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FINAL REPORT ON THE EVALUATION OF FOAM PROJECTS

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I Background

1. This paper gives an overview of the evaluation approach and provides a synthesis of the main findings and recommendations of three evaluation teams who visited three countries in Asia, three in Latin America, one in Africa and one in Europe, to evaluate 66 foam projects (for details about the countries and projects visited see Section IV below). The present synthesis report was elaborated by the Senior Monitoring and Evaluation Officer based on the desk studies and the project and country reports prepared by consultants.

II Evaluation process

2. The evaluation proceeded with the following steps:

(a) desk review of foam projects by the Senior Monitoring and Evaluation Officer and presentation of a summary (Section III of document UNEP/OzL.Pro/ExCom/29/5) to the MEF Subcommittee at the 29th Meeting of the Executive Committee, which took note of the proposed evaluation approach;

(b) in-depth desk review by a consultant studying further the documentation, identifying evaluation issues and selecting projects for field visits;

(c) visits of consultants to the selected sample comprising 66 projects in Asia, Africa, Latin America and Europe during November/December 2000 and January 2001;

(d) preparation of evaluation reports by consultants on each project and country reports on each country visited; the country reports analyze the foam sectors of the country in terms of past achievements and remaining tasks for ODS phase out;

(e) preparation of synthesis report by the Senior Monitoring and Evaluation Officer.

III Evaluation teams, support by the Ozone Offices and Implementing Agencies

3. The consultants have been recruited on the basis of a direct search for appropriate candidates. Two consultants were chosen from Article 5 countries and three from non-Article 5 countries from different regions (Chile, Republic of South Africa, U.K., and U.S.A.). The consultants were chosen for their:

(a) experience with conversion from CFC-based production in foam companies to non-ODS substitutes;

(b) neutrality in terms of not being consultants to the Montreal Protocol units of the Implementing Agencies;

(c) knowledge of the Multilateral Fund and the functioning of the UN system;

(d) and for their evaluation experience.

4. As it was not possible for each consultant to meet all the criteria, the teams were composed in a way that the combined expertise corresponded to the requirements. In three

countries (Nigeria, Turkey, Syria), the Project Officer of the Multilateral Fund Secretariat responsible for foam projects accompanied the consultant in order to provide him with information about policies and guidelines of the Multilateral Fund. The Senior Monitoring and Evaluation Officer participated in field visits in Argentina, one of the first countries to receive an evaluation mission in this context, in order to supervise the work of the evaluation team and to support the fine-tuning of the evaluation approach.

5. The governments of all countries visited had been informed beforehand, and their concurrence had been obtained. The evaluation missions were very well received and supported by the Ozone Offices in the countries visited. The Ozone Officers prepared the visits to the companies and accompanied the evaluation teams. Information requested on companies and national policies, including experiences gained during project implementation, were readily provided. In most visits, representatives of the companies were very cooperative and accessible, although often evasive in providing concrete figures.

6. In spite of the short notice of the missions, the Implementing Agencies were supportive as well. UNIDO sent a Project Officer to accompany the evaluation mission on visits to companies in Turkey and Syria. The World Bank's financial intermediaries and the local UNDP consultants met the missions, and partly accompanied them to the companies.

7. The Implementing Agencies submitted project completion reports (PCRs) for all but six projects, some of them shortly before the visits. The PCRs were useful in terms of preparing and structuring the discussions in the enterprises, in spite of the fact that they often lacked important information, which was rarely possibly to obtain during the interviews, particularly with regard to previous ODS consumption and production figures and details of incremental capital and operating costs.

IV Sample of projects visited

8. The total number of 66 projects visited represents a good coverage by region, implementing agency, size, year of approval, sub-sector and technology choice. The 66 projects evaluated represent 18% of all 366 foam projects completed until the end of 1999, and 8% of 863 foam projects approved until the end of 2000.

9. Most foam projects visited were in Asia (30), followed by Latin America (21), Europe (9) and Africa (6) [see Table 1].

Table 1: By Region

Region	Latin America & Caribbean		Asia		Africa		Europe	
Projects Evaluated	Argentina	8	China	9	Nigeria	6	Turkey	9
	Brazil	7	Malaysia	8				
	Chile*	6	Syria	3				
			Thailand	10				
Total		**21**		**30**		**6**		**9**
All Projects Completed		**73**		**238**		**38**		**17**
%		**29%**		**13%**		**16%**		**53%**

*Six sub-projects under TECFIN (CHI/MUS/07/INV/04)

10. The evaluation covered projects implemented by all three Implementing Agencies corresponding to the extent possible to their share in the total number of completed foam projects (see Table 2).

Table 2: By Implementing Agency

Implementing Agency	Number of Projects Completed	Number of Projects Evaluated	Percentage
France	3	0	0%
UNDP	227	34	15%
UNIDO	39	8	21%
WORLD BANK	97	24*	25%
TOTAL	**366**	**66**	**18%**

*Includes six Sub-projects under TECFIN (CHI/MUS/07/INV/04)

11. The sample included projects of all sizes in terms of funding. Although the emphasis was on projects of medium size, some small and some large projects were also included.

Table 3: By Size

	Under US $ 100,000	US $ 100,000-500,000	US $ 500,000-1,000,000	Above US $ 1,000,000	Total
Number of Projects Completed	77	232	47	10	366
Number of Projects Evaluated*	13	33	15	5	66
%	**17%**	**14%**	**32%**	**50%**	**18%**

*Includes six Sub-projects under TECFIN (CHI/MUS/07/INV/04)

12. As the following table shows, care was taken to select projects that were approved and completed in different years in order to enable the verification of trends and the effects of policy changes.

Table 4: By Year Approved

Year of Approval	Number of Projects Approved	Number of Projects Completed	Number of Projects Evaluated	Percentage (evaluated/ approved)	Percentage (evaluated % completed)
1991	2	2		0%	0%
1992	15	14	7	47%	50%
1993	33	29	5	15%	17%
1994	93	79	14	15%	18%
1995	71	55	10	14%	18%
1996	81	64	7	9%	11%
1997	169	93	15	9%	16%
1998	111	26	7	6%	27%
1999	183	4	1	0.5%	25%
2000	105	N/A	0	0%	0%
Total	**863**	**366**	**66**	**8%**	**18%**

13. Care was also taken to include projects from all sub-sectors into the sample, as shown in Table 5 below:

Table 5: Selected Projects for Evaluation by Sub-sector

Foam Sector	Total No. of Projects Approved (end of 2000)	Total No. of Projects Completed (end of 1999)	Selected Projects for Evaluation 2000	% of all Approved Foam Projects	% of all Completed Foam Projects	MLF Disbursed Grant for Projects Evaluated (end of 1999)	% of Disburse-ments (evaluated % completed)
Flexible moulded	23	9	1	4%	11%	$0	0%
Flexible slabstock	199	71	19	10%	27%	$7,152,511	28%
Integral skin	121	53	7	6%	13%	$1,308,166	9%
Multiple Sub-sectors	50	23	2	4%	9%	$638,682	7%
Phenolic	1	1			0%	0	
Polyol production	7	5	1	14%	20%	$457,000	27%
Polystyrene/ Polyethylene	64	40	10	16%	25%	$4,632,288	19%
Rigid	350	140	23	5%	16%	$5,884,191	17%
Rigid (insulation refrigeration)	48	24	3	6%	13%	$1,188,360	10%
Total	**863**	**366**	**66**	**7%**	**18%**	**$21,261,198**	**17%**

14. As foreseen in the terms of reference, retroactively funded projects were included, as well as some projects with long implementation delays and several with participation from multinational companies.

V Evaluation issues, data collection approach, information obtained and presented

15. Detailed evaluation issues and terms of reference for the evaluation were presented to the 29th Meeting of the Executive Committee in document UNEP/OzL.Pro/ExCom/29/5, p. 12.

16. The evaluation teams were requested to address the following issues:

(a) project identification and preparation;
(b) project review and approval process;
(c) choice of technology;
(d) institutional arrangements;
(e) bidding procedures and experiences with supplier companies;
(f) implementation delays;
(g) project costs;
(h) results and effectiveness in terms of ODS phase out;
(i) sustainable impact in terms of non-reversible conversion of technology;
(j) project monitoring, reporting and evaluation.

17. The format used for the project evaluation reports (PERs) was largely identical to the revised project completion report (PCR) format for investment projects. It served as an interview guideline in the companies visited and as a format for entering the data collected. However, the experience showed that it was rarely possible to collect complete and clear information on all the issues listed above and foreseen in the reporting format, in spite of the fact that the companies were generally quite accessible and forthcoming. Often, the persons responsible for the conversion project were not available or had changed position or left the company. The project completion reports usually did not provide much detailed information, in particular, data on production, ODS consumption and incremental operating cost (IOC). Although many enterprises promised to supply additional data later on, this happened only in very few cases.

18. Therefore, only Sections I, II and III of the project evaluation reports were annexed to the country reports. Both country reports and project evaluation reports are being sent to the countries concerned for comments. They are available on request and will be placed on the Executive Committee documents section, evaluation reports, of the Secretariat's web site.

VI Project completion

19. According to Decision 28/2 of the Executive Committee, completion of a project means:

(a) "No further use of CFCs is in evidence;

(b) that the alternative product is being produced and/or production has begun; and

(c) that the CFC-using equipment has been destroyed/dismantled/rendered unusable with CFCs."

20. Using this decision as a reference, the new overall assessment scheme in the revised project completion format for investment projects has been designed in a way that 20 points are given for each of these criteria if they are fulfilled (see overview table in Annex I which applies this new rating scheme to the projects evaluated). For the 66 projects evaluated, the results are shown in Tables 6a and b below:

Tables 6a and b: Completion of Projects Evaluated According to Decision 28/2 of the Executive Committee

a) For 42 Projects Completed Before July 1999

Completion criteria	Number of projects fulfilling these criteria		
	Yes	No	N/A*
a) No further use of CFCs is in evidence	40	1	1
b) Alternative product is being produced and/or production has begun	38	3	1
c) CFC-using equipment has been destroyed/dismantled/rendered unusable with CFCs	36	3	3

*Not applicable

b) For 24 Projects Completed After July 1999

Completion criteria	Number of projects fulfilling these criteria		
	Yes	No	N/A*
a) No further use of CFCs is in evidence	24	0	0
b) Alternative product is being produced and/or production has begun	22	2	0
c) CFC-using equipment has been destroyed/dismantled/rendered unusable with CFCs	11	8	5

*Not applicable

21. Tables 6a and b show that in spite of the fact that the Implementing Agencies in their 1999 Progress Reports had declared all but one of the 66 projects evaluated as completed, not all criteria for project completion have been fulfilled in a number of projects reported as completed before and also after Decision 28/2 was taken in July 1999. This concerns one case where CFC is still partly used, some where alternative production has not yet started and others for which the destruction or disposal of old equipment has not been completed (for more details see Sections VII and VIII below). Only 25 projects had been financially closed at the time of the 1999 Progress Report, several more have passed their final budget revision in the meantime. In a number of cases shown in the overview table in Annex I, balances have been returned to the Multilateral Fund. Others are still awaiting financial completion, although the declared physical completion dates back to two, three or more years in some cases.

