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Addendum

**REPORT ON THE IMPLEMENTATION OF THE 1999 WORK PROGRAMME FOR
MONITORING AND EVALUATION**

This addendum consists of the preliminary summaries of the findings and recommendations of the evaluations for institutional strengthening and refrigeration projects

PART I – INSTITUTIONAL STRENGTHENING PROJECTS

I Introduction

1. This paper presents an overview of the main findings and recommendations of the three Evaluation Teams who visited 17 countries in Africa, Latin America and the Caribbean, and Asia. Details of the sample of Institutional Strengthening projects visited are contained in the report on the Implementation of the 1999 Work Programme for Monitoring and Evaluation presented to the 29th Meeting of the Executive Committee (see UNEP/OzL.Pro/ExCom/29/5 pp. 7-9).

2. The terms of reference for the Teams had been identified in the Desk Study carried out by a consulting company. They were presented to the MEF Sub-committee in an interim report on the implementation of the 1999 Work Programme for Monitoring and Evaluation presented to the 28th Meeting of the Executive Committee (see UNEP/OzL.Pro/ExCom/28/16, pp. 5-8). The MEF Sub-committee discussed these issues and elaborated them further in its report to the 28th Meeting of the Executive Committee (UNEP/OzL.Pro/ExCom/28/4, paragraph 49-51). These issues were used to structure the interviews in the Ozone Units and to prepare the case studies as well as the synthesis reports.

3. The terms of reference identified in the Desk Review and further elaborated by the MEF Sub-committee were fairly broad. The main issues were the following:

- (a) to determine whether the role and position of the National Ozone Unit within the governments are appropriate to contribute effectively to meeting the country's commitments under the Montreal Protocol;
- (b) to examine whether or not the volume of financial and human resources made available to National Ozone Units by their respective governments and the Multilateral Fund would be appropriate to fulfill their tasks; Government counterpart funding was considered as essential by the MEF Sub-committee, in exchange for the assistance provided by the Multilateral Fund;
- (c) to analyze whether the planning and budgeting procedures and templates currently in use sufficiently take into account the need for flexibility in implementing the work plan, while at the same time ensuring that focus and accountability as well as national ownership of the planning and implementation process would be enhanced;
- (d) to examine the monitoring, data collection and reporting system and to review the commitment of Article 5 countries to give priority to Ozone issues by setting up institutional and regulatory frameworks suitable to achieve the objectives of the Montreal Protocol;
- (e) to examine the role of National Ozone Units as a liaison between the Implementing Agencies and local enterprises and to analyze their relations with the Implementing Agencies and with the Regional Networks;
- (f) and finally, to ensure that the evaluation report would formulate operational

recommendations.

4. The above terms of reference call for a comprehensive and forward-looking evaluation, focusing not only on the results of past activities, but also on the question of whether the framework conditions and organizational set up for the NOUs are suitable for enhancing their effective contribution to Article 5 countries' compliance and rapid phase out. While this approach might be considered as too broad for a thorough evaluation in the short time available for the field investigations, the consultants succeeded in identifying key issues, some of which need further analysis before resulting in operational recommendations. Nevertheless, a number of concrete recommendations have already been put forward in the draft evaluation reports which are currently being processed for review by the Implementing Agencies and the National Ozone Units. Once their views have been collected, a consolidated final evaluation report including an action plan for follow up on the results of the evaluation will be presented to the 30th Meeting of the Executive Committee.

II Project Preparation, Planning and linkages to Country Programmes (CP)

5. Country Programmes (CP) and project documents for Institutional Strengthening projects are closely linked. Country Programmes have been usually adopted prior to the approval of Institutional Strengthening projects. While in many countries, the Institutional Strengthening projects are in their second or third phase, the CPs have not been updated. A greater link between the objectives of the CP and the IS projects can only be created if the CPs are revised. In only two countries, China and Malaysia, the CP update is being prepared, while in other countries, e.g. Mexico, skepticism is prevalent with respect to the need and usefulness to do so. In 75 countries, particularly in many low-volume consuming countries (LVCs), a refrigerant management plan (RMP) has been prepared with financial assistance by the Multilateral Fund and technical support by UNDP and UNEP as well as some bilateral donors, especially by Canada and Germany. The RMP adopt a comprehensive approach to CFC-phase out and include the development of an appropriate legal framework.

6. *Nevertheless, all three Evaluation Teams recommended that the Country Programmes should be updated with a view of reassessing the national ozone strategy to face the post-freeze period with an integrated approach for compliance and total phase out, combining direct and indirect controls as well as investment and non-investment projects.*

7. *The African Mission emphasized that for determining the level of future funding of Institutional Strengthening projects, not only the ODS consumption should be taken into account for low-volume consuming countries, but their particular requirements, difficulties and National Ozone Unit activities needed to overcome them, without being more specific in their recommendation, however.*

8. The Latin American Mission found that in the project documents the linkage between objectives, results and activities were not explained clearly enough particularly for UNDP implemented projects. In this respect, *the Mission recommended that the Secretariat should, in cooperation with the Implementing Agencies, review the standard template for future IS projects or renewals. This revised template should foresee to show the linkages between the objectives, results and activities more clearly.* The Mission to Africa found NOU specifically wanting to see activities listed with time frames, as already foreseen in the format for action plans which are part of the extension requests, in order to secure their Government's

commitment, and to assure that project expenditures would be approved by their superiors more easily. Some Asian countries also expressed a preference for clearly structured work plans while simultaneously maintaining some flexibility in the event priorities change.

9. *The Missions to Africa and Asia recommended that, in addition to a well-structured action plan, there should be the possibility for budget revisions. At the same time, the Implementing Agency while preparing the project should take the specific conditions of each country with regard to a more structured or more flexible approach into account. The Asian Team recommended that all Implementing Agencies should be involved in the planning of the work plans of IS projects, in addition to the agency directly implementing the project.*

10. *Planning for an extension phase should be based on an independent evaluation of the previous phase, followed by and discussed in a planning workshop with the participation of local stakeholders and a representative of the Implementing Agency.*

11. *The Mission to Latin America emphasized that the practice of annual ozone work plans integrated into the programmes of the Ministry or institution where the NOU is located is conducive to accountability and to a solid process of internalization.*

III Position, Influence and Credibility of the National Ozone Units, contribution to improving the legal framework for ODS Phase Out

12. The Missions found that most NOUs are located in the Ministries of Environment, that means they have been mainstreamed into the decision-making process, albeit generally on a relatively low hierarchical level with limited access to the top decision makers, except for the large countries, i.e. China, India or Mexico, and also some smaller countries like Chile, Mauritius, Ghana and Tunisia. In China and India, a complex system of consultation and decision preparation mechanisms has been set up, which include scientists and professional staff from various institutions and organizations, thus drawing substantially on nationally available expertise, with the NOU assuming a key role in the decision preparation process.

13. For many African countries it was found that the ozone depletion issue does not appear high on the environmental policy agenda which gives preference to more visible and urgent issues such as waste management, air pollution and water pollution. The Mission to Latin America found that in the final analysis, the legal framework established in the country was more important for the efficiency of the NOU than its place in the hierarchy. The Asia Team, by contrast, underlined the importance of ensuring that the NOU, in particular the head of office, has sufficient political influence and access to decision-makers.

14. In terms of assisting the Governments with the articulation of ODS phase-out policies, legislation and regulation, the results achieved vary from country to country. In countries where the legal framework is clear, transparent and encompassing, the Ozone Units have had a very positive impact on the phase out. A note of caution was voiced by the Latin American Mission that Compliance was generally not indicated as an ultimate objective in the project document nor reported upon in the Project Completion or Terminal Report. Another issue mentioned was that due to periodic government or ministerial changes, established relations to superiors sometimes weakened, and even changes of Ozone Officers occurred.

15. While in many countries NOUs are involved in the preparation of laws and regulations, the majority of the countries do not directly participate in the enforcement of such legal provisions. ***The Mission to Asia recommended that the NOU should develop closer links with enforcement agencies, particularly at provincial and local levels.*** This becomes increasingly important with the emphasis shifting towards small- and medium-sized enterprises that are the remaining target groups for conversion in most sectors.

16. ***The Mission to Latin America strongly emphasized the need to establish licensing systems to effectively monitor and control imports of CFCs and CFC-based equipment. It also recommended the creation of a working group within the Executive Committee, or a task force, or a special project with participation from the Implementing Agencies and/or the Secretariat, to promote the establishment of licensing systems in a selected group of countries within a short period of time.***

17. ***The Mission to Africa focused on the need to find appropriate solutions to the problem of illegal importation of second-hand CFC based equipment and CFCs to many countries in Africa. While recognizing that consumer prices for these items are much lower than for non-CFC equipment, measures must be taken beyond awareness raising of consumers who respond primarily to price incentives.***

IV Organization of National Ozone Units

18. Four Agencies (UNDP 8 projects, UNEP 6, World Bank 2, and UNIDO 1), implement the Institutional Strengthening projects reviewed by the three Evaluation Teams. It was noted that the World Bank adopts a more flexible approach defining the Host Country agreement in global terms only, while the other agencies structure the Ozone Unit's activities in more detail. The size of the Ozone Unit in terms of the number of staff varies considerably. While China has 15 professional staff and 25 cooperating staff in various ministries, in the low-volume consuming countries, the Ozone Officer is sometimes also dealing with other environment-related tasks. Countries like Mexico or Chile have two professionals in the NOU.

