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**REPORT ON EVALUATION OF TRAINING PROJECTS**

## **I Introduction**

### **1.1 Background**

1. The Multilateral Fund for the Implementation of the Montreal Protocol has funded several projects, which come under the category of Training. In the early days, these projects were focused more on awareness building. They were conducted at Regional, Sub-Regional and National levels. They included seminars to increase awareness of the Montreal Protocol, national workshops to assist in the preparation of the Country Programmes, Study Tours etc. The target audience was generally on decision making level and the purpose was to make them aware of their commitments, and how the Fund could be utilised to help in meeting them.

2. Subsequently as training needs were identified in concrete terms, training projects at the national level were funded. These included policy workshops, and sectoral training. In addition, funding was provided for preparation of information and training documents and dissemination of the same.

3. In the 1999 Monitoring and Evaluation Work Programme, an evaluation of completed training projects was foreseen. The terms of reference were presented to the Executive Committee in document UNEP/OzL.Pro/ExCom/28/16, pp. 9-11, and were approved by Decision 28/27. The delivery of the final report was transferred to the 2000 Monitoring and Evaluation Work Programme, which was approved by the 29<sup>th</sup> Meeting of the Executive Committee (Decision 29/5).

4. Universalia prepared a study entitled “Issues and Workplan for the Evaluation of Training Projects Financed by the Multilateral Fund for the Implementation of the Montreal Protocol” in July 1999. In February 2000, another consultant prepared a document entitled “Strategy for Evaluation of Training Projects”. This strategy was based on a desk evaluation of 76 Project Completion Reports and outlined a methodology for validating and adding to the desk evaluation through a series of country visits.

5. The authors of this report were contracted to visit six African countries to start with and evaluate the Training projects conducted there, both at the Regional/Sub-Regional and national level. Prior to their mission, one of the consultants visited a Training Institute in Germany where Trainers from several African countries were being trained in Good Refrigerant Management Practices under the Refrigerant Management Plan project approved for GTZ. His report “The Rapid Evaluation in Good Refrigerant Management Practices” produced in February 2000 was also used as one of the resources for the present evaluation report. The six countries visited were Zimbabwe, Namibia, Kenya, Uganda, Ghana and Senegal. Following the visit to African countries, one of the consultants also visited Malaysia and Trinidad and Tobago to evaluate the training projects implemented there. Consultants have also visited Argentina and Uruguay to Oevaluate the training projects.

6. This report is a synthesis of the desk study and the several country studies of training projects that were done.

## 1.2 Scope of the evaluation

7. The scope of the Evaluation report covers regional, sub-regional and national training projects. Regional training projects like workshops on legislation, or workshops on Monitoring of ODS consumption etc. have been covered briefly. Since the majority of the national training courses were in the refrigeration & air conditioning sector, for which new projects as components of RMPs are being submitted for approval, the focus of this report is on “Training of Trainers” courses, and “Technicians Courses”. The list of projects reviewed is provided in Annex I.

8. Projects in six African countries (Ghana, Kenya, Namibia, Senegal, Uganda, and Zimbabwe) were field evaluated. UNEP had completed several training projects and GTZ was in the process of implementing RMPs in several countries. Projects in Malaysia, Trinidad & Tobago, Argentina and Uruguay were also field evaluated to integrate experiences made in different regions. The country reports are being finalized and will be placed on the web site of the Secretariat.

9. The Evaluation results are based on a review of relevant project documents and project completion reports; individual interviews; group interviews, discussions with entrepreneurs, visits to companies (small scale and big scale) as well as discussions with National Ozone Officers and representatives of Associations.

10. The following Implementing Agencies/Bilateral Agencies are or were involved in the planning, organising and implementation of the different projects visited - UNEP DTIE, UNDP, GTZ, Finnida, and Agence Française de Cooperation. In addition, World Bank (Training of Financial Intermediaries) and other Bilateral Agencies also implemented Training Projects.

11. During the field missions, Recovery and Recycling Projects, wherever implemented or under implementation, were also evaluated (see Desk Study on Recovery and Recycling Projects, UNEP/OzL.Pro/ExCom/31/18).

## 1.3 Objective of the evaluation

12. The Objective of the Evaluation was to review the:

- (a) Needs Analysis and Training Strategies of the Implementing Agencies (IA)
- (b) Planning of Training Projects by Implementing Agencies and the National Ozone Offices (NOU)
- (c) Design and Delivery of Training (in the countries)
- (d) Results, Impact and Sustainability of Training Projects
- (e) Monitoring and Evaluation of Training Measures developed by Implementing Agencies and NOUs

13. The review of the different phases of the project cycle is done with a view to develop Recommendations and present Lessons Learned.

## **II Main findings of the desk study of project completion reports**

14. 76 project completion reports have been reviewed in a desk study. The results indicate:

- (a) 33 projects or 43% of PCRs were related to “Policy” (which include study tours, monitoring and control of ODS, ODS conferences, information preparation and dissemination, follow up on regional workshops and training activities, etc.) and 27 projects or 35.5% of PCRs were related to the refrigeration sector. The remaining PCRs were related to training in the fields of safety (1), aerosols (2), foam (4), solvents (2), halons (3) and methyl bromide (4).
- (b) 66 of 76 projects (86.8%) were completed at or below budget.
- (c) 59 projects or 77.6% of the projects were completed within 12 months of scheduled date of completion, with 34 or 44.7% of the projects completed early or on schedule.
- (d) 60% of the projects were assessed as highly satisfactory (more than planned) or as satisfactory (as planned).
- (e) However, 34 of 76 PCRs (44.7%) did not provide any comments in the Lessons Learnt section. In 29 PCRs, UNEP has referred to the workshop report, without synthesizing and transferring the lessons learnt presented in various sections of most of these reports to the PCRs.
- (f) All the projects for which PCRs had been received were approved in or before 1997, thus the Training Guidelines for Identification of Needs and Co-ordination of Activities (document UNEP/OzL.Pro/ExCom/23/Inf.4) as noted by the Executive Committee were not applicable.
- (g) Most of the PCRs for training projects that were reviewed did not identify the long-term effects or impact of the projects, since they were prepared following completion of the Agency's activities. Follow-up evaluation reports, requested to be produced by the implementing agency 12 months after completion of a training activity, according to the Training Guidelines (pp. 3 and 9), adopted by the Executive Committee in Decision 23/48, never reached the Secretariat which is supposed to receive copies.