VII ODS phased out

22. The main positive result is that with only one exception, the companies visited have successfully phased out the targeted volume of ODS (see overview table in Annex I). Successful phase out means that no more CFC is used in the company. In this case, the original baseline consumption of CFC, as confirmed or corrected by the evaluation, has been eliminated, irrespective of the current production level and quantities of substitutes used. Total ODS phase out planned as indicated in the inventory for the projects evaluated was 4,390.2 ODP tonnes, and the evaluation teams calculated an estimated total phase out of 4,492.6 ODP tonnes achieved. The difference results from two projects, one in China and one in Argentina. The Chinese project, Henan Xinfei, had a largely underestimated ODP baseline consumption that was already corrected in the project completion report and confirmed by the evaluation. The other one is Belmo in Argentina, which, two years after hand over, still regularly uses CFC as soon as the LCD operation becomes unmanageable. In several projects in China, particularly Tianjin, Foshan No. 3 Plastic Factory and Beijing Foam Plastic General Factory, the company did not start any new production with substitutes but ceased to produce such products and does not use the equipment. This market share was then taken over by small- and medium-sized enterprises using CFC, according to information provided to the evaluation mission. Thus the phase out has taken place in the projects but not for the country as the CFC-based production for the same clients is still going on, although not in the company which benefited from the project.

23. The original ODS consumption figures in the project documents could not be accurately verified by the evaluation teams. Such verification would have required checking of everyday purchasing records of the company, which was not possible due to the lack of time and sometimes knowledge of local languages.

24. In a number of projects visited, actual production levels were low, considering the installed capacity of the plant after the conversion. Some plants appeared to be at a standstill or had never been put in production. In the cases of Krayem Cold Stores in Syria or Purplast in Turkey, there has been a dramatic fall in production caused by a loss of former clients due to the sudden lifting of import restrictions in the first case and a decline in demand in the second. However, the evaluator was left also with some doubts as to whether the original baseline capacity had not been much lower than the present one. In Chile and Brazil, the decline of demand in the context of an economic recession explained the reduced level of production. Also, in Argentina, production levels observed during visits in companies in the polyurethane sector seemed to be lower than commensurate with the volumes of CFC reported as used before the conversion. Only the producers of polystyrene sheets were fully using their capacities, helped by lower operating cost and increased profitability after the conversion from CFC-12 to butane.

25. Participation of National Ozone Units or local consultants in the collection of ODS consumption data is crucial, especially when verification of data involves checking the enterprise's records, available only in local languages; the ODS consumption calculated in the enterprise should be corroborated by information on ODS imported available from importers and customs records as soon as an import licensing scheme has been put in place. Invoices for the purchase of ODS and other chemicals presented by the enterprises should, as much as possible, be certified by the National Ozone Unit and should be kept on record for future verification.

26. The issue of reliability and accuracy of data on ODS consumption has already been discussed in the context of evaporation losses and it was decided at the 26th Meeting of the Executive Committee:

> "To request the implementing agencies, in the preparation of projects, to take extreme care to ensure the reliability and accuracy of data on ODS consumption and make available to the Secretariat figures normally provided by enterprises on ODS purchased by the enterprises and ODS used in the products being produced.
>
> To request that the enterprises for which projects were being prepared made available their relevant records to provide the best available information to the Implementing Agencies concerning ODS purchased and used." (Decision 26/13)

Action proposed for the National Ozone Units:

27. A further recommendation regarding requirements for presentation of reliable, accurate and verifiable ODS consumption data by Implementing Agencies might need to be included to reinforce Decision 26/13 by the following:

- **Validation of the enterprise's ODS consumption to be phased out by implementing a project should be undertaken by the National Ozone Unit who should advise the Government that such phase out will be offset against what remains of the country's baseline consumption.**

VIII Sustainability of conversion and monitoring of remaining CFC consumption

28. The risk of returning to the use of ODS can only be clearly denied in the refrigeration and extruded PS/PE sub-sectors, since the competitive advantages gained by producing CFC-free are greater than when producing with CFC. Butane/LPG is much cheaper than CFC and market demand and awareness of CFCs in refrigerators is a major factor driving consumer preference. All other sub-sectors can easily return to ODS if they choose to do so. The retrofitted or newly supplied equipment, e.g. methylene chloride, 141b and water-blown technologies, can still process CFC. Destroying a CFC pump or tank in itself is virtually meaningless. The only effective limitation to the use of CFC is the market price being higher than substitute chemicals and/or limited or restricted availability of CFC, due to effective import licensing schemes and control of illegal trade.

Action proposed for the National Ozone Units:

29. In view of the technical ease to revert to the use of CFC in many sub-sectors, the National Ozone Units should monitor closely, in cooperation with customs authorities and local environmental protection authorities, the importation of CFCs (if any are still allowed) and combine this with occasional surprise visits to importers and foaming companies to check invoices and storage areas for unauthorized use of CFCs. Furthermore, measures are needed to cope with illegal imports that seem to be widespread in a number of countries.

IX Equipment destruction

30. With regard to the destruction and disposal of CFC-based equipment, it was observed that in most cases, representatives from the National Ozone Unit and the implementing agency were present to witness the removal of ODS-based equipment from the production site. In only a few cases, however, the equipment was definitely destroyed, while in the majority of companies visited, most of the equipment, while not being used and not being ready for use, was still awaiting final destruction. In a few cases, the old low-pressure machines were still in place and operational (e.g. in Purplast in Turkey). The company, Aquecedores Cumulus S.A., near Sao Paulo continued to use the old equipment after project completion against a written statement not to use it with CFC. Foaming machines were often discovered in warehouses for further use as sources of spare parts. The companies indicated that they would destroy the old equipment if so directed.

Action proposed for the Secretariat and Implementing Agencies:

31. Enterprises are already required, as part of the project agreements, to ensure that replaced equipment is destroyed. To assist them to better realize this commitment, the Secretariat and the Implementing Agencies should finalize the guidelines on equipment destruction and start to apply the relevant section for foam projects.

X Implementation delays

32. Delays of more than 18 months occurred in 14 projects, 13-18 months are recorded for six projects, six projects had delays of between seven and 12 months, 19 projects were completed as planned or nearly as planned (0-6 months delay) and 21 projects, mostly retroactively financed, earlier than expected (see Table 7a below).

Table 7a: Implementation Delays of Projects Evaluated by Implementing Agency

Agency	Implementation Delays in Months					
	Early Completion	0-6	7-12	13-18	More than 18	Total
IBRD	10	9	1	2	2	24
UNDP	9	7	5	3	10	34
UNIDO	2	3		1	2	8
Total	**21**	**19**	**6**	**6**	**14**	**66**

33. The actual duration of projects evaluated does not show remarkable differences by Implementing Agency, except that UNIDO has no projects completed under 12 months and only one project exceeding 36 months duration.

Table 7b: Actual Duration of Projects Evaluated by Agency

Agency	Actual Duration in Months					
	0-6	7-12	13-18	19-36	36 and More	Total
IBRD	3		3	7	11	24
UNDP	2	2	4	16	10	34
UNIDO			4	3	1	8
Total	5	2	11	26	22	66

34. Implementation delays have been significantly less pronounced for projects approved in 1997 and 1998 than in earlier years and also the average actual project duration has diminished in recent years for the projects evaluated, while the approved project duration has been extended to a standard of 36 months (see Tables 8 and 9 below).

Table 8: Implementation Delays by Year of Project Approval

Year Approved	Implementation Delays in Months					
	Early Completion	0-6	7-12	13-18	More than 18	Total
1992	1	1				2
1993	1	1	2		1	5
1994	1	2	1	3	7	14
1995		2	2	2	4	10
1996		8	1	1	2	12
1997	10	5				15
1998	7					7
1999	1					1
Total	21	19	6	6	14	66

Table 9: Average Actual Duration of Projects Evaluated

Year Approved	Average Duration in Months				
	0-12	13-24	25-40	40 and More	Total
1992			1	1	2
1993		3	1	1	5
1994	1	3	4	6	14
1995		2	7	1	10
1996		2	7	3	12
1997	2	10	3		15
1998	3	4			7
1999	1				1
Total	7	24	23	12	66

Table 10: Average Approved Duration of Projects Evaluated

Year	Average Approved Duration in Months				
	0-12	13-24	25-40	40 and More	Total
1992			1	1	2
1993	2	1	1	1	5
1994	10	3	1		14
1995	5	3	2		10
1996	2	4	4	2	10
1997		7	8		15
1998		1	6		7
1999			1		1
Total	19	19	24	4	66

35. Delays were partly related to procedural issues on the part of the Implementing Agencies. Often, the planning had been too optimistic. In spite of the large number of foam projects prepared and implemented, UNDP, for example, is a small operation with a few consultants for most projects. Individual projects may seem to have adequate time allocated for execution, but in the context of all projects being implemented by a small group of consultants, it is difficult to cope with the large number of projects in execution. Only a few experienced PU consultants not

employed by major companies exist, and finding such persons willing to travel and work in many of the Article 5 countries can sometimes be difficult. In the case of the World Bank, it took some time to set up the infrastructure of financial agents in the early years of the Funds' operation. The three UNIDO projects in the sample with substantial delays were approved in 1997 (two in Syria and one in Turkey) and the delays occurred mainly for technical difficulties (problems with a supplier company in one case and relocation of the plant in another), and in another project, for difficulties to clear equipment from customs.

36. Delays were also caused in some cases by beneficiary enterprises not being able to supply utilities (power, water or chemicals) or factory installations involving civil works within the planned schedule. In some cases where factories were relocated for safety reasons, the factory move was only initiated after the project was approved, and the time needed had not been foreseen in the approved schedule. Another factor is resistance to change on the part of the beneficiary enterprises when training and trials are to be completed. In many cases, this was quite challenging to the Implementing Agencies, particularly if the substitute technology was neither mature nor sufficiently well known to the company. Arranging trials and production tests can be time consuming and logistically challenging under such conditions. In Argentina, for example, all but one foam company chose, after some selection process including study tours to Europe, the LCD technology (Cardio). However, due to the early development stage of the LCD technology at the time, this decision took place only after many trials and technical activities had evaluated the LCD technology. This extended (delayed) projects up to two years.

Action Proposed for the Implementing Agencies, Secretariat and Executive Committee:

37. In view of the reduction of average actual project duration which took place in the last three to four years, and the substantial variation between individual cases, projects' durations should be planned, reviewed and approved on a case-by-case basis, taking into account the particular circumstances, instead of presenting all projects with the same standard duration of 36 months.

XI Technology choice and selection of equipment

38. The 66 foam projects evaluated have chosen 75 conversion technologies. In some projects, two or three different technologies were applied. The most frequent choices are listed in Table 11.

Table 11: Technology Choices as per Inventory of Approved Projects*

Technology Choice	Total No. of Technology Choices Completed**	No. of Technology Choices Evaluated**	Percentage Evaluated
CFC-11 to 50% reduced CFC	7	1	14%
CFC-11 to Butane	4	2	50%
CFC-11 to Cyclopentane	5	1	20%
CFC-11 to Extended range polyols	4	1	25%
CFC-11 to HCFC-141b	152	21	14%
CFC-11 to HCFC-22	17	1	6%
CFC-11 to HCFC-22/HCFC-142b	2		0%
CFC-11 to HFC-134a	2		0%
CFC-11 to Liquid carbon dioxide	7	5	71%
CFC-11 to Low index technology	2	1	50%
CFC-11 to LPG	1		0%
CFC-11 to methylene chloride	71	14	20%
CFC-11 to Pentane	9	2	22%
CFC-11 to Water/carbon dioxide	74	14	19%
CFC-12 to Butane	24	6	25%
CFC-12 to Pentane	2	1	50%
TCA to Solventless system	2		0%
Others	9	2	22%
Total	**401**	**75**	**19%**

*Later unapproved technology changes are not reflected
**One project may use more than one conversion technology

39. As shown in Table 11 above, most of the companies in the sample evaluated and in the total number of completed foam projects chose to convert from CFC-11 to HCFC-141b, followed by methylene chloride and water/carbon dioxide. Butane and LPG, as well as HCFC-22, pentane and liquid carbon dioxide (LCD), are much less frequently chosen as CFC substitutes.

