at international/regional meetings covering relevant ODS technical and policy issues.
- B) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration (\$36,000). These workshops, targeting service technicians in these subsectors, will comprise lectures followed by demonstrations at local use sites. The instruction will focus on new recycling techniques and equipment available for use by technicians servicing air-conditioning and refrigeration systems. Each subsector workshop will be designed and taught by one international and one national expert working as a team.
- C) Workshop on flexible and rigid foams and halons (\$13,000). This would target service managers/technicians at the flexible and rigid foam companies, and companies dealing with fire extinguishers. Participants will be provided with detailed technical information on technologies and practices to reduce unnecessary ODS emissions. It would help them understand their technical options to phaseout CFCs. It would be conducted jointly by an international and a national expert.

- D) Study on the deodorization of locally produced gas to be used as an aerosol propellant in cosmetics production (\$12,000). This self-explanatory study is budgeted at two weeks each for an international and a national consultant. If successful, it would help reduce significantly 120 tonnes of CFC-12 used every year in the production of 500,000 cans of hair spray.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

The World Bank has taken on the lead role in Jordan. UNDP is cooperating with the World Bank and will concentrate on technical assistance, training and institutional strengthening activities.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Training programme for national technical/policy/regulatory staff and industry representatives	40,000
b) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration	36,000
c) Workshop on flexible and rigid foams and halons	13,000
d) Study on the deodorization of locally produced gas for use as an aerosol propellant	12,000
Total	<u>101,000</u>

KENYA

1. BACKGROUND

A UNDP consultant visited Kenya during 26-27 September 1991. Meetings coordinated by UNDP/Nairobi were held with the National Environmental Secretariat and with UNEP's Ozone Secretariat. The outline of the Government's requested UNDP 1992 work programme is elaborated below.

Kenya is an ODS importer. Estimates from the May 1990 UNEP study show that ODS consumption in 1989 was around 240 tonnes. It was felt this figure would decrease by two-thirds by 1992, primarily due to aerosol companies (whose ODS end-use is significant) switching to hydrocarbon propellants. It is assumed that the same will occur with foams as producers switch to water-blowing techniques. The remaining 100 tonnes is in refrigeration, primarily in refrigerator servicing. As refrigerator use is rapidly expanding in Kenya, the servicing and recycling of refrigerants will increase significantly.

2. COUNTRY PROGRAMME

UNEP completed in May 1990 a Case Study on Costs and Strategies for Ozone Layer Protection in Kenya. The World Bank sent a brief mission in March 1991. It is recommended that UNEP and UNDP jointly assist the Government in preparing the country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Continuation of the refrigeration/air-conditioning demonstration shop and technician training programme (\$80,000). Under UNDP's 1991 work programme, the above demonstration shop/training programme would be operational by early 1992. The requested funds would cover the operational and training costs for the rest of 1992. It includes the costs of rented premises and transportation requirements.
- B) Assistance in preparation of the country programme (\$20,000). Major changes have taken place recently in the composition of ODS utilization in Kenya. The Government has requested UNDP assistance in suitably updating the original UNEP case study and providing the National Environmental Secretariat with technical and related documentation on ozone issues. This would be a joint UNDP/UNEP activity.
- C) ODS conservation seminars in the refrigeration, foams and fire protection sectors (\$30,000). Three one-day seminars would be designed for engineers/managers of firms in these subsectors. Participants will be provided with detailed technical information on technologies and practices to reduce unnecessary ODS emissions. The seminars, in addition to informing participants on available technologies and substitutes, would discuss the technician training programmes most suited to Kenya in these three areas.

- D) Training programme for national technical/policy/regulatory staff and industry representatives (\$30,000). This would comprise: (a) internal training/seminars for technical, policy and regulatory staff and industry representatives on the provisions of the Protocol, review of ODS uses and applications, the availability and cost of substitutes, development of appropriate national policies, and guidelines for the development of enforcement mechanisms. They would be run by one international and one national/regional expert; and (b) participation of qualified official staff at international/regional meetings covering relevant ODS technical and policy issues.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNEP has the lead role in Kenya. It is recommended that UNDP collaborate with UNEP in jointly assisting the Government prepare the country programme. UNDP technical assistance, training and institutional strengthening would be an integral component of the country programme.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) Continuation of the refrigeration/air-conditioning demonstration shop/technician training programme	80,000
b) Assistance in preparation of the country programme	20,000
c) ODS conservation seminars in the refrigeration, foams and fire protection sectors	30,000
d) Training programme for national technical/policy regulatory staff and industry representatives	30,000
Total	<u>160,000</u>

MEXICO

1. BACKGROUND

Mexico was the first country to ratify the Protocol and in 1988 the Government introduced a series of initiatives aimed at protecting the ozone layer. SEDUE (Secretaria de Desarrollo Urbano y Ecologia), the agency responsible for coordinating the national ozone protection programme, has negotiated and signed voluntary agreements with industry groups in which producers and users pledged to reduce their consumption and emissions of CFCs. SEDUE is also assisting industry in identifying and preparing ozone protection projects. An Ozone Protection Technology Center has been established within SEDUE with initial assistance from USEPA. UNDP's proposed 1992 work programme has been formulated following discussions with SEDUE. Elements of the programme were also discussed by UNDP task manager during his visit to Mexico during 21-22 October.