## **III Regional and sub-regional training projects**

15. When the MLF was newly created, there was a need to raise awareness in all countries concerned regarding its objectives and modalities, as well as obligations of the Montreal Protocol. UNEP, and to some extent UNDP, organized a series of regional workshops to pass on this type of information to decision-makers in Art. 5 countries. As countries gained experience

and progressed in their phase-out efforts, the regional and sub-regional training projects were designed to respond to new needs, e.g. policy issues such as ODS control policies and strategies, need and benefit of impact/export licensing systems, halon banking, methyl bromide, etc.

16. Recently in Namibia, GTZ conducted a regional workshop in the context of the Regional RMP on drafting ODS regulations.

17. During field visits, few people were available who had participated in these workshops. Those that were met were unanimous in their comments that the workshops were invaluable in developing initial awareness about the issues and certainly contributed to the actions of the government and stakeholders. The regional/sub-regional policy level workshops built up awareness, imparted information, and provided a forum to discuss regional concerns thereby building up national capacity. The persons trained were enabled to discuss and identify the needs at the national level. The regional and sub-regional training projects have been very much appreciated by all the participants.

18. It was suggested that whenever a new policy requirement had to be introduced, awareness-building activities should start at the regional/sub-regional level for countries where similar conditions exist and the discussion be focused on regional issues.

19. When the activity is taken up later at the national level, the participants of regional seminars are better able to deal with it. This could be observed in several countries where policy papers, draft legislation and legislation as well as custom regulations were defined, developed, proposed and in several instances implemented, using inputs from regional workshops and seminars.

#### **IV National training projects**

##### **4.1 Needs assessment and identification of target groups**

20. As countries became more versed about needs and objectives, most expressed the wish for training in certain areas. Often, training activities had been included in the Country Programmes; in particular, the needs for training in good refrigeration practices and recovery and recycling were recognized and addressed in the form of project development and submissions. This was translated into project preparation and proposals, submitted by implementing agencies in the context of their work programmes, mostly by UNEP.

21. The concept of a Refrigerant Management Plan (RMP) was adopted by the Executive Committee at its 22<sup>nd</sup> Meeting in June 1997, and it was required that recovery and recycling projects be implemented only after incentives or regulatory measures were in place to ensure sustainability (decision 22/24). No conditions were placed on the implementation of training in good refrigerant management project components of the RMP, while customs training which only very recently started to be implemented, shall not be organized before appropriate legislation is in place.

22. UNEP DTIE developed Training Guidelines (document UNEP/OzL.Pro/ExCom/23/Inf.4) which were repeatedly discussed by the Executive Committee and finally adopted at the 23<sup>rd</sup> Meeting in November 1997. They contain guidelines for the identification of training needs and identification of projects as well as several formats to be used for project preparation, reporting and follow-up, and also guidelines for the coordination of training activities between the implementing agencies.

23. In general, the NOUs interacted with UNEP DTIE experts during the preparation of Training of Trainers for the refrigeration sector. National Experts were involved in identifying the training needs and estimating the numbers that needed training, as well as identifying the target groups through surveys and discussions. These were used as inputs in the project preparation. It should be noted that projects for training in the refrigeration and air conditioning sector approved before 1997 were stand-alone projects as the concept of RMP had not been adopted as yet. The only exception is the Trinidad & Tobago training project in good refrigerant management practices, which is a component of the RMP. This project is still ongoing, with the Training of Trainers component recently completed.

24. GTZ consultants visited 14 English-speaking African countries, prepared a problem and needs analysis, conducted in-depth discussion with relevant stakeholders in the country and identified the relevant activities necessary for meeting the countries obligations under the MP and the phase out of Annex A substances. The inputs resulted in Refrigerant Management Plans (RMP) for 10 African countries, components of which were included in a Regional RMP. In Kenya and Zimbabwe, for example, four target groups have been identified for the training of technicians in the refrigeration and air-conditioning service sector: informal sector mechanics and untrained operating technicians, technicians of end user institutions, technicians in the mobile air-conditioning sector, and chief engineers of industries, service workshops and importing companies.

25. The training executed under the UNEP programme and the intended training under the GTZ programme for the refrigeration and air-conditioning service sectors focus only on the "qualified technicians". These are technicians who are employed by companies and who have had a formal training (certified technicians and/or diploma engineers) and are easy to identify and are concentrated in the metropolitan areas. Operational strategies, beyond awareness raising and distribution of information material for training the untrained operating technicians and informal sector technicians, have not yet been developed and approved.

#### **4.2 Project preparation and planning**

26. Two different approaches related to the planning, organizing and implementation of training projects are applied by UNEP DTIE and UNDP on one side and GTZ on the other.

27. In the GTZ programme, trainers from different countries have been brought to a training facility in Germany for three weeks and provided with demonstration equipment to use in their national training programmes. UNEP DTIE has organized in-country training of trainers over five days with tools and recovery equipment being used for hands-on practical training.

### **UNEP DTIE/UNDP Approach**

28. International and national experts in close co-operation with the NOUs prepared the projects. UNEP DTIE/UNDP did the planning in consultation with the NOUs in the different countries. The planning results were documented in activity lists with time frames.

29. In some of the countries visited, where recycling and recovery (and reclaiming) projects have been implemented, implementation was done through National Refrigeration Demonstration Centres (NRDC). The NRDCs were supposed to provide training, instructions and demonstration to entrepreneurs, technicians and other visitors on good refrigerant management practices including handling and recovery of refrigerants. The Project Completion Reports (PCR) for the recycling and recovery projects assessed all the projects “satisfactory, as planned”. However, it was found that the projects visited never became operational for different reasons (for more details, see document UNEP/OzL.Pro/ExCom/31/18, Desk Study on Recovery and Recycling Projects). It was obvious that for the Implementing Agencies this type of project was implemented and completed when the equipment was in place and the users training (of one day) was delivered, in accordance with the provisions of the project documents which did not foresee follow-up activities. The implementing agencies and the NOUs did not follow up with monitoring and evaluation, and generally there was no budget line foreseen for it, neither in the projects nor in the institutional strengthening projects, at least not as separate items. In addition, no system of Standard Operation Procedures (SOP) for running organizing a National Refrigeration Demonstration Centre (NRDC) or a Recycling/Reclaim Centre was in place that could guide their work. UNEP DTIE has developed practical guidelines for this purpose, e.g. “Guidebook for Implementation of Codes of Good Practice”. The would be trainees were not aware of its existence, however, prior to embarking on the practical training.