19. Ozone Officers and other professional staff are in most cases government employees with their salaries topped up by the project in various forms. In some other countries they are hired directly by the Implementing Agencies on temporary contracts. The fluctuation of professional staff varies likewise between countries and seems mainly to depend on the one hand on political changes within their respective ministry, and on the other hand on the employment stability and financial conditions offered to the Ozone Officers.

20. In the recommendations, emphasis was placed on the responsibility of governments to review the contractual status of NOU staff and to create sufficient stability guaranteeing a continuous Implementation of the project. ***The Latin American Mission concluded that the Governments should find ways and means to absorb the Ozone Officers generally into their civil service cadre as a condition for achieving long-term sustainability.*** As time was short and the evaluation not only focused on this aspect, the Missions found that there was not enough time to look into all aspects of this particular problem and proposed *to undertake an in-depth analysis to determine the optimum institutional arrangement to gradually institutionalize the national Ozone Units as part of the national administrations.* ***The Mission to Asia emphasized that the turnover of Ozone Officers should be reduced and that the number of permanent staff of NOU***

should be increased in order to deal with the complex issues of serving the large number of SMEs which still need to be converted.

V Project Implementation and Cost Effectiveness

21. Seven of the IS projects evaluated are now in Phase II, four projects in Phase II and six projects are still implementing Phase I.

22. Due to the tight travel schedules the teams didn't have enough time to look into the particulars of the activities implemented. However, they reported that in general terms, the majority of the projects have been implemented successfully, albeit to varying degrees. Some drawbacks were reported in several countries due to high turnover of Ozone Officers, or to the rather slow pace of disbursement of funding from the Implementing Agency, particularly in some African countries. The framework conditions prevailing in the countries have an important impact on the ability of the NOU to reach results in terms of contributing to an accelerated phase out. In Mexico, for example, the NOU has been successful in arranging voluntary conversion agreements with industries. As a result, the phase-out process has been faster than originally foreseen in the Country Programme aiming at complete phase out of CFC in the Year 2000. Other countries like Colombia were behind schedule for several years but made up the delays during recent years.

23. The Latin American Team tried to develop a concept for measuring the cost effectiveness of IS projects by relating the expenditures for the IS project to the total phase out achieved in a country minus the phase out realized through investment projects. The cost effectiveness figures thereby obtained varied greatly from country to country and the Team concluded that there cannot be a uniform cost-effective measure, since factors like the size and number of the enterprises and overall government policies affect the Unit's effectiveness. *The Team nevertheless recommended that the Secretariat should further analyze this matter and prepare a study with regard to possible cost effectiveness criteria for IS projects and their application in the post-freeze period. Reference should be made in this respect to the two existing performance indicators for business plans which intend to measure the contribution of non-investment projects to ODS phase out. Another recommendation, from the Latin American Team, suggested that the Secretariat should review the guidelines for the preparation and extension of Institutional Strengthening projects with a view to redefine the budget items eligible for funding by the Multilateral Fund. This should also include studying possibilities of introducing conditionality in terms of linking funding levels with compliance.*

24. In China, the NOU is very concerned with illegal trade of CFC and unauthorized production of CFC-based equipment, for example, refrigerators, for which no comprehensive statistics are available. *The African and the Latin American Team emphasized the need to study existing or potential market distortions through legal or illegal trade of CFC and CFC-based equipment. Solutions to these problems would require regional approaches and would also need increased activities for improving consumer awareness.*

VI Funding of Institutional Strengthening Projects and Sustainability

25. The mission to African countries emphasized the problems of disbursement processes, which are complicated, lengthy and not easy to handle for the Ozone Officers. Another consideration was that very low-volume consuming countries might not get the sufficient level of funding of coping with all the activities needed to promote phase-out in the sometimes geographically large countries like Ethiopia. In other cases, like Tunisia, it was reported that the NOU felt it had over the years accepted considerably more work to coordinate investment projects than was originally foreseen and budgeted for.

26. The Asian Mission found that overall funding and support provided by Governments for IS Projects was insufficient to deal with all tasks and responsibilities assigned to the projects, particularly to cope with the increasing workload in dealing with SMEs and the service sector. *The team concluded that the governments would need to create more positions for permanent staff to overcome this problem while the funds provided by the Multilateral Fund should focus on supporting concrete activities and the recruitment of national and international consultants. In this way, the sustainability of NOUs operations would more likely to be achieved in the mid-term future. Moreover, mobilizing the financial support from industries should actively develop opportunities for self-financing activities.*

27. The Latin American Team found that after an initial phase where also some office equipment was financed by the MF, the budgets for the extension phases contained 70% or more for financing the current cost of Ozone Unit staff. In other words, the funding from the MF was focused more on institutional maintenance than capacity building. Sustainability in the sense of durability of project results after terminating external funding seems to be doubtful under these conditions, mainly since no country is taking over an increased share of financial responsibility and providing a perspective of fully continuing the work even if funds from the MF should cease to come forth.

28. *The Latin American Team concluded that Governments should find the ways and means to absorb slowly but surely part of the running costs of Ozone Units. Moreover, the Governments should take the necessary actions without delay to create an appropriate legal framework, thereby creating a more conducive environment for rendering the IS projects sustainable.*

VII Monitoring and Reporting Systems

29. Monitoring and reporting concerns three levels:

- (a) Monitoring of CFC consumption in the country, including import export and production of CFC products and CFC based equipment.
- (b) Progress achieved in terms of realizing the objectives of the IS projects.
- (c) Progress achieved in terms of implementing investment and non-investment projects.

30. *All Teams recommended an improvement of control systems for effectively monitoring imports of ODS based products or equipment, in particular, by introducing import licensing*

schemes. This would allow to improve the information base and to exercise effective import controls and impose quantitative restrictions.

31. With regard to monitoring the progress of investment and non-investment projects in the country, *the Asian Team recommended that the Implementing Agencies should provide NOUs with more information on their project's achievements and that NOUs should create the capacity for the monitoring and evaluation of activities and programmes implemented.* Some NOUs, in Egypt for example, have already created a comprehensive database with information on all projects implemented in the country.

32. With regard to reporting on IS project results it was observed, particularly by the African Mission, that there existed some friction between NOUs and IA concerning reporting requirements and the capacities of NOUs to comply with these. There were also complaints from Latin American NOUs about excessive reporting burdens.

33. The Teams noted that the Project Completion Reports or the terminal reports jointly presented with the extension requests do not always convey the information needed to assess results and establish the necessary information on progress achieved during the preceding phase of the project. It was therefore recommended that *the Secretariat should develop a procedure for independent assessments and a format for reporting on project results at the end of each Phase of the IS projects which would simultaneous serve as project completion reports and as terminal reports as part of the extension requests.*

VIII National Ozone Units and Industry

34. All teams reported that the NOUs had developed a positive relation with the industries concerned, helping the Implementing Agencies in identifying the enterprises through public awareness campaigns. This holds true particularly for large-scale enterprises. Ozone Units were in several cases also instrumental in arranging agreements between different producers to phase out simultaneously (Mexico), and it was partly done in close cooperation with the National Industry Associations, as in the case of Colombia. For SME and the service sector, the relations are less developed, and as reported particularly for Africa, some mistrust against government interventions exists. The latter sectors are difficult to reach because they are heterogeneous, spread out, unorganized and not easy to reach through the public media.

35. *The African Mission focused in its recommendations on improving the cooperation with non-governmental organizations, and the Asian Mission recommends to develop closer links between NOUs and SMEs as well as the service sector through industrial associations. The Latin America Team recommends that NOUs should establish national inventories to list all SME using or servicing CFC equipment. The Team also recommends to start concerted national efforts to organize the SME sector in national, provincial or even local level organizations depending on the size of the country.*

36. In order to stimulate the interest of rapid conversion in industry, *the Asia Team recommended that NOUs should work out proposals for more effective fiscal incentives, like for example in China, where all industrial investments and activities for upgrading operations in the process of ODS phase out are tax deductible. Moreover, the Asia Team recommended that industries should contribute financially to the operations of NOUs, e.g. by paying for information services.*

IX National Ozone Units and Implementing Agencies

37. The African Mission observed that project supervision by UNEP/DTIE in Paris' office functions almost exclusively through reporting formats designed for this purpose. The NOUs staff is apparently not always sufficiently trained to use these instruments. On the other side, given the small size of the projects, field visits for project supervision would not be justified. Other Implementing Agencies with either field offices or more frequent field visits showed less or no difficulties regarding project supervision of IS project implementation.

38. However, as the Latin American Mission observed, the working relationship might vary in each case. In Chile (World Bank) it was distant and infrequent, in Colombia with UNDP it was almost null whereas in Mexico again with UNDP, it was very close and fluid. In Colombia, tri-partite reviews are held, but not in Mexico.