Mexico is an ODS producer and importer and in 1989 consumed 8,128 tonnes of CFCs comprising mainly CFC-11 and CFC-12 with the major users being refrigeration (59%), foams (20%) and aerosols (12%). Consumption of domestically produced carbon tetrachloride was 9,200 tonnes used in manufacture of CFC-11 and CFC-12. Methyl chloroform consumption (all imported) was 9,000 tonnes used mainly in electrical/electronic cleaning in the maquiladora industries. Halons consumption (all imported) was 260 tonnes.

2. COUNTRY PROGRAMME

SEDUE has prepared a country programme with USEPA assistance that will be presented to the Executive Committee in November 1991. It outlines the strategy Mexico intends to follow to meet its commitments under the Montreal Protocol, and also lists ozone protection projects eligible for funding. It specifies SEDUE's intention to work with UNDP in the design and implementation of training programmes in support of the various investment projects.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Training programme to reduce CFC-11 emissions from commercial chillers (\$50,000). SEDUE, with USEPA assistance, is developing a project involving the use of on-site recycling equipment and efficient purge devices to reduce emissions from the approximately 1,000 commercial chillers in Mexico. The project includes a strong training component for chiller service technicians. A training programme would be established to impart the necessary skills on the proper use of recycling equipment and maintenance and diagnostic techniques to minimize refrigerant emissions. Training materials would be prepared in Spanish and several training workshops are visualized.

- B) Inventory and workshop on halons utilization (\$25,000). Existing information on halons consumption in Mexico does not provide sufficient information on the type of application and the reasons for the use of halon fire protection systems. Insurance or regulatory requirements may require the use of halons in truck transportation of flammable materials. Following data collection efforts by local staff, a workshop will be conducted to identify the principal applications of halons in Mexico, to present the collected information, to determine the factors driving such use and to disseminate information on alternatives available for particular halon consuming applications. One international and one national expert would work on this programme.
- C) Training/demonstration programme to reduce and substitute halons use in non-essential applications (\$30,000). A Mexican halons expert would participate in the US training and demonstration programme in halons recycling technology (Hawaii, March 1992). Based on that exposure to available new technologies, the national expert together with an international expert would adapt the programme to needs and skill levels of Mexican fire protection crews. In coordination with SEDUE, they would attempt to get this programme endorsed by airport officials and fire station managers.
- D) Four training programmes identified in Mexico's country programme (\$100,000). UNDP has been requested to support training components of investment projects identified in the country programme. They will include:
- a) training personnel of a proposed central refrigerant recycling plant in the handling of used and recycled refrigerant;
 - b) training of service personnel to safely use recycling equipment in the mobile air-conditioning sector;
 - c) instructing personnel of changes in operating procedures associated with conversions to alternative blowing agents or low CFC insulation in the foams sector; and
 - d) training for expanding conservation practices to reduce solvent emissions in metal and electronics cleaning applications of CFC-113 and methyl chloroform.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP is actively coordinating its work programme in Mexico with the World Bank and UNEP.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

	US\$
a) Training programme to reduce CFC-11 emissions from commercial chillers	50,000
b) Inventory and workshop on halons utilization	25,000
c) Training/demonstration programme to reduce and substitute halons use in non-essential applications	30,000
d) Four training programmes identified in Mexico's country programme	100,000
Total	<u>205,000</u>

NIGERIA

1. BACKGROUND

A UNDP consultant visited Nigeria during 29 September to 1 October 1991. Meetings coordinated by UNDP/Lagos were held with the Federal Environmental Protection Agency (FEPA), the Federal Ministry of Science and Technology, and the UNIDO and World Bank representatives. The outline of the Government's requested UNDP 1992 work programme is elaborated below.

Nigeria is an ODS importer. The World Bank's March 1991 mission estimated ODS consumption at 3,000-4,000 metric tonnes/year, an estimate questioned by the Government. There is a critical need for accurate data on ODS consumption by sector and end-use applications. Nigeria uses ODS in the manufacture and servicing of domestic and industrial refrigeration, in mobile air-conditioning, in foam and aerosols production, and in fire extinguishing equipment.