30. For the training of trainers and technicians, UNEP has developed a standard training package, which has been found useful by the trainers for developing their local training programmes.

### ***GTZ PROKLIMA Approach***

31. GTZ training projects started only recently and mainly in the context of RMP preparation. Based on the RMPs, a regional and national training strategy that is common for 14 African countries has been developed, from which 10 countries are covered under the Multilateral Fund. For each country a handbook was developed or is under preparation, and distributed to the relevant stakeholders taking into consideration the different country specifics. The response from industry leaders on the national handbook was very positive.

32. GTZ PROKLIMA developed additional objectives in their training strategy paper for which it sought funding outside the Multilateral Fund.

33. Before starting the whole programme GTZ conducted a regional workshop for NOUs in Namibia on “Objective Oriented Project Planning” (OOPP). Based on this workshop a plan of operation was developed for each country. The plan of operation shows in sequence the activities

to be done, the responsibility, the time and resources allocated and the implementation date/time schedule for each activity.

34. The main activities (example Kenya) were “Implementation and Enforcement of Regulations”, “Customs Officer Training”, “Training of Trainers for Evening Courses” and “Training for Refrigeration Technicians”. Each main activity has a sequence of sub-activities. The OOPP serves as a monitoring and evaluation tool for the GTZ as well as the NOUs.

35. For the training of trainers and for the technicians training GTZ has independently developed a standard training package.

### **4.3 Organization and implementation**

#### ***UNEP DTIE***

36. The Training of Trainers (ToT) Courses (Standard Package, 1 week duration) were done in country by international experts using available infrastructure, and with the help of the NOUs and Associations (where they existed).

37. These training projects appear to have achieved their immediate objective, and a large number of trainers were trained. As a result of the ToT, training of technicians was conducted by the trainers, who were either from the industry --- they trained their own staff --- and/or from vocational training centres/technical institutions and universities who trained students in the formal courses and technicians from the industry in part-time courses.

#### ***GTZ PROKLIMA***

38. The GTZ PROKLIMA regional training projects are focused also on workshops, which are common for all like policy, legislation and control and monitoring and developing of RMP. GTZ is still in the delivery phase of the projects. For the Training-of-Trainers Course (Standard Package, 3 weeks duration), they also used a regional approach instead of a national approach. Although the ToT courses have been completed, due to the high costs of training, only a few selected trainers from each country were trained per country.

39. The participants of the regional training project were exposed to the latest technology. While they appreciated receiving an overview of modern techniques, some criticized that they were trained using tools that are still not available or not widely used in their countries, and stated that they could not start to train the technicians because they lacked the right equipment.

40. GTZ-PROKLIMA had developed a standard module for the training of technicians (10 weeks – 40 hours), which the Trainers were expected to follow. This training programme is now being re-evaluated by GTZ-PROKLIMA in collaboration with the NOUs and Trainers to ensure that all the target groups can be reached. The standard module does not cover legislative/regulative aspect specific to the country as one of the subjects.

41. The vocational training centres and polytechnic institutions will host the training programmes; they are expected to issue certificates following examinations.



42. The training of technicians calls for charging a fee of between US \$50 and US \$100 equivalent. It is expected that the organized sector will pay for their technicians, but resistance is expected from the informal sector. The issue has yet to be resolved.

43. Analysis of Train-the-Trainers Projects, implemented by UNEP DTIE and GTZ-PROKLIMA, shows that in Namibia, Kenya and Uganda, GTZ also trained some trainers who had previously participated in training courses of UNEP. This was explained by GTZ by saying that the UNEP DTIE courses were more narrowly focused on recovery and recycling projects (Namibia a case in point) and that the NOUs were involved in the selection and did not exclude persons trained earlier by UNEP DTIE. According to the Training Guidelines adopted by Executive Committee Decision 23/48, any duplication should be avoided, however.

#### **4.4 The Role of the NOU and associations**

44. The NOU is the pivotal point for proper organisation and implementation of the different training projects. In several countries the NOU is co-operating with a Refrigeration and Air Conditioning Industry Association. The role of the Association can be studied best in Ghana and Trinidad & Tobago where the Associations are the driving elements in the whole implementation process. The Associations are involved in the marketing, selection of companies and participants and are also providing the trainers for the technicians training. The Association in Ghana for example developed a certification system and the technicians (including those from the informal sector) were told that without a certificate (training) they are not permitted to work on R & A/Cs. However till date legislation is not yet in place in Ghana. The Association could do so because they have a strong stand in the industry. The Association in Trinidad & Tobago was started hardly two years ago. They have already taken several voluntary initiatives without waiting for legislation. One outstanding example is the decision early this year by the importers who are members of the Recovery and Recycling and Air Conditioning Industry Association of Trinidad and Tobago to voluntarily increase the selling price of CFC-12 by 300% over earlier prices. Coupled with Customs regulations allocating diminishing quotas to registered importers, this will lead to technicians coming forward for training in conservation and recycling and recovery, as they will perceive an opportunity to increase their income.

45. It has also been mentioned that more and more requirements and workload in the form of new activities are placed on the shoulders of the NOU Officers. However, the resources to run and implement the different training activities are limited. This slows down the speed of implementation.

#### **4.5 Contents of the training programmes**

46. The content of the Training of Trainers (ToT) programme and the technicians training is almost the same. The duration of the training is different. The UNEP DTIE ToT is five days (in country) and the technicians training last for three days, whereas the GTZ PROKLIMA ToT was for three weeks (regional) and the Technicians Training is planned for five days. Both UNEP DTIE and GTZ developed comprehensive handouts for the training.

47. UNEP DTIE has developed two training manuals. The “Good Practices in Refrigeration” manual covers eight chapters and serves as information for the trainers. The curriculum is incorporated in the manual. Each chapter starts with the overview that includes the learning objectives, a summary of the content, the timing, key questions and answers, further information, a glossary of the chapter and visual means.

48. The second manual, “CFC/HCFC/HFC Control in the Refrigeration and Air Conditioning Industry” and “Trainers Presentation Guide for Good Practices in Refrigeration,” comprise 60 transparencies which can be used by the UNEP DTIE trainers for the training of technicians. Both training manuals are in use.

