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EXECUTIVE COMMITTEE OF
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BASELINE EQUIPMENT

Background

1. In project proposals in the refrigeration, foam and solvents sectors in large ODS-consuming Article-5 countries, substantial variations in the quality and condition of the baseline equipment installed in some enterprises have had an impact on the level of incremental costs sought in the proposals and raised questions as to the eligibility of proposed costs, although the costs are within the cost effectiveness thresholds. For instance, some equipment may be of recent manufacture and in fair to good condition. Other equipment may be nearing the end of its useful life, or otherwise in poor condition through inadequate maintenance. Yet other equipment may be a copy of an international brand (often manufactured locally), or may be re-assembled from parts recovered from equipment discarded by other enterprises which phased out with assistance from the Multilateral Fund. Some of the latter equipment (including equipment in projects submitted to recent meetings) is reported as having been manufactured as recently as 1995. Some enterprises may have no mechanical equipment for certain of their operations prior to conversion.

2. Where equipment is in reasonable condition and from a manufacturer which also produces non-CFC equipment, conversion of the enterprise can often be effected by retrofitting the existing equipment. In the three sectors mentioned, this has become established through precedent in many approved projects as the primary basis for calculating the incremental cost of conversion. Where equipment is unsuitable for retrofit due to the characteristics of the replacement technology (for example: low pressure foam machines cannot be used for hydrocarbon foam technology), the incremental cost of the project is calculated on the basis of replacement, taking into consideration relevant Executive Committee decisions such as the decision on technological upgrade.

3. In a number of recent project proposals, funding has been sought for the replacement of major equipment which in previous projects would have been candidates for funding based on retrofits. In such cases, the implementing agencies have indicated that the existing equipment cannot, in practice, be retrofitted because:

- (a) its condition is so poor that it is effectively beyond economical refurbishment; (new for old replacement);
- (b) its quality of manufacture is too poor (including situation where it is assembled from scavenged parts) for it to be modified to international standards, even when manufactured recently at a cost which may be less or more than the cost of recognized international brands; (new but inadequate equipment);
- (c) it is an unlicensed copy of an international design, the international company would not be prepared to provide assistance to retrofit the equipment and the company which manufactured it has no experience in production of non-CFC equipment; (unlicensed equipment), or;

- (d) there is little or no equipment at all in the baseline (no equipment).

4. If it is assumed that new equipment has to be provided to enable the project to be implemented, it becomes necessary to consider whether the full cost of the equipment is eligible as an incremental cost, or whether a proportion of the cost of the new equipment is eligible, having regard to the rules of the Multilateral Fund and the policies of the Executive Committee relating to the calculation of incremental costs.

Baseline Equipment

5. Accurate characterization of an enterprise's baseline is necessary to facilitate the calculation of incremental costs on an equitable basis for conversion projects in Article 5 countries. This baseline could be expressed as the conditions in an enterprise in which a conversion project could be implemented through the retrofitting of the main items of existing equipment, together with provision of essential supporting equipment and activities, including safety-related equipment.

6. Once the baseline of an enterprise is characterized, the proportion of the necessary costs which would be eligible as incremental costs could be determined using Decision 18/25 on technological upgrade, which reads as follows:

- (a) that costs associated with avoidable technological upgrades should not be considered as eligible incremental costs and therefore should not be funded by the Multilateral Fund; and
- (b) that the methodologies for the quantification of technological upgrades outlined in UNEP/OzL.Pro/ExCom/18/73 will be used as guidance in the calculation of incremental costs.

Technical Upgrade

7. Decision 18/25 is applicable in each of the four cases outlined in sub-paragraphs 3(a) to 3(d) above, since in each case the replacement of equipment may supplement the current capabilities of the enterprise in ways unrelated to the change of technology associated with phase-out. These supplementations could comprise:

- (a) new for old equipment
 - this confers an advantage to an enterprise through a delay in the need for the enterprise to make its own investment in new equipment:
- (b) new but inadequate equipment (including equipment of indigenous manufacture)

- benefits may accrue from higher quality equipment, encompassing, for example: better accuracy and repeatability providing better product quality (and thus possible access to additional markets); less raw material losses thus reducing costs; greater reliability leading to increased productivity:
- (c) unlicensed equipment
- this is similar to the case above in that there is an extension in the capabilities of equipment, or the benefits arising from its use, that need to be costed
 - these additional capabilities are related to product quality, equipment reliability, warranty and technical support for the equipment, spare parts and service availability and other benefits which derive from using equipment developed and supported by a recognized company operating internationally
- (d) no equipment in the baseline: i.e. replacement of non mechanical processes (such as hand-pouring of foam) by mechanized equipment (such as a foam machine)
- additional to an increase in capacity, even with the smallest available equipment, this provides the potential for increased reliability, quality and productivity, reduction of raw material losses and reduction of hazards to workers