2. COUNTRY PROGRAMME

The World Bank is assisting the Government in preparation of the country study leading to a country programme. UNDP's inventory of CFC-consuming industries would be a key input to the Bank's technical studies. A joint UNDP/UNEP two-day workshop for 40 industrialists who use ODS in their manufacturing processes will be held in March 1992.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Comprehensive inventory of manufacturing and service establishments importing or consuming ODS (\$25,000). This comprehensive inventory would be undertaken by FEPA with the assistance of national experts or a national consulting firm. The terms of reference and coverage would be similar to that done in mid-1991 under a UNDP-funded project in Indonesia. Following the completion of this inventory, the precise situation with respect to ODS consumption in Nigeria will be known thereby facilitating both technical studies and ODS policy formulation.
- B) Training programme for national technical/policy/regulatory staff (\$50,000). This would cover FEPA, the Federal Ministry of Science and Technology, and other bodies. The three components are: (a) internal training for technical/policy/regulatory staff on the provisions of the Protocol, review of ODS uses and applications, the availability and cost of substitutes, development of appropriate national policies, and guidelines for enforcement mechanisms. They would be supported by one international and one national expert; (b) participation of qualified staff at international/regional meetings covering relevant ODS technical and policy issues; and (c) two brief study tours to evaluate the planning and implementation of ODS phaseout programmes.
- C) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration (\$36,000). These workshops, targeting service managers in each of these three sub-sectors, will comprise lectures followed by demonstrations at local use sites. The instruction will focus on new recycling techniques and equipment available for use by technicians servicing air-conditioning and refrigeration systems. Each subsector workshop will be designed and taught by a team of one international and one national expert.

- D) Workshop on flexible and rigid foams and halons (\$15,000). This would target service managers/technicians flexible and rigid foam companies, and companies dealing with fire extinguishers. Participants will be provided with detailed technical information on technologies and practices to reduce unnecessary ODS emissions. It would help them understand their technical options to phaseout CFCs. It would be conducted jointly by an international and a national expert.
- E) Workshop in aerosols (\$15,000). Preliminary activities would comprise reviewing ODS use in the aerosols sector, analyzing available appropriate technology alternatives, and then running a workshop to discuss alternative technology options which are well-tested. Due to safety problems associated with using hydrocarbon propellants, the workshop would include a review of needed safety procedures. This activity will be conducted by an international expert working with a national industry expert.
- F) Seminar for concerned policy-makers and industry (\$12,000). This 1-day seminar organized by FEPA in third-quarter 1992 for 40 public sector policy-makers and industry representatives would discuss the technical and financial impact of Montreal Protocol provisions in Nigeria, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss regulatory implications. Two experts (1 international, 1 national) will discuss policies implemented in other developing countries and will facilitate the discussion on an appropriate policy framework.
- G) Public awareness campaigns (\$35,000). These campaigns would comprise: (a) a one-day information seminar for journalists, communications professionals and community organizations; (b) a media campaign covering posters, pamphlets, newspaper articles, radio/TV spots, etc. stressing the effects of ODS emissions on the ozone layer and techniques that service technicians can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

All three implementing agencies are cooperating closely in Nigeria.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES US\$

a) Comprehensive inventory of manufacturing and service establishments importing or consuming ODS	25,000
b) Training programme for national technical/policy/regulatory staff	50,000
c) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration	36,000
d) Workshop on flexible and rigid foams and halons	15,000
e) Workshop in aerosols	15,000
f) Seminar for concerned policy-makers and industry	12,000
g) Public awareness campaigns	35,000
Total	188,000

PHILIPPINES

1. BACKGROUND

A UNDP consultant visited the Philippines during 23-25 September 1991. Meetings coordinated by UNDP/Manila were held with the Department of Environment and Natural Resources and with World Bank representatives.

The May 1991 EEC-funded study quantified sectoral CFC utilization as: air-conditioning (36%), refrigeration (24%), foam applications (23%), tobacco processing (14%) and solvents (3%). It indicated that larger industrial units closely linked to foreign suppliers have access to information on substitute chemicals and CFC-free technology. No mechanism is available to smaller units which would need specific technical assistance/training. UNDP's 1991 work programme meets some of the identified training needs. The approved outline of the Government's requested UNDP 1992 work programme is elaborated below.