49. Some countries, like Ghana, developed their own manual for the technicians training. This manual is only 20 pages and covers the essence of the three days technician course. They also use the manual that was sponsored by the World Bank Project “Vocational Skills & Informal Sector Support Project” (VSP) Training Manual for Apprentices in Refrigeration and Air Conditioning.

50. The GTZ PROKLIMA Training of Trainers Manual also covers eight chapters. Its content is similar to the UNEP DTIE manual. The curriculum covers only the content; exercises planned and show a very basic timetable. It is expected that the trainers will develop their own manual for their evening courses.

51. GTZ developed for each country a handbook, i.e. “ODS Phase Out in Namibia A Handbook” which covers approximately 30 pages, summarizing the essential elements of good refrigerant management practices in a simple language. This is planned to be distributed to all stakeholders.

52. Both programmes include theoretical lectures as well as practical exercises (the range mentioned by the participants were between 50%/50% – 40%/60%). Regarding the delivery of the training (teaching, how to instruct my own people), it must be mentioned that both manuals do not provide any background on teaching /instruction techniques.

#### **4.6 Selection of participants**

53. UNEP DTIE selection criteria were given to the NOUs who selected the trainers from vocational training centres, polytechnic institutions and the industry, often in close cooperation with the Refrigeration Association.

54. GTZ PROKLIMA's selection criteria were given to the NOUs. The NOUs identified the trainers from vocational training centres, polytechnic institutions and the industry. The prospective trainers took multiple-choice tests and were then selected. All trainers, after successful completion of their training, are expected to sign a contract with GTZ to organize and conduct two 10-week (40 hours) technician training programmes for which they will be paid US \$500.

55. Screening lists of participants from UNEP training programmes it was obvious that in the ToT of UNEP approximately 20% of the participants were observers and/or were from ministries and the NOU.

#### **4.7 Use of results**

56. The main beneficiary of the training programmes is the organized refrigeration and air conditioning service and user industry. They have resulted in awareness amongst the practitioners and managers for conservation, preventive maintenance and knowledge of substitutes and alternate technologies. New equipment being purchased is consciously based on ozone-friendly technologies.

57. Other important beneficiaries are vocational training centres/polytechnic/technical institutions and university teachers who have incorporated the knowledge gained into their regular courses. However, the procedure to formally change a curriculum varies from country to country. In general, it can be stated that it takes 1-3 years to change a curriculum. The Mombassa Polytechnic (Kenya), the Centre Nationale de Qualification Professionnelle (CNQP) in Senegal and the School of Continuing Studies, University of West Indies, have updated their curriculum to reflect the change in practice and new technologies. In Trinidad & Tobago, while formal changes have not been made to the curriculum of technical institutions, good practices, recovery and recycling and new technologies have been incorporated into the curriculum and the final examinations. The Mombassa Polytechnic actively practices new technology because their training of hospital technicians was implemented under an earlier GTZ project.

58. It must be stated here that while training in conservation, preventive maintenance, and recovery and recycling has been provided, there is no incentive to change old habits given the continuing situation of easy availability and cheap prices of refrigerants. This practice often spills over into handling HFC-134a, for example. However, the component of the training programme dealing with alternative technologies is found useful by many as it makes them aware of the differences and what to look for when servicing such units.

59. In every country, the informal refrigeration and air-conditioning service sector is large, scattered and unorganized. Yet in totality, they consume considerable quantities of CFC-12. They use CFC-12 for flushing, and more often than not, end up overcharging refrigeration systems since they do not have the tools to measure the charge. Training in good practices and provision of basic tools will result in some reduction of consumption of CFC-12 by this sector. Other than Ghana, where the Association has a membership of 4,400 and includes the informal sector, no Association has been found to be actively wooing the informal sector to join in and benefit from the Association's activities. As a result, they are not aware of the changes taking place in the industry today, and the only source of information available to them are the stores that provide them with their needs of refrigerants and spare parts.

## V Impact and sustainability

### 5.1 Impact

60. The achievements of training projects in terms of reducing ODS consumption could not be verified. Use of knowledge transmitted through training has not been monitored and documented by the projects, and according to field evidence, has not taken place to a significant extent as yet. This is partly due to the fact that implementation of many of the projects evaluated is relatively recent but also due to some constraints and deficiencies which are further discussed below.

61. The recovery and recycling projects never took off, and even in Ghana where more than 1,400 technicians were trained and a big World Bank vocational training project was implemented (under a programme different from the Montreal Protocol), the figure of consumption shows an upward trend. There are several reasons for this:

- (a) It was observed that through the regional training projects the mechanism of data collection has improved, resulting in an increase in reported consumption, thereby making it difficult to evaluate the impact training had on reducing actual use.
- (b) The prices of refrigerants have not increased as anticipated. The motivation to change the habit and conserve and recover are still very low because there is no financial benefit.
- (c) Voltage fluctuation resulting in compressor burnout is the leading cause of refrigerator repairs. In addition, the large-scale use of second-hand refrigerators from Europe and Japan leads to repairs much sooner than with new units. As a result consumption of ODS is increasing. Regulations prohibiting the imports of such refrigerators coupled with customs training will reduce this incidence. However, the economics of the country may not be able to sustain the procurement of new refrigerators.

62. The driving force of changes are Associations (if they are active) and/or the large commercial/industrial users of refrigeration and air-conditioning equipment. In Trinidad & Tobago, the Association is actively pushing for technicians to be trained to their needs, which has resulted in the incorporation of the UNEP DTIE training into the regular curriculum. In addition, they are trying to develop a standard for their members for incorporation of new technology equipment, recommending certain refrigerants to ensure easy availability. In Malaysia, the members of MASHRAE, who are mostly from the large commercial/industrial sector users, are enthusiastically implementing the recovery and recycling of refrigerants from chiller projects. All new equipment is based on non-ODS technology. The organized sector, particularly in large commercial applications, is seeing the benefits of recovery and recycling. Senegal should serve as good example. A major refrigerator and air-conditioner marketing and servicing company is a beneficiary of the recovery and recycling project. Since they had to pay a percentage of the value of the equipment, the management is keeping a close watch on the costing to ensure an early return of investment.

## **5.2 Sustainability**

63. The sustainability of training programmes in the refrigeration and air-conditioning sector is not assured, beyond some good examples and beginnings. Although in most cases the transfer of know-how to the participants effectively took place, the multiplier effect intended to be achieved through the training of trainers has still to be realized. For this, in part, curricula need to be changed which in many countries appears to be a lengthy process for public training centres and colleges. Moreover, large numbers of technicians, including from the informal sector, will need to be motivated to attend local training programmes, financing for which will need to be found for organization, hand outs and appropriate incentives to the trainers.