Methodology for Application of Decision on Technological Upgrade

8. Methodologies for applying Decision 18/25 to each of the four situations to take account of possible technological upgrade are described below:

(a) New for Old Replacement

9. The existing methodology associated with Decision 18/25 includes costing the remaining useful life of existing equipment. This is directly applicable to the situation where new equipment is proposed to replace equipment which has been in use for a significant proportion of its useful economic life, i.e. where the baseline equipment is old or worn and nearing replacement.

(b) Inadequate Equipment, and;

(c) Unlicensed Equipment

10. Where existing equipment such as a foam machine or a solvent cleaning machine is not nearing the end of its useful life but is inadequate in design or condition, or is an unlicensed copy, an alternative methodology is needed to provide a quantitative way of costing the benefits which may arise from replacement with higher quality equipment. The practical option for quantifying technological upgrade is to base incremental costs on the cost of retrofit of similar equipment.

The difference between retrofit costs and replacement costs represents a pro-rata contribution for technological upgrade. Pro-rating of equipment costs is one of the methodologies endorsed by the Executive Committee for implementing Decision 18/25.

11. Using this methodology, a project proposal would specify that the equipment was to be replaced, however compensation would be based on retrofit costs (or, for instance, pentanisation costs for H/C projects involving existing high pressure machines). The enterprise would have to indicate its commitment to counterpart funding in line with Decision 22/63.

12. This methodology has been used in several projects, including a domestic refrigeration project in China, which is being submitted to the 23rd Meeting (see summary of costing in Annex I).

(d) No Equipment in the Baseline

13. For situations where there is little or no equipment in the baseline, such as hand-poured foam, two financial models are applicable. Where a high pressure foam machine is essential for conversion, it could be agreed that the incremental cost is the difference between the cost of the high pressure machine and the cost of an equivalent low pressure machine from the same manufacturer. In this financial model, the cost of the low pressure machine is provided by the enterprise as the contribution for technical upgrade from hand pouring of foam to use of a foam machine.

14. Where a low pressure foam machine can be used, the Committee may wish to consider that a fixed percentage of equipment costs could be regarded as the technological upgrade component and not eligible for funding. This could be the situation in many small and medium-sized enterprises. An example of this situation was a group project for some 80 enterprises in India approved by the Executive Committee at the 22nd Meeting in which 50 percent of the cost of a foam machine was agreed between the Secretariat and UNDP as the compensation for those enterprises which did not have a foam machine in the baseline (a summary of relevant costs for this project is also included in Annex I). When combined with the favourable prices obtained for bulk purchase of the foam machines, this provided the means for the projects to be implemented in a way which maintained equity in the calculation of incremental costs.

Previous Application of Decision 18/25

15. Although Decision 18/25 on technological upgrade was taken in November 1995, the discounting of project costs on the grounds of technical upgrade has been used mainly for large projects involving substantial expenditure on new, replacement equipment. It has not been applied routinely to each item of equipment in foam or refrigeration projects, although the Fund Secretariat and the implementing agencies have agreed in many instances on costing for equipment items in individual projects which is consistent with the decision. The need for possible extension and formalization of use of Decision 18/25 arises since immediate prospects now exist for significant numbers of projects in the refrigeration and foam and possibly solvent

sectors, to be proposed on the basis that retrofits cannot be used to implement the project, for claimed safety or other reasons. Requests for full funding for replacement equipment in these circumstances give rise to the need to consider whether a financial advantage is being gained by an enterprise and whether such an advantage should be eligible as an incremental cost.

Implications of Use of Technological Upgrade Decision

Equity

16. Apart from the primary effect of ensuring that Multilateral Fund funds are used for the phase out of ODS in keeping with the requirements of Executive Committee policies, the 'baseline' concept is important in ensuring that Multilateral Fund funds are used equitably. If one enterprise has used its own resources to establish what could be described as international standards of production, it is not equitable for another in the same sector and in the same market to have such standards provided for it at no cost as part of the conversion project. The Executive Committee has from time to time taken into account the need to maintain equity between enterprises in a country, inter-alia, in relation to the timing of projects, to avoid Multilateral Fund projects distorting the marketplace.