40. There have been several discussions in the past between the Secretariat and the Implementing Agencies in order to define the areas where high-pressure machines would be eligible. An agreement was finally reached in May 1998 that new high-pressure machines would be eligible only in three areas:

(a) for insulation applications, i.e., rigid polyurethane foam, in order to maintain insulation quality;

(b) in conversions of flexible moulded foam to LCD, if this turns out to be cheaper than water-blown technology;

(c) for all conversions to hydrocarbons.

41. The consultants confirmed that the move to high-pressure foaming machines is inevitable in the long run, also in Article 5 countries, mainly for quality reasons, and takes place as soon as companies move to higher productivity and quality and the consumers are ready to pay a higher price for higher quality products. Low-pressure technology, although it performs quite well when used efficiently, is limited in terms of increasing the productivity level, requires continuous cleaning of the mixing head, and in some cases, is not able to process volatile low-boiling point auxiliary foam-blowing agents. However, it is also clear that the move to high-pressure equipment is in most cases not necessarily required for substituting CFC. HCFC-141b and methylene chloride can practically be used as drop-in substitutes for CFC-11, except for minor items to be changed and ventilation equipment to be added in order to protect workers when handling methylene chloride. A number of companies took advantage of grant funding being available to realize a plant modernization and to achieve technological upgrading and in several cases an increase of production capacity as well.

42. In the sample evaluated, there were only four projects that had been approved after the agreement between the Secretariat and the Implementing Agencies on the eligibility of high-pressure machines had been reached in May 1998 (i.e. the projects approved at the 25th or subsequent Meetings of the Executive Committee). Of these, two were conversions to LCD (one in Nigeria for the manufacture of moulded flexible foam [for automotive components] and one in Thailand for flexible moulded foam, combined with water-based technology for integral skin applications, at Duriflex). Both projects got high-pressure equipment in line with the agreement. The agreement is not applicable for the other two projects (City Foam in Thailand, which received a low-pressure foaming unit for a conversion to low index additive technology, and Thermaflex-Form Co. in Turkey, which received retrofit and metering equipment for converting from CFC-12 to isobutane). No indications were obtained that the agreement had a restrictive effect in preventing companies to proceed with the conversion they wanted to implement.

43. The evaluators were of the opinion that high-pressure machines would not be needed in all rigid foam insulation applications and technologies in order to maintain the insulation quality. On the other hand, one consultant recommended high-pressure machines for small integral skin applications, e.g. for automotive parts, and another one favoured high-pressure machines for all conversions, except for HCFC-141b and methylene chloride, which were however considered as transitory technologies by all consultants. One consultant advocated the possibility of using low-pressure machines for conversions with hydrocarbons in rigid PU-foam applications.

44. Most companies visited reported no major problems with regard to the maintenance of high-pressure equipment. Their multinational suppliers (a high percentage of companies are based in Italy) are generally represented in at least the large Article 5 countries, albeit often with sales representatives rather than technical personnel, and in some cases, delays of several weeks or months were reported before a technician arrived at the plant to solve a problem at the site. The main problematic area is the use of programmable logic controllers (PLCs) and other computer controls where local operators may not be sufficiently skilled to manage the equipment. Sometimes problems also arose due to the effects of electrical power voltage surges affecting the lifetime of sensitive electronic components, a problem that in principle could easily be solved by the installation of voltage stabilizers. In the longer run, also some mechanical

maintenance problems might occur. Although by now many of the projects visited have plant and equipment on par or even superior to their competitors in non-Article 5 countries, they do not usually have comparable technical resources (workshop facilities, skilled mechanics and technicians), and this is likely to have negative effects when wear and tear will set in, along with an increase in cost for plant maintenance and spare parts.

45. A particular situation could be observed with regard to LCD technology. The LCD technology generally works well in the majority of projects visited but is reportedly a sensitive technology which does not forgive errors with regard to foam pressure, chemical mix, and mechanical handling. Another problem seems to be that one segment of the market in Article 5 countries continues to require very cheap foam products, implying very low foam densities (11-12 kg/cubic meter), which is not achievable with LCD but only with methylene chloride. The lowest foam density achievable with LCD technology is about 15-16 kg/cubic meter. Accordingly, companies sometimes revert to the use of methylene chloride, purely for market reasons. There is also a problem that not all companies might be able to handle such demanding and not fully mature technologies well, resulting in quality problems, long trials and implementation delays, and eventually in a change of technology. One company in Thailand, Karn Yang Yeen Yong, got a project approved for conversion to methylene chloride, changed after a long delay to LCD which was approved, received the equipment, but was not able to make it work properly, abandoned it and now uses methylene chloride with possibly insufficient ventilation equipment as after the technology change, no funds were foreseen for this purpose. In the Urosan company in Turkey, the functioning of the LCD retrofit is still far from satisfactory, by not allowing the production of low-density foam with hardness as required by the company. According to information received after the evaluation mission the supplier has agreed to fine tune the technology within two months' time. Another company in Turkey, Safas, has had problems producing 15 kg/m^3 low-density hard foam that requires the use of co-polymer polyol.

46. It appears that the LCD technology, which has been and continues to be approved in greater numbers, has not fully matured to achieve certain grades of foam used in Article 5 countries. As each project requires a technology license fee of US $50,000, it is essential that the recipients of this technology get the full benefit of it, rather than being subjected to a long and costly period of trials and experimentation.

Action proposed for the Secretariat, in cooperation with the Implementing Agencies:

(a) In preparing LCD projects, the company should sign a statement saying that it is aware of the technical complexity of the technology and able to handle it.

(b) Based on the observations of the evaluators, the agreement between the Implementing Agencies and the Secretariat concerning the eligibility of high-pressure machines should be reviewed with regard to insulation qualities produced alternatively on low-pressure and high-pressure machines.

XII Change of technology

47. In several cases, the technology approved was changed without informing the Secretariat or the Executive Committee. The most significant case is a World Bank project (TUR/FOA/24/INV/38) implemented with the IDAS company in Turkey. This project was approved after the adoption of guidelines for proposals to change technology in approved projects at the 22nd Meeting of the Executive Committee (Decision 22/69, para 95). The company had originally proposed to eliminate the use of CFC-11 by switching its entire production to higher density foam of 26-27 kg/m^3 through water blowing. The switchover would have involved a capital cost of US $28,000 (trials and formulation assistance) and an incremental operation cost (IOC) of US $629,453, due to increased material usage resulting from the 33% increase in foam density, the eligibility of which was questioned, the switchover being of a commercial rather than technical necessity of phasing out CFC. After the Secretariat's review of the technology proposed, the World Bank agreed to invite IDAS to convert to the use of low index additive technology. Therefore, the project costs were recalculated based on this option. This resulted in a total project cost of US $295,037, including an incremental capital cost (ICC) of US $64,900 and an incremental operational cost (IOC) of US $230,137. The eligible grant based on the enterprise's CFC consumption was calculated and approved at US $230,510. IDAS subsequently decided for commercial reasons not to use the technology as approved, but to switchover the production to high density foam (26-28 kg/m3), without an auxiliary blowing agent, as it had originally planned, resulting in significant financial advantages compared to the approved project. During the evaluation, it was realized that the company had purchased a new Laaderberg Maxfoam equipment to replace its old Viking machine. According to Decision 22/69 of the Executive Committee concerning a change of technology during project implementation, the World Bank should have informed the Secretariat, reviewed its basis for funding to account for cost reductions, and presented the project again to the Executive Committee for approval.

48. Another case is a company in Thailand (City Foam) which changed from the approved LIA technology to methylene chloride. Although the project completion report indicates LIA technology to be in use, City Foam had no knowledge about it and LIA technology is not used in Thailand. No production trials were made using this technology, nor were any of these speciality chemicals ever made available to the company. The net effect of not using the LIA technology was to increase the use of methylene chloride, resulting in operational savings of approximately US $61,000, instead of the approved US $13,000 for incremental operating costs for LIA. The project as realized cost about US $74,000 less than approved. Neither the Secretariat nor the Executive Committee were informed about this.

Action proposed for the Executive Committee:

49. In order to stop the practice of Implementing Agencies not informing the Secretariat and the Executive Committee about technology change, the Executive Committee might consider adding the following paragraph to the guidelines for proposals to change technology in approved projects:

- **In cases of changes of technology without informing the Secretariat and approval by the Executive Committee, as foreseen by the guidelines, the Implementing Agency concerned might be requested by the Executive Committee to return the funding received partly or fully to the Multilateral Fund, particularly in cases when approved funding has been used to finance non-eligible items or materials or when substantive savings have been realized.**

XIII Project cost and funding levels for incremental capital costs (ICCs) and incremental operating costs (IOCs)

50. In a number of cases, more equipment than needed for the conversion was funded. If the consumption of CFC is not thoroughly verified and the budget is available, creative engineers and consultants can justify the need for all sorts of "eligible" equipment in order to derive maximum benefit from the potential funding. For example, at Beijing Commercial Machinery Factory, it was found that the Multilateral Fund had funded motor vehicles (trucks) on which foam spray machines were mounted, the cost of which had been designated in the project document as mobile foam spraying machines. The Tianjin project in China received an 'envirocure' cooling system from Canon/Viking at the very high cost of US $750,000. In Purplast, Turkey, the acquisition of machinery and equipment was significantly different from that approved in the incremental capital cost (ICC) budget. Three high-pressure foam dispensers were bought (instead of one machine plus a retrofit for another) and none of the old foam machines, considered obsolete, had in fact been disposed of but modified and adapted for other purposes instead.

51. In other cases, payments for trials and raw materials for testing, as well as funds for technology transfer and training, seem exaggerated, or trials were badly executed. In fact, cost for trials seem to be used sometimes as buffer funds to cover unforeseen expenses, for example, higher cost for equipment or additional purchases of equipment. Little if any of the standard technology used is not freely available from raw material suppliers (apart from certain royalty payments), and given the quality of the equipment supplied, commissioning in most cases (for a competent engineer) would be a rather simple matter.

52. In Eleganza Group in Nigeria, for example, US $134,062 were claimed as costs for trials with HCFC-141b, a well-known technology which moreover had just been successfully introduced in another company of the group. It is even less clear (given prior experience at Eleganza Industries Ltd.) why it was ever deemed necessary to acquire 16 day tanks (raw material feed tanks) for trial purposes (at a cost of US $58,514 out of a total trial cost of US $134,062) when the standard method of feeding a Gusmer foam dispenser is the method that was actually in use, i.e., from a standard 200 kg raw materials drum via a pneumatic barrel pump. In fact, none of these day tanks were actually acquired, so the US $58,514 allocated for this purpose were apparently spent on the acquisition (non authorized and non documented) of additional spare parts for the metering pumps. It is also difficult to understand (in the absence of a detailed commissioning/trials report) why so many difficulties were encountered with trials (given previous experience at Eleganza Industries Ltd.) so as to necessitate spending an

additional US $73,125 for extra raw materials, difficulties which did not prevent the commissioning and trials to be completed ahead of schedule.