64. So far only GTZ proposes to test a system of participant fees for the organized sector where workshop owners are expected to pay for the training of their technicians. It was also seen that whenever a private company such as EZEMAK in Nairobi, Kenya was taking the lead in implementation of technicians training (they have 600 applicants and GTZ equipment for training to arrive soon), implementation can be very fast and the private sector seems to be more convincing. The result is that participants are willing to pay. That makes it possible to continue with the training.

65. It was learned that the informal sector is an important consumer of R12 (in Zimbabwe it has been stated that approximately two-thirds are from the informal sector [Source: Wholesalers]). Therefore, this target group is very important. The problem of how to convince the informal sector technicians to participate in the training and pay for it needs to be resolved. Thus the marketing of the training is an important aspect.

66. Contribution by government or other sources are in general not planned at this stage. In some African countries a levy system is in place and it should be explored if the levy would be a suitable tool to finance the training of the informal sector. Therefore there are some concerns about the sustainability of the training programme after the trainers have fulfilled their contracts.

67. In addition to ensuring financial sustainability for training, appropriate conditions need to be created in order to motivate workshops and technicians to apply the knowledge acquired. They will only do so if the new practices learned are economically viable for them. This pre-supposes relatively high CFC prices in relation to substitute refrigerants which in turn will happen with effective import controls and legislation being in place, that means by rapidly realizing the objectives of the RMPs approved by now for most low volume consuming countries. Otherwise, the benefits from the investments made so far for equipment and training risk getting diminished if not lost.

## **VI Conclusions, lessons learnt and recommendations**

### **6.1 Conclusions and lessons learnt**

68. The Training Guidelines for Identification of Needs and Coordination of Activities (UNEP/OzL.Pro/ExCom/23/Inf.4), adopted by the 23<sup>rd</sup> Meeting of the Executive Committee in November 1997 in its Decision 23/48, have evolved with the experiences gained through the

delivery of the Training Projects evaluated here. All the projects evaluated were approved in or before 1997.

69. Training projects developed for countries are based on information provided in the Country Programmes. The objectives of the training activities appear to have been well defined and developed in collaboration with the NOUs, National Experts (where applicable) and Associations (where existing). The responsibility for participant selection is left to the NOU.

70. Active participation of beneficiaries from the start, is a sound measure that contributes to ensure that aspects such as timing and sequencing are fully considered in project planning.

71. The role of the NOUs in the proper organization and implementation of training activities is critical and should be maintained, in order to ensure continuity in enhancing the development of local training capacity.

72. The target audience for training projects in the refrigeration and air-conditioning sector has generally been technicians from the organized sector. Practically no training programme has been conducted so far in the countries visited for the informal sector, and from discussions it seems that no operational strategy has been developed and approved so far.

73. Nearly all the projects evaluated in this evaluation have been delivered before any regulations related to handling and/or consumption of ODS were in place. In Low Volume Consuming Countries, refrigeration and air-conditioning sector has the largest consumption of ODS. Training of technicians in Good Refrigerant Management Practices, Customs Training, Recovery and Recycling of refrigerants are all related to the refrigeration and air-conditioning sector, and by now, in most low-volume consuming countries a comprehensive sector strategy – the Refrigerant Management Plan – ties them all in and provides the framework for the sector phase-out.

74. For training in the refrigeration and air-conditioning sector, training is timed to the delivery of the training equipment (tools, equipment etc.). These are essential for the training programme. Trainers trained at UNEP DTIE ToT workshops and GTZ Training-of-Trainers workshops have stated that the training activities are sufficient. The only element lacking is some exposure to being a teacher, particularly for technicians. Some time should be spent on discussions and “hands on” training on how to most effectively organize and present a training session.

75. The funding for training activities is usually adequate to target most of the trainees in the organized sector as national training, being the next step, is a component of the approved budget.

76. Pre-designed training packages are adequate for train-the-trainers programmes. In the refrigeration and air-conditioning sector, the needs are generally uniform, irrespective of the country or the language spoken. It appears that the Master Trainers (international experts) are few; the advantage of the same trainers conducting training in different countries on the same subject is that they come in with a wealth of experience, which they can draw on depending on the needs of the moment. The disadvantage is the danger of the training programme becoming routine, and no new developments and information get incorporated. Trainers with teaching

experience have been found to be more effective as they can tailor the level of information passed on, depending on the knowledge level of participants.

77. There is no standardized evaluation framework in place for the use of all implementing agencies. UNEP DTIE requires the NOU to prepare a workshop report that includes lessons learnt according to the Training Guidelines, albeit in one section entitled 'Results, Conclusions, Recommendations and Lessons Learnt.' Presumably, this information is shared with the Master Trainers. To date, only one document has been prepared on Lessons Learnt in Ghana following Training in Good Refrigerant Management Practices (prepared by UNEP DTIE). However, such lessons are not presented in the PCRs and the reader is referred back to the workshop report. It would be beneficial if the PCR was considered a stand-alone document and all pertinent information was available in it. "Plans of Operations", like the one GTZ PROKLIMA prepared for the RMP under implementation, are excellent tools to monitor and evaluate projects if updated regularly.

78. Implementing Agencies try to communicate with NOUs to follow up on training activities. However, budget and manpower constraints do not allow for a systematic and sustained approach. In addition, NOUs, who are generally not familiar with R&AC are uncomfortable in this task and often do not have the time to do so, with the ever increasing reporting requirements that are being put on them. Often, funding is not available for a National Consultant to be utilised to follow up systematically.

## 6.2 Recommendations

It is recommended:

79. that whenever a new policy requirement is to be introduced, awareness-building activities should start at the regional/sub-regional level and subsequently at the national level.

80. that all future non-investment activities related to the servicing sector (training of technicians, customs training and recovery and recycling) should continue to be presented in the form of a Refrigerant Management Plan to place them in the context of a comprehensive plan for sector phase-out. In preparation of new RMPs, as well as during implementation of approved RMPs, any earlier training by Agencies should be taken into account.

81. that it is generally better to conduct the Training of Trainers courses for refrigeration and air-conditioning in-country because training is done under local conditions and allows for larger numbers of participants, including senior technicians.

