



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/19/62
12 April 1996

ORIGINAL: ENGLISH

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

Nineteenth Meeting
Montreal, 8-10 May 1996

**TRAINING STRATEGY OPTIONS FOR THE PHASE-OUT OF
OZONE DEPLETING SUBSTANCES UNDER THE MULTILATERAL FUND**
(Submitted by UNEP)

**TRAINING STRATEGY OPTIONS
FOR THE PHASE-OUT OF OZONE DEPLETING
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UNDER THE MULTILATERAL FUND**

**UNEP IE OzonAction Programme
under the Multilateral Fund**

March 1996

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* Due to space limitations, these annexes are not included here. They are available from UNEP upon request.

1. INTRODUCTION

1.1 The Remit

- 1.1.1 The Executive Committee of the Multilateral Fund, at its 9th Meeting in March 1993, requested that UNEP prepare and submit a paper on Training Strategy which would propose options for the cost-effective delivery of training under the Multilateral Fund in order to phase-out ozone-depleting substances (ODS).

1.2 The Background

- 1.2.1 In the context of Country Programme implementation, ODS phase-out activities supported by the Multilateral Fund fall under two broad categories: investment projects and support activities.
- 1.2.2 Support activities contribute to effective decision-making and facilitate the implementation of investment projects. These support activities are, among others, awareness raising, training and information dissemination. Support activities are not "stand-alone" activities, rather they are integral parts of the ODS phase-out process. In their absence, the implementation of investment projects would be more uncertain, slower and more costly for the developing countries.
- 1.2.3 Article 10 of the Montreal Protocol specifies that the Multilateral Fund shall finance clearing-house functions to inter alia "distribute information and relevant materials, and hold workshops, training sessions, and other related activities, for the benefit of Parties that are developing countries....".
- 1.2.4 As experience with training activities has grown, the need to develop a recognised training strategy has become increasingly apparent as a prerequisite for developing a consensus view on how to use Multilateral Fund resources efficiently for meeting training needs that are specifically targeted on the phase-out of ODS.

1.3 Rationale for a Training Strategy

- 1.3.1 The importance of training in the ODS phase-out process has been supported by the UNEP Technology and Economic Assessment Panel (Dr Lambert Kuijpers, TEAP Co-Chair: correspondence with UNEP IE):
- "Training is essential in order to provide information and skills to all those in Government, industry and other organisations involved in the implementation of the Montreal Protocol, particularly in developing countries."
- 1.3.2 The UNEP Economic Options Committee, in its 1995 Assessment Report, stated that

- "...successful technology transfer is unlikely without structured training programmes..."

1.3.3 The Multilateral Fund Secretariat has stated the following:

- "Training activities can be targeted at decision-making groups to strengthen their capabilities in programme design and at technical personnel in the industry sectors to enhance their skills in the use of alternative ODS technologies, conversion and recycling techniques." (MFS, "Information Kit of the Multilateral Fund).
- "A most important need at this point is to consolidate and synthesise information on [the] numerous training programmes with a view to providing co-ordination and translating inputs from them into a training strategy and training materials relevant to the Article 5 countries' situation" (UNEP/OzL.Pro/ExCom/9/10, paragraph 9).
- "UNEP will continue to work to crystallise the training strategy to integrate the training activities of various implementing agencies to optimally utilise the cost, time and human resources." (UNEP/OzL.Pro/ExCom/9/10, pg.20, section 2.2.6).

1.4 Objectives of a Training Strategy

- The ultimate objective of training is to reduce and eliminate the use and emissions of ODS which requires that policy-makers and decision-makers are well-informed and capable of evaluating and using information about ODS phase-out, and related technical matters;
- It is intended that a Training Strategy will serve as a guide for the Implementing Agencies in undertaking all future training activities, thus facilitating the effective use of the MF for the phase-out of ODS;
- It should be based on technical and policy information about training needs and rooted in knowledge of effective training methods and should reflect sensitivity to differences in culture and technology of developing countries; and
- It should acknowledge that training in developing countries has several target groups and should be aimed at:
 - (a) capacity building;
 - (b) general sector training; and
 - (c) sectoral training within investment projects that is required to help operate and maintain new equipment.

1.5 The Process by which Training Strategy Options were developed

- 1.5.1 **DATA COLLECTION:** UNEP IE co-ordinated an extensive process to gather the information required for developing a Training Strategy. This information base draws on the past experiences and lessons learned from completed training projects. Information from Agencies' cumulative efforts to identify the capacities and needs of developing countries with respect to their implementation of the phase-out measures under the Montreal Protocol was collected. (see Annex 2). The process of developing this information has been enriched by the complementary use of a survey questionnaire and personal interviews with those currently engaged in the implementation process in Article 5 countries (see Annex 3). Consultants were retained to facilitate this process under the guidance of UNEP IE and the advice of a small number of independent regional advisers (see Annex 1). The Consultants' final report, "Training Strategy for the Phase-out of Ozone Depleting Substances", was presented to UNEP IE in January 1996 (see Annex 4).
- 1.5.2 **REVIEW AND ANALYSIS:** Following the submission of the Consultants' Report, a draft paper on Training Strategy Options was submitted by UNEP IE to the Informal Advisory Group to the OzonAction Programme (IAG)¹ for its views and recommendations for finalising the Training Strategy Options paper. The IAG reviewed the Training Strategy options put forward in the draft paper and made important suggestions for making better use of existing training resources (see Annex 5). The IAG's suggestions have been incorporated into this paper.
- 1.5.3 **SECTOR AND ISSUE-BASED NEEDS:** Review and analysis resulted into a matrix of sector and issue based needs (see Annex 6).

2. PROPOSED TRAINING STRATEGY OPTIONS

2.1 Introduction

- 2.1.1 This section describes the four Training Strategy Options considered by the IAG and then presents a summary of the principal conclusions agreed by the IAG on its preferred approach to the development of a Training Strategy. It should be noted that the options share some common elements.

It is important to recognize that regardless of which option is eventually selected, a number of specific sector-and issue-based training needs must be taken into account.

2.2 Option 1: Informal Co-ordination: Current Practice

¹ The IAG is an annual advisory body convened by UNEP to review and provide input to UNEP's proposed work programme. The IAG is composed of representatives from National Ozone Units in Article 5 countries, ozone officers from non-Article 5 countries, the Chairman and members of the Executive Committee, the MFS, Implementing Agencies, TEAP/TOC Co-chairs and members, industry, and NGOs. UNEP convened a special session of the IAG to specifically discuss the Training Strategy.

2.2.1 The key features of Option 1 are as follows:

- Co-ordination and evaluation functions are intended to be carried out by the Implementing Agencies. Proposals for training and other projects are reviewed by the Multilateral Fund Secretariat to avoid overlaps in activities and to ensure that they meet all of the policies and criteria that have been defined by the Executive Committee for that purpose;
- Identification of country training needs through the formulation of Country Programmes, with direct involvement of the country, and input of non-local consultant and Implementing Agency; and
- training processes are based on different Executive Committee guidelines, Implementing Agencies philosophies, and past experiences.