2. COUNTRY PROGRAMME

The Government is interested in establishing and implementing an effective ODS phaseout programme. The Government has requested the EEC to elaborate on its May 1991 study including sections on description of the recommended strategy and ODS phaseout costs. This expanded study would then become the Country Programme. UNDP has been asked to specify needed technical assistance requirements and the World Bank has been requested to prepare an investment programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Seminar for concerned policy-makers and industry (\$20,000). The objective of this 3-day seminar for 50 public sector policy-makers and industry representatives discuss the ozone issue and the goals of the Montreal Protocol, review the assistance available from the Interim Multilateral Fund and implementing agencies, evaluate alternative policy options to implement ODS phaseout targets, discuss the process for effective technology transfer to small end users and enterprises (e.g. small repair shops) including the impact of incentives, and discuss institutional requirements. The experts (2 international, 2 national) will discuss policies implemented in other countries vis-a-vis the situation in the Philippines and will facilitate the discussion on an appropriate policy framework.
- B) Training programme for concerned DENR, DOST and DTI staff (\$40,000). This would cover concerned technical, policy, finance and regulatory staff in the Dept. of Environment & Natural Resources, the Dept. of Science & Technology and the Dept. of Trade & Industry. The two components are: (a) technical and policy guidance on the availability and cost of substitutes, and guidelines for development of appropriate national policies and enforcement mechanisms. This advice would be provided by international and national experts; and (b) participation of selected staff at international/regional meetings on relevant ODS technical and policy issues.

- C) Training for home refrigerator servicing technicians (\$20,000). This would address the venting and leakage from refrigerators occurring during operation and maintenance. It will include a demonstration and training session for selected service shops which would then serve as demonstration points for other service operations in the area. One international and one national expert would be involved.
- D) Training/demonstration programme in the industrial refrigeration and air-conditioning sector (\$60,000). It will be repeated four times with 25 trainees at each site. The training will target service managers/technicians and will cover the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. A hands-on demonstration of recycling and conservation practices will follow, focussed on the testing and repair of industrial refrigeration and air-conditioning systems. One international and one national expert will support this activity.
- E) Public awareness campaigns (\$15,000). These campaigns would comprise: (a) a one-day information seminar for journalists, communications professionals and community organizations; (b) a media campaign covering posters, pamphlets, newspaper articles, etc. stressing the effects of refrigerant emissions on the ozone layer and techniques that air-conditioner/refrigerator service technicians can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP and the World Bank are cooperating and will undertake a joint mission in March 1992 to identify additional technical assistance requirements. UNDP and UNEP would jointly implement public awareness activities.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Seminar for concerned policy-makers and industry	20,000
b) Training programme for DENR, DOST, DTI staff	40,000
c) Training for home refrigerator servicing technicians	20,000
d) Training/demonstration programme in the industrial refrigeration and air-conditioning sector	60,000
e) Public awareness campaigns	<u>15,000</u>
Total	155,000

SRI LANKA

1. BACKGROUND

A UNDP consultant visited Sri Lanka during 7-9 October 1991. Meetings coordinated by UNDP/Colombo were held with the Ministry of Environment and Parliamentary Affairs (MEPA), with the Ceylon Institute of Scientific and Industrial Research (CISIR) in the Ministry of Science and Technology, with the Central Environmental Agency (CEA) and with the Ministry of Justice. The approved outline of the Government's requested UNDP 1992 work programme has been elaborated below.

Preliminary estimates show that Sri Lanka consumes around 100 tonnes of ODS per year. They are mainly used in domestic refrigeration and air-conditioning and mobile air-conditioning. No detailed ODS consumption information by sector/use exists at the present time.

2. COUNTRY PROGRAMME

A national committee has been set up to consider matters related to the Montreal Protocol and MEPA chairs the committee. The Government (CISIR) is interested in a UNDP survey of ODS consumption in Sri Lanka and draft terms of reference were given to the UNDP consultant. UNEP has proposed that it do the country study and UNDP would be willing to collaborate in that effort.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) ODS reconnaissance survey (\$25,000). A survey will be carried out by a national expert/company, with advice from an international consultant, to determine ODS consumption by sector, use and application. The terms of reference would be agreed upon by the Government, UNDP and UNEP. This would be a joint UNDP/UNEP activity.
- B) Training programme for staff in MEPA, CEA and CISIR (\$25,000). The two components are: (a) internal training for concerned technical, policy and regulatory staff on the the provisions of the Protocol, review of ODS uses and applications, the availability and cost of substitutes, development of appropriate national policies, and guidelines for the development of enforcement mechanisms. This training would be provided by one international and one national expert; and (b) participation of selected staff at international/regional meetings covering relevant ODS technical and policy issues.
- C) Joint seminar for concerned policy-makers and industry (\$20,000). The objective of this 2-day seminar is to have around 30 public sector policy-makers and industry representatives discuss the ozone issue and the goals of the Montreal Protocol, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions in Sri Lanka, and discuss institutional requirements. The experts (1 international, 1 national) will discuss policies implemented in other countries vis-a-vis the situation in Sri Lanka and will facilitate the discussion on an appropriate policy framework.