82. that considering the different background and qualification of trainers (industry technicians and engineers, vocational training centre trainers, polytechnic teachers), training of trainers should include teaching /instruction techniques.

83. that the handbooks on ODS phase out for 10 African countries, produced by GTZ PROKLIMA, are used by other implementing/bilateral agencies as an example for preparing similar documents for ongoing and future projects in other countries because they present all

relevant technical information for an entrepreneur as well as for a technician in a short and comprehensive way.

84. that a certification system for successfully participating in training programmes should be supported through regulations of the country.

85. that in order to avoid duplication, repeated recruitment of participants in similar training programmes should be avoided.

86. that associations and the private sector are the driving elements to market the training measures. Consideration should be given to strengthening of associations and involving them more closely in project implementation.

87. that project proposals should include indicators at the result level of the project, and that baseline data be collected and monitoring systems be developed to facilitate subsequent impact evaluation of training activities. For these activities, each project should foresee a budget line.

88. that the PCR format for non-investment projects used for reporting on training projects should be revised. It should be related to results-oriented indicators formulated in the project document and should include information on the impact and follow-up of training projects.

89. that the GTZ model of charging participants' fees for training of technicians in order to make a training programme sustainable should be closely monitored. If it is successful, it would be a good recommendation for future projects.

90. that innovative solutions to reach out with training to the informal sector should be developed. One method could be to develop simple one-day training modules for them. The marketing of the training projects could be done through the retailers of refrigeration and air-conditioning components, and the training has to be done locally, if possible, at the retailer's premises on Saturdays or weekly off days.





TRAINING PROJECTS EVALUATED DURING FIELD VISITS					
Code	Country	Agency	Year Approved	Project Description	Observations by the Consultant
<b>GLOBAL PROJECTS</b>					
GLO/REF/06/TRA/005	Global	UNDP	Jun-96	MAC recycling training/demonstration programme in Africa/Middle East	Kenya participant could not go due to travel problems. No other country visited sent representative.
GLO/SEV/06/TRA/20	Global	UNEP	Mar-94	Support to training activities	
GLO/SEV/19/TRA/113	Global	UNEP	Jun-97	Disseminate information	
GLO/SEV/19/TRA/114	Global	UNEP	Jul-98	Training module on policy design and setting up legislation	
<b>AFRICA PROJECTS</b>					
AFR/SEV/06/TRA/01	Regional	UNEP	Dec-92	Regional Workshop for Africa: Implementation of the Montreal Protocol	Ghana, Kenya, Namibia, Senegal, Uganda and Zimbabwe were among the participants. There is not much memory of this workshop amongst the participants that we could speak to, but in general it was considered to be useful, as they understood what the MP was about, and the mechanism for funding from the MLF.
AFR/SEV/06/TRA/04	Regional	UNEP	Dec-92	Regional Training Course on refrigeration for Africa	
AFR/SEV/11/TRA/07	Regional	UNEP/S. Africa	Aug-95	Regional Workshop on practical implementation of the Montreal Protocol industry perspective	
AFR/SEV/12/TRA/08	Regional	UNEP	Jun-97	Follow up on prior regional workshops and training activities	A compilation by UNEP of projects completed, the progress and lessons learned.
AFR/SEV/17/TRA/011	Regional	UNEP/France	Jan-96	Transfer of technology workshop	
AFR/SEV/19/TRA/016	Regional	UNEP	Jul-97	Regional workshop on monitoring and control of ODS consumption for English Speaking Africa	Held in Uganda. Ozone Officers and Customs Officers from Ghana, Namibia, Zimbabwe and several interested persons from Uganda participated. Draft legislation have been prepared in these countries but have yet to be finalised,
GHA/FOA/08/TAS/03	Ghana	UNDP	Oct-92	Technical assistance to flexible foam producing companies and study tours for industrial representatives and Government officials, training programmes for the Ministry of Industry, Science and Technology and Factories Inspectorate Department and health and safety audits in the foam manufacturing industry	Time did not permit evaluation of this project.
GHA/REF/04/TRA/02	Ghana	UNDP	Jun-91	Training programme/workshop in the R&AC sector	Transferred to UNEP
GHA/REF/10/TRA/06	Ghana	UNEP	Jun-93	Equipment servicing training consultant and establishment of a demonstration programme for servicing refrigerators and air-conditioners. NOTE: Transferred from UNDP work programme in Jun 1993.	31 trainers trained. National Refrigeration Demonstration Centre established. Association played active role in marketing. Despite no legislation, Certification was sold to the technicians. In 10 three-day seminars for technicians approx. 1,400 technicians trained. Additional 450 workshop owners, Heads of technical institutions and technical teachers