53. In UNDP projects implemented by UNOPS, technology transfer costs of about five percent of total project cost were budgeted for international consultants to implement the projects, and in most cases, one and the same consulting group was engaged, which managed to acquire over the years an almost monopolistic position with UNDP and UNOPS and less so with the World Bank for the preparation and implementation of foam projects. This consulting group has a number of individual consultants under contract and has comprehensive knowledge of technologies and Multilateral Fund regulations, as well as the capacity to deliver faster and to adapt better to the requirements of the Implementing Agencies than competitors, but has acquired a disproportionate influence on choices of technology, suppliers and project design in general. Also, only one technical reviewer is used by UNDP.

54. In several instances, e.g. Purplast in Turkey, contingency funds were used not to cover unforeseen price increases or exchange rate fluctuations, but rather to fund purchases of additional equipment.

55. Little information is available on actual incremental operating costs (IOCs). The project completion reports do not provide details and the enterprises were generally reluctant to provide any precise information regarding IOC to the evaluators. IOCs appear to be often handled flexibly by consultants and companies to arrange project document figures in a way to achieve a desired balance between costs and savings, which enables the enterprise to procure sufficient equipment without having to contribute substantially own capital. Clear and credible IOC calculations that effectively compare projected and actual figures for incremental operating costs and savings are not provided with the project completion reports. The calculations remain rough estimates that depend essentially on the assessment of the baseline consumption of ODS which appears to be exaggerated in many cases (see Section VI above).

Actions proposed for the Executive Committee, Implementing Agencies and National Ozone Units concerned:

56. In cases where monitoring and evaluation of projects identifies apparent and significant irregularities (overestimation of the ODS baseline consumption, overpricing of equipment or operating costs, funding of non-eligible items or creation of additional capacities or avoidable technological upgrades), the Executive Committee might consider requesting the Implementing Agency and the National Ozone Unit concerned to prepare a report explaining such irregularities. In case the information cannot be retrieved otherwise, such a report should also check the possibility of organizing an audit of the project, either by national auditors or the auditors of the Implementing Agency, or as a joint undertaking.

57. As a result of information collected during the present evaluation of foam projects, it is suggested that Implementing Agencies and National Ozone Units concerned provide such a report on the questions raised in the project evaluation reports for the following projects:

Project Number	Company	Country	Implementing Agency
BRA/FOA/22/INV/69	Aquecedores Cumulus S.A.	Brazil	UNDP
CPR/FOA/10/INV/32	Tianjin	China	UNDP
MAL/FOA/23/INV/99	CT Foam	Malaysia	UNDP
NIR/FOA/20/INV/14	Eleganza Industries Ltd.	Nigeria	UNDP
SYR/FOA/19/INV/15	Krayem Cold Stores Co.	Syria	UNIDO
THA/FOA/15/INV/44	Karn Yang Yeen Yong	China	UNDP
TUR/FOA/24/INV/38	IDAS	Turkey	IBRD
TUR/FOA/24/INV/39	Purplast	Turkey	IBRD

58. The Executive Committee might request UNDP and UNOPS to report, in cooperation with UNDP's internal auditors, on the need for and use of technology transfer funds and on the selection and use of international consultants for preparing, reviewing and implementing foam projects. Technology transfer funds should generally be paid only to supplier companies in cases of patented or otherwise restricted and recent technology, but not to consultants and not for standard technology. The use of international consultants should be justified in project documents more carefully than in the past, their cost should be declared as such, and their selection be based on competitive bidding and an evaluation of various options, including package deals with supplier companies and systems houses and the increased use of local engineers, in particular, for standard conversion technologies. UNDP should also diversify its choice of technical reviewers for foam projects.

59. Implementing Agencies should provide full information on incremental operating costs (IOCs) in future evaluations, relying on the cooperation of beneficiary enterprises in providing data for the revised project completion report format and for the preparation and implementation of field visits to projects.

XIV Cost effectiveness

60. At the 16th Meeting of the Executive Committee, it was decided that for future projects, cost-effectiveness thresholds would be applied. The record of all completed foam projects compared to these thresholds is shown in Table 12 below. The cost-effectiveness of rigid foam projects was, on average, slightly below or very near the threshold value while in the other sub-sectors the average cost-effectiveness remains under the threshold with a comfortable margin.

Table 12: Average Actual Cost Effectiveness of Completed Foam Projects

Sub-sector	Number of Projects	Average Actual Cost - Effectiveness	Cost-Effectiveness Threshold
Flexible molded	9	7.33	16.86
Flexible slabstock	71	4.32	6.23
Integral skin	53	10.02	16.86
Multiple-sub-sectors	23	6.52	Composite
Phenolic	1	6.33	N/A
Polyol production	5	0.54	N/A
Polystyrene/polyethylene	40	4.38	8.22
Rigid foam	164	7.53	7.83

61. The limited ODS consumption of small- to medium-sized enterprises in the rigid foam sub-sector might restrict their choice of conversion technology to retrofit solutions and low-pressure machines, if they have difficulties raising additional capital on their own. The funding scope is further reduced in the case of low-pressure machines, with an age of more than 10 years, as baseline equipment. In such cases, 10% of the purchase value of such machinery is deducted from the replacement value for each additional year of use. In favour of very small companies without low-pressure machines as baseline equipment works on the other side that they are entitled to fifty percent of the cost of new low-pressure machines. Moreover, in terminal umbrella projects, the project cost-effectiveness for an individual sub-project is allowed to be 100% higher than the usual cost-effectiveness threshold, which applies only to the project as a whole. In other umbrella projects, each company or sub-project has to remain under the threshold level. It must also be mentioned that, according to Decision 17/11, no cost-effectiveness thresholds are applied to projects in low-ODS-consuming countries.

62. 40 of the 66 projects evaluated were approved after the 16th Meeting of the Executive Committee, and had therefore to comply with the threshold levels. In most cases, the projects stayed below and sometimes close to the threshold levels; this is also the case for projects approved before the 16th Meeting of the Executive Committee. For the sub-sectors polystyrene and/or polyethylene and integral skin, there seem to be no problems to meet the threshold levels. For flexible slabstock, the picture is more mixed with some projects approved being close to the threshold level; for rigid foam projects, many projects are close to the threshold and some are exactly at threshold level (see graphs in Annex II). This picture corresponds to the average actual cost-effectiveness realized in all completed foam projects, as recorded in the Progress Reports (see Table 12).

63. In most cases, the planned and realized cost-effectiveness vary little, which reflects the fact that the ODP phase out has been realized in most cases as planned, and that there were minor variations in planned and actual expenditures, except in a few cases where sizeable funds were returned to the Multilateral Fund (see Annex I).

XV Environmental problems and safety risks

64. Hydrocarbons used for foaming in refrigeration companies do not pose latent threats because the technology is proven and the producers are mainly large-scale companies with sufficient manpower and technical resources at their disposal. They do, however, cause serious concerns in polyethylene and polystyrene packaging industries, primarily as a result of these mostly small companies not being equipped with the managerial skills needed to handle such highly flammable materials with sufficient precautions (ventilation, leak detection, separate tanks, explosion proof electrical wiring and switches, etc). The two fires in the Thai company, Ponsry, are a case in point, and a few other incidents were reported for companies in the region.

65. With regard to safety problems caused by methylene chloride, it must be noted that this substitute product will eventually be replaced as it is already done in most companies in non-Article 5 countries. In developing countries, however, some consumers will continue for some time to demand cheap low-density foam products, and therefore proper safety measures, mainly ventilation, will have to be installed and operated in all companies that temporarily or regularly

use methylene chloride. In the projects evaluated which used methylene chloride, such equipment was sufficiently installed, with the possible exception of one project in Thailand which had converted on its own to methylene chloride after the approved and financed conversion to LCD did not work out (Karn Yang Yeen Yong in Thailand, see also paragraph 44). National legislation and local monitoring and enforcement will be needed to guarantee that such safety precautions are put in place in all companies using methylene chloride and that any exposure of workers is avoided.

66. In more than one third of the completed projects, the final conversion to ODS-free production has yet to be implemented at a later stage, when the HCFCs used now will have to be replaced by non-ODS substitutes. This final conversion will have to be funded and implemented entirely by the companies themselves. However, enterprises concerned have until 2030, by which time most existing production equipment will have reached the end of its lifetime and have been replaced.

Actions proposed for National Ozone Units and Implementing Agencies:

67. National Ozone Units should ensure that proper safety inspections are conducted by the consultants of the Implementing Agencies at the factory site, after assembly and commissioning, and that the safety measures and procedures recommended are being applied.

68. Enterprises that have converted to hydrocarbon in the foamed extruded polystyrene or polyethylene sub-sector should be revisited and monitored by the National Ozone Units, in cooperation with local fire protection authorities, in order to determine whether all regulations have been respected and all necessary preventive measures taken.

69. The National Ozone Units and Implementing Agencies are requested to submit a status report to the Secretariat regarding the number of fire incidences and the company details where fires have occurred, if any, in their respective countries. As a follow-up, Implementing Agencies and sector experts might need to update safety guidelines, as required.

XVI Overall rating of projects evaluated

70. The overall rating of completed projects used in the old project completion report format requested a qualitative assessment by the implementing agencies, using five categories listed in Table 13 below. The ratings for the 53 projects of the sample for which project completion reports are available vary between highly satisfactory, more than planned (9), satisfactory as planned (19) and satisfactory, though not as planned (25). The latter category obviously catches all projects with delays, technical complications, cost increases, etc. No project was declared as unsatisfactory, in spite of the fact that a number of them were not fully completed, as shown in Section VI above.

Table 13: Overall assessment by Implementing Agencies in Project Completion Report

Agency	Categories by Implementing Agencies in PCR*					
	1	**2**	**3**	**4**	**5**	**Total**
IBRD	1	9	7			17
UNDP	2	9	17			28
UNIDO	6	1	1			8
Total	9	19	25	0	0	53**

*1 - Highly satisfactory, more than planned
2 - Satisfactory, as planned
3 - Satisfactory, though not as planned
4 - Unsatisfactory, less than planned
5 - Unacceptable
**Excluding six projects evaluated in Chile, six projects for which PCRs are still due and one on-going project.

71. The results of applying the new overall assessment scheme for investment projects adopted at the 32nd Meeting of the Executive Committee are shown in Table 13 below. It is difficult to compare it with the ratings by the Implementing Agencies. The scale is different (only three categories) and it has not been applied to all projects but only to those which had been completed according to Decision 28/2 of the Executive Committee (see Section VI above). It emerges that a higher share of projects turned out to be highly satisfactory, with IBRD showing the largest number of projects in this category and UNIDO the highest percentage (80%). For UNDP, the majority of the projects are considered as satisfactory. Five projects are declared as less satisfactory, four of which were implemented by UNDP/UNOPS. Overall, the picture is more positive than in the self-assessment by the Implementing Agencies. However, one has to bear in mind that in the new rating, 13 projects are incomplete since at least one of the conditions defined in Decision 28/2 is not fulfilled, and these projects are not included. In addition, there are eight projects for which the destruction of equipment is not required, hence the rating is not applicable (for retrofits and one research project, Liming Research in China), an implication which will need to be corrected for the project completion format.