D) Public awareness campaigns (\$15,000). These campaigns would comprise: (a) a one-day information seminar for journalists, communications professionals and community organizations; (b) a media campaign covering posters, pamphlets, newspaper articles, etc. stressing the effects of refrigerant emissions on the ozone layer and techniques that air-conditioner/refrigerator service technicians can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP is actively cooperating with UNEP in the above programme.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) ODS reconnaissance survey	25,000
b) Training programme for staff in MEPA, CEA and CISIR	25,000
c) Joint seminar for concerned policy-makers and industry	20,000
d) Public awareness campaigns	15,000
Total	<u>85,000</u>

THAILAND

1. BACKGROUND

A UNDP consultant visited Thailand during 30 September - 2 October 1991. Meetings coordinated by UNDP/Bangkok were held with the Ministry of Industry (MOI), with the Office of the National Environment Board (NEB) in the Ministry of Science, Technology and Energy (MSTE), with the Department of Technical and Economic Cooperation, and with the UNEP Regional Office.

ODS consumption in Thailand in 1990 was around 7,500 tonnes and recent statistics show that demand is growing rapidly. The main uses are in solvents in the electronics sector (40%-45%) and in refrigeration and air-conditioning (40%-45%). An ongoing UNEP/SIDA study has determined basic ODS consumption data and has recommended that the Government fix strict target dates for ODS phaseout particularly in the electronics industry. The approved outline of the Government's requested UNDP 1992 work programme is elaborated below.

2. COUNTRY PROGRAMME

Detailed terms of reference for a country programme have been developed by the World Bank and UNEP, with the World Bank having been requested to be the lead agency. The World Bank will also initiate a series of prefeasibility studies. UNDP has been requested to provide technical assistance to national institutions responsible for developing and implementing ODS phaseout programmes.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Training programme for MOI and NEB staff (\$70,000) for concerned technical, policy and regulatory staff in the Division of Hazardous Substances in the Ministry of Industry, and for policy, finance and regulatory staff in the National Environment Board (NEB). The objective is to increase staff knowledge/expertise so they can effectively advise small and medium-scale industry on ODS alternatives. The three components are: (a) internal training by an international consultant (assisted by a national expert) on Protocol provisions, review of ODS uses/applications/substitutes, monitoring of the ODS-using activities of multinational companies, and enforcement mechanisms; (b) participation of selected staff at international/regional meetings on relevant ODS technical and policy issues; and (c) brief technical/policy study tours especially within the region to evaluate the planning and implementation of ODS phaseout programmes.
- B) Establishment of a technical centre in MOI (\$10,000). A technical centre would be established within the Division of Hazardous Substances that would have responsibility for ODS training, education and technology transfer activities. A national expert would be recruited to determine the optimum organizational structure of the centre and its relationship to and interaction with other Ministries, industry and universities. The terms of reference will be prepared by MOI and submitted to UNDP and UNEP for review.

- C) Extension of a pilot project on the modification of mobile air-conditioning units (\$40,000). A demonstration project will investigate the comparative advantages of using CFC-134a and new blends of ODS alternatives in car air-conditioners, and would be implemented by the Division of Hazardous Substances jointly with industry. UNDP assistance is requested to cover the extension of training and demonstration of the technology and procedures which would result from the pilot project. If successful, the pilot project would facilitate the introduction of ODS alternatives in older model cars.
- D) Public awareness campaigns (\$15,000). These campaigns would comprise: (a) a one-day information seminar for journalists, communications professionals and community organizations; (b) a media campaign covering posters, pamphlets, newspaper articles, etc. stressing the effects of refrigerant and solvent emissions on the ozone layer and techniques that service technicians can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

The World Bank and UNEP have lead roles in Thailand. UNDP is cooperating closely with both agencies. UNDP and UNEP will jointly implement the specified public awareness activities.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Training programme for MOI and NEB staff	70,000
b) Establishment of a technical centre in MOI	10,000
c) Extension of a pilot project on the modification of mobile air-conditioning units	40,000
d) Public awareness campaigns	<u>15,000</u>
Total	135,000

TRINIDAD AND TOBAGO

1. BACKGROUND

A UNDP consultant visited Trinidad & Tobago on 30 September 1991. Meetings coordinated by UNDP/Port-of-Spain were held with the Ministry of Environment and National Service, and with industry.

Trinidad & Tobago is an ODS importer and recent estimates show that the major ODS consuming sectors are air-conditioning (Central and automotive) and refrigeration (domestic and industrial). In aerosols, most producers have begun using hydrocarbon or carbon dioxide propellant alternatives.