39. The procedures of the IA with regard to the implementation of investment projects vary between the agencies and accordingly vary with the involvement of the Ozone Units. The Asia Team particularly elaborated on this. The World Bank implements investment projects through a national financial institution or agent that is fully responsible for the entire implementation of the projects. For policy issues or problems the Ozone Unit's intervention is requested, and in some cases, like in China, the Ozone Unit carries out part of the implementation activities against an agreed upon fee with the World Bank. In this model, regularly national experts as consultants or employees of the financial agents are carrying out project preparation, implementation, supervision, monitoring and reporting. In the case of UNDP, some implementation operations are shared with the Ozone Units, but UNOPS handles most aspects of implementation including the bidding process, selection of suppliers as well as supervision and reporting. The local UNDP Officers assume to some extent the role of financial agents assuring disbursement of funds and supervising the accounts of the IS projects. UNIDO on the other hand operates almost totally from HQ, with staff members of the Montreal Protocol Unit assuming the tasks of investment project identification, preparation, implementation, supervision and reporting.

40. The Asia Team reported that some NOUs, particularly SEPA, expressed reservations with respect to the choice of consultants by the implementing agencies which were considered as not being sufficiently qualified, and it was stressed, that *when using international consultants or agencies staff members acting as consultants, the Ozone Units should be fully informed on the purpose, time, and terms of reference of the Missions which would allow them to better understand and evaluate the specific contributions of these consultants and their expertise in comparison to national consultants and experts*. The NOUs request that their perception of consultants' qualifications and performance should be duly taken into account in order to maintain credibility with national industry and to build up gradually national expertise by using national consultants.

41. *A final point was raised by the Africa Mission which underlines the need to communicate in French with francophone NOUs.*

X National Ozone Units and Regional Networks

42. All NOUs agreed about the usefulness of the Regional Network Meetings, but said also that they have not fully exploited their potential and could be made more effective by:

- (a) Careful preparation of the agenda for each meeting avoiding repetition of certain items and taking up new issues resulting from Meetings of the Parties and the Executive Committee.
- (b) A transfer of knowledge from the more experienced ODS Officers should be organized more systematically in order to help the more recently recruited officers or the less advanced countries.
- (c) The Network Meetings should be used to discuss in more detail project implementation issues, for example, disbursement matters between NOUs and the IA. Emphasis should be given to concrete problem solving and training.
- (d) To exchange information about successful management practices, and to organize cooperation within the region, e.g. with regard to joint training activities based on a common language like those started for the Arab-speaking NOUs. This could also include the exchange of information on particularly successful investment projects.

SAMPLE OF INSTITUTIONAL STRENGTHENING PROJECTS VISITED



| Region | Country | Agency | Phase | ODS Consumption* | LVC** |
|---------------------------------|---------------|--------|-------|------------------|-------|
| Asia and the Pacific | China | UNDP | III | 90,511 | |
| | India | UNDP | II | 14,816 | |
| | Malaysia | UNDP | III | 3,659 | |
| | Thailand | UNDP | I | 5,304 | |
| | Vietnam | UNEP | I | 612 | |
| Latin America and the Caribbean | Bahamas | UNEP | I | 32 | X |
| | Chile | IBRD | II | 857 | |
| | Colombia | UNDP | II | 2,223 | |
| | Costa Rica | UNDP | II | 606 | |
| | Mexico | UNDP | IV | 1,805 | |
| | Nicaragua | UNEP | I | 59 | X |
| Africa | Ethiopia | UNEP | I | 62 | X |
| | Egypt | UNIDO | II | 2,785 | |
| | Ghana | UNDP | III | 52 | X |
| | Cost d'Ivoire | UNEP | II | 149 | X |
| | Mauritius | UNEP | I | 30 | X |

* Latest data from national sources for either 1997 or 1998

** Low volume consuming country (less than 360 tonnes of annual ODS consumption)

OVERVIEW OF INSTITUTIONAL STRENGTHENING PROJECTS EVALUATED**ASIA AND THE PACIFIC**

| Country | Code | Agency | Date Approved | Date Completion | Funds Approved | Funds Disbursed* | Report Received |
|--------------|-----------------------------------|--------|---------------|-----------------|------------------|------------------|-----------------|
| China | CPR/SEV/06/INS/10 (Phase I) | UNDP | Feb-92 | Dec-96 | 450,000 | 450,000 | due |
| | CPR/SEV/20/INS/181 (Phase II) | UNDP | Oct-96 | Dec-98 | 300,000 | 300,000 | TR |
| | CPR/SEV/26/INS/262 (Phase III) | UNDP | Nov-98 | | 300,000 | 466 | on-going |
| India | IND/SEV/08/INS/02 (Phase I) | UNDP | Oct-92 | Dec-96 | 430,600 | 428,929 | due |
| | IND/SEV/20/INS/107 (Phase II) | UNDP | Oct-96 | | 287,100 | 179,280 | on-going |
| Malaysia | MAL/SEV/09/INS/08 (Phase I) | UNDP | Mar-93 | Dec-96 | 322,520 | 311,401 | TR |
| | MAL/SEV/20/INS/91 (Phase II) | UNDP | Oct-96 | Oct-98 | 215,000 | 157,426 | TR |
| | MAL/SEV/26/INS/114 (Phase III) | UNDP | Nov-98 | | 215,000 | 0 | on-going |
| Thailand | THA/SEV/09/INS/09 (Phase I) | UNDP | Mar-93 | Dec-98 | 400,000 | 273,216 | TR |
| | THA/SEV/25/INS/93 (Phase II) | UNDP | Jul-98 | | 266,667 | 0 | on-going |
| Vietnam | VIE/SEV/17/INS/08 (Phase I) | UNEP | Jul-95 | | 137,280 | 94,170 | on-going |
| Total | | | | | 3,324,167 | 2,194,888 | |

* According to Progress Report

TR = Terminal Report

PCR = Project Completion Report

OVERVIEW OF INSTITUTIONAL STRENGTHENING PROJECTS EVALUATED**LATIN AMERICA AND THE CARIBBEAN**

| Country | Code | Agency | Date Approved | Date Completion | Funds Approved | Funds Disbursed* | Report Received |
|--------------|----------------------------------|--------|---------------|-----------------|------------------|------------------|-----------------|
| Bahamas | BHA/SEV/19/INS/02 (Phase I) | UNEP | May-96 | | 50,000 | 12,000 | on-going |
| Chile | CHI/SEV/07/INS/08 (Phase I) | IBRD | Jun-92 | Oct-96 | 210,907 | 210,907 | PCR |
| | CHI/SEV/20/INS/16 (Phase II) | IBRD | Oct-96 | Oct-98 | 113,500 | 88,473 | PCR |
| | CHI/SEV/25/INS/36 (Phase III) | IBRD | Jul-98 | | 143,500 | 0 | on-going |
| Colombia | COL/SEV/12/INS/02 (Phase I) | UNDP | Mar-94 | Mar-98 | 317,790 | 317,790 | due |
| | COL/SEV/24/INS/25 (Phase II) | UNDP | Mar-98 | | 212,000 | 10,363 | on-going |
| Costa Rica | COS/SEV/08/INS/03 (Phase I) | UNDP | Oct-92 | Dec-96 | 213,160 | 213,160 | TR |
| | COS/SEV/21/INS/10 (Phase II) | UNDP | Feb-97 | | 108,087 | 85,369 | on-going |
| Mexico | MEX/SEV/07/INS/16 (Phase I) | USA | Jun-92 | Jun-95 | 350,000 | 350,000 | due |
| | MEX/SEV/17/INS/40 (Phase II) | UNDP | Jul-95 | Oct-96 | 95,000 | 95,000 | PCR |
| | MEX/SEV/20/INS/50 (Phase III) | UNDP | Oct-96 | Oct-98 | 190,000 | 182,549 | TR |
| | MEX/SEV/25/INS/83 (Phase IV) | UNDP | Jul-98 | | 190,000 | 0 | on-going |
| Nicaragua | NIC/SEV/22/INS/03 (Phase I) | UNEP | May-97 | | 66,000 | 0 | on-going |
| Total | | | | | 2,259,944 | 1,565,610 | |

* According to Progress Report

TR = Terminal Report

PCR = Project Completion Report

OVERVIEW OF INSTITUTIONAL STRENGTHENING PROJECTS EVALUATED

AFRICA

| Country | Code | Agency | Date Approved | Date Completion | Funds Approved | Funds Disbursed* | Report Received |
|---------------|----------------------------------|--------|---------------|-----------------|------------------|------------------|-----------------|
| Egypt | EGY/SEV/10/INS/14 (Phase I) | UNIDO | Jun-93 | Dec-96 | 263,450 | 263,449 | PCR |
| | EGY/SEV/21/INS/61 (Phase II) | UNIDO | Feb-97 | Dec-98 | 175,630 | 163,905 | PCR |
| Ethiopia | ETH/SEV/20/INS/03 (Phase I) | UNEP | Oct-96 | | 60,500 | 31,317 | on-going |
| Ghana | GHA/SEV/08/INS/05 (Phase I) | UNDP | Oct-92 | Dec-96 | 183,200 | 183,200 | TR |
| | GHA/SEV/20/INS/08 (Phase II) | UNDP | Oct-96 | Dec-98 | 107,000 | 82,299 | due |
| | GHA/SEV/26/INS/10 (Phase III) | UNDP | Nov-98 | | 107,000 | 0 | on-going |
| Cote D'Ivoire | IVC/SEV/13/INS/02 (Phase I) | UNEP | Jul-94 | Oct-98 | 122,810 | 122,810 | PCR |
| | IVC/SEV/26/INS/12 (Phase II) | UNEP | Nov-98 | | 81,800 | | on-going |
| Mauritius | MAR/SEV/10/INS/02 (Phase I) | UNEP | Jun-93 | | 50,000 | 20,684 | on-going |
| Tunisia | TUN/SEV/08/INS/09 (Phase I) | IBRD | Oct-92 | Jun-98 | 280,000 | 285,312 | PCR |
| | TUN/SEV/25/INS/31 (Phase II) | IBRD | Jul-98 | | 186,700 | 0 | on-going |
| Total | | | | | 1,618,090 | 1,152,976 | |

* According to Progress Report
TR = Terminal Report
PCR = Project Completion Report

PART II – REFRIGERATION PROJECTS

I Introduction

1. This paper gives an overview of the main findings and recommendations of the three Evaluation Teams who visited five countries in Asia, four countries in Latin America and two countries in Africa (for details about the countries and projects visited see the tables attached). The Team Leaders for Asia and Latin America prepared draft regional synthesis papers, and two refrigeration experts (one covered Latin America and the other one Asia and two countries in Africa) prepared two draft sector synthesis papers.