2.3 Option 2: Informal Co-ordination: Restricting Training to Investment Projects Only

2.3.1 The key features of Option 2 are as follows:

- Co-ordination and evaluation functions carried out by the Multilateral Fund Secretariat, taking into account all the criteria that have been defined by the Executive Committee, through the different guidelines for that purpose;
- General ODS awareness training and other training activities do not take place under the Multilateral Fund;
- Identification of training needs at the enterprise level, with involvement and input of technology/equipment supplier and possibly the Implementing Agency; and
- Training processes based on established practices of the technology/equipment supplier and recipient.

2.4 Option 3: Enhanced Co-ordination: Making Better Use of Existing Training Infrastructures

2.4.1 The key features of Option 3 are as follows:

- Enhancement of the co-ordination function carried out under the Multilateral Fund, taking into account all the criteria that have been defined by the Executive Committee, through the different guidelines elaborated for that purpose;
- Identification of country training needs and preparation of training programmes through the existing and updated Country Programmes, with direct involvement of the country (NOUs through Institutional

Strengthening projects) and the input of local trainers and training infrastructure as well as from non-local consultants, the Implementing Agency, and the Regional Network Co-ordinator;

- Enhanced use of existing training infrastructures for assessment of training needs, exchange of training experiences and identification of sub-regional activities through the Regional Networks and a new Training Advisory Committee to advise the Executive Committee on the cost-effective implementation of the recommended Training Strategy; and
- Development of modular (i.e. "on-the-shelf" sector-specific and general sectoral training materials that can be adapted by countries to fit their specific needs) as well as tailor-made (i.e. training materials specially prepared to address country-specific needs) processes for all aspects of training design, materials development, delivery, evaluation, and reporting.

2.5 Option 4: Formal Co-ordination: A Centralised Training Programme under a Senior Level Training Co-ordinator

2.5.1 The key features of Option 4 are as follows:

- Establishment of a new senior level training co-ordinator function and the designation of an existing organisation to house this function;
- Development of an organisational support infra-structure, under the guidance of the training co-ordinator, to allow the participating organisations to function as a co-ordinated team in the delivery of training services;
- Development of country specific training strategies which will become the primary vehicle for identifying training needs and target audiences in Article 5 countries;
- Development of centrally organised, rigorous, and professionally recognised processes for all aspects of training materials; and
- Development, delivery, evaluation, reporting, and the means of sharing this information with the broadest possible audience.

3. ASSESSMENT OF THE TRAINING STRATEGY OPTIONS

3.1 Assessment Criteria

3.1.1 The training strategy options must be assessed against a common set of criteria in seeking to establish their rank order of preference. The key criteria are as follows:

- ***ODS phased-out***: expected contribution to meeting national commitments

under the Montreal Protocol;

- *effectiveness*: degree to which the specific objectives of training programmes are achieved; and
- *cost-effectiveness*: minimising the cost of meeting specific training objectives to approved standards.

3.1.2 **ODS Phased-out.** The ultimate objective of activities under the Multilateral Fund, including a Training Strategy, is to phase-out ODS.

3.1.3 **Effectiveness.** The effectiveness of the training strategy options in meeting their specific objectives (i.e. the assessment criteria) would be influenced by several factors. For ease of presentation, these factors are grouped under the following three categories:

Local Resource Mobilisation

- degree of local ownership of training activities
- training needs identified through local training infrastructure
- target audiences identified through local training infrastructure
- local preparation of training materials in local languages
- use made of local experts as trainers
- use made of local training infrastructure
- use made of local business networks

External Resource Mobilisation

- access to a service-oriented resource centre for training materials and other resources
- access to modular training programmes
- access to project templates
- access to central register of expert ODS trainers
- access to a query/reply service
- access to a "lessons learned" service based on case studies of "what has and what hasn't worked"
- access to funding for training activities in Article 5 countries

Co-ordination of training activities

- between the Implementing Agencies and the Executive Committee
- between Implementing and Bilateral Agencies
- within and between Regional Networks of NOUs
- to develop common training methodologies
- to ensure access to a service-oriented central resource centre for training materials and other resources

- 3.1.4 **Costs-effectiveness.** The various training strategy options could be expected to differ on the costs of administration, service provision, co-ordination, training materials, and on the design and delivery of training activities. Given limited resources, the costs and benefits of training activities under the Multilateral Fund influence decisions on their funding project approvals. Funding approvals of training activities reflect judgements on the extent to which the cost-effective implementation of the proposed training activities contribute to meeting the Article 5 country's ODS phase-out commitments under the Montreal Protocol.

3.2 Summary of the Assessment of the Options

- 3.2.1 **Option 1.** Evidence of important short-comings of the current approach to training has been presented. Some of the required improvements could be realised by incremental change within the current approach. However, the more substantial changes embedded in Options 3 and 4 could be expected to do much more to improve effectiveness and, in the case of Option 3, at lower cost due to the more extensive use of local trainers, local training infrastructures and local business networks; whereas Option 4 would be likely to raise costs and slow the pace of change due to the introduction of a more bureaucratic approach to the design and delivery of training.
- 3.2.2 **Option 2.** Restricting training to investment projects would reduce costs and bureaucratic delay relative to the other options, but its highly specific nature would have adverse consequences for the mobilisation of local and external resources and for their co-ordination leading to delays in ODS phased-out.
- 3.2.3 **Option 3.** This option could be regarded as a more cost-effective way of realising the potential benefits associated with Option 4 in that it avoids the costs and delays associated with establishing additional bureaucracy by relying on more effective co-ordination through existing decentralised systems for the design and delivery of training. The costs associated with enhanced co-ordination might rise relative to the current approach, as represented by Option 1, but Option 3 could be expected to generate off-setting savings through the more efficient use of existing training materials and local training infrastructures and resources.
- 3.2.4 **Option 4.** The increased administrative costs and delay associated with the centralisation of responsibility for the design and delivery of training under a senior level co-ordinator are likely to dominate the benefits of this response to the short-comings of the current approach to training.

4. **THE VIEWS OF THE INFORMAL ADVISORY GROUP**

4.1 The IAG's Assessment of Training Strategy Options

As indicated in the Terms of Reference, the Informal Advisory Group is one of the important inputs into the process of the training strategy formulation. The Informal Advisory Group deliberated on all the four options. Its consensus view was that the Consultants' recommended Training Strategy (i.e. Option 4) did not

offer an acceptable way forward; it would increase bureaucratic delay and costs and reduce flexibility in the design and delivery of training activities (see Annex 5 for complete details of the IAG meeting). The most promising way forward, the IAG viewed, would be the Training Strategy option that concentrated on making better use of existing training infrastructures (i.e. Option 3) to increase the effectiveness and reduce the costs of training activities.