17. The two main components of competition between enterprises are product quality and cost. The objective of conversion is to enable the enterprise to produce a non-ODS product of equivalent quality. However if either the quality of the product after conversion is higher, or if the enterprise is advantaged in one or more cost aspects, equity is not maintained vis-à-vis other enterprises in the same sector. The circumstances outlined in paragraph 7 above, if fully compensated, may provide advantages either in product quality or in the overall cost structure of the production activities of the enterprise.

Project Implementability

18. It is a primary requirement that a project is able to be implemented in accordance with the proposal approved by the Executive Committee. However it is necessary to differentiate between the physical design of a project and the basis for determination of incremental costs. In a situation where it was agreed that the eligible incremental cost was limited to the cost of, for example retrofit of a foam machine, the project proposal would need to specify the supply of a replacement machine if the existing equipment could not be retrofitted for one of the reasons outlined earlier in the paper. The eligibility of the costs involved is a separate issue which should not influence the technical position. It will however influence project implementation, since the enterprise will have to provide counterpart funding.

Counterpart Funding

19. Counterpart funding is an inevitable component of project costs because the Multilateral Fund reimburses agreed incremental costs, which may not cover the full costs of the project as proposed by an enterprise. Under Decision 18/25 it has been established that costs for

technological upgrade are not incremental and should be deducted from project costs funded from the Multilateral Fund. If Decision 18/25 is applied on a systematic basis to items of major equipment in foam, refrigerant or solvent projects, the requirement for counterpart funding will increase and a greater number of enterprises are likely to be involved. The effect on individual projects can be seen from the cases outlined in Annex I. For the refrigeration project in China, the level of grant for the relevant equipment items was reduced by some 55 per cent. For the solvent project in China, the reduction was some 70 percent. For the group foam project in India, the difference for each of the individual foam pouring enterprises which did not have a foam machine was some US \$4,000, compared to the equipment cost of US \$15,000. However these enterprises were not required to provide the counterpart funding since bulk equipment purchase reduced the total equipment cost to the total funding level approved in the project after the deduction for technological upgrade.

Technology Choice

20. The choice of technology made by individual enterprises may be influenced by the level of counterpart funding required. For instance less well equipped enterprises could prefer to convert to HCFC-141b foam blowing in preference to hydrocarbon if the latter conversion resulted in the need for a higher level of counterpart funding.

Incentive

21. The incidental benefits to be gained by an enterprise from converting its production processes with the aid of funding from the Multilateral Fund, such as benefits from technological upgrade, can be regarded as an incentive for the enterprise to take early action to convert its production processes, in an environment where CFCs are still plentiful and cheap. The need for enterprises to provide counterpart funding could have an effect on the incentive to enterprises to take up conversion projects. However at the present time there are no substantive indications that projects are failing to be generated because of a perceived lack of incentive for the enterprises concerned. If, in the future, it was established that lack of incentive was reducing the effectiveness of operation of the Multilateral Fund, the Executive Committee could consider whether it wished to modify its policies at the appropriate time.

Taking Account of Conditions in Individual Enterprises

22. Circumstances in individual enterprises may vary, and variations should be documented in project proposals. As with any of the rules and policies of the Executive Committee relating to the design of projects and calculation of incremental costs, the above methodologies need not conflict with the requirement to take account of the conditions at individual enterprises. To be effective and equitable, the methodologies, if adopted would need to apply prima-facie. However a proposal to vary the calculation of incremental costs on the basis of specific circumstances at an enterprise can always be included in a project document. The need for any additional costs would have to be demonstrated and justified on an individual basis.

Proposal for use of the Baseline Concept

23. Recognizing the likely reduction in the size of projects coming forward in the future, in particular the probable absence of large and very large enterprises, there will be a need to clearly define the sectors and circumstances in which baseline conditions and technological upgrade will need to be applied on a routine basis.