2. The criteria for selecting the 29 refrigeration projects evaluated are presented in the report on the Implementation of the 1999 Work Programme for Monitoring and Evaluation presented to the 29th Meeting of the Executive Committee (see UNEP/OzL.Pro/ExCom/29/5 pp. 4-6).

3. Detailed evaluation issues and terms of reference for the evaluation were identified in the Desk Study carried out by the Senior Monitoring and Evaluation Officer. They were presented to the MEF Sub-committee in the interim report on the implementation of the 1999 Work Programme for Monitoring and Evaluation presented to the 28th Meeting of the Executive Committee (see UNEP/OzL.Pro/ExCom/28/16, pp. 1-4).

4. The Evaluation Teams were requested to look into the following areas:

- (i) project identification and preparation
- (ii) project review and approval process
- (iii) choice of technology
- (iv) institutional arrangements
- (v) bidding procedures and experiences with supplier companies
- (vi) implementation delays
- (vii) project costs
- (viii) results and effectiveness in terms of ODS phase out
- (ix) sustainable impact in terms of non-reversible conversion of technology
- (x) project monitoring, reporting and evaluation.

5. The MEF Sub-committee approved the methodological approach and the evaluation issues, which were subsequently used to structure the interviews held with the companies and to prepare the case studies as well as the synthesis reports. As in this paper, the results in terms of ODS phase out were placed at the beginning of the reports in order to highlight the most important issues first.

6. The experience during the interviews in the companies showed that it was not always possible to collect complete and clear information on all the issues listed above, in spite of the fact that the companies were generally very accessible and forthcoming with data. In the short time available for the field investigations, the consultants succeeded in identifying key issues, which in some cases need further analysis before resulting in operational recommendations. Nevertheless, a number of concrete recommendations have already been put forward in the draft

evaluation reports which are being processed for review by the Implementing Agencies, the National Ozone Units and the companies visited. Once their comments have been collected, a consolidated final evaluation report including an action plan for follow up on the results of the evaluation will be presented to the 30th Meeting of the Executive Committee.

II ODS Phase Out and Cost Effectiveness

7. All companies visited had successfully phased out the targeted volume of ODS either exactly as foreseen, or, with some exceptions, within a range of plus or minus 10% or less (see attached tables). Total ODS phase out planned as indicated in the project documents for the 29 refrigerator projects evaluated was 1,403.55 ODP Tonnes, and the Evaluation Teams calculated an estimated total phase out of 1,378.24 ODP Tonnes achieved (see table below). The total figures are preliminary. In some completed projects, total funds approved have not been fully spent, in others some balances are still open and three projects have not yet been fully completed. In a number of Project Completion Reports (PCRs), financial data as well as figures for ODS phase out are still provisional (for details see attached tables).

| | Number of companies visited | ODP To Be Phased Out As Per Project Document (ODP Tonnes) | ODP Phased Out As Per Evaluation (ODP Tonnes) | Difference ODP Phased Out Planned and Achieved (ODP Tonnes) | Funds Approved US \$ | Funds Disbursed US \$ |
|---------------------|------------------------------------|--|--|--|-----------------------------|------------------------------|
| Total Asia | 11 | 940.5 | 899.6 | -40.9 | 9,862,775 | 8,272,068 |
| Total Latin America | 11 | 288.05 | 302.84 | 14.79 | 4,716,979 | 3,910,404 |
| Total Africa | 6 | 175.0 | 175.8 | 0.8 | 4,197,671 | 4,135,981 |
| Total | 28 | 1,403.55 | 1,378.24 | -25.31 | 18,777,425 | 16,318,453 |

8. However, the Evaluation Teams reported considerable difficulties in verifying the exactness of the target figures for ODS phase out indicated in the project documents. For several projects, substantial errors in the calculation of ODS to be phased out were identified. The Latin American Mission found that in five projects the CFCs to be eliminated were overestimated and the mistakes were carried over from the project document to the Project Completion Report. In these cases, the phase out figures established in the interview in the companies differ considerably from the one shown in both the project document and in the Project Completion Report. The Mission to Asia found that the phase-out figures reported in the PCRs were a combination of: (i) the actual ODS use for the base line year; (ii) the actual quantity used in the first calendar year when phase out began; (iii) the theoretical phase out calculated as a full-year consumption figure and; (iv) the estimated yearly consumption for the following year.

9. The accuracy of the CFC consumption data in the companies could have been verified only with the everyday purchasing records of the company, but this would require more time and knowledge of local languages. Moreover, when trying to verify purchases of CFC, volumes bought for use in the service sector would need to be deducted in order to establish the quantity of CFC intended for use in the production sector.

10. *The Evaluation Teams recommended that the application of the existing rules for calculating the planned ODS phase out needs to be clarified. The calculation of actual ODS phase out should likewise be harmonized for all projects as well as the calculation of impact on the national sector consumption, as requested in the PCR. The Latin American Mission recommended more active participation from the National Ozone Units and the companies in the preparation of the project documents, as well as in the Project Completion Reports, in order to arrive at more reliable figures.*

11. In several cases, the differences observed between planned and realized levels of cost effectiveness resulted from changes between planned and actual ODS phase out figures and from changes in project costs due to various reasons. All these figures need to be reviewed with the Implementing Agencies and the companies concerned in order to arrive at final figures for drawing conclusions.

III Role of the Multilateral Fund in Funding the Conversion

12. All in all, the companies visited expressed their satisfaction with the assistance received from the Multilateral Fund. At the same time, the majority of companies visited indicated that they would have undertaken the conversion anyway, i.e. without funding from the Multilateral Fund. However, the timing of the conversion would have been delayed until they were definitely obliged by legal provisions to take action. The managers interviewed declared that without the Multilateral Fund, it would have been much more difficult to mobilize the necessary support from company owners in completing the conversion rapidly.

13. A number of companies claimed that the funds approved by the Multilateral Fund were insufficient to cover all costs of the conversion, and were aware beforehand of the need to finance the conversion partially from their own funds. In some cases, problems arose from companies not being able to retrofit equipment as planned because it turned out to be too old to be retrofitted which resulted in the companies necessarily providing counterpart funds to complete the conversion. *The Latin American Mission recommended that in such cases, a technical expert should assess and inspect the equipment at the site before the funding level is determined.*

14. Volume and purpose of counterpart funding in the companies visited were generally not well documented. The PCRs were not consistent in this respect. Some PCRs indicated total costs of conversion and the difference between total cost and funding provided by the MLF could be assumed to be costs absorbed by the company. In other projects, global figures on counterpart funding were indicated but not specified in detail. In most cases, the companies absorbed a portion of the conversion costs. It was often difficult to assess whether the counterpart funding was fully required for the conversion project itself or for more encompassing modernization measures implemented along with the conversion.

IV Irreversibility of Conversion

15. The Latin American Mission found that in all companies visited, the conversion process was completed, and that it was unlikely that companies would revert to the previous ODS technology in spite of the technical possibility to do so. Several reasons for this were quoted, ranging from market requirements, public image and the legal framework. The Asian Mission reported that one company of the sample was still using CFC-11, while at least two others were possibly still using CFC-12. Most companies, particularly those with multinational ownership, and in countries where all large companies have been converted, explained convincingly that due to market considerations and the costs involved in moving from HCF-134a back to CFC-12, they would not consider to reverting to ODS technology.

16. It cannot be overlooked, however, that several companies faced great difficulties at the beginning of the conversion, especially in competing with lower priced CFC refrigerators still being produced or imported in the same country. When combined with a decline of demand, as in the case of many Asian and Latin American countries, the temptation for companies to revert to the use of CFC, or even more so to delay full conversion (i.e. to retain one or two production lines for CFC use), was great. In Mexico and Colombia, the NOU was instrumental in a coordinated conversion process of the large producers that harmonized the competitive conditions for all companies, thus diminishing the incentive to revert to CFC, or to delay the conversion further.

17. In the commercial refrigeration sub-sector, one of the most influential driving forces for conversion in all regions, was the market push from the soft drink and dairy producers (e.g. Coca-Cola, Pepsi, Nestle and Unilever) who imposed conversion on the producers by decree, saying that they would not allow any of their products to be cooled and displayed in refrigerators using CFC.