2. COUNTRY PROGRAMME

An Industry and Environment Roundtable has been formed to achieve a consensus between government, industry and the public on policy implementation to prevent ozone layer depletion. UNDP will assist the Government in the preparation of the country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Assistance in the formulation of the country programme (-). At Government request, the funds approved under UNDP's 1991 work programme for technical assistance in the aerosols sector would be used instead to assist in the formulation of the country programme. The data being compiled under the country study done by a local consultant will provide the necessary information on end-use ODS consumption and description of the sectors. UNDP would assist the Government consider the feasible technological alternatives, analyze the costs associated with implementing a phaseout plan, evaluate the policy options, identify specific project possibilities, and recommend appropriate institutional coordination arrangements. International and national experts would work together in the preparation of the country programme. The funding (\$53,800) would come from UNDP's 1991 work programme funding allocation for Trinidad & Tobago.
- B) Joint seminar for concerned policy-makers and industry on the country programme (-). This 2-day seminar for 30 concerned public sector policy-makers and industry representatives would discuss the ozone issue and its implications in the country, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions, and discuss regulatory implications. Two experts (1 international, 1 national) will discuss policies implemented in other low ODS-consumption countries and will facilitate the discussion on an appropriate policy framework. The Fund Secretariat, the World Bank and UNEP would be invited to attend and contribute to the seminar. Following the seminar, the draft country programme would be finalized. This activity would also be covered under the funds left over from activity (A) above.

- c) Training/demonstration programme in the air-conditioning and refrigeration sector (\$30,000). Following the seminar in 3(B) above, a one-week workshop targeting service technicians in this sector will focus on the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. This will be followed by a hands-on demonstration of recycling and conservation practices described in the workshop. This workshop/demonstration would both increase technical awareness and demonstrate the technical capabilities of available instruments/technologies to further reduce emissions from systems that use current refrigerants. One international and one national expert will support this activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP has the lead role in Trinidad & Tobago. The World Bank would be kept informed of any investment proposals that emerge from the country programme. UNEP would be consulted and kept informed of the training/demonstration programme. Both would be kept informed about development of the country programme.

5. SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES

US\$

a) Assistance in the formulation of the country programme (\$53,800 from UNDP's 1991 programme)	-
b) Joint seminar for concerned policy-makers and industry on the country programme (budgeted under the first activity)	-
c) Training/demonstration programme in the air-conditioning and refrigeration sector	30,000
Total	<u>30,000</u>

TURKEY

1. BACKGROUND

A UNDP consultant visited Turkey during 10-12 October 1991. Meetings coordinated by UNDP/Ankara were held with the Ministry of the Environment (coordinating agency for Montreal Protocol activities), the Ministry of Industry and Trade, the Ministry of Health, the Undersecretariat for Treasury and Foreign Trade, and the State Planning Organization. The outline of the Government's requested UNDP 1992 work programme is elaborated below.

Turkey is a significant ODS consumer. The current ODS consumption estimate of 4,300 tonnes is expected to increase in all key sectors (refrigeration, mobile air-conditioning, foam production, fire extinguishing equipment) with the exception of aerosols. The Ministry of Health has already issued a decree banning the use of CFCs as propellants in insecticides.

2. COUNTRY PROGRAMME

Turkey recently ratified the Montreal Protocol. The World Bank's Oct-Nov 1991 reconnaissance mission will produce a draft report on Turkey's current and anticipated ODS consumption, on institutional relationships, and on strategy options to decrease and phaseout ODS. The World Bank is the lead agency for the country programme.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Training programme for staff in the Ministry of Environment, Ministry of Health, and the Ministry of Industry and Technology (\$75,000). The three components are: (a) internal training of concerned technical, policy and regulatory staff on the provisions of the Protocol, review of ODS uses and applications, the availability and cost of substitutes, development of appropriate national policies, and guidelines for the development of enforcement mechanisms. Advice would be provided by international and national/regional experts; (b) participation of selected staff at international/regional meetings covering relevant ODS technical and policy issues; and (c) brief study tours to evaluate the planning and implementation of ODS phaseout programmes. This training would develop staff knowledge and expertise so that they can effectively advise small and medium-scale industry on ODS alternatives.
- B) Joint seminar for concerned policy-makers and industry (\$20,000). Following completion of the World Bank's draft report, this 3-day seminar organized by the Ministry of the Environment for up to 50 concerned public sector policy-makers and industry representatives would discuss the ozone issue and its technical and financial implications for Turkey, review the assistance available from the Interim Multilateral Fund and the implementing agencies, evaluate alternative policy options to implement ODS phaseout provisions at the national, sectoral, and industry levels, and discuss regulatory implications. Two international experts will discuss technologies used and policies implemented in other countries and will facilitate the discussion on an appropriate policy framework.

