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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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**HISTORICAL DATA ON RELEVANT DECISIONS AND METHODOLOGIES USED
TO ESTABLISH INCREMENTAL OPERATING COSTS OR SAVINGS ARISING
FROM THE REPLACEMENT OF CFCS BY SUBSTITUTE CHEMICALS IN
PROJECTS FUNDED BY THE MULTILATERAL FUND**

Introduction

1. This document is submitted in response to Decision 30/52 in which the Executive Committee requested:

“The Secretariat to produce a document for the Thirty-first Meeting presenting historical data on the relevant decisions of the Executive Committee and the methodologies used to establish incremental operating costs or savings arising from the replacements of CFCs by substitute chemicals in projects funded by the Multilateral Fund. Until that paper was considered, the present arrangements for determining the prices of chemicals would continue to be followed.”

Calculation of incremental operating costs

2. The principle of incremental costs of projects (both capital and operating costs) funded by