The IAG's Suggestions for Making Better Use of Existing Training Infrastructures

- Better co-ordination among stakeholders to increase cost-effectiveness through developing mechanisms for:
 - * sharing information on "lessons learned" on what does and what doesn't work;
 - * cost-effective scheduling of resource use; and
 - * ensuring that the delivered training is necessary for the recipient country to meet its commitments under the Protocol.
- "Ownership" of training activities should be taken by local stakeholders in the recipient countries:
 - * identification of training needs should be the responsibility of local stakeholders with assistance, as required from Implementing and Bilateral Agencies;
 - * guidelines should be made available to NOUs to facilitate effective co-ordination with local stakeholders and local training resources in designing, delivering, and the following-up of training activities;
- Design and delivery of training should conform to accepted principles and procedures that would improve:
 - * consistency between proposals for training activities e.g. on substance and process;
 - * use of training resources from the common pool with adaptations to country specific needs as required;
 - * monitoring, evaluation, reporting and follow-up of training activities; and
 - * the use of the Regional Networks of NOU officers to design and deliver regional and sub-regional training activities.

5. RECOMMENDATIONS

UNEP synthesized various inputs and assessments.

Option 3 emerged from the assessment process as the most preferred option as compared to the other three. Moreover, this option most closely conforms to the views expressed by the IAG. Therefore, it is recommended that Option 3 should form the basis for the further development of the elements to put into place the Training Strategy.

5.1 Towards the Implementation of Option 3

If the Executive Committee decides to accept Option 3 as the basis for the further development of the Training Strategy, it may wish to offer guidance, on *inter alia* certain aspects of the implementation issue. Some of the key implementation issues are related to:

- a) ensuring effective co-ordination;
- b) effectively identifying training needs through direct involvement of NOUs;
- c) enhanced use of existing infrastructures for monitoring and evaluation; and
- d) developing "modular" and "tailor-made" training materials to meet countries' needs.

These issues are presented in detail in Annex 8 for the consideration of the Executive Committee.

TERMS OF REFERENCE

Consultant to prepare "Training Strategy for the Phase-out of Ozone Depleting Substances" under the Multilateral Fund (MF).

1. **Objective:** Under the supervision of the Director of the UNEP Industry and Environment Office (UNEP IE) and the Coordinator of the OzonAction Programme of UNEP IE, the consultant will prepare a "Training Strategy for the Phase-out of Ozone Depleting Substances" as part of UNEP's activities for the protection of the ozone layer under the Multilateral Fund (MF) for the Implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer. The draft strategy will be presented to the Executive Committee of the Multilateral Fund for its consideration.

It is intended that the training strategy will serve as a guide for the implementing agencies and the MF Secretariat in undertaking all future training activities, thus facilitating the effective use of the MF for the phase-out of ozone depleting substances (ODS).

2. **Background:** Parties to the Montreal Protocol have established the MF to assist the developing countries to phase-out ODS. Four implementing agencies (UNEP, World Bank, UNDP and UNIDO) are assisting the MF in this process of phase-out of ODS. One of UNEP's tasks is to develop the above-mentioned training strategy.

Training is essential for providing information to, and developing skills in, actors and stakeholders in government, industry, and other organizations in developing countries involved in the implementation of the Montreal Protocol. The ultimate objective of training is to reduce and eliminate the use and emissions of ODS. This requires that the policy-makers and decision-makers are well informed and capable of evaluating and using information about ODS phase-out, and related technical expertise.

Training in developing countries has several target groups, and should be aimed at:

- (i) capacity building, focused more towards the transfer of information, to help develop a more mature infrastructure for sound decision-making for the phase-out of ODS;
- (ii) general sectoral training (sectors being: Refrigeration, air conditioning and heat pumps; Aerosols; Halons; Foams; Solvents, coatings and adhesives; and Methyl bromide). This should usually occur before the commencement of investment projects in industry, to inform on available technical options and enable sound judgements when selecting an option;
- (iii) sectoral training within investment projects, required to help operate and maintain new equipment. This is complementary to capacity building and general sectoral training.

3. **Process:** UNEP IE is responsible for coordinating the work of the consultant, and ultimately the development of the training strategy.

UNEP IE will set up a small Advisory Committee to help develop and direct the consultant's work. This Committee is intended to provide knowledgeable guidance, and may consist of representatives from the implementing agencies, the MF Secretariat and bilateral organization(s).

In addition, UNEP IE will facilitate consultation with a more extensive group of people, to obtain their views/inputs by correspondence at strategic times during the consultancy. This group may consist of:

- * other organizations involved in training for the phase-out of ODS;
- * expert(s) from each sector;
- * regional (developing country) representation, including National Ozone Units;
- * other training experts.

4. **Content:** The training strategy will be based on technical and policy information about training needs and rooted in knowledge of effective training methods. It should reflect sensitivity to differences in culture and technology of developing countries.

The training strategy, for expeditious and cost-effective phase-out, will take into account issues such as:

- * regional/sectoral information and training capabilities available for ODS phase-out;
- * regional/sectoral technical information needed and types of training required for ODS phase-out (e.g. training for: awareness, technical/sectoral, and within investment projects) and their content, technical level and target audiences in different regions/sectors. This encompasses training for capacity building to facilitate investment projects' development and implementation;
- * training materials required;
- * training modalities used by, and problems encountered by different regions and sectors;
- * post-training support required.

NB. *Regional* - refers to the (developing) regions to be covered by the training strategy: Africa; Asia; West Asia; and Latin America.

5. **Tasks:** The consultant in charge must ensure that the correct training alternatives and directions will be considered. They will coordinate all activities outlined in these terms of reference. The following sequence of tasks for the consultant is proposed, based on the schedule attached as Annex I.

Phase-I: Familiarization, review and evaluation of activities already approved under the Multilateral Fund:

Consultant will discuss, with the implementing agencies and their consultants (such as key sectoral experts), the existing training activities under the MF, and review relevant reports provided by implementing and other agencies, including:

- * the reports by UNEP's Technology and Economics Assessment Panel and the Technical Options Committees;
- * completed country programmes for ODS phase-out;
- * training activity reports from implementing agencies (including training which is completed and ongoing, and training within investment projects);
- * the 1993 UNEP document "Training Approach for Phase-Out of Ozone Depleting Substances";
- * "Study on the Financial Mechanism of the Montreal Protocol". COWIconsult, March 1995.

In this context, the consultant will review and evaluate the training activities already funded by the Multilateral Fund, and will develop the methodology for proceeding with Phase II in consultation with UNEP IE and the Advisory Committee.

Phase-II: Study for information collection and formulation of strategy -

Collection of information, compilation, analysis, interpretation & formulation of training strategy by the consultant. This will include:

- a. **Discussions with implementing agencies and bilateral organizations** about training requirements for ODS phase-out.
- b. **Drafting a plan for the study and table of contents** for the training strategy (to show the basic approach). The plan for the study should be on a regional/sectoral basis, to determine technical and training information required. Possible elements for inclusion in the study are suggested in Annex II.
- c. **Finalizing the plan for the study and table of contents for the training strategy.** The Advisory Committee to comment on the study plan and the table of contents for the training strategy, enabling the consultant to make appropriate modifications and finalize them.
- d. **Carry out the study:** The consultant will gather information on regional and sectoral technical information and training requirements. The consultant may need to draft a series of questions, in liaison with sectoral experts, to follow so that consistent information is obtained. The consultant should propose who to contact for this information, but it would include:
 - * some national focal points on ozone;
 - * implementing agencies and the Secretariat of the MF;
 - * training institutes;
 - * relevant industry and/or professional organizations;

- * major industry managers;
- * NGOs and labour unions.