24. On the basis of the experience in the preparation and review of projects to date, it is proposed that the baseline concept be adopted and implemented selectively, through application of Decision 18/25 on technological upgrade utilizing pro-rating of equipment costs, to the specific circumstances indicated below, and with the methodologies as also indicated:

- for the domestic and commercial refrigeration and rigid polyurethane foam sub-sectors:
 - the incremental cost of providing new foam machines where these are essential for conversion and none exist in the baseline should be based on either the difference between the cost of a low pressure and a high pressure foam machine, where a high pressure machine is essential, or, alternatively, an agreed percentage of the cost of a low pressure machine
 - for foam machines nearing the end of their useful life, the incremental cost of conversion should be based on the cost, from the same supplier, of a new machine, from which has been deducted the cost of a replacement ODS-technology machine, or a proportion thereof calculated according to Decision 18/25
 - for foam machines in all other circumstances, the incremental cost of conversion should be based on the cost of retrofitting similar machines available through international bidding.
- for the solvents sector:
 - the incremental cost of conversion of existing solvent cleaning machines to use non-CFC or non-TCA solvents should be based on the cost of retrofitting similar machines available through international bidding (excluding conversion to aqueous/semi-aqueous technology which requires different equipment).

Agencies' comments

25. UNDP and the World Bank take the view that it may be appropriate for 'unavoidable' technological upgrade to be eligible for funding especially in cases where there is no commercial advantage to the beneficiary enterprise or where the absence of equipment would result in safety concerns which did not exist in the baseline situation. They also consider that the instances of commercial benefit accruing to enterprises through receipt of new equipment may be less certain than presented in the paper. UNDP points out that in the SME project in India, savings on bulk purchase of equipment enabled the enterprises with no equipment in the baseline to receive a foam machine at no cost, even though the project was approved on the basis of these enterprises meeting half the cost themselves.

26. As a result of these views, the two agencies would prefer that recommendations to the Committee provided an option for the full cost of new equipment to be paid, in circumstances where the new equipment is required for conversion, with incremental costs for 'new-for-old' replacement being treated as proposed in the paper on the basis of Decision 18/25. Agencies also recommend that templates now in use in the foam and refrigeration sectors should be updated to provide appropriate guidance on calculation of incremental costs for retrofits.

Conclusion

27. It is not coincidental that the funding of new equipment has emerged as a significant policy issue. It appears to be perceived in the market place of the Multilateral Fund as conveying a significant benefit, especially when it involves replacement of so-called 'indigenous' equipment in the baseline. The issue is the extent to which any benefit should be eligible for funding. To this end, specific measures have been proposed to account for possible benefits associated with specific equipment in the most relevant sub-sectors, while avoiding use of a wide-ranging methodology for removing all 'benefit' from all projects, for the reasons outlined in the paper.

Recommendation

28. The Executive Committee might consider:

- (a) whether to confirm the inference in Decision 18/25 that unavoidable technological upgrade is to be taken into account in determining eligible incremental costs;
- (b) whether it agrees that, *prima-facie* the provision of replacement equipment constitutes a technological upgrade in relation to the baseline conditions of enterprises for which retrofit of existing equipment is not feasible;
- (c) if so, whether it wishes to adopt the proposal set out in paragraph 24 above.

ANNEX I

Examples of projects where baseline concepts have been applied, showing the difference in incremental costs for relevant individual items of equipment.

1. Domestic refrigeration project in China submitted to the 23rd Meeting:

Project title: Elimination of CFCs 11 and 12 in the manufacturing of domestic freezers at Jilin Jinjouer Electric Appliance Co.

<u>Project Cost</u> US \$	<u>Equipment</u>	<u>Replacement</u> <u>Equip. Cost</u> US \$	<u>Deduction for</u> <u>Tech. Upgrade</u> US \$ *	<u>Explanation</u>
t.b.a.	5 foam dispensers	180,000	100,000 (55%)	Existing machines are recent, but locally made and retrofit is problematical.

* The deduction for technological upgrade is based on the difference between retrofit costs and replacement.

2. Group Foam project in India submitted to 22nd Meeting.

Project title: India: Elimination of CFC in the manufacture of rigid PU foam in SMEs.

<u>Project Cost</u> US \$	<u>Equipment</u>	<u>Replacement</u> <u>Equip. Cost</u> US \$	<u>Deduction for</u> <u>Tech. Upgrade</u> US \$	<u>Explanation</u>
1,276,000	36 foam machines	15,000 each	4,000 each (27%)	No equipment in the baseline (hand pouring).

3. Solvent project in China submitted to 22nd Meeting.

Project title: Conversion of ODS precision cleaning processes from CFC-113 to aqueous cleaning at Huangshi Dongbei Refrigeration Co.

<u>Project Cost</u> US \$	<u>Equipment</u>	<u>Replacement</u> <u>Equip. Cost</u> US \$	<u>Deduction for</u> <u>Tech. Upgrade</u> US \$	<u>Explanation</u>
266,953	Aqueous tunnel washer	150,000	105,000 (70%)	Baseline process was manual washing.