18. The recent price trends for CFC and non-CFC products have also contributed to make the conversion sustainable. In Mexico, for example, the price of HFC-134a is now lower than that of CFC-12, and in Costa Rica, the price for a HFC-134a compressor was reported to be similar or lower than for a CFC-12 compressor. While other countries still have some way to go in this direction, the gap between prices for CFC and substitutes have narrowed down substantially in all regions.

19. With regard to the destruction and disposal of CFC-based equipment, it was observed that in most cases representatives from the NOU and the Implementing Agency were present to witness the removal from the production site. In only a few cases, however, the equipment was definitely destroyed, while in the majority of companies visited, a lot of equipment was still awaiting final disposal and destruction. Often, foaming machines were found in warehouses for further use as sources of spare parts. The companies indicated that they would destroy the old equipment if so directed. The Service Departments were still using some of the old vacuum pumps. The same applied to the CFC leak detectors. ***The Evaluation Teams recommended that the Secretariat, in cooperation with the Implementing Agency should develop guidelines for the destruction and disposal of the equipment.*** The key parts of foaming machines and charging boards, for example, should definitively be made unusable while other parts, such as electric motors and pumps, could be used for other purposes. The Service Departments or small service shops could use the CFC leak detectors, thereby contributing to diminish the damage to the ozone layer.

V Changes of the Competitive Situation for the Companies Visited

20. The Asian Team emphasized the relative disadvantages for SMEs whose eligibility to receive a full refund for conversion costs is limited with the threshold values in place, as total costs of conversion are not directly proportionate to the volume of CFCs used. In other words, large companies usually have no problems due to economies of scale to remain under the threshold values for conversion cost per kg of ODS to be phased out, while small companies, for example, those with an ODS consumption of less than 15 Tonnes per year, might have difficulties keeping their total conversion cost below the threshold level. As a result, in some cases, the latter have to bear a larger part of the conversion costs themselves than large companies, which might result in a disadvantageous situation for these SMEs to compete in the market. On the other hand, the new equipment provided to SMEs improves the quality of their products and their competitiveness, and they might not need all of the same equipment as the large producers.

21. Another issue is the question of parallel timing for converting competing companies, which was highlighted particularly by the Latin American Mission for Mexico and Colombia. In these countries, the NOUs were instrumental in bringing about an agreement between the major producers to phasing out CFCs in a coordinated effort in order to avoid creating competitive disadvantages for those who would advance with the conversion. This issue was also prominent in China, where consumers continue to be very price sensitive.

22. In Malaysia, only a few CFC refrigerators could be found in the department stores. In Mexico, an effective ban on all CFC-based equipment is already in place.

23. In many African countries, by contrast, the market is flooded with CFC refrigerators from Europe that are sold at half the cost of non-CFC refrigerators. This particular problem cannot be treated with consumer awareness programmes alone, but would require concerted regional action of the countries concerned, as well as restrictive measures from the exporting countries. Another problem requiring regional action was described by the National Association of Colombian Industries being worried about losing export markets in neighbouring countries that had not yet established any import control for CFCs or CFC-based equipment. Price differences and the lack of training of the local technicians in those countries in handling non-CFC equipment were limiting Colombian exports of non-CFC refrigerators, thus penalizing producers with a faster phase out schedule.

24. *The Asian Mission recommended various measures to facilitate the conversion of SMEs by providing additional tax incentives and effective information and training programmes. The mission also recommended that Governments should review their import tax policies with regard to non-ODS substances, and support cooperative action to assist SMEs in buying non-ODS substances in large quantities at similar prices as large-scale industries.*

25. It should not be overlooked, however, that the differences in operational costs for CFC and non-CFC refrigerators are declining substantially (see Section 1.2). Operational cost increases of up to 20% as reported by Malaysian companies are no longer valid, and cost differences should be on average around 5% now in comparison to the old CFC models. In view

of the upgrade of product design and quality usually accompanying the conversion to non-CFC technology, these additional costs might be accepted by consumers who, with proper information campaigns, will also become aware of the long-term servicing implications and will begin to worry about whether CFCs will still be available on the market in five or ten years from now.

26. *The Latin American Mission recommended that the Secretariat, in cooperation with the implementing agencies, should prepare an in-depth analysis of umbrella projects as well as supermarket conversion projects as a basis for reviewing the guidelines for terminal umbrella projects in the SME sectors.*

VI Project Identification and Preparation

27. The roles of the National Ozone Unit (NOU), the Implementing Agencies (IA) and the companies concerning planning and preparation of the conversion of projects vary from country to country and from project to project. Some NOUs play a very active role in the identification and preparation of projects, and they practically assign certain IAs to certain types of projects. In other cases, they play less of a guiding and more an information role. In some cases, for example, in Colombia, Costa Rica and Chile, as well as Mexico, companies prepared the complete conversion design with their own expertise, or even, in the case of retroactive funding, completed the conversion before they presented a request for reimbursement.

28. The World Bank works through a financial agent in the country which reimburses companies' proven expenditures according to World Bank guidelines. In cases where World Bank Consultants are involved, they work closely with the financial agent. UNIDO usually sends staff members for project preparation, while UNDP, through UNOPS, hires consultants to assist the companies in preparing the project documents according to the standards of the Implementing Agency concerned.

29. The Evaluation Teams considered most of the project documents reviewed of good or acceptable quality. It was, however, not clear to what extent the consultants of the IAs had verified the ODS consumption data for each company. Some of the NOUs reported that they do a rough check of the claims against the yearly data reported to them on production, importation and use of the various substances, believing that any major discrepancy in the figures could be detected this way.

30. National Consultants have rarely been hired by UNDP and UNIDO for preparing projects, which is regretted by some countries like China, Thailand or India. These countries expressed appreciation of the World Bank approach working with national financial agents that follow the project from beginning to end.

31. *The Asia Mission recommended that in order to further improve the quality of project documents, a planning workshop of the IA with the NOU and the company concerned should be organized. The Latin American Mission recommended that the Secretariat should ensure that the NOU is actively involved in project preparation and should be signatory to the project document.*

VII Project Review and Approval Process

32. Prior to submitting project proposals to the Secretariat for review, the IAs ensures that a technical review by an external technical expert is carried out in order to obtain an unbiased opinion regarding the choice of technology, the appropriate equipment, and the anticipated cost. The Evaluation Teams observed that, while this policy has been followed, the IAs appointed a small number of technical experts, i.e. only the same experts were repeatedly hired. The quality of the technical reviews was considered as being generally satisfactory, albeit somewhat repetitive (except for particular cases, like for one company in Vietnam). Though they rarely influenced the project documents by inducing any changes.

33. The Asian Mission recommended that the IA should expand their roster of independent experts for technological reviews, and that the Secretariat should periodically appoint a consultant to carry out an evaluation of the choice of technology proposed in certain projects, which could be of a differing opinion compared with that of the Implementing Agency's consultants. The Latin American Mission recommended technical reviews should be elaborated by consultants hired by the Secretariat, and not the Agencies, and the reviewers should visit the sites of all projects where discrepancies of views cannot be solved otherwise. This should apply particularly to large projects, but the current minimum level of funding per project of US \$5 Million for employing consultants to prepare project reviews on behalf of the Secretariat might need to be sensibly reduced.

34. The Asian Team proposed that in order to facilitate the project review process and discussions between the Secretariat and the IAs, a reference database should be created containing prices of equipment and materials purchased for previous projects, and made accessible to all parties concerned.

35. The Evaluation Teams found that some companies complained about reductions in funding levels due to the Multilateral Fund Secretariat's comments. However, in all cases, they went forward with the conversion by compensating the reductions with their own funding.

36. The Asia Team emphasized that the companies' contribution to fund the conversion should be detailed and explicit in all project documents as well as later in the Project Completion Reports. This is of particular importance in cases where the MLF funding has been reduced by the percentage of foreign shares in the company which is to be converted.

37. It was found that the knowledge of the cost-effectiveness threshold limit sometimes led to compromises being built into the project documents prior to the review, generally to the disadvantage of small companies which were forced to accept less equipment and/or less operating costs, thus obtaining only a topping up funding for their conversion projects. Nevertheless, it was also found that these companies have generally proceeded to successfully completing the conversion.

VIII Technology Choice

38. In the majority of the 29 projects evaluated, CFC-12 was converted to HFC-134a (20 projects) and CFC-11 to HCFC-141b (15 projects). In only one case, in China, CFC-12 was converted to isobutane, and in six projects, CFC-11 was converted to cyclopentane. In the other cases, various other HCFCs and HFCs were used as substitute products. In Latin America, the standard combination was conversion to 134a and 141b technologies, while in Asia and Northern Africa the picture was more varied.

39. In general, the companies made no exhaustive economic analyses of the various technological choices. The conversion combination was often selected due to regional market considerations, availability of products, costs and safety reasons. In cases where companies worked with particular licensing agreements or were affiliated with multinational companies, generally the technology chosen by the licensor or mother company was followed as this was considered the lowest overall cost route. There is less product development and testing needed because the licensor or mother company has already developed the technology and experience. An important influence is also exercised by the suppliers of compressors, some of which did not make available appropriate compressors for hydrocarbons or did not guarantee their compressors for being used with particular blends of refrigerants. In some cases, for example in Malaysia, mother companies have gained in the mean time experience with using hydrocarbons as foam blowing agent and/or refrigerant and the subsidiary companies are now ready for a second conversion but have to mobilize the necessary funding for it from their own resources.