During the study, the consultant will begin developing the training strategy.

- e. **Reporting on the study findings**, by the consultant, covering the technical and training information gathered.
- f. **Advisory Committee commenting on the study report and on the draft training strategy** prepared by the consultant in light of the study findings.
- g. **Draft training strategy** revised by the consultant.
- h. **Discussions with UNEP IE and other implementing agencies** on the revised TS.
- i. **Revised draft training strategy submitted by UNEP IE to MF Executive Committee meeting (23 - 25 October 1995)** for comments.

Phase-III: Finalization of Training Strategy: during November/December 1995:

- a. The consultant revises training strategy in light of comments received from the Executive Committee.
 - b. Review of the finalized strategy by the Advisory Committee.
6. **Consultant's schedule:** In order to prepare the training strategy as indicated above, the consultant will:
- * prepare an initial time schedule for their activities, for submission to UNEP IE for monitoring;
 - * Liaise closely with the Coordinator of the OzonAction Programme (UNEP IE) in Paris, at all stages, until completion of the training strategy.

ANNEX I
PROPOSED SCHEDULE FOR THE TRAINING STRATEGY (TS)

JUNE

- Contract in place.
- Start studying information/reports sent by implementing agencies.

Phase I begins.

- Discussions with implementing agencies and others.

JULY

Phase I continues.

- Discussions, review and evaluation of past training activities, and development of outline of study and TS.

Phase II begins.

- Discussions with implementing agencies, and draft study plan and draft TS outline/structure.
- Review of study plan and TS outline/structure by Advisory Committee.
- Carrying out study and developing TS.

AUGUST/ SEPTEMBER

Phase II continues.

- Consultant completes study, prepares study report and drafts TS.
- Advisory Committee to review the study report and draft TS.
- Consultant revises TS.
- Discussion with UNEP IE and other implementing agencies to review TS in light of changes resulting from comments received.
- Consultant finalizes the draft TS, with UNEP IE.

MID-SEPTEMBER

Submission of draft to Executive Committee.

OCTOBER

- Comments by Executive Committee.

NOVEMBER/DECEMBER

Phase III - finalization.

- Consultant revises TS in light of comments received from Executive Committee.
- Review of finalized strategy by Advisory Committee.

ANNEX II

POSSIBLE ELEMENTS TO BE INCLUDED IN THE PHASE II STUDY

- (i) the structure for the training strategy, for example: a common strategy with components for each region, and for sectors within regions; or perhaps a strategy consisting of different sub-strategies for each sector.
- (ii) identification of training target groups.
- (iii) identification of the role expected from target groups in ODS phase-out.
- (iv) identification of the present level of training received by target groups, and the level of training required to perform their expected roles.
- (v) identification of alternative training directions/approaches/methods etc that could cost-effectively fill any gaps in training.
- (vi) assessment of availability of resources for meeting training needs (such things as human resources, training materials, infrastructure etc).
- (vii) assessment of resources required for meeting training needs, and how to fill any gap between this requirement and the resources which are available.
- (viii) assessment of financial resources required to fill such a gap.
- (ix) identification of methods of assessing the effectiveness of training.
- (x) identification of post-training support needed.
- (xi) identification of how to provide self-help to low-ODS-consuming countries. As many such countries become Parties to the Montreal Protocol, it could be cost-effective and manageable to help them, by providing material to their National Ozone Units that would allow them to do the preliminary organization and investigations to aid them in determining their needs and planning their own programmes before calling in the implementing agencies.
- (xii) assessment of different language/translation requirements to be incorporated in the training strategy.

THE INFORMATION BASE FOR DECISION-MAKING

This annex presents the results of the major information gathering and analysis activities which have contributed to the substance of the Training Strategy Options paper.

A.2.1 Methodology

Methodology. The methodology for this work was embedded in the following sequence of actions:

- draft and finalise the Terms of Reference for the work in consultation with the Multilateral Fund Secretariat, Executive Committee members, the other implementing agencies and bilateral agencies;
- form the project team, including technical experts and regional advisers;
- analyse training activities to-date through review of existing literature (including 10 UNDP reports, 28 from UNEP, and 6 from USEPA) and discussions with Implementing Agencies (16 representatives) and 5 sectoral experts;
- analyse the results of the survey questionnaire and the reports of the Technical Options Committees (TOCs) to identify key sectoral and issue-based training needs;
- analyse the feedback and the needs of key stakeholders in Article 5 countries through field visits to Bangkok, Buenos Aires, Dakar and Montevideo that included 24 interviews;
- formulate and propose Training Strategy options; and
- determine the criteria for assessing options.

A.2.2 Team formulation

UNEP appointed a project team to conduct the research required to formulate the training strategy. This team was comprised of:

- Ms Marion Cox, ReSource Associates (USA). Consultant with expertise in environmental management and training, responsible for conducting extensive field research, analyzing data, and developing strategy proposals; and

- Mr. Claude Croizer, Fondation Universitaire Luxembourgeoise (Belgium). In-house consultant based at UNEP IE with expertise in training and environment and experienced in educational training in developing countries, responsible for coordinating the work of ReSource Associates, assisting them in conducting survey and additional research through both questionnaires and field work (during UNEP and bilateral training events).

Additionally, ReSource Associates, under the advice of, and in consultation with, UNEP, assembled a group of experts in various training fields:

- Ms Andrea Hinwood, Monash University (Australia), former member of the UNEP Aerosol Technical Options Committee;
- Dr Youba Sokona, ENDA-Energy (Senegal), Regional Advisor for Africa, experienced in environmental training;
- Ms Maria Gomez, National Institute of Industrial Technology (Argentina), Regional Advisor for Latin America, experienced in training and investment projects under the Multilateral Fund, and a technical expert in refrigeration; and
- Dr C. Visvanathan, Asian Institute of Technology (Thailand), Regional Advisor for Asia, experienced in environmental training in cleaner production.

Dr. Lambert Kuijpers, Co-Chair of UNEP Technology and Economics Assessment Panel (TEAP), provided consultative input to ReSource Associates through interviews and comments during the formulation of the training strategy.

Meeting of the Informal Advisory Group was convened on 15 February 1996 to discuss and review the draft Training Strategy Option paper and to provide input. The members of the IAG were, Mr Anil Agarwal, Dr Omar El-Arini, Dr Delfin Ganapin, Ms Maria Lucia Gomez, Mr Paul Horwitz, Ms Ingrid Kokeritz, Dr Lambert Kuijpers, Mr Liu Yi, Mr Timothy M'mella, Mr Geno Nardini, Mr Frank Pinto, Mr Alvaro Rodriguez, Mr K Sarma, Mr Hugo Scally, Mr James Shevlin, Mr Robert Shooter, Mr S Si Ahmed, Mr David Stirpe, Mr Gary Taylor, and Dr Robert Van Slooten.