- C) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration (\$36,000). These workshops, targeting service technicians in each of these three sub-sectors, will comprise lectures followed by demonstrations at local use sites. The instruction will focus on new recycling techniques and equipment available for use by technicians servicing air-conditioning and refrigeration systems. Each subsector workshop will be designed and taught by a team of one international and one national expert.
- D) Workshop on aerosols, foams and halons (\$20,000). This would target service managers/technicians in the aerosols, foams (flexible, rigid) and fire extinguishing subsectors. Participants will receive detailed information on alternative technologies and practices to reduce unnecessary ODS emissions. Due to safety problems associated with hydrocarbon propellants, the aerosols component would include a review of needed safety procedures. The features and costs of recycling equipment will also be specified. The workshop would help participants understand their technical options to phaseout CFCs. It would be conducted jointly by an international and a national/regional expert.
- E) Public awareness campaigns (\$35,000). These campaigns would comprise: (a) a one-day information seminar for journalists, communications professionals and community organizations; (b) a media campaign covering posters, pamphlets, newspaper articles, radio/TV spots, etc. stressing the effects of ODS emissions on the ozone layer and techniques that service technicians can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

The World Bank, as lead agency, keeps UNDP informed of developments. UNDP will keep UNEP informed of training activities and would invite UNEP to cooperate in public awareness activities.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Training programme for staff in the Ministries of Environment, Health, and Industry and Technology	75,000
b) Joint seminar for concerned policy-makers and industry	20,000
c) Three training/demonstration workshops in commercial air-conditioning, domestic refrigeration and industrial refrigeration	36,000
d) Workshop on aerosols, foams and halons	20,000
e) Public awareness campaigns	<u>35,000</u>
Total	186,000

URUGUAY

1. BACKGROUND

A UNDP consultant visited Uruguay during 14-15 October 1991. Meetings coordinated by UNDP/Montevideo were held with the Ministry of the Environment, the Chamber of Industries, the Technical Laboratory of Uruguay and the University of the Republic.

Uruguay is an ODS importer and 1990 ODS imports of 430 tonnes were lower than 1989 imports of 471 tonnes. In 1989, CFCs accounted for 95% of total ODS imports and the major uses were as thermal insulation, electronic circuit cleaning, air-conditioning/refrigeration, polyurethane foams, and cosmetics and products for home and industrial use. In the air-conditioning/refrigeration sector, industries requiring process and transport refrigeration are among the largest ODS consumers.

2. COUNTRY PROGRAMME

The Government completed a preliminary review of ODS consumption. A Department of the Environment has been recently created and it is also responsible for coordinating the ODS phaseout programme. UNDP has been requested to assist the Government complete the country study and help formulate the country programme. Industry and university involvement in developing the country programme is expected.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Assistance in the completion of the country study (-). The country study would be completed utilizing the data collected to date with a national expert reviewing the data and updating it as necessary and an international expert advising the Government on the technologies available for controlling ODS emissions. The \$13,050 funding would come from UNDP's 1991 work programme funding allocation for Uruguay.
- B) Assistance in the formulation of the country programme and holding of a seminar for policy-makers and industry (\$30,000). The completion of the country study would be immediately followed by formulation of the country programme. UNDP would assist the Government consider the feasible technological alternatives, analyze the costs associated with implementing a phaseout plan, evaluate the policy options, identify specific project possibilities, and recommend appropriate institutional coordination arrangements. International and national experts would work together with Government, industry and universities in the preparation of the country programme. It is anticipated that national technical expertise from the Technical Laboratory of Uruguay and from the Dept. of Engineering at the University of the Republic will be utilized. This activity would be assisted by a one-day seminar for public and private sector officials to discuss technical and financial implications for Uruguay, evaluate alternative policy options to implement ODS phaseout provisions at the national, sectoral, and industry levels, and discuss regulatory implications.

C) Training/demonstration programme in the air-conditioning and refrigeration sector (\$30,000). A one-week workshop targeting service technicians in this sector will focus on the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. This will be followed by a hands-on demonstration of recycling and conservation practices described in the workshop. This workshop/ demonstration would both increase technical awareness and demonstrate the technical capabilities of available instruments/technologies to further reduce emissions from systems that use current refrigerants. One international and one national expert will support this activity.