Table 14: Overall assessment by the Evaluators using the New Rating Scheme

Agency	Categories			
	Highly Satisfactory	**Satisfactory**	**Less Satisfactory**	**Total**
IBRD	10	5	1	**16**
UNDP	5	13	4	**22**
UNIDO	4	1	0	**5**
Total	**19**	**19**	**5**	**43**

XVII Project completion reports (PCRs)

72. The experience of the consultants in trying to collect project completion report related information has shown that it is a time-consuming, difficult and sometimes impossible task if the beneficiary company and the Implementing Agencies have not prepared the data at the time of project completion. In a number of cases, the company staff responsible for the conversion project had changed, and the records of data, particularly with regard to production, operating

cost (prices and volumes) and equipment cost, were not easily available. Many companies promised to prepare and send the missing information after the visits, but this only occurred in one case.

Action proposed for the beneficiary companies, Implementing Agencies, National Ozone Units and Financial Intermediaries:

73. The project completion report has to be part of the initial project agreement so that the company is aware of the reporting requirements from the beginning. The company should collect the information already during project implementation, if need be assisted by the local and visiting international consultant(s), as well as the National Ozone Unit and/or Financial Intermediary. Wherever possible, the Implementing Agency should disburse the last portion of funds only when all three conditions for project completion, according to Decision 28/2 (no more use of CFCs, new production has started, old equipment is destroyed/disposed of/rendered unusable) are fulfilled, and also until a satisfactory draft project completion report draft has been received by the Implementing Agencies from the company, as authorized in Decision 32/18, para d.

XVIII Lessons learnt and observations on innovative implementation modalities

74. It appears that no incentives have been established in the procedures of the Multilateral Fund that would induce enterprises and Implementing Agencies to seek the most cost-effective solutions for the conversion. As 100% grants are allocated, enterprises, consultants and Implementing Agencies (via their support costs and interest to facilitate smooth project preparation and implementation) acted rationally by seeking or accepting generous funding levels. The efforts of the Secretariat and the Executive Committee to limit proposals for non-essential and hence non-eligible funding have generated a plethora of guidelines, and over the years have succeeded in reducing significantly actual and potential funding of items which were proven not to be essential for the conversion. However, these control efforts absorb substantial resources, create tensions and conflicts and are still not able to prevent all cases of over-funding.

75. The experience in the foam sector has confirmed that companies tend to request high levels of funding as an incentive to agree to convert to non-ODS production, particularly in circumstances where, in spite of some price increases, CFC is still relatively cheap and easily available. The efforts to diminish CFC supply by means of production sector agreements and import licensing schemes on one side, and the increased availability of ODS substitutes at competitive prices on the other, will diminish the drive for generous funding in order to convince enterprises to initiate conversion, but will still take some time to bear fruits, as these measures were started only recently.

76. An innovative approach offering incentives to the enterprises to look for the most cost-effective solutions for ODS phase out was undertaken in Chile, where the Ozone Unit of CONAMA and the World Bank developed the auction system approach. This mechanism engages prospective beneficiaries of the Multilateral Fund in a competitive process for the cost-effective allocation of resources. The ranking list for the projects proposed prioritizes those showing the lowest cost per kilogram of ODS phased out, followed by companies with

increasing costs up to the amount of funds available. All but one foam project funded are so far in the rigid foam sub-sector. The overall cost effectiveness is 4.29 (US $/ODP kg) and the total investment in 21 rigid foam projects for the phase out of 264 ODP tonnes is US $1.6 million including company funding participation. The Multilateral Fund grant is US $1.13 million. This cost effectiveness compares favourably with the average of all rigid foam projects evaluated (US $6.68/ODP kg) and all rigid foam projects completed (US $7.53/ODP kg).

77. The use of an auction system has two main advantages: a) administrative costs of individual project review are reduced, and b) the auction reduces the costs to the Multilateral Fund since companies have an incentive to minimize conversion costs. Another advantage is that projects are prepared and implemented by the companies themselves. The company selects the technological solution, together with the corresponding supply contracts. This results in a sense of company "ownership" of the project. No external consultants are involved in the process, the necessary technical information for the company is provided by the National Ozone Unit and by suppliers. Superfluous equipment expenditures are avoided and technology transfer payments and incremental operating cost (IOC) are not paid for at all.

78. The Turkish revolving fund, again implemented by the National Ozone Unit and the World Bank, is another interesting model which combines grant funding for a base amount with loans to finance conversion cost above that ceiling. The scheme is designed to provide an incentive for enterprises to exercise some self-restraint in claiming conversion cost by making them participate in the cost through repaying the loan. For the foam sector, that ceiling is defined as US $500,000, the interest rate is 0%, repayment required in four instalments within two years after project completion in US $, with the company bearing the exchange rate risk, which used to be substantial in Turkey.

79. Three companies evaluated received loans for the costs exceeding US $500,000, in total US $132,000, of which US $80,000 have already been repaid. As these amounts present a rather small percentage of the total funding received, no significant effect on the investment decision of the companies could be observed. The other six companies evaluated have received full grant funding, although three of them had funding volumes of above US $500,000 (implemented by UNIDO and two by the IFC on behalf of the World Bank (see table in Annex I).

80. It would be interesting to monitor and evaluate more systematically, and in a more comprehensive way than it was possible during this evaluation, the results of different implementation modalities, including also national execution, umbrella projects and terminal sector phase-out projects in different countries under the changing circumstances that reflect the entry into the compliance period.

ANNEX I: OVERVIEW OF FOAM PROJECTS EVALUATED

Country	Code	Project Title	Agency	ODP To Be Phased Out As Per Inventory	ODP To Be Phased Out As Per Evaluation	ODP Phased Out As Per PCR	ODP Phased Out As Per Evaluation	Difference of ODP Phased Out Planned and Achieved As Per Evaluation	ODP Phase Out Points (No More CFC Use) (20 or 0)	Conversion Completion Points (New Production Started) (20 or 0)	Certified Equipment Destruction Points (20 or 0)	Completed According to Decision 28/2	Date Approved	Latest Planned Completion Date As Per Progress Report	Actual Date of Completion As Per Progress Report	Actual Date of Completion As Per Evaluation	Actual Delay in Implementation (months)	Delays Points
Argentina	ARG/FOA/13/INV/09	Bandex	UNIDO	214.0	214.0	214.0	214.0	0.00	20	20	20	X	Jul-94	Jul-95	Nov-95	Nov-95	4	15
Argentina	ARG/FOA/13/INV/10	Celpack	UNIDO	135.0	135.0	135.0	135.0	0.00	20	20	20	X	Jul-94	Jul-95	Dec-95	Dec-95	5	15
Argentina	ARG/FOA/14/INV/13	Prensiplast	UNDP	30.0	30.0	30.0	30.0	0.00	20	20	20	X	Sep-94	Sep-95	Nov-99	Nov-99	51	-15
Argentina	ARG/FOA/18/INV/26	Belmo Buenos Aires and Belmo San Luis	UNDP	145.0	145.0	145.0	121.0	24.00	0	20	20		Nov-95	Nov-96	Dec-98	Dec-98	25	-15
Argentina	ARG/FOA/18/INV/28	Mentvil	UNDP	18.5	18.5	18.5	18.5	0.00	20	20	20	X	Nov-95	Nov-96	Apr-97	Apr-97	5	0
Argentina	ARG/FOA/18/INV/29	Limansky	UNDP	95.0	95.0	95.0	95.0	0.00	20	20	20	X	Nov-95	Nov-96	Dec-98	Dec-98	25	-15
Argentina	ARG/FOA/18/INV/31	Sueño Estelar and Estelar San Luis	UNDP	128.6	128.6	128.6	128.6	0.00	20	20	20	X	Nov-95	Nov-96	Dec-98	Dec-98	25	-15
Argentina	ARG/FOA/22/INV/55	Rheem	UNDP	12.0	12.0	10.7	12.0	0.00	20	20	20	X	May-97	Jun-99	Dec-98	Dec-98	-6	15
Brazil	BRA/FOA/17/INV/21	Plascar	UNDP	15.0	15.0	15.0	15.0	0.00	20	20	20	X	Jul-95	Dec-96	Oct-97	Oct-97	10	0
Brazil	BRA/FOA/18/INV/28	Nacra	UNDP	20.0	20.0	20.0	20.0	0.00	20	20	20	X	Nov-95	May-97	Oct-97	Oct-97	5	-15
Brazil	BRA/FOA/18/INV/30	Sao Rafael	IBRD	14.0	14.0	14.0	14.0	0.00	20	20	0		Nov-95	Jul-98	Sep-99	Sep-99	14	-15
Brazil	BRA/FOA/18/INV/33	M. Agostini	IBRD	11.0	11.0	11.0	11.0	0.00	20	20	20	X	Nov-95	Jun-98	Sep-99	Feb-99	8	15
Brazil	BRA/FOA/22/INV/69	Aquecedores Cumulus	UNDP	11.0	11.0	11.0	11.0	0.00	20	20	0		May-97	Jun-99	Nov-99	Nov-99	5	0
Brazil	BRA/FOA/22/INV/71	Metallurgica Barra	UNDP	36.3	36.3	36.3	36.3	0.00	20	20	20	X	May-97	Jun-99	Jul-97	Jul-97	-23	15
Brazil	BRA/FOA/22/INV/72	Isolenge	UNDP	66.0	66.0	66.0	66.0	0.00	20	20	20	X	May-97	Jun-99	Apr-98	Apr-98	-14	0
Chile	CHI/FOA/07/INV/30	Empresas IPAC	IBRD	64.2	64.2	64.2	64.2	0.00	20	20	20	X	Jun-92	Dec-96	Dec-96	Aug-96	-4	15
Chile	CHI/FOA/07/INV/32(*)	Formac	IBRD	24.1	24.1	N/A	24.1	0.00	20	20	20	X	May-96	Sep-99	N/A	Sep-99	0	15
Chile	CHI/FOA/07/INV/36(*)	INEMA	IBRD	5.5	5.5	N/A	5.5	0.00	20	20	20	X	May-96	Jun-99	N/A	Nov-99	5	0
Chile	CHI/FOA/07/INV/40(*)	Multipanel	IBRD	18.7	18.7	N/A	18.7	0.00	20	20	20	X	May-96	Feb-99	N/A	Mar-99	1	15
Chile	CHI/FOA/07/INV/41(*)	Souyet	IBRD	5.8	5.8	N/A	5.8	0.00	20	20	20	X	May-96	Jul-99	N/A	Jul-99	0	15
Chile	CHI/FOA/07/INV/42(*)	Termica Haschke	IBRD	9.0	9.0	N/A	9.0	0.00	20	20	20	X	May-96	Jul-00	N/A	Aug-00	1	15
China	CPR/FOA/07/INV/15	Zhejiang	IBRD	400.0	400.0	400.0	400.0	0.00	20	20	20	X	Jun-92	Sep-95	Sep-95	Sep-95	0	15
China	CPR/FOA/10/INV/32	Tianjin	UNDP	180.0	180.0	180.0	180.0	0.00	20	0	0		Jun-93	Sep-94	Apr-95	May-95	8	0
China	CPR/FOA/10/INV/42	Liming Research	IBRD	0.0	0.0	0.0	0.0	0.00	N/A	N/A	N/A	X	Jun-93	Jan-96	Jan-96	Jan-96	0	0
China	CPR/FOA/10/INV/48	Henan Xinfei	IBRD	103.0	229.4	229.4	229.4	0.00	20	20	20	X	Jun-93	Nov-96	Oct-94	Oct-94	-25	15
China	CPR/FOA/11/INV/54	Beijing Commercial Machinery Factory (BCMF)	UNDP	30.0	30.0	30.0	30.0	0.00	20	0	0		Nov-93	Nov-94	Dec-98	Dec-00	74	-15
China	CPR/FOA/15/INV/103	Foshan No. 3 Plastic Factory	UNDP	360.0	360.0	360.0	360.0	0.00	20	20	20	X	Dec-94	Jun-96	Dec-98	Dec-97	18	-15
China	CPR/FOA/15/INV/85	Beijing Foam Plastic General Factory	IBRD	100.0	100.0	100.0	100.0	0.00	20	0	0		Dec-94	Jun-97	Nov-99	Nov-99	29	-15
China	CPR/FOA/15/INV/98	Jinfeng	UNDP	70.0	70.0	70.0	70.0	0.00	20	20	20	X	Dec-94	Jun-96	Dec-97	Dec-97	18	-15
China	CPR/FOA/19/INV/158	Yinguang Chemical Group	IBRD	85.0	85.0	85.0	85.0	0.00	20	20	20	X	May-96	Jun-99	May-99	Jun-99	0	-15
Malaysia	MAL/FOA/11/INV/21	Associated Air-Pack Industries	UNDP	50.0	50.0	50.0	50.0	0.00	20	20	20	X	Nov-93	Nov-94	Nov-95	Nov-95	12	0
Malaysia	MAL/FOA/12/INV/23	Pulai Lamipak	UNDP	50.0	50.0	50.0	50.0	0.00	20	20	20	X	Mar-94	Dec-94	Aug-96	Aug-96	20	-15
Malaysia	MAL/FOA/12/INV/27	N.L.Y.	UNDP	55.0	55.0	55.0	55.0	0.00	20	20	20	X	Mar-94	Mar-95	Feb-95	Feb-95	-1	15
Malaysia	MAL/FOA/12/INV/33	Small scale producers	UNDP	80.0	80.0	PCR Due	80.0	0.00	20	20	20	X	Mar-94	Mar-95	Aug-98	Aug-98	42	-15
Malaysia	MAL/FOA/18/INV/67	Bristol	UNDP	8.0	8.0	8.0	8.0	0.00	20	20	0		Nov-95	Nov-96	May-97	Feb-98	15	-15
Malaysia	MAL/FOA/23/INV/100	Summer Technologies	UNIDO	12.1	12.1	12.1	12.1	0.04	20	20	20	X	Nov-97	Jun-99	Dec-98	Dec-98	-6	15
Malaysia	MAL/FOA/23/INV/102	Visdamax	UNIDO	18.5	18.5	18.5	18.5	0.00	20	20	20	X	Nov-97	Jun-99	Dec-98	Dec-98	-6	15
Malaysia	MAL/FOA/23/INV/99	CT Foam	UNDP	14.0	14.0	PCR Due	14.0	0.00	20	20	0		Nov-97	Dec-99	Nov-99	Nov-99	-1	15
Nigeria	NIR/FOA/20/INV/12	Royal Foam Products	UNDP	43.0	43.0	43.0	43.0	0.00	20	20	N/A	X	Oct-96	Sep-98	Oct-98	Oct-98	1	15
Nigeria	NIR/FOA/20/INV/14	Eleganza Industries Ltd. at Ikeja, Lagos	UNDP	48.3	48.3	48.3	48.3	0.00	20	20	20	X	Oct-96	Sep-98	Oct-98	Oct-98	1	15
Nigeria	NIR/FOA/20/INV/15	Sara Products Limited	UNDP	27.7	27.7	27.7	27.7	0.00	20	20	20	X	Oct-96	Sep-98	Jul-99	Jul-99	10	15
Nigeria	NIR/FOA/23/INV/24	Mouka Ltd.	UNDP	30.3	30.3	PCR Due	30.3	0.00	20	20	N/A	X	Nov-97	Dec-99	Dec-99	Dec-99	0	15
Nigeria	NIR/FOA/23/INV/27	Eleganza Group (Eleganza Cooler and Household Industries Ltd., Eleganza	UNDP	73.8	73.8	73.8	73.8	0.00	20	20	20	X	Nov-97	Dec-99	Dec-99	Dec-99	0	15