Dr Robert Van Slooten, Chairman of UNEP Economic Options Committee (EOC) and member of TEAP, provided assistance and guidance in addressing comments of the IAG in the final version of this paper.

A2.3 Overview of Training Activities to Date

- A2.3.1 Funding.** By the end of 1995, the Executive Committee had approved funding of US\$ 9 million (i.e. 2.2% of cumulative funding

approvals) for self-standing training activities. An estimated additional US\$ 3.2 million has been allocated to the training components within specific investment projects yielding total training funds of about US\$ 12.2 millions.

A2.3.2 Number of projects. In 1993, when the Executive Committee approved the formulation of a Training Strategy, there were only 24 training projects approved and 8 completed. By the end of 1995, there were 89 training projects approved and 47 completed.

A2.3.3 Regional distribution. In terms of the distribution of training projects by region, Asia and the Pacific Region and the Latin America and Caribbean Region have been allocated substantially more projects and funding than Africa which reflects the former Regions' much higher levels of ODS consumption and production (see Figure 1).

A2.3.4 Sectoral allocations. The refrigeration and "Several" sectors have received the overwhelming share of project approvals (41.1% and 33.3%, respectively). The other sectors, in contrast, have accounted for only a very small proportion of total training projects and only a modest level of funding allocation (see Figure 2).

A2.3.5 Implementing Agencies. UNDP and UNEP have had the largest numbers of training projects approved and completed; bilateral projects have had shares of approvals and completions almost as large. In contrast, the World Bank accounts for only 6.7% of approved projects (see Figure 3). However, the World Bank, UNDP and UNIDO, but not UNEP, also carry out training as integral components of investment projects. These training activities are delivered by technology or equipment suppliers and are related to "operational" training for manufacturing facilities or the use of hardware, respectively.

Regarding regional shares, Africa has mainly benefited from UNEP training projects, whereas Asia and the Pacific and Latin America and the Caribbean have benefited primarily from UNDP and bilateral training projects (see Figure 4).

A2.3.6 New challenges. Even as the implementation process in the developing countries has gathered pace since 1993, new challenges are emerging for Article 5 countries that require special training initiatives, especially for low-volume ODS-consuming countries (LVCs), and also for small-and medium-sized enterprises (SMEs).

A2.4 Analysis of Findings: Evidence from the Consultants' Survey Questionnaire and Interviews

- A2.4.1** Training developed by the Implementing Agencies. The analysis of findings presented below is based on a review of literature and discussions with the Implementing Agencies.

Training provided through UNDP.

UNDP has completed 27 out of 29 training projects approved to-date. Training needs are identified through Country Programmes or directly through funding requests. UNDP then uses the expertise of the TEAP/TOC members for designing (and later conducting) the training, but relies more on international experts from private industry.

UNDP develops training courses by determining the objectives, target trainees, approach, expected results and follow-up actions. Both the "train-the trainers" and "train-the-individuals" approaches are used, however UNDP uses the latter more frequently. Involvement of local experts is undertaken by developing partnerships with government and industry.

Apart from above, UNDP undertakes training as part of their recovery and recycling and investment projects. Since 1994, UNDP has not undertaken any major stand alone training activities.

Training provided through UNEP.

Training is part of UNEP's mandate as an implementing agency.

UNEP has completed 28 training projects out of 31 approved to-date, which have benefited participants representing government, industry, industry associations, training institutes, NGOs and other target groups from a total of 82 countries; 16% of these courses have been on general ODS-related issues, 60% on sector-related training and 24% on issue-related training; 12% of the training has been conducted for the LAC Region, 38% for the SEAP Region and 50% for the African Region.

UNEP's methodology for conducting training programmes is essentially the same as that described for UNDP above and relies mainly on "train-the trainer" and regional approaches.

UNEP's approach also includes the drafting of recommendations by the participants, an evaluation of the workshop, a follow-up action plan, and the production of a final report for distribution to the participants.

Training provided through UNIDO.

To-date, UNIDO has had only one approved training project (approved in 1993); it has not yet been completed. It has several Investment and Technical Assistance projects having training elements. UNIDO views training as an integral component of its on-going technical co-operation and investment activities, and considers it to be an effective way to achieve major objectives in industrial human resource development. It also sees as beneficial the policy-related training, the "train-the-trainer" approach, and the inclusion of entrepreneurs within the target audiences.

UNIDO has also participated in training programmes of other Implementing Agencies.

Training provided through the World Bank.

The World Bank had two training projects approved in 1991, one in 1992, two in 1994, for a total of five training projects. Of these, none has been completed so far.

The World Bank supports "national execution" by involving national intermediaries and international consultants in the training.

Many of the Bank's training activities are concerned with the formulation of investment project proposals.

Training is also provided as integral components of investment projects that are being implemented by the World Bank, often through the technology or equipment suppliers directly to the user of the technology or equipment.

Training materials prepared by Implementing Agencies. There is limited information available concerning training materials produced by Implementing Agencies or Bilateral Agencies. A less than comprehensive list of training materials produced by the Implementing and Bilateral Agencies can be found in Annex 8.

A2.4.2

Evaluation of training needs. These findings are based on the results of the Consultants' survey questionnaire and on a review of the latest TOC reports.

A number of the key findings concerning sector-specific and issue-based training needs emerged from the survey results and review of the latest TOC reports. These findings are presented in detail in Annex 6 where they are classified according to sector, target groups, and training needs.

Emerging sectors related to newly controlled substances such as methyl bromide and HCFCs are not included as they were not controlled at the time this strategy paper was formulated. Documented experience with these substances in developing countries is very limited.

- A2.4.3 Findings resulting from the Consultants' interviews and visits in the regions. The main findings of these interviews and visits can be summarised as follows:

Target Audience

The target audience is expanding and training needs are changing. Country Programmes are not necessarily the best source for identifying training needs; in practice, training needs are more often identified by Implementing Agencies and their consultants often without due consideration of the country's perception of its priority training needs. No adequate effort has been made to make use of, or train, local experts; by way of contrast, recent efforts by UNEP to make use of existing local member networks of the Air Conditioning and Refrigeration Institute (ARI) and the International Institute of Refrigeration (IIR) have produced good results.

General awareness training should be carried out before providing hands-on-training; this is especially necessary in the training for SMEs. Local industry associations, local training industries and existing government structures are not adequately used to promote general awareness nor for identifying and screening potential trainees; examples of "good practice" were provided by recent training in Senegal, Cote d'Ivoire and Burkino Faso. The effectiveness of "train-the-trainer" programmes has been restricted by a lack of resources to make effective follow-up possible.

The Article 5 countries have not taken "ownership" of the training programmes that they host, nor have they committed themselves to effective follow-up activities.

Awareness

General awareness training is not a "one-time exercise" as needs change continuously as the ODS phase-out process progresses. Once general awareness has been achieved, training must focus on the specific local needs of carefully targeted audiences.