D) Workshop in aerosols (\$15,000). Preliminary activities would comprise reviewing ODS use in the aerosols sector, analyzing available appropriate technology alternatives, and then running a workshop to discuss alternative technology options which are well-tested. Due to safety problems associated with using hydrocarbon propellants, the workshop would include a review of needed safety procedures. This activity will be conducted by an international expert working with a national industry expert with possible LATU participation.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP has the lead role in Uruguay. The World Bank would be kept informed of any investment proposals that emerge from the country programme. UNEP and the World Bank would be kept informed about development of the country programme.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Assistance in the completion of the country study (\$13,050 from UNDP's 1991 programme)	-
b) Assistance in the formulation of the country programme and holding of a seminar for policy-makers and industry	30,000
c) Training/demonstration programme in the air-conditioning and refrigeration sector	30,000
d) Workshop in aerosols	<u>15,000</u>
Total	<u>75,000</u>

VENEZUELA

1. BACKGROUND

A UNDP consultant visited Venezuela during 25-27 September 1991. Meetings coordinated by UNDP/Caracas were held with the Ministry of Environment and Renewable Resources (MARNR), the Ministry of External Relations, and industry representatives.

Venezuela is an ODS producer and importer. Total 1990 ODS consumption was 5,500 tonnes of which three-fourths was domestically produced (CFC-11, CFC-12 and HCFC-22). The major end-use sector is air-conditioning and refrigeration which accounts for 75% of ODS consumption. The ongoing CFCs phaseout programmes in aerosols and foams have shown significant success to date.

2. COUNTRY PROGRAMME

The Government in 1989 initiated a study to explore three key areas: (a) ODS domestic production and consumption; (b) substitution possibilities; and (c) costs of substitution. The first two parts have been completed. USEPA has been assisting the Government in the third area above, in the identification of ozone protection projects and in country programme preparation. The World Bank may be requested to assist the Government in the preparation of the country programme with additional inputs from UNDP and UNEP. UNDP would also assist MARNR in determination of technical assistance and training needs.

3. PROPOSED 1992 ACTIVITIES AND OUTCOMES

- A) Training/demonstration programme in the air-conditioning and refrigeration sector (\$25,000). A one-week workshop targeting service technicians will cover the availability and technical aspects of devices such as recapture and recycling equipment, valve design and high-efficiency purge. This will be followed by a hands-on demonstration of recycling and conservation practices described in the workshop, focussing on the testing and repair of domestic refrigerators, and the management of central air-conditioning systems. One international and one national expert will support this activity.
- B) Public awareness campaigns focussing on repair of air-conditioners and domestic refrigerators (\$30,000). These two campaigns would target consumers needing domestic refrigeration and automobile air-conditioner servicing since 75% of ODS consumption occurs in these two areas. The campaigns could include posters, pamphlets, newspaper articles, etc. and would stress the effects of refrigerant emissions on the ozone layer and techniques that servicemen can use to capture such emissions. The budget would cover design, production and distribution of material. This would be a joint UNDP/UNEP activity.
- C) Feasibility study on the recycling of halons (\$20,000). It would analyze existing data, review the operations of portable fire extinguisher repair and recharging shops, and specify needed recycling facilities and costs. It would be implemented jointly by one international and one national expert.

- D) Seminars/demonstration programme for fire extinguisher manufacturers and service technicians (\$25,000). Following the feasibility study, two 2-day seminars would be held at different sites for fire extinguisher manufacturers and service technicians. The first day would focus on equipment modifications required is ODS substitutes are to be used, and measures that can help minimize ODS consumption. The second day would comprise a practical demonstration of new methods and equipment for the repair/recharging shops. About one-third of the budget would be for facilities and equipment. One international and one national expert would help implement each seminar.

4. CONSULTATIONS WITH THE WORLD BANK AND UNEP

UNDP is cooperating with the World Bank in assisting the Government in the development of its country programme. UNEP would be invited to be involved in UNDP's training and public information activities.

5. <u>SUMMARY OF UNDP 1992 WORK PROGRAMME ACTIVITIES</u>	US\$
a) Training/demonstration programme in the air-conditioning and refrigeration sector	25,000
b) Public awareness campaigns focussing on repair of air-conditioners and domestic refrigerators	30,000
c) Feasibility study on the recycling of halons	20,000
d) Seminars/demonstration programme for fire extinguisher manufacturers and service technicians	25,000
Total	100,000

UNDP HEADQUARTERS TECHNICAL SUPPORT AND PROGRAMMING ACTIVITIES

<u>Expenditure Category</u>	<u>US\$</u>
1. Salaries of professional, technical, clerical and administrative staff including compensating UNDP field offices for time spent on activities	270,000
2. Travel and subsistence costs of professional and technical staff on official missions	50,000
3. Consultant fees for country technical backstopping missions and for 1993 work programme formulation	200,000
4. Consultant travel and subsistence costs	50,000
5. Miscellaneous including telecommunications charges, equipment and supplies	30,000
<u>Total</u>	<u>600,000</u>