(*) Projects that are not in the Inventory of Approved Projects. They are TECFIN I (CHI/MUS/07/INV/04) and TECFIN II (CHI/MUS/19/INV/14) subprojects.
Informations for these projects are based only on data collected during the evaluation.

ANNEX I: OVERVIEW OF FOAM PROJECTS EVALUATED

Code	Project Title	Cost-Effectiveness Planned As Per Inventory (US$/kg)	Actual Cost-Effectiveness As Per PCR (US$/kg)	Cost-Effectiveness As Per Evaluation (US$/kg)***	Cost Effectiveness Points	Funds Approved As Per Inventory	Funds Disbursed As Per Progress Report and Up To Date	Difference	Project Financially Closed (1999 Progress Report)	Funds Returned to MLF ****	Grant Funds Disbursed As Per PCR	Rating by IA in PCR	Quantitative Rating Total Points As Per Evaluation	Qualitative Rating Total Points As Per Evaluation	Total Points As Per Evaluation	New Rating**	Availability of PCRs
ARG/FOA/13/INV/09	Bandex	2.42	2.41	2.42	0	516,993	516,255	738	X		517,630	1	75	40	115	1	X
ARG/FOA/13/INV/10	Celpack	3.73	3.73	3.73	0	512,085	503,471	8,614	X		503,094	1	75	40	115	1	X
ARG/FOA/14/INV/13	Prensiplast	11.50	11.33	11.33	0	345,000	309,204	35,796		a/	339,978	3	45	21	66	3	X
ARG/FOA/18/INV/26	Belmo Buenos Aires and Belmo San Luis	4.93	4.93	5.91	-5	715,000	715,000	0	X	0	715,000	3	N/A	24	N/A	N/A	X
ARG/FOA/18/INV/28	Mentvil	6.05	5.63	5.63	5	115,000	95,313	19,687		a/	104,209	2	65	7	72	3	X
ARG/FOA/18/INV/29	Limansky	4.98	4.96	4.96	0	473,000	471,366	1,634		363	471,367	3	45	40	85	2	X
ARG/FOA/18/INV/31	Sueño Estelar and Estelar San Luis	5.35	5.33	5.33	0	690,000	687,153	2,847		2,836	685,218	3	45	8	53	3	X
ARG/FOA/22/INV/55	Rheem	6.39	7.16	6.39	0	76,650	65,700	10,950		a/	76,650	2	75	26	101	1	X
BRA/FOA/17/INV/21	Plascar	7.96	6.27	6.28	5	119,400	94,132	25,268		25,268	94,132	3	65	26	91	2	X
BRA/FOA/18/INV/28	Nacra	12.73	10.35	10.35	5	254,500	200,881	53,619		47,525	206,975	2	50	26	76	2	X
BRA/FOA/18/INV/30	Sao Rafael	5.91	5.80	5.76	0	82,676	80,660	2,016	X		80,660	3	N/A	26	N/A	N/A	X
BRA/FOA/18/INV/33	M. Agostini	7.75	7.55	7.56	0	85,217	83,139	2,078	X		83,139	3	75	30	105	1	X
BRA/FOA/22/INV/69	Aquecedores Cumulus	7.82	7.82	7.82	0	86,000	74,809	11,191		a/	86,000	3	N/A	30	N/A	N/A	X
BRA/FOA/22/INV/71	Metallurgica Barra	7.43	7.43	7.44	-5	270,000	261,558	8,442		a/	270,000	1	70	32	102	1	X
BRA/FOA/22/INV/72	Isolenge	7.82	6.54	6.54	5	516,000	430,448	85,552		84,188	431,812	1	65	28	93	2	X
CHI/FOA/07/INV/30	Empresas IPAC	2.00	2.05	2.05	-5	128,340	131,607	-3,267	X		131,607	N/A	70	40	110	1	Under TECFIN
CHI/FOA/07/INV/32(*)	Formac	6.04	N/A	6.04	0	145,353	N/A	N/A			N/A	N/A	75	40	115	1	
CHI/FOA/07/INV/36(*)	INEMA	11.78	N/A	11.78	0	65,000	N/A	N/A			N/A	N/A	60	40	100	1	
CHI/FOA/07/INV/40(*)	Multipanel	5.90	N/A	5.90	0	110,549	N/A	N/A			N/A	N/A	75	40	115	1	
CHI/FOA/07/INV/41(*)	Souyet	4.57	N/A	4.57	0	26,577	N/A	N/A			N/A	N/A	75	40	115	1	
CHI/FOA/07/INV/42(*)	Termica Haschke	1.53	N/A	1.53	0	13,847	N/A	N/A			N/A	N/A	75	40	115	1	
CPR/FOA/07/INV/15	Zhejiang	2.02	2.48	2.48	-5	1,008,000	993,000	15,000	X		993,000	2	70	24	94	2	X
CPR/FOA/10/INV/32	Tianjin	6.00	5.77	5.77	0	1,038,593	1,038,593	0	X	0	1,038,593	2	N/A	18	N/A	N/A	X
CPR/FOA/10/INV/42	Liming Research	0.00	N/A	N/A	N/A	526,000	457,000	69,000	X		457,000	2	N/A	32	N/A	N/A	X
CPR/FOA/10/INV/48	Henan Xinfei	11.63	4.82	4.54	5	1,198,000	1,042,000	156,000	X		1,042,000	3	80	36	116	1	X
CPR/FOA/11/INV/54	Beijing Commercial Machinery Factory (BCMF)	14.50	11.84	11.84	5	435,000	341,338	93,662		91,690	355,189	3	N/A	22	N/A	N/A	X
CPR/FOA/15/INV/103	Foshan No. 3 Plastic Factory	2.96	0.48	2.96	0	1,065,000	1,018,341	46,659		a/	1,065,000	3	45	38	83	2	X
CPR/FOA/15/INV/85	Beijing Foam Plastic General Factory	7.20	7.00	6.98	0	720,000	698,400	21,600	X		698,400	3	N/A	22	N/A	N/A	X
CPR/FOA/15/INV/98	Jinfeng	3.36	3.36	3.36	0	235,340	235,340	0	X	0	235,340	3	45	30	75	2	X
CPR/FOA/19/INV/158	Yinguang Chemical Group	4.42	4.01	4.01	5	376,000	341,046	34,954			341,046	3	50	24	74	3	X
MAL/FOA/11/INV/21	Associated Air-Pack Industries	4.68	5.01	5.01	-5	251,126	251,126	0	X	0	250,637	3	55	36	91	2	X
MAL/FOA/12/INV/23	Pulai Lamipak	7.10	6.76	6.76	5	337,934	337,934	0	X	0	337,934	3	50	34	84	2	X
MAL/FOA/12/INV/27	N.L.Y.	2.36	2.10	2.10	5	115,349	115,349	0	X	0	115,349	2	80	32	112	1	X
MAL/FOA/12/INV/33	Small scale producers	13.06	PCR Due	12.34	5	1,045,000	987,386	57,614		a/	PCR Due	PCR Due	50	20	70	3	PCR Due
MAL/FOA/18/INV/67	Bristol	15.43	15.36	15.37	0	123,400	122,927	473		473	122,926	3	N/A	28	N/A	N/A	X
MAL/FOA/23/INV/100	Summer Technologies	7.38	7.36	7.36	0	89,407	87,764	1,643			89,407	1	75	28	103	1	X
MAL/FOA/23/INV/102	Visdamax	7.56	7.56	7.57	-5	139,959	138,475	1,484			139,959	1	70	30	100	1	X
MAL/FOA/23/INV/99	CT Foam	16.86	PCR Due	13.93	5	236,000	195,004	40,996		a/	PCR Due	PCR Due	N/A	n.a.	N/A	N/A	PCR Due
NIR/FOA/20/INV/12	Royal Foam Products	0.77	0.79	0.79	-5	34,000	32,880	1,120		600	34,000	2	N/A	83	N/A	N/A	X
NIR/FOA/20/INV/14	Eleganza Industries Ltd. at Ikeja, Lagos	6.49	6.40	6.40	0	314,000	296,352	17,648		4,065	309,306	2	75	20	95	2	X
NIR/FOA/20/INV/15	Sara Products Limited	3.86	3.66	3.66	5	107,000	90,201	16,799		a/	101,462	3	80	24	104	1	X
NIR/FOA/23/INV/24	Mouka Ltd.	4.73	PCR Due	4.19	5	143,600	126,880	16,720		a/	PCR Due	PCR Due	N/A	24	N/A	N/A	PCR Due
NIR/FOA/23/INV/27	Eleganza Group (Eleganza Cooler and Household	7.69	7.34	7.34	5	568,000	388,097	179,903		a/	541,852	2	80	20	100	1	X