Regional Training

The effectiveness of general training at the regional level has diminished as the implementation of ODS phase-out has progressed, although its continuing value is recognised for those countries facing similar problems at similar stages in the phase-out process e.g. training of customs officers.

Training Materials

Training materials produced by the Implementing Agencies are not adequately adapted for the specific needs of individual countries (a notable exception is Ghana's preparation of its own manual based on UNEP's training manual), and translation into local languages is seldom available; examples of "good practice" are the French, Spanish and Chinese translations of the Good Practices in Refrigeration manual.

Investment Project Training

Investment project training is very well targeted on ODS phase-out, but is not sufficient on its own given its narrow focus and limited audience. There is no mechanism to extend the scope of "investment training" to wider issues or audiences; it does not cover training required to set up safety standards, policies, monitoring and reporting systems or "good practice" for the servicing sector.

Bilateral Training

Bilateral training is especially useful for transferring specific technologies proven in supplier countries. However, inadequate participation of Implementing Agencies in bilateral training activities limits the transfer of the benefits of such training to other Article 5 countries.

Implementing Agencies

Lack of co-ordination between the Implementing Agencies can result in inconsistent approaches to training that addresses the same or similar tasks. Competition between Implementing Agencies has led to training activities becoming exercises in project preparation for specific investment projects.

Regional Networks

The potential contributions of the Regional Networks to training and subsequent follow-up activities have not been fully exploited.

A2.4.4 Evaluation of the results of past training activities. These findings were based on a review of literature and discussions with Implementing Agencies. No quantitative estimates of ODS reduction due solely to completed training activities are available. However, the consensus view is that training is an essential contributing factor to actions that reduce ODS directly. For example, training in "good practices" in sectors such as refrigeration and solvents makes some reduction in ODS use possible, even in the absence of investment projects. The recent sharp acceleration in investment project approvals under the Multilateral Fund can be attributed, in part, to the success of completed training activities.

A2.5 The Consultants' Report.

- A2.5.1** The Consultants' final report was submitted to UNEP IE in January 1996 under the title "Training Strategy for the Phase-out of Ozone Depleting Substances". The report presents a review of the current approach to training, the key points of which are presented above, and recommends a Training Strategy. Other training strategy options were not presented in the Consultants' report. The Consultants' recommended Training Strategy is presented as Option 4 in this paper i.e. Formal Co-ordination: A Centralised Training Programme under a Senior Level Training Co-ordinator.

Figure 1

TRAINING PROJECTS BY REGION

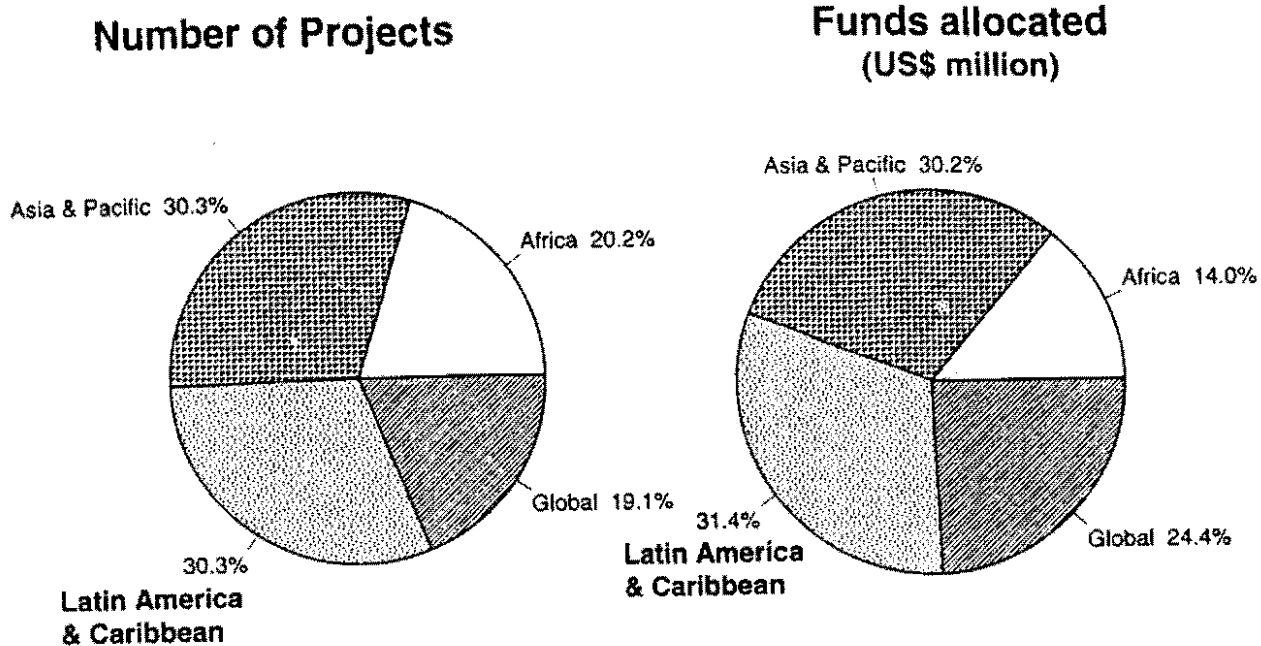
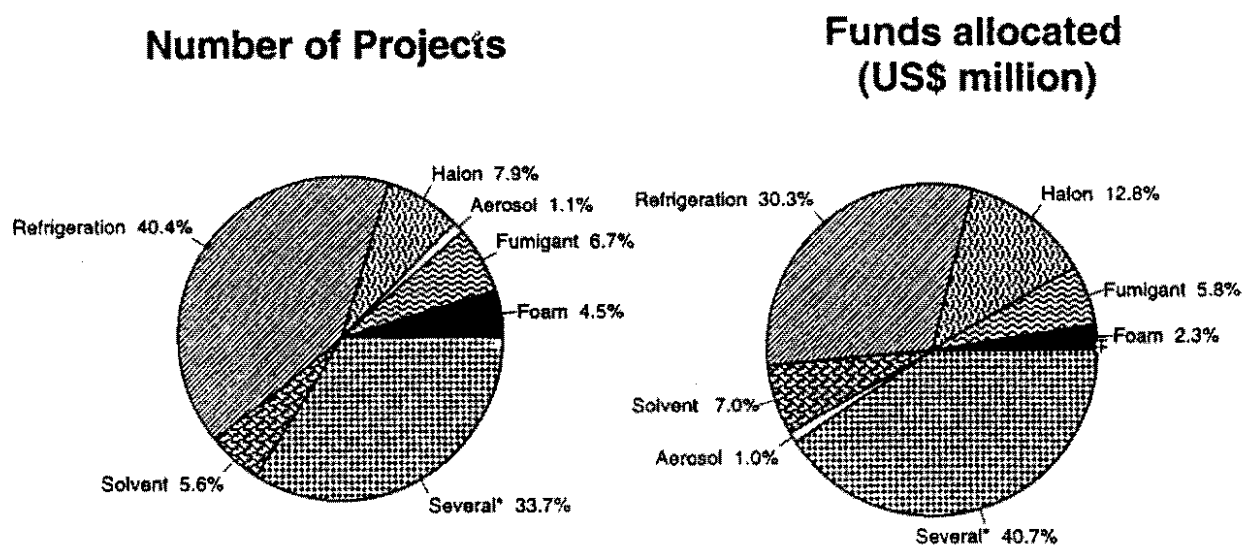


Figure 2

TRAINING PROJECTS BY SECTOR



*Customs training, training on implementation of Montreal Protocol etc.