TRAINING PROJECTS EVALUATED DURING FIELD VISITS					
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					were certified. An estimated 50% of informal sector technicians have been trained. Without sources of additional funding, training has come to a stop. While initial reports were that there was substantial reduction in ODS consumption in Ghana, it was found later that better methods of collecting consumption data resulted in a sudden increase in consumption. Price of ODS plays a major role and R&R equipment is mostly under utilized.
KEN/REF/04/TRA/04	Kenya	UNDP	Jun-91	Training programme/workshop in the R&AC sector	Transferred to UNEP
KEN/REF/10/TRA/05	Kenya	UNEP	Jun-93	Equipment servicing training consultant and establishment of a demonstration programme for servicing refrigerators and air-conditioners. NOTE: Transferred from UNDP work programme in Jun 1993	34 participants at ToT course in Dec. 93. Another ToT course, conducted by a National Trainer was held in Nov. 98 when 11 Trainers from Polytechnics and Universities were trained, including the NRDC coordinator. Subsequently, 5 three-day training programmes have been conducted at the NRDC in which 72 technicians have been trained. Additional training will now be taken up under the GTZ RMP programme. There is a concern about how to attract the informal sector technicians.
KEN/REF/26/TAS/19	Kenya	Germany (GTZ)	Nov-98	Assistance in the design of policies and regulations regarding ODS phase-out and a training programme for refrigeration service technicians in good refrigeration practices. Training of Customs Officers will be undertaken at the regional level. The project also includes implementation of a recovery and recycling programme covering the commercial/industrial and MAC servicing sub-sectors. This project is part of a regional Refrigeration Management Plan.	4 trainers trained in Germany in 1999/2000. Each trainer is expected to conduct two 10-week (40-hour) training courses of 20 trainees each. Programme of national training has not yet been finalised as several issues related to training equipment, programme design etc. have to be resolved. One Trainer was also trained under the UNEP ToT programme and did not think that there was much difference between the two training programmes in terms of taking the knowledge and training local technicians. One trainer was from the private sector who has advertised and claims to have 600 applicants on his list.
NAM/REF/20/TRA/03	Namibia	Finland	Oct-96	Implementation of a comprehensive training programme for the recovery and recycling of refrigerants in the R&AC sector (6 basic training and demonstration workshops), procurement of recovery and recycling equipment and creation of a recycling network to be run by the Namibian Associations of Refrigeration and Air-Conditioning Contractors, establishment of a monitoring system (being a part in the operation of the Ozone Office) covering the quantities of refrigerant recycled will be established by the Ministry of Trade and Industry, which also will issue recommendations on recovery and recycling.	The workshops were funded through UNEP and Finnida provided the recovery and recycling equipment. The trainer was from BFS Maintal, the same school where GTZ conducted its Regional ToT programme. One ToT programme was held over 5 days and 16 Diplomas were given. Two more training sessions for technicians were held and 60 technicians were trained. The estimate of trained technicians is 20 to 30 and 100 – 150 semi skilled. Thus nearly 50% technicians in the organized sector already trained. The R&R equipment is bulky and not portable. The equipment has not yet been totally distributed and what has been is being sporadically used. One Trainer was sent to Finland for further training.
NAM/REF/26/TAS/06	Namibia	Germany (GTZ)	Nov-98	Assistance in the design of policies and regulations regarding ODS phase-out and a training programme for refrigeration service technicians in good refrigeration practices. Training of Customs Officers will be undertaken at the regional level. This project is part of a regional Refrigeration Management Plan.	3 trainers trained in Germany in 1999/2000. Each trainer is expected to conduct two 10 week (40 hour) training courses of 20 trainees each. Programme of national training has not yet been finalised as several issues related to training equipment, programme design etc. have to be resolved. One Trainer was also trained under the UNEP ToT programme and did not think that there was much difference between the two training programmes

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					in terms of taking the knowledge and training local technicians.
SEN/REF/11/TRA/04	Senegal	UNEP	Nov-93	Hands on training to more than 200 service, maintenance and repair shops (100 located in the Dakar region) in 2 phases. Phase I: Train professional technicians (Train the Trainers approach); Phase II: Train the remaining technicians with instructors recruited from phase I. (approved and included in CP)	Project originally proposed training 200 technicians but budget only permitted training of 127 technicians. The rest of the training was completed with Bilateral Assistance from France (see below). An NRDC has been designated and some equipment placed there, which has not been used. The Trainer at the institution (CNQP) was trained under the ToT programme, but has not incorporated the information into the regular curriculum. Methods such as flushing with CFC-12 are still being taught to the students.
SEN/REF/21/TRA/07	Senegal	France	Feb-97	Implementation of 3 training sessions in 3 different regions of the country. It will enable the introduction of good servicing techniques in training centres, the implementation of regulations concerning good servicing practices in the refrigeration sector, and the implementation of a monitoring system to establish statistics on the consumption of CFCs at the servicing level. This project will complement the UNEP project.	This project complemented the UNEP project (see above)
SEN/SEV/11/TRA/03	Senegal	UNEP	Nov-93	To expand and upgrade the statistics at the customs network and the Dept. of Statistics in close cooperation with the Société Générale de Surveillance (responsible for quality control on consumer products). It will develop statistics on ODS consumption; products and equipment containing or operating with ODS, and control over imported ODS and ODS based products. Participants from 4 neighbouring countries attended. (approved and included in CP)	This project was not evaluated due to shortage of time.
UGA/REF/26/TAS/07	Uganda	Germany (GTZ)	Nov-98	Assistance in the design of policies and regulations regarding ODS phase-out and a training programme for refrigeration service technicians in good refrigeration practices. Training of Customs Officers will be undertaken at the regional level. This project is part of a regional Refrigeration Management Plan.	4 trainers trained in Germany in 1999/2000. Each trainer is expected to conduct two 10-week (40-hour) training courses of 20 trainees each. Programme of national training has not yet been finalised as several issues related to training equipment, programme design etc. have to be resolved. It should be noted that two of the trainers had no experience in the R&AC sector!
ZIM/REF/26/TAS/15	Zimbabwe	Germany (GTZ)	Nov-98	Assistance in the design of policies and regulations regarding ODS phase-out and a training programme for refrigeration service technicians in good refrigeration practices. Training of Customs Officers will be undertaken at the regional level. This project is part of a regional Refrigeration Management Plan.	6 trainers trained in Germany in 1999/2000. Each trainer is expected to conduct two 10-week (40-hour) training courses of 20 trainees each. Programme of national training has not yet been finalised as several issues related to training equipment, programme design etc. have to be resolved.
<b>ASIA PACIFIC PROJECTS</b>					
MAL/HAL/09/TRA/07	Malaysia	UNEP	Mar-93	Workshop on halon and halon bank management targeted at senior fire service officers from industry and government and senior insurance officers. Expertise and recycling equipment provided from the project approved at the 6 <sup>th</sup> ExCom meeting.	Training well received. Concept of Halon bank for 1301 is acceptable. However, recovery/recycling project transferred from private sector to Fire Service dept. after two years, as there was difficulty in implementing the regulations through private sector. Halon Bank being set up at new location