40. In some countries, the NOUs play a strong role in determining the appropriate technology. In China, for example, SEPA coordinated projects to try different conversion technologies in various companies in order to gain experience with all technologies available and to assess the benefits and costs of each alternative. In Egypt, for example, the strategic orientation for domestic refrigeration is the conversion to HFC-134a as refrigerant and cyclopentane as foam blowing agent, except for cases when for safety reasons the latter would not be authorized by the local fire authorities.

41. Overall, it can be said that the companies made their choices based on various sources of advice, combining in-house resources and knowledge, national consultants, advice from licensors or mother companies, and also consultants from the IAs, particularly for the less informed companies. There was no evidence that the IAs chose particular technologies because of a predefined preference or because they were likely to receive more funding. The attempt was rather to work out a solution appropriate to the specific situation of the company and compatible with the funding available in applying the threshold value.

42. There was also no evidence that companies imitated particular competitors in the same country, rather it was observed that if multiple competitors decided to follow the same technological path the choice became easier as both compressor and foam equipment suppliers started to make non- CFC technology available.

43. In most cases visited, the chosen technology combination was considered by the Evaluation Teams as being appropriate in terms of the situation of the companies and the availability of materials and equipment in the country and region. In one case in Egypt, the necessary safety practices for using cyclopentane were not followed, and in another case, in Vietnam, the company is still struggling with adapting the foaming process based on HCFC-

141b to its specific requirements. *The Evaluation Teams concluded that considering safety requirements as well as availability of materials and technologies, for most companies, the combination of HFC-134a and HCFC-141b was the easiest solution. However, by choosing this combination, the long-term issues of the necessary second conversion are not solved.*

IX Bidding Procedures and Experiences with Supplier Companies

44. World Bank, UNDP and UNIDO each have different modalities of implementing projects. For the World Bank projects, equipment is chosen and purchased by the client following World Bank bidding policies and guidelines. Costs are reimbursed according to the eligibility criteria defined. International bidding is required for much higher funding volumes per contract than for UNDP and UNIDO, where any order above US\$100,000 is subject to international bidding. UNIDO controls the bidding, analyzes the quotations and chooses the least cost technically acceptable bid. For UNDP projects, UNOPS organizes the bidding, discusses the quotations with the companies and chooses the supplier in cooperation with the company. When companies require more expensive supplies than the least cost technically acceptable offer would provide, the company has a choice of funding the additional cost either by using own funds or by transferring some funds from the incremental operational cost budget. The latter was also practiced in some cases by UNIDO.

45. The World Bank uses a decentralized approach by engaging financial institutions or agents in the country, which implement the projects according to World Bank guidelines. National technical capacity is therefore used and enhanced in addition to the fact that the industry appreciates having full ownership of the preparatory process and the decision-making. For UNDP/UNOPS, the entire process of bidding and selection of the suppliers is controlled at headquarters. This is also the case with UNIDO, which in addition has less flexibility as far as the accommodation of clients' preferences is concerned. The latter sometimes created difficulties because companies often preferred to use suppliers whose equipment they already used or knew, or those who had local representation in the country.

46. In retrospect, nevertheless, most of the countries were reported to be satisfied with the suppliers selected and would select the same technology again; they found the new technologies more efficient by allowing better control of refrigerant charge and lowering incidents of leakage. The companies were also generally satisfied with the services of the consultants employed by the agencies. However, *the NOU in China expressed the wish that the Implementing Agencies should present the consultants' CVs and terms of reference before their missions to facilitate their evaluation by the NOU. This should also apply for agency staff members who are acting as consultants. For monitoring missions, staff of the agencies should likewise inform the Ozone Units and the cost for these missions should be borne by the support costs provided to the agencies while consultant services, even by agency staff members, could be borne by project budgets.*

47. *The Asian Mission proposed that the implementing agencies should try to harmonize their modalities of implementation, in order to facilitate cooperation with National Ozone Units and local industries which were sometimes confused about the different rules and procedures. The Asia Team also recommended that proper checks and balances should be in place in the agencies in order to avoid that one project manager acts as consultant for the formulation of a project, is responsible for the preparation of the bidding and the selection of suppliers as well as for implementing, monitoring and finally reporting on the project.*

X Project Implementation Delays

48. The joint learning process caused most implementation delays in early projects. National Ozone Units, Government officials, Implementing Agencies, and the companies had to learn and to agree on what was expected to be done by each party, and when, and what would be the most appropriate methods for project planning and implementation as well as cooperating with each other. Most of these problems have been solved now and later projects have fewer delays. The Evaluation Teams identified several causes for implementation delays which can be categorized accordingly: (i) being related to government non-action; (ii) difficulties of a company or between companies; (iii) delays incurred by suppliers and; (iv) delays caused by Implementing Agencies' procedures.

49. Examples for the first case are reported for Colombia, where industries had to wait until government legislation for banning imports of refrigerators with CFC technology as well as for introducing import taxes on CFCs was finally settled. Then companies, which were afraid to move ahead for fear of losing market shares, accepted an agreement brokered by UNDP for a timeline for the conversion. In Mexico, delays occurred due to competition between the companies and also due to some uncertainties with regard to new requirements under the NAFTA Agreement. Again, UNDP was able to broker an agreement for coordinated conversion of the competing groups. Internal company problems were reported for a supermarket chain where technical difficulties were underestimated and a lot of the conversion work had to be done outside normal operating hours in order to avoid any interruption of on-going business. Another company in Costa Rica hesitated between using hydrocarbons and HCFC-141b as substitute blowing agent and spent much time searching backwards and forwards between different conversion concepts.

50. In Asia, some problems were reported concerning companies scheduling conversion during low demand periods and delayed the phase out for cost reasons in a very competitive national market, and also due to excessive stocks of components for CFC refrigerators. In some cases, compressor suppliers did not readily adjust to new demands and sometimes other equipment suppliers were delayed as well.

51. ***Implementing Agencies which had assumed that generally 12 months would be required to implement the early projects had underestimated the complexity involved, and are now of the opinion that on average 36 months will suffice for such projects; the Evaluation Teams support the opinion that normally at least 24 months are required.***

52. Ozone Units, as well as the companies, were generally satisfied with the services provided by the IAs and the supplier companies selected. However, ***the Evaluation Teams recommended that particularly for smaller companies, both IAs and National Ozone Units should provide some more support during project implementation.***

XI Project Costs

53. Generally, the Multilateral Fund did not cover 100% of the total investment cost of the projects, and all companies reported to have contributed financially to the conversion, although their indications are not always clear and consistent, as mentioned already in Section 1.2. The reasons for this situation vary. They are partly related to the reduction of funding during the review and approval process. In some cases, additional costs were incurred when the retrofit plan did not work out as foreseen, and in other cases, when the conversion was combined with broader modernization schemes, which are very difficult to separate clearly from the conversion cost as such, and are generally not shown in detail in the Project Completion Reports (see Section IV below). The companies in Chile received partial payment as agreed in the project document, and funding was provided after the project had been successfully completed. The Evaluation Teams reported that the funds generally were available on time for the companies to carry out the conversion.

54. With regard to incremental operating costs, the companies usually choose to be funded up front for their additional operating costs during six months for domestic, and 24 months for commercial refrigeration. In a number of cases, the funds were used for financing equipment higher priced than offered by the lowest price, technologically acceptable offer received during bidding. Reasons for this choice were to reduce problems with spare parts and/or maintenance, or to get additional technical support from the supplier or insistence on continuing working with the supplier already known to the company. In the projects evaluated in Tunisia, the companies, UNIDO and the NOU agreed, in accordance with the guidelines for umbrella projects, to the reorientation of incremental operating costs to finance additionally needed equipment.

55. It was also noted that in the case of the reduction of funding, some companies necessarily renounced on operating cost refunding by using these funds instead for additional capital equipment. With the costs of non-CFC materials and components on the downward trend now, the incremental operating cost for future projects would become minimal, if any. *The Latin American Mission therefore recommended that the qualification level for capital equipment should be re-evaluated in order to encompass a larger number of phase-out projects, particularly for SMEs.*

56. The use of the contingency cost varied greatly from only a small portion of the amount being expended to several times the approved amount being shown as spent under this heading in the PCR without specifying the relevant budget items. In these cases, the funding shortfall appeared to be covered by the company. In other cases, this budget item was not used at all.

57. With the cost of CFC free components and substitutes on the downward trend, the incremental operating cost for future projects is dwindling and its relative importance for total conversion costs will tend to decrease. This might create difficulties for some SMEs that partly made up insufficient funding for capital cost for conversion by reorienting funding received for operational cost increases. *The Latin American Team accordingly recommended the Secretariat to prepare a policy paper on the overall qualification criteria determining cost effective thresholds in the post freeze period.*

58. *The Asia Team recommended that the support costs received by the Implementing Agencies should be fully used for project-related work.* This includes the travel of staff for monitoring purposes, their presence for the destruction of equipment, the preparation of completion reports, or any other visits required, to ensure the implementation of the projects according to the objectives approved initially in the project document.