Figure 3

NUMBER OF TRAINING PROGRAMMES BY AGENCY

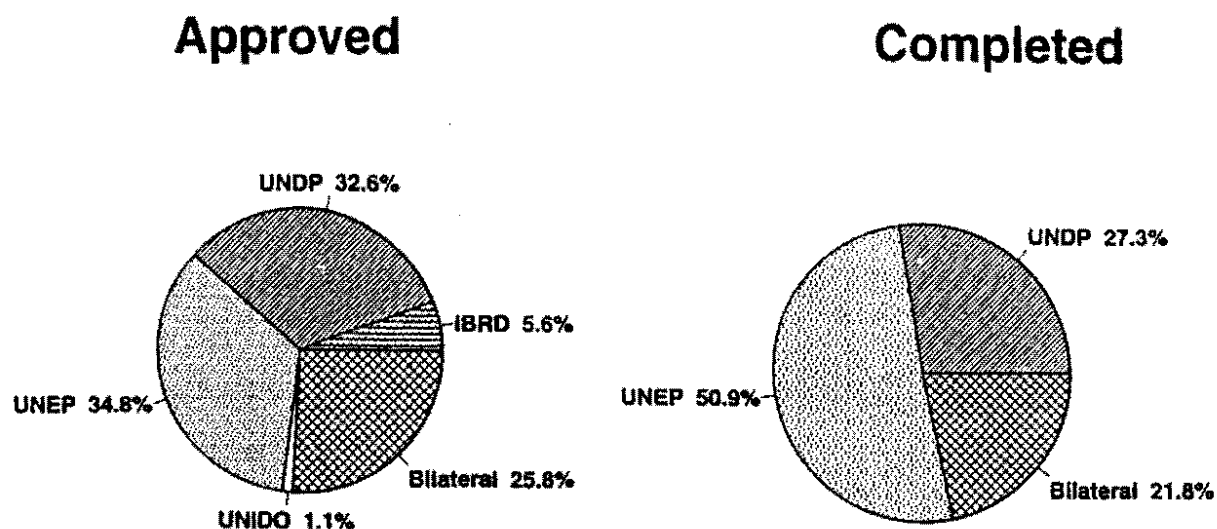
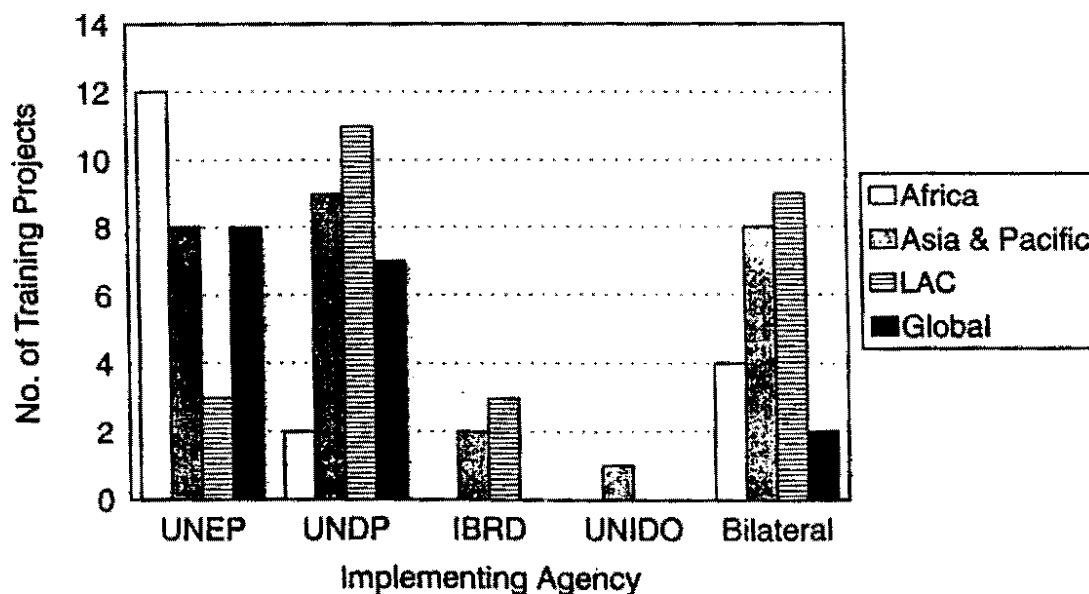


Figure 4

REGIONAL DISTRIBUTION OF TRAINING PROJECTS BY IMPLEMENTING AGENCIES



SUMMARY OF SECTOR- AND ISSUE-BASED TRAINING NEEDS¹

a) Sector related training needs

SECTOR	TARGET TRAINEES	TRAINING NEEDS IN:
Aerosol	Government Officials	.Awareness on technological options .Awareness campaigns to reach informal sector .Regulations for industry safety standards
	.Heads of SMEs .Managers	.Selection of alternative technologies .Conversion technology .Proper installation guidelines .Good manufacturing practices .Manufacturing practice codes .Safe handling, storage and filling of HAPs
	.Technicians .Operators	.Safe handling of flammable propellants
Foams	Government Officials	.Awareness on technological options .Awareness campaigns .Regulations for industry health and safety standards
	.Heads of SMEs .Managers	.Selection of alternative technologies .Safety and toxicity issues
	Workers	.Safety and toxicity issues
Halons	Government Officials	.Awareness on technological options .Awareness campaigns .Regulations on emission reduction and halon banking and recycling programmes
	.Large users (chemical and oil companies, airports, major infrastructures) .Fire equipment companies .Specifiers .Fire authorities .Loss prevention engineers .Users in general	.Selection of alternative technologies .Safe and effective implementation of alternatives .Halon banking and recycling programmes

SECTOR	TARGET TRAINEES	TRAINING NEEDS IN:
Refrigeration	Government Officials	.Awareness on technological options .Regulations on refrigeration practice .National recovery and recycling programmes .Regulations and standards on safety issues
	.Technical managers of big user companies	.Selection of alternative technologies .Refrigerant management plan ²
	.Technical managers and technicians of big service companies	.Selection of alternative technologies .Refrigerant management plan .Good maintenance practices .Recovery and recycling
	.Technical managers and technicians of small service shops	.Selection of alternative technologies .Good maintenance practices .Recovery and recycling
Solvents	Government Officials	.Awareness on technological options for SMEs .Safety regulations .Awareness campaigns for SMEs .Waste treatment/disposal regulations
	Technical managers of SMEs	.Selection of alternative technologies .Conservation and recovery, and good practices .Work place safety .Effective waste treatment/disposal
	Technicians and operators	.Conservation, recovery and good practices

b) Issue related training needs

Issue	Target audience	Training & Information needs in:
Awareness building	.ODS users (Industry)	.National commitments under MP .Upcoming regulations .Available alternative technologies
	.Media	.ODS issues related to health, crops, etc (environmental effects of ozone depletion) .Consuming habits, non-ODS products .National initiatives .International efforts
	.Consumer associations .NGOs	
	.Consumers	