(*) Projects that are not in the Inventory of Approved Projects. They are TECFIN I (CHI/MUS/07/INV/04) and TECFIN II (CHI/MUS/19/INV/14) subprojects.
Informations for these projects are based only on data collected during the evaluation.

Country	Code	Project Title	Agency	ODP To Be Phased Out As Per Inventory	ODP To Be Phased Out As Per Evaluation	ODP Phased Out As Per PCR	ODP Phased Out As Per Evaluation	Difference of ODP Phased Out Planned and Achieved As Per Evaluation	ODP Phase Out Points (No More CFC Use) (20 or 0)	Conversion Completion Points (New Production Started) (20 or 0)	Certified Equipment Destruction Points (20 or 0)	Completed According to Decision 28/2	Date Approved	Latest Planned Completion Date As Per Progress Report	Actual Date of Completion As Per Progress Report	Actual Date of Completion As Per Evaluation	Actual Delay in Implementation (months)	Delays Points
Nigeria	NIR/FOA/28/INV/50	Automotive Component	UNDP	37.0	37.0	Ongoing Project	37.0	0.00	20	20	0		Jul-99	Feb-02	Ongoing Project	Sep-99	-29	15
Syria	SYR/FOA/19/INV/14	Dakkak	UNIDO	17.0	17.0	17.0	17.0	0.00	20	20	20	X	May-96	May-97	Dec-98	Dec-98	19	0
Syria	SYR/FOA/19/INV/15	Krayem Cold Stores Co.	UNIDO	65.0	65.0	65.0	65.0	0.00	20	20	0		May-96	Sep-97	Dec-98	Dec-98	15	-15
Syria	SYR/FOA/21/INV/17	Abdul Karim Sbei	UNIDO	61.7	0.0	61.7	61.7	0.00	20	20	N/A	X	Feb-97	Jun-98	Dec-98	Dec-98	6	0
Thailand	THA/FOA/12/INV/27	Mic-Cell	UNDP	44.0	44.0	44.0	44.0	0.00	20	20	20	X	Mar-94	Mar-95	Nov-98	Nov-98	45	-15
Thailand	THA/FOA/12/INV/29	Modular Compound	UNDP	30.0	30.0	30.0	30.0	0.00	20	20	20	X	Mar-94	Mar-95	Dec-96	Dec-96	21	-15
Thailand	THA/FOA/13/INV/36	Ponsri	UNDP	125.0	125.0	125.0	125.0	0.00	20	0	20		Jul-94	Jul-95	Jun-96	Jun-96	11	-15
Thailand	THA/FOA/15/INV/44	Karn Yang Yeen Yong	UNDP	110.0	110.0	110.0	110.0	0.00	20	0	20		Dec-94	Nov-95	Apr-99	May-99	43	-15
Thailand	THA/FOA/22/INV/66	Siriphan	UNDP	50.0	50.0	50.0	50.0	0.00	20	20	20	X	May-97	Jun-99	Nov-98	Nov-98	-7	15
Thailand	THA/FOA/23/INV/73	Can Asia Products	IBRD	16.8	16.8	16.8	16.8	0.00	20	20	20	X	Nov-97	Nov-99	Oct-99	Oct-99	-1	15
Thailand	THA/FOA/23/INV/78	Viriyakit Plastic	IBRD	27.5	27.5	27.5	27.5	0.00	20	20	20	X	Nov-97	Nov-99	Feb-99	Feb-99	-9	15
Thailand	THA/FOA/23/INV/79	P.U. Foam	IBRD	58.1	58.1	58.1	58.1	0.00	20	20	20	X	Nov-97	Nov-99	Aug-99	Aug-99	-3	15
Thailand	THA/FOA/25/INV/90	Duriflex	UNDP	21.2	21.2	PCR Due	21.2	0.00	20	20	20	X	Jul-98	Aug-00	Nov-99	Sep-99	-11	15
Thailand	THA/FOA/25/INV/91	City Foam	UNDP	42.0	42.0	PCR Due	42.0	0.00	20	20	20	X	Jul-98	Aug-00	Nov-99	Sep-99	-11	15
Turkey	TUR/FOA/15/INV/14	Assan Demir ve Sac Sanayi A.S.	IBRD	180.0	180.0	250.0	180.0	0.00	20	20	20	X	Dec-94	Dec-96	Apr-98	Apr-98	16	-15
Turkey	TUR/FOA/18/INV/17	Tek-iz Izolasyon ve Yapi Elemanlari Sanayii	IBRD	155.0	155.0	177.0	155.0	0.00	20	20	20	X	Nov-95	Dec-96	Apr-98	Aug-98	20	15
Turkey	TUR/FOA/20/INV/22	Urosan Kimiya Sanayii A.S.	UNIDO	135.0	135.0	135.0	135.0	0.00	20	20	N/A	X	Oct-96	Oct-97	Dec-99	Dec-99	26	-15
Turkey	TUR/FOA/23/INV/29	Safas	IBRD	93.8	93.8	PCR Due	93.8	0.00	20	20	N/A	X	Nov-97	Mar-99	Sep-99	Sep-99	6	0
Turkey	TUR/FOA/24/INV/38	IDAS	IBRD	37.0	37.0	37.0	37.0	0.00	20	20	N/A	X	Mar-98	Apr-00	Nov-98	Aug-98	-20	15
Turkey	TUR/FOA/24/INV/39	Purplast	IBRD	54.0	54.0	52.5	54.0	0.00	20	20	0		Mar-98	Apr-00	Nov-99	Nov-99	-5	15
Turkey	TUR/FOA/24/INV/43	Pimsa Poliuretan Imalat Sanayii Ve Ticaret A.S.	IBRD	57.9	57.9	57.9	57.9	0.00	20	20	0		Mar-98	Apr-00	Jul-99	Jul-99	-9	15
Turkey	TUR/FOA/24/INV/44	Teknik Malzeme	IBRD	17.2	17.2	17.2	17.2	0.00	20	20	20	X	Mar-98	Oct-99	Jun-98	Aug-98	-14	15
Turkey	TUR/FOA/26/INV/51	Thermaflex-Form	IBRD	37.5	37.5	37.5	37.5	0.00	20	20	N/A	X	Nov-98	Dec-00	Aug-96	Aug-96	-53	15

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Informations for these projects are based only on data collected during the evaluation.

ANNEX I: OVERVIEW OF FOAM PROJECTS EVALUATED

Code	Project Title	Cost-Effectiveness Planned As Per Inventory (US$/kg)	Actual Cost-Effectiveness As Per PCR (US$/kg)	Cost-Effectiveness As Per Evaluation (US$/kg)***	Cost Effectiveness Points	Funds Approved As Per Inventory	Funds Disbursed As Per Progress Report and Up To Date	Difference	Project Financially Closed (1999 Progress Report)	Funds Returned to MLF ****	Grant Funds Disbursed As Per PCR	Rating by IA in PCR	Quantitative Rating Total Points As Per Evaluation	Qualitative Rating Total Points As Per Evaluation	Total Points As Per Evaluation	New Rating**	Availability of PCRs
NIR/FOA/28/INV/50	Automotive Component	5.53	Not Applicable	N/A	N/A	204,761	0	204,761		-	Ongoing Project	Ongoing Project	N/A	32	N/A	N/A	
SYR/FOA/19/INV/14	Dakkak	5.68	5.43	5.43	5	96,553	92,391	4,162			92,330	2	65	28	93	2	X
SYR/FOA/19/INV/15	Krayem Cold Stores Co.	6.45	9.76	9.76	-5	644,600	634,365	10,235			634,365	1	N/A	32	N/A	N/A	X
SYR/FOA/21/INV/17	Abdul Karim Sbei	1.49	1.45	1.46	0	92,256	90,129	2,127			90,129	3	N/A	28	N/A	N/A	X
THA/FOA/12/INV/27	Mic-Cell	7.72	7.61	7.61	0	339,500	318,635	20,865		a/	334,954	3	45	36	81	2	X
THA/FOA/12/INV/29	Modular Compound	16.93	16.82	16.82	0	508,000	504,652	3,348	X	3,348	504,651	3	45	32	77	2	X
THA/FOA/13/INV/36	Ponsri	3.40	2.72	2.72	5	333,967	333,967	0	X	0	340,000	3	N/A	10	N/A	N/A	X
THA/FOA/15/INV/44	Karn Yang Yeen Yong	1.55	1.53	1.53	0	170,000	168,269	1,731		a/	168,269	3	N/A	8	N/A	N/A	X
THA/FOA/22/INV/66	Siriphan	4.30	4.15	4.15	0	215,000	207,399	7,601		a/	207,399	2	75	24	99	2	X
THA/FOA/23/INV/73	Can Asia Products	5.01	5.02	5.02	-5	84,300	84,300	0			84,300	2	70	28	98	2	X
THA/FOA/23/INV/78	Viriyakit Plastic	5.18	5.19	5.19	-5	142,700	142,700	0	X		142,700	2	70	26	96	2	X
THA/FOA/23/INV/79	P.U. Foam	3.88	1.73	3.88	0	225,400	255,400	0	X		225,400	2	75	23	98	2	X
THA/FOA/25/INV/90	Duriflex	13.20	PCR Due	12.43	5	278,800	263,575	15,225		a/	PCR Due	PCR Due	80	n.a.	N/A	N/A	PCR Due
THA/FOA/25/INV/91	City Foam	3.72	PCR Due	3.20	5	156,100	134,349	21,751		a/	PCR Due	PCR Due	80	18	98	2	PCR Due
TUR/FOA/15/INV/14	Assan Demir ve Sac Sanayi A.S.	5.14	3.73	5.14	0	925,000	925,000	0	X		925,000	1	45	36	81	2	X
TUR/FOA/18/INV/17	Tek-iz Izolasyon ve Yapi Elemanlari Sanayii	4.71	4.95	4.71	0	729,650	729,650	0	X		729,650	3	75	32	107	1	X
TUR/FOA/20/INV/22	Urosan Kimiya Sanayii A.S.	4.77	4.64	4.66	0	643,500	507,669	135,831			628,781	1	N/A	30	N/A	N/A	X
TUR/FOA/23/INV/29	Safas	5.65	PCR Due	5.65	0	530,000	530,000	0	X		PCR Due	PCR Due	N/A	40	N/A	N/A	
TUR/FOA/24/INV/38	IDAS	6.23	6.22	6.22	0	230,510	230,137	373	X	373	230,137	2	N/A	38	N/A	N/A	X
TUR/FOA/24/INV/39	Purplast	10.21	10.21	10.21	0	551,101	551,501	0			551,501	2	N/A	34	N/A	N/A	X
TUR/FOA/24/INV/43	Pimsa Poliuretan Imalat Sanayii Ve Ticaret A.S.	9.53	9.53	9.53	0	551,501	551,501	0			551,501	2	N/A	32	N/A	N/A	X
TUR/FOA/24/INV/44	Teknik Malzeme	7.13	5.84	5.84	5	122,443	122,443	0	X	22,079	100,364	3	80	36	116	1	X
TUR/FOA/26/INV/51	Thermaflex-Form	3.50	3.31	3.31	5	124,219	124,219	0	X		124,219	2	N/A	34	N/A	N/A	X