XII Monitoring and Reporting

59. The NOU as well as the companies found the monitoring and supervision of the IAs during project implementation generally adequate, although they sometimes expressed the wish for more frequent supervisory missions. As mentioned in Section 1.3, the NOU and a representative of the IA, usually a consultant, witnessed the destruction and disposal of old equipment, in the cases where it took place (see also Section 1.3 above).

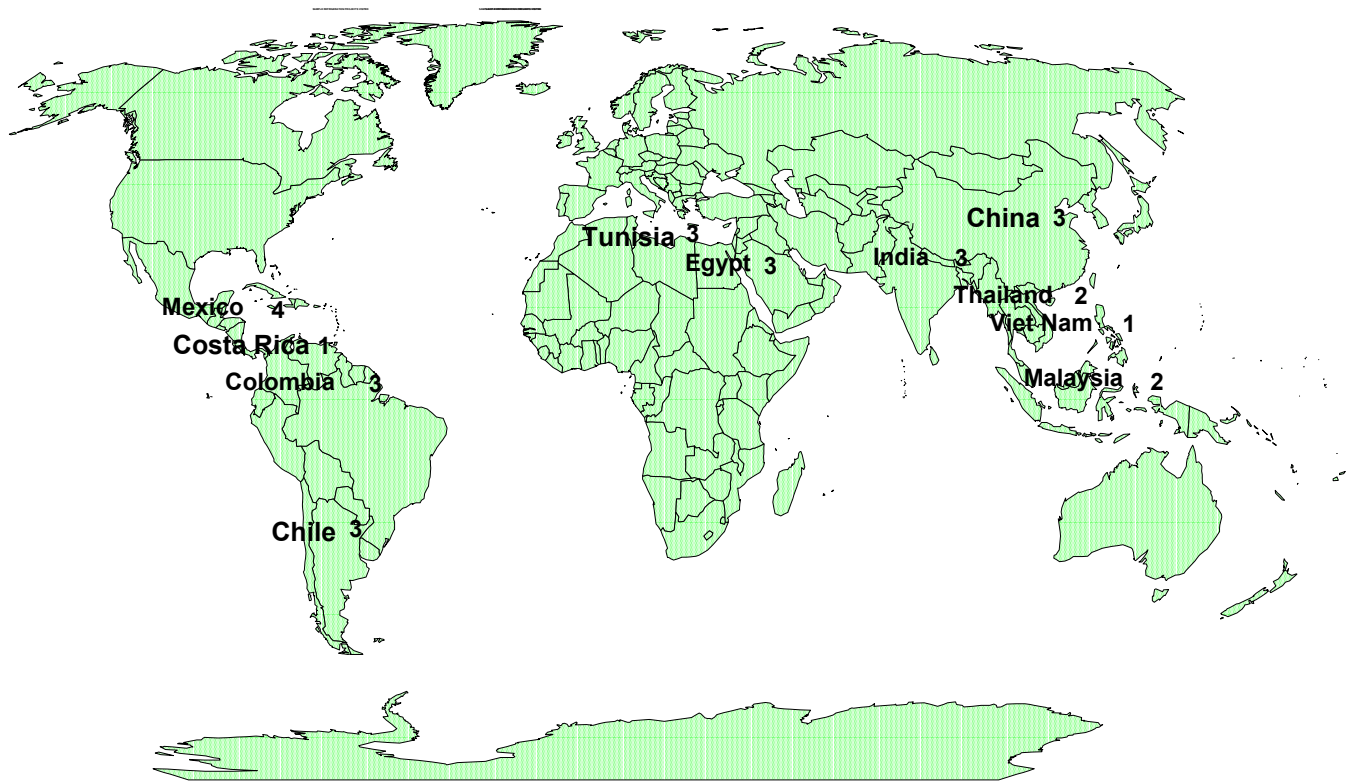
60. The Evaluation Teams noted serious deficiencies with regard to the quality of the Project Completion Reports. In many cases, the information concerning ODS consumption before and after conversion was not complete and detailed as required, and that the list documenting the expenditures for capital equipment, operating costs were not sufficiently detailed in order to enable the consultants to properly prepare for the company visits. Moreover, the companies had not been involved in the preparation or approval of the PCR, also the Ozone Unit usually did not have the final versions. On the other side, there was no indication that companies had been reluctant to provide the information requested for the PCR. The role of the Ozone Units in finalizing the PCR and in monitoring the consumption of ODS in substitutes in the companies after conversion was not clear. In a number of cases, the PCR still stated that the financial figures were provisional, although the physical completion was reported to have occurred three years ago.

61. With regard to post-conversion data for ODS consumption missing in many PCRs, it would appear that these data were either not requested from the companies or, when requested, the companies did not reply promptly enough for the data to be included before the IAs sent the PCR to the Secretariat. Governments' comments are omitted in most cases, the overall assessments are rather lists of detailed problems encountered and the sections on lessons learnt are of limited usefulness for future designing of projects. An exceptionally good example (Gigante in Mexico) showed on the other hand how a well-elaborated PCR can provide basic inputs to developing draft guidelines for other projects in the end-user sectors.

62. It should also be noted that the selection of the sample of projects to be evaluated was to some extent limited due to the absence of PCRs in many completed projects. Visits to companies are much more cumbersome to prepare and to implement when Project Completion Reports are not available. Although IAs showed some flexibility in providing PCRs for several selected projects on a short-term basis, this situation is not suitable for preparing evaluations based on a representative sample.

63. *The Evaluation Teams recommended a number of measures on how to improve the content, completeness and timeliness of PCR,* as indicated in the consolidated Project Completion Report presented to the 29th Meeting of the Executive Committee in Document UNEPOzL.Pro/ExCom/29/5.

SAMPLE OF REFRIGERATION COMPANIES VISITED



| Latin America & Caribbean | | Asia | | Africa | |
|---------------------------|-----------|----------|-----------|---------|----------|
| Chile | 3 | China | 3 | Egypt | 3 |
| Colombia | 3 | India | 3 | Tunisia | 3 |
| Costa Rica | 4 | Malaysia | 2 | | |
| Mexico | 1 | Thailand | 2 | | |
| | | Vietnam | 1 | | |
| Total | 11 | | 11 | | 6 |

OVERVIEW OF THE REFRIGERATION PROJECTS EVALUATED**LATIN AMERICA AND THE CARIBBEAN**

| Country | Code | Company | Agency | ODP To Be Phased Out As Per Project Document | ODP Phased Out As Per Progress Report | ODP Phased Out As Per PCR | ODP Phased Out As Per Evaluation | Difference ODP Phased Out Planned and Achieved | Date Approved | Date Completion | Funds Approved | Support Cost | Funds Disbursed | Balance | Cost Effectiveness Planned | Cost Effectiveness As Per Evaluation | Sub-sector |
|----------------------------|-------------------|-----------------------------|--------|--|---------------------------------------|---------------------------|----------------------------------|--|---------------|-------------------|------------------|----------------|------------------|----------------|----------------------------|--------------------------------------|------------|
| Chile | CHI/REF/07/INV/18 | Frigorifco | IBRD | 0.03 | 0.10 | 0.03 | 0.14 | 0.11 | Jun-92 | Oct-96 | 20,166 | 0 | 20,166 | 0 | 672.21 | 144.05 | Com. |
| | CHI/REF/07/INV/21 | Mimet | IBRD | 36.75 | 45.12 | 34.05 | 42.00 | 5.25 | Jun-92 | Dec-96 | 93,672 | 0 | 93,672 | 0 | 2.55 | 2.23 | Com. |
| | CHI/REF/07/INV/25 | Supermercado Vicuna McKenna | IBRD | 0.17 | 0.05 | 0.17 | 0.20 | 0.03 | Jun-92 | Feb-97 | 5,558 | 0 | 5,558 | 0 | 32.69 | 27.79 | Com. |
| Colombia | COL/REF/13/INV/06 | Icasa | UNDP | 72.00 | 72.00 | 49.33 | 49.00 | -23.00 | Jul-94 | Oct-97 | 1,410,680 | 183,388 | 1,052,557 | 358,123 | 19.59 | | Dom. |
| | COL/REF/18/INV/21 | Unilemh (Challenger) | UNDP | 17.00 | 17.00 | 34.96 | 35.00 | 18.00 | Nov-95 | Oct-97 | 155,350 | 20,196 | 153,457 | 1,893 | 9.14 | | Dom. |
| | COL/REF/13/INV/08 | Corelsa | UNDP | 22.00 | n.a. | n.a. | 22.00 | 0.00 | Jul-94 | Not yet completed | 853,432 | 0 | 687,331 | 166,101 | 38.79 | | Dom. |
| Costa Rica | COS/REF/18/INV/08 | Atlas Electrica | UNDP | 27.00 | 27.00 | 49.97 | 65.00 | 38.00 | Nov-95 | May-98 | 375,000 | 48,750 | 375,000 | 0 | 13.89 | 5.77 | Dom. |
| | | | | | | | | 0.00 | | | | | | | | | |
| Mexico | MEX/REF/05/INV/09 | Ojeda | IBRD | 13.00 | 13.00 | 13.00 | 13.00 | 0.00 | Nov-91 | Dec-95 | 211,543 | 0 | 211,543 | 0 | 16.27 | 16.27 | Com. |
| | MEX/REF/05/INV/61 | Gigante 1 | IBRD | 38.00 | 5.00 | 14.40 | 14.40 | -23.60 | Nov-91 | Sep-97 | 496,380 | 0 | 496,380 | 0 | 13.06 | 34.47 | Com. |
| | MEX/REF/15/INV/30 | Enresa Refrigerator | UNDP | 47.00 | 47.00 | 47.00 | 47.00 | 0.00 | Dec-94 | Sep-97 | 867,033 | 112,714 | 811,406 | 55,627 | 18.45 | | Dom. |
| | MEX/REF/23/INV/68 | Torrey | UNIDO | 15.10 | n.a.* | n.a.* | 15.10 | 0.00 | Nov-97 | Not yet completed | 228,165 | 29,661 | 3,334 | 224,831 | 15.11 | | Com. |
| | | | | | | | | 0.00 | | | | | | | | | |
| Total Latin America | | | | 288.05 | | | 302.84 | 14.79 | | | 4,716,979 | 394,710 | 3,910,404 | 806,575 | 16.38 | | |

* PCR Provisional data

n.a. = not available; com. = commercial refrigeration; dom. = domestic refrigeration.