Institutional strengthening	.National Ozone Units .Governmental bodies	.Alternative technologies .Collection & assessment of ODS data .Awareness campaigns .Formulation & enactment of legislations
	.Customs officers	.National phase-out objectives .Regulations, norms and standards on import/export of ODS .Regional suppliers .Montreal Protocol
	.Training centers & vocational schools	.Environmental effects of ozone depletion .Technical issues: substitute technologies, recovery and recycling, etc

**ISSUES TO BE CONSIDERED FOR IMPLEMENTATION
OF THE RECOMMENDED TRAINING STRATEGY**

1. INTRODUCTION

- 1.1 This Annex presents issues related to the implementation of the recommended training strategy, Option 3 (see Section 2.4 in the main paper). The purpose of this Annex is to assist the Executive Committee in its detailed discussion of the recommended training strategy, and highlight areas where guidance from the Committee may be necessary if this option is to be further elaborated or implemented.
- 1.2 This Annex is organized in parallel to the framework description of Option 3. It presents key questions/issues that relate to each of the key features, and indicates where Executive Committee guidance may be required.

2. ISSUES

2.1 Issue 1: Ensuring Effective Coordination

- ° How, and by whom, could the enhancement of coordination of training activities be achieved to minimize the negative aspects of competition and duplication?
 - ° Are existing guidelines sufficient to promote such coordination, and if not, who should assess them and suggest revised or new guidelines for consideration by the Executive Committee?
- 2.1.1 Presently the interagency coordination meetings are organized by the Multilateral Fund Secretariat, covering all project activities. In conjunction with these fora, coordination between Implementing Agencies meetings to specifically review the proposed training activities, their effectiveness and lessons learned, could sufficiently reduce duplication and overlap, and increase transparency in planning and improve cost-effectiveness. Guidance from the Executive Committee may be needed to: (a) decide what existing forum would be the best to include such coordination activities (b) determine whether such coordination should occur as a formal or informal process.
- 2.1.2 Although the general criteria of maximizing cost effectiveness and avoiding duplication are applied to training activities, there are no specific Executive Committee guidelines that relate to training activities (as there are for investment projects). To enhance the effectiveness of training conducted under the recommended strategy, it may be necessary for the Executive Committee to establish training guidelines relating to the process of needs identification; evaluation of completed training projects; design, development and implementation of training projects; and the evaluation and monitoring of completed activities. Guidance may be required from the Executive Committee to (a) propose the framework for such guidelines and (b) decide which agency would be appropriate

to further develop such guidelines for the Committee's eventual review and approval.

2.2 Issue 2: Effective Identification of Training Needs through Direct Involvement of NOU

- How to ensure direct involvement of country in the needs identification process through the Institutional Strengthening process?
- How, and by whom, can input be gathered from local trainers, training infrastructure, non-local consultants, IA's and Regional Network Coordinator?
- What actions should be taken, and by whom, to increase Article 5 countries' "ownership" of the efforts to identify training needs, and to propose and deliver the training activities to meet these needs?

2.2.1 Findings from the consultant's investigations and the views of the Informal Advisory Group make a convincing case for encouraging Article 5 countries to take greater "ownership" of the Multilateral Fund funded training activities designed to meet their ODS phase out training needs.

2.2.2 The roles of the implementing agencies and non-local experts should be less than that of taking the leading roles and more than that of expert training resources that can be called upon to complement and support local training initiatives within the framework of a national training programme.

2.2.3 The Country Programme is prepared at a very early stage in a country's ODS phase-out process, and all the training needs are not well assessed. It is necessary to prepare a recommended process by which training needs can be effectively identified, taking advantage both of the NOUs established under Institutional Strengthening projects and the potential to better use the Regional Networks to discuss commonalities and appropriateness of proposed training activities. Guidance from the Executive Committee may be needed to: (a) propose a framework for such a process and (b) decide which agency would be appropriate to further develop this process for the Committee's eventual review and approval.

2.3 Issue 3: Enhanced Use of Existing Infrastructures for Monitoring and Evaluation

- What actions could be taken, and by whom, to ensure that the existing training infrastructure operates efficiently and resources are used more effectively than before?
- How, and by whom, would the monitoring and evaluation of training activities be carried out in a timely and objective manner?

2.3.1 More extensive use of existing local infrastructure, expertise and experience complemented by appropriate non-local training resources through the Multilateral Fund could be expected to yield more cost-effective results than are being achieved

at present. Making this work would require enhanced Article 5 government commitment, increased dialogue between the Implementing Agencies and the Article 5 NOUs specifically on this issue, and further strengthening of the NOUs to enable them to more efficiently mobilise and coordinate local training resources. Guidance from the Executive Committee is required to: (a) recommend how this dialogue could take place, and to what extent Regional Networks could be effective at facilitating this dialogue.

- 2.3.2 It is imperative that a Training Advisory Committee (TAC) should not create a new bureaucracy, therefore it could simply enhance the coordination of an informal consultative process that is presently being undertaken on an ad hoc basis by the Implementing Agencies, MFS, TEAP/TOC experts and others. The TAC could operate according to a specific Terms of Reference elaborated by the Executive Committee. Guidance is required from the Executive Committee to: (a) determine the constitution of a TAC (b) develop its Terms of Reference.

2.4 **Issue 4: Development of "Modular" and "Tailor-Made" Training Materials to Meet Countries' Needs**

- ° What actions should be taken, and by whom, to ensure that both "modular" and "tailor-made" training materials are developed to the required standards?
- ° How should such materials be made readily accessible to Article 5 trainers as a common resource?

- 2.4.1 "Modular" design infers a uniformity of structure and to a certain extent, of content (especially the overall messages being transmitted through training). If multiple agencies would design modular components, a consultative process would be required to avoid duplication and ensure consistent technological messages. Alternatively, one agency could take the lead role in developing these modules. Both the modular and tailor-made materials would be held to some agreed-upon benchmark standards (e.g. comparing to industry norms). Guidance from the Executive Committee would be required to (a) determine whether multiple or a single organization should develop training materials (b) how to handle the issue of measuring quality of training materials vis-à-vis some form of standard.

- 2.4.2 Article 5 countries require improved access to an efficient, "customer service oriented" central registry of existing, appropriate training materials and expert resources. Improved access to better information on training needs and of "what does and what does not work" in delivering training programmes, whether regional, national or local/community based would contribute to improved selection and preparation of both "modular" and "tailor made" training materials and expert resources is achieved would facilitate the implementation of the recommended Training Strategy. Guidance from the Executive Committee would be needed to (a) identify what organization should perform this "central registry role", and (b) how to ensure cooperation from Implementing Agencies, bilateral agencies, and other organizations involved in training to contribute existing and future materials to this repository.