* Overall assessment by Implementing Agencies so far:
1 - Highly satisfactory, more than planned (1)
2 - Satisfactory, as planned (7)
3 - Satisfactory, though not as planned (14)
4 - Unsatisfactory, less than planned (0)
5- Unacceptable (0)

** New overall rating proposed:
1 - Highly satisfactory
2 - Satisfactory
3 - Less satisfactory

*** Cost Effectiveness As Per Evaluation = ODP Phased Out As Per Evaluation/Funds Disbursed As Per Progress Report/1000
Note: Some disbursed figures are provisional data

**** Information on funds returned to the MLF were received only from UNDP and partially from the World Bank.

a/: A final revision (FBR) has not been issued for this project; UNDP financial rules prevent from returning funds to the MLF in the absence of a FBR.

N/A = Not Applicable

n.a. = Not Available

(*) Projects that are not in the Inventory of Approved Projects. They are TECFIN I (CHI/MUS/07/INV/04) and TECFIN II (CHI/MUS/19/INV/14) subprojects.
Informations for these projects are based only on data collected during the evaluation.

Explanations concerning Criteria and Rating Scheme used for new Overall Assessment

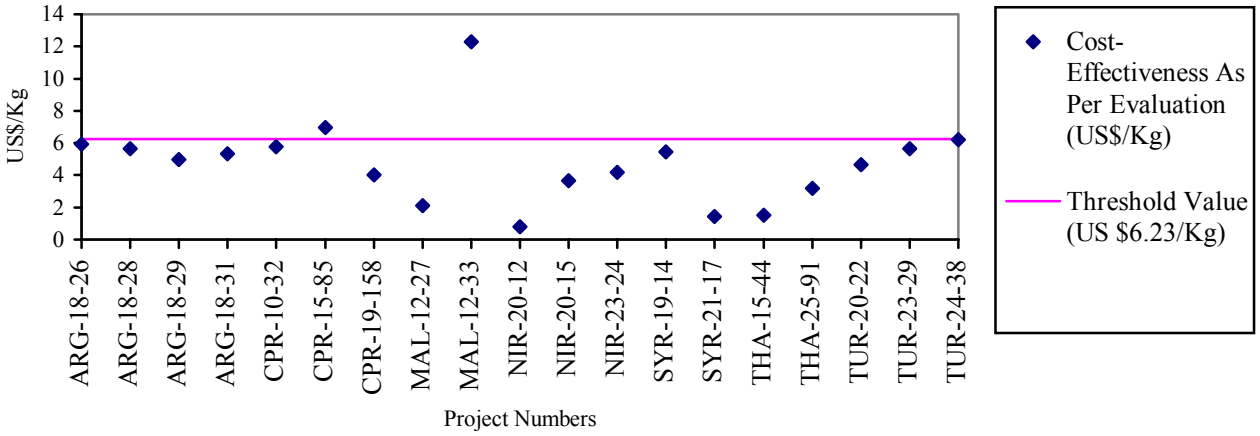
Part A: Assessment of Quantitative Project Performance Data			
Category	**Criteria**	**Range**	**Rating**
Pre-conditions for Completion*	ODS phase-out as approved (no more CFC in use)	0 or 20	
	Conversion completed (ODS-free production has started)	0 or 20	
	Certified equipment destruction	0 or 20	
Delays	On time	15	
	6 to 12 months delay	0	
	More than 12 months delay	-15	
Cost-effectiveness of MLF Funding	Better than approved by 5% or more	5	
	As approved, or better by up to 5%	0	
	Less cost-effective than approved	-5	
Subtotal A			
Part B: Qualitative Rating of Project Performance**			
Project Preparation	Quality of project design	5, 3 or 1	
Technology Choice	Conversion technology	5, 3 or 1	
	Type of equipment	5, 3 or 1	
	Supplier	5, 3 or 1	
Management of Risks	Safety / health protection	5, 3 or 1	
	Capacity for maintenance of equipment	5, 3 or 1	
	Product quality maintained	5, 3 or 1	
	Provisions made to prevent return to ODS use	5, 3 or 1	
Subtotal B			
Total Score	Highly satisfactory Satisfactory Less satisfactory	100 to 120 75 to 99 48 to 74	

*The overall rating is calculated only if the pre-conditions for completion, as defined by the Executive Committee in Decision 28/2, are met and documented (applicable for projects completed after July 1999).

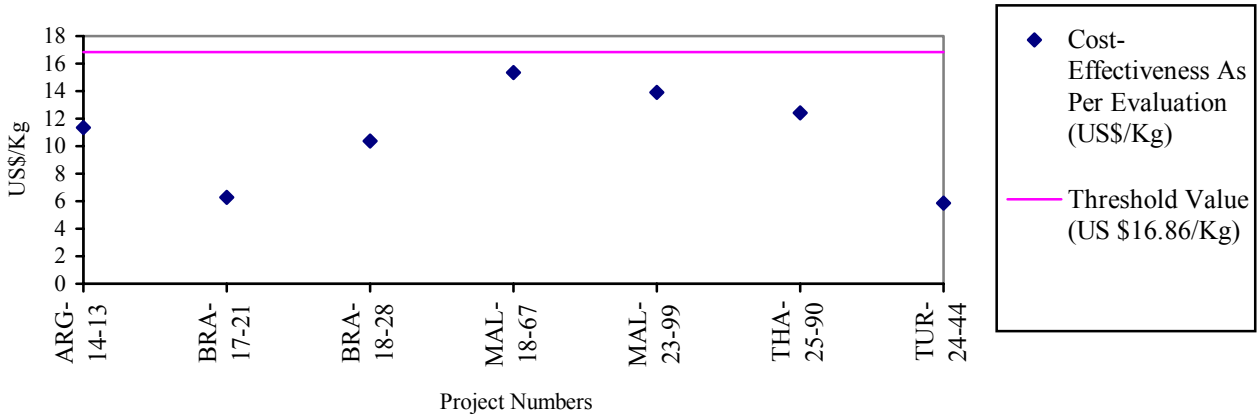
**Project performance is rated with regard to quality/appropriateness using the following scale for each category: Highly satisfactory: (5); Satisfactory: (3); Less satisfactory: (1).

Cost-Effectiveness for Projects Evaluated by Sub-sector

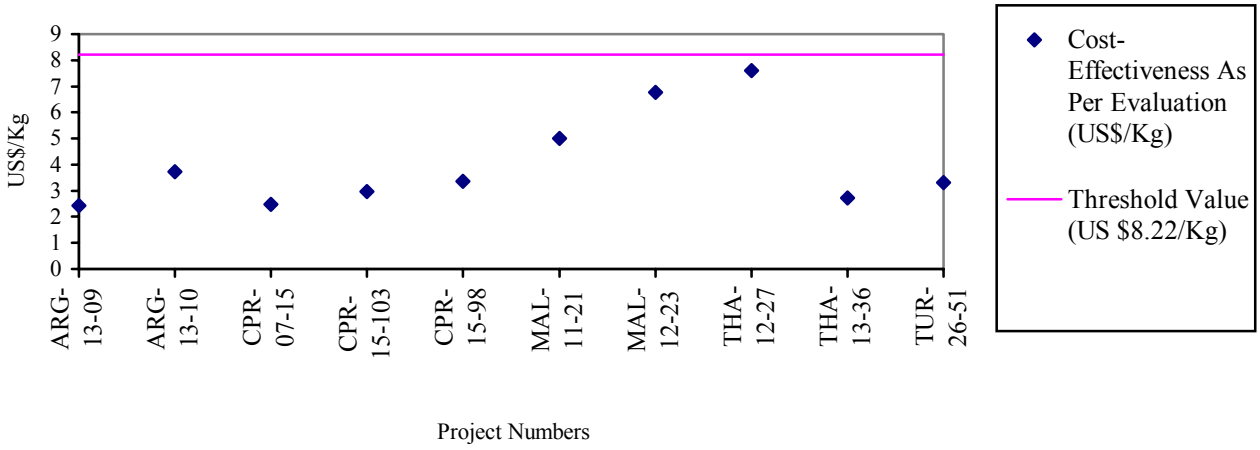
a) Flexible Slabstock



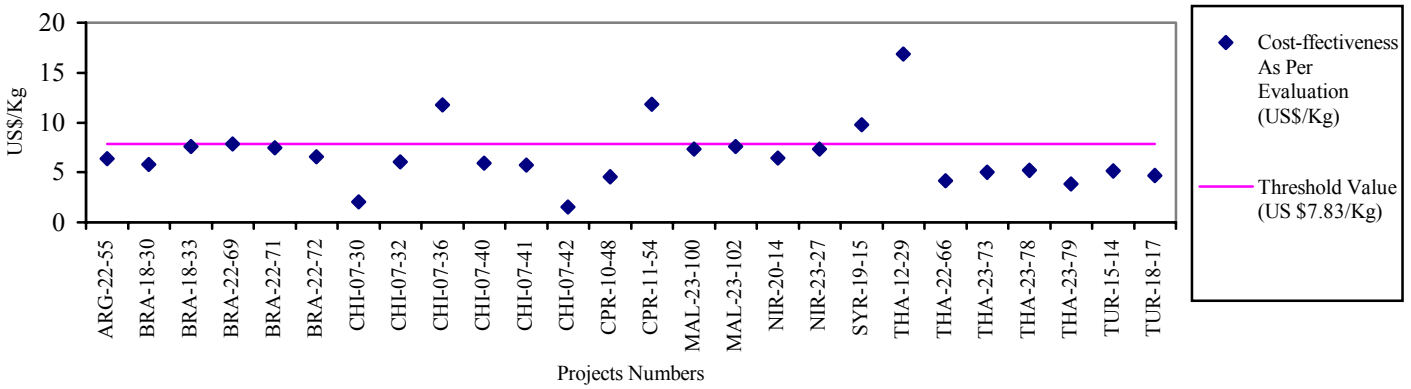
b) Integral Skin



c) Polystyrene/Polyethylene



d) Rigid



* Please note that projects approved until the 16th Meeting of the Executive Committee were not subject to cost-effectiveness thresholds.