OVERVIEW OF THE REFRIGERATION PROJECTS EVALUATED - ASIA AND THE PACIFIC

| Country | Code | Company | Agency | ODP To Be Phased Out As Per Project Document | ODP Phased Out As Per Progress Report | ODP Phased Out As Per PCR | ODP Phased Out As Per Evaluation | Difference ODP Phased Out Planned and Achieved | Date Approved | Date Completion | Funds Approved | Support Cost | Funds Dis-bursed | Balance | Cost Effective-ness Planned | Cost Effective-ness As Per Evaluation | Sub-sector |
|-------------------|--------------------|---|---------|--|---------------------------------------|-----------------------------|----------------------------------|--|---------------|-------------------|----------------|------------------|------------------|------------------|-----------------------------|---------------------------------------|------------|
| China | CPR/REF/16/INV/115 | Haier Refrigerator Factory (foam part) | Germany | 174.0 | 174.0 | 203.0 | 174.0 | 0.0 | Mar-95 | Mar-95 | 1,336,918 | 0 | 1,336,918 | 0 | 7.68 | 7.68 | Dom. |
| | CPR/REF/16/INV/116 | Haier Refrigerator Factory (refrigeration part) | USA | 29.0 | n.a. | No PCR as yet | 29.0 | 0.0 | Mar-95 | Not yet completed | 1,643,865 | 0 | 807,044 | 836,821 | 56.69 | | Dom. |
| | CPR/REF/13/INV/71 | Chang Ling Co. Ltd. | IBRD | 70.0 | 72.0 | 72.0 | 69.4 | -0.6 | Jul-94 | Sep-97 | 853,000 | 0 | 827,400 | 25,600 | 12.19 | | Dom. |
| | CPR/REF/22/INV/204 | Hualing Refrigerator | UNIDO | 280.0 | 280.0 | 95.0 prelim. for 1998 | 260.8 | -19.2 | May-97 | Dec-97 | 879,788 | 114,372 | 652,299 | 227,489 | 3.14 | | Dom. |
| India | IND/REF/10/INV/08 | Blue Star | IBRD | 36.0 | 34.6 | 36.0 | 35.3 | -0.7 | Jun-93 | Dec-97 | 420,947 | 0 | 411,140 | 9,807 | 11.69 | | Com. |
| | IND/REF/19/INV/90 | Seepra Refrigeration Ltd. | IBRD | 15.0 | 13.9 | 15.0 | 14.2 | -0.8 | May-96 | Jul-98 | 171,910 | 22,348 | 104,330 | 67,580 | 11.46 | | Com. |
| | IND/REF/18/INV/62 | V. Krishna & Co. | IBRD | 14.8 | 13.7 | PCR due | 14.0 | -0.8 | Nov-95 | Sep-98 | 147,020 | 19,113 | 47,868 | 99,152 | 9.93 | | Com. |
| Malaysia | MAL/REF/15/INV/51 | MelCom | IBRD | 99.7 | 91.7 | 99.7 | 87.6 | -12.1 | Dec-94 | Jan-96 | 1,276,500 | 0 | 1,234,337 | 42,163 | 12.80 | | Dom. |
| | MAL/REF/12/INV/29 | Sharp-Roxy | UNDP | 65.0 | 65.0 | 48.6 | 65.0 | 0.0 | Mar-94 | Dec-97 | 962,000 | 125,060 | 858,568 | 103,432 | 14.80 | | Dom. |
| Thailand | THA/REF/10/INV/17 | Thai Toshiba Electric Industries (Phase I) | IBRD | Not appl. | not appl. | not appl. | not appl. | not appl. | Jun-93 | Jan-97 | 823,000 | 0 | 667,037 | 155,963 | not appl. | not appl. | Dom. |
| | THA/REF/21/INV/62 | Thai Toshiba Electric Industries (Phase II) | IBRD | 96.0 | 89.1 | 89.0 | 89.0 | -7.0 | Feb-97 | Jan-97 | 316,957 | 41,204 | 297,733 | 19,224 | 3.30 | | Dom. |
| | THA/REF/13/INV/33 | Sanden | UNDP | 21.0 | 21.0 | 88.0 | 21.0 | 0.0 | Jul-94 | Jun-98 | 533,800 | 69,394 | 533,800 | 0 | 25.42 | 25.42 | Com. |
| Vietnam | VIE/REF/15/INV/04 | SEAPRO-DEX Co. | UNIDO | 40.0 | 40.0 | n.a. | 40.3 | 0.3 | Dec-94 | Dec-96 | 497,070 | 497,070 | 64,619 | 493,594 | 3,476 | 12.43 | |
| Total Asia | | | | | 940.5 | | | 899.6 | -40.9 | | | 9,862,775 | 456,111 | 8,272,068 | 1,590,707 | 10.49 | |

* PCR Provisional data / n.a. = not available; com. = commercial refrigeration; dom. = domestic refrigeration.

OVERVIEW OF THE REFRIGERATION PROJECTS EVALUATED - AFRICA

| Country | Code | Company | Agency | ODP To Be Phased Out As Per Project Document | ODP Phased Out As Per Progress Report | ODP Phased Out As Per PCR | ODP Phased Out As Per Evaluation | Difference ODP Phased Out Planned and Achieved | Date Approved | Date Completion | Funds Approved | Support Cost | Funds Disbursed | Balance | Cost Effective-ness Planned | Cost Effective-ness As Per Evaluation | Sub-sector |
|---------------------|-------------------|--------------------------------------|--------|--|---------------------------------------|---------------------------|----------------------------------|--|---------------|-----------------|------------------|----------------|------------------|---------------|-----------------------------|---------------------------------------|------------|
| Egypt | EGY/REF/15/INV/44 | Royal Engineering/Fricool | UNDP | 20.0 | 2.0 | 20.6* | 20.8 | 0.8 | Dec-94 | Sep-98 | 539,000 | 70,070 | 409,869 | 129,131 | 26.95 | | Com. |
| | EGY/REF/13/INV/32 | Delta Industrial | UNIDO | 97.0 | 117.0 | 67.0* | 97.0 | 0.0 | Jul-94 | May-97 | 2,611,986 | 339,558 | 2,474,969 | 137,017 | 26.93 | | Dom. |
| | EGY/REF/15/INV/38 | HelWan | UNIDO | 7.5 | 7.5 | 7.5* | 7.5 | 0.0 | Dec-94 | Dec-98 | 644,239 | 83,751 | 544,578 | 99,661 | 85.90 | | Dom. |
| Tunisia | TUN/REF/19/INV/17 | Six Small Refrigerator Manufacturers | UNIDO | 78.5 | 78.5 | 78.5* | | | May-96 | May-97 | 764,557 | 99,392 | 633,735 | 130,822 | 9.74 | | Dom. |
| | | Sotufem*** | UNIDO | 17.0 | n.a. | n.a. | 17.0 | 0.0 | May-96 | n.a. | 120,791 | n.a. | n.a. | | 7.11 | n.a. | Dom. |
| | | Gan*** | UNIDO | 32.0 | n.a. | n.a. | 32.0 | 0.0 | May-96 | n.a. | 191,705 | n.a. | n.a. | | 5.99 | n.a. | Dom. |
| | TUN/REF/23/INV/27 | Terminal Umbrella of 7 Manufacturers | UNIDO | 29.0 | 29.0 | 29.0* | | | Nov-97 | Dec-98 | 374,111 | 48,634 | 72,830 | 301,281 | 12.90 | | Com. |
| | | Frigo Baf.*** | UNIDO | 1.5 | n.a. | n.a. | 1.5 | 0.0 | Nov-97 | n.a. | 89,950 | n.a. | n.a. | | 59.97 | n.a. | Com. |
| Total Africa | | | | 175.0 ** | | | 175.8 | 0.8 | | | 4,197,671 | 641,406 | 4,135,981 | 61,690 | 23.99 | | |

* PCR Provisional data

** For the total figures on planned ODS phase out, only the target figures for individual companies visited were counted in the table.

*** The actual figures for each company on ODS-phased out and funds disbursed were not provided by UNIDO.

n.a. = not available; com. = commercial refrigeration; dom. = domestic refrigeration.