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					– needs training in operating of equipment.
MAL/REF/04/TRA/01	Malaysia	UNDP	Jun-91	Training of refrigeration servicing technicians in conservation, leakage control and recycling of CFC-12 prior to or immediately following initiation of a national recycling programme in the MAC sector.	Equipment has been deployed, but there appears to be a need for retraining which can be accomplished by local expert. Need arises from the fact that technician trained in use of equipment has left enterprise, or owner took training and was not able pass it on to technician. Equipment is still very under-utilized.
MAL/SEV/10/TRA/13	Malaysia	UNDP	Jun-93	To bring 400 representatives from small- and medium-sized industries to update the national ODS phase-out programme and facilitate project preparation.	Resulted in update of CP and 31 investment project proposals.
MAL/SOL/11/TRA/14	Malaysia	USA	Nov-93	Technical sessions on aqueous and semi-aqueous cleaning, metal and precision cleaning and non-cleaning technologies.	Increased awareness amongst users of CFC-113, Methyl Chloroform and CTC about the alternative technologies available.
MAL/SOL/22/TRA/97	Malaysia	France	May-97	Many companies are facing difficulties in producing stable results with no clean technology. The project proposes the establishment of a laboratory and testing centre to provide process improvement training and improve the skill level of technicians from about 55 SMEs that use no-clean technology. Consideration will be given at a later stage to extending the programme. Additional funding approved at ExCom 29 to cover 15 additional SMEs.	Project being implemented by PROMOSOL, a private sector co. that markets no-clean fluxes. 55 SMEs trained, and the next 15 will be trained shortly. Project is not sustainable, as funding is required for each training programme. Equipment is being used as R&D to develop production parameters. Question remains what happens to the equipment after this training is completed. Countries in the region should be encouraged to develop bilateral projects to continue utilizing this facility.
<b>LATIN AMERICA &amp; THE CARIBBEAN PROJECTS</b>					
ARG/REF/21/TRA/05	Argentina	UNEP	Feb-97	To conduct pilot instruction workshops for a core group of industries/organizations (240 trainees); provide recycling and leak detection equipment to core group; adjust existent training materials; monitor and report on experience of core group for design of next phase; discuss/explore policies towards the development of a management plan for treatment and disposal of CFC refrigerants; promote initiatives between Government and industrial sectors to establish a qualification and certification programme for service technicians. Depending on the outcome of this phase, a larger scale training programme will be developed and implemented during phase 3, targeted at the highest priority sub-sectors, based on the relative need of sub sectors and the sub-sectors showing the greatest potential for reductions.	Based on the accomplishment of all Phase 2 targets, on solid relations with industry leaders and on an increasing support from environmental authorities, the Argentinean NOU is also well prepared to accomplish Phase 3.
ARG/REF/191/TRA/46	Argentina	Switzerl and	May-96	With INTI* support, OPROZ implemented strategies and activities that made it possible to accomplish all targets established by the Programme almost on time.	The experience and skills of technical staff of the Instituto Nacional de Tecnologia Industrial (INTI) made it possible to design practical solutions that are easy to implement in small facilities.
TRI/REF/23/TRA/07	Trinidad & Tobago	UNEP	Nov-97	Training for refrigeration technicians in good management practices using the Train the Trainers approach, aimed at	Train the Trainers component has been completed. Three institutions have been selected to deliver the national training programme. One institution in

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Code	Country	Agency	Year Approved	Project Description	Observations by the Consultant
				improving service and maintenance practices in order to prevent intentional and/or unintentional release of ODS into the atmosphere, thus making it possible for refrigeration equipment to operate to the end of its useful life.	Port of Spain has completed two training programmes. The institute at San Fernando is not able to attract any participants despite advertisements. It may be due to the fact that this institute does not teach R&AC any more. NOU is considering including the Department of Continuing Studies, Univ. of West Indies as one of the training institutions. The trainer there has received training in the ToT programme. The timing appears to be right, as import quotas have been established, and the Association has voluntarily taken a decision to increase price of CFC-12 by 300% from this year. The impact will be felt within the next few months.
TRI/REF/23/TRA/10	Trinidad & Tobago	UNEP	Nov-97	Training for monitoring and control of ODS aimed at Customs and Bureau of Statistics, to identify and develop techniques for collecting and reporting consumption of import data.	Training programme has not yet been implemented. Expected in June 2000
TRI/SEV/04/TRA/01	Trinidad & Tobago	UNDP	Jun-91	The government specified the need for refrigeration training programme and demonstration projects. CARIRI has been selected as the consulting body for preparation of CP.	CARIRI consultant for the CP was a refrigeration expert and contributed to the CP. Funding was for CARIRI to do the work.
URU/ARS/18/TAS/16	Uruguay	UNDP	Nov-95	Provide necessary safety equipment (CO2 and ABC powder fire extinguishers, a set of aerosol crimp gauges and a portable gas detector), technical assistance to the fillers to modify their product formulations for the use of HAP, safety training programme and a plant audit. The Government does not intend to request any additional assistance in the aerosol sector, and will inform participating companies that a decree will be issued forbidding any further use of CFCs in the aerosol sector.	The training component of this project was executed through a two-day seminar that took place during September 1996. The objective of the activity was to inform the local companies about the alternative technologies in aerosol and on safety standards for the use of hydrocarbons in the aerosol industry. The seminar took place as planned and in a satisfactory manner, with the participation of representatives of local companies.
URU/HAL/15/TRA/13	Uruguay	USA EPA	Dec-93	Assistance to plan and implement a national halon management and phase-out strategy, and training on procedures to monitor progress and report on the use of the halon recovery and recharge equipment.	The training component of this project took place in November 1993, through a one day training workshop focused in the preparation of a Halon Management Plan, alternatives to Halon 1211 and 1301 and recycling equipment. Representatives from different Government Agencies and private companies took part in the workshop. An evaluation of the project activities took place between March 1996 and February 1997. The needs of the different shops were well established, so were the project objectives. The project outcome was satisfactory. Recycled gas was 986Kg. The shop owners expressed satisfaction, however, the technical assistance provided by the supplier ROBINAIR was deemed insufficient.

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URU/REF/ 27/TRA/29	Uruguay	Canada	Mar-99	<p>Training Customs Officers (inspectors, controllers and custom policemen) to enable know-how about ozone depletion and its effects; being acquainted with ODS import/export licensing system and other national regulations related to the phase-out of ODS, and their role in it; identify controlled substances under the Montreal Protocol; identify imported refrigerators, freezers and other refrigeration equipment using CFC; record imports of ODS and ODS-containing equipment and report to the NOU. Including the above training within the regular customs training programmes in order to reach the totality of the customs officers</p> <p>*Phase I: a group of selected customs trainers and more experienced customs officers (20) will be trained as trainers by an international consultant.</p> <p>*Phase II: a selected group of customs officers from the most important customs entry points (120) will be trained by the local trainers who were trained during the first phase of this Programme.</p> <p>*Phase III: the results of the training will be monitored and evaluated.</p>	<p>The project is geared to provide training for customs officers on the Montreal Protocol and ODS control measures. The project is to be implemented in three phases: Phase I: a group of selected customs trainers and more experienced customs officers (20) will be trained as trainers by an international consultant; Phase II: a selected group of customs officers from the most important customs entry points (120) will be trained by the local trainers who were trained during the first phase of this Programme; and Phase III: the results of the training will be monitored and evaluated. The project's Phase I is under execution since December 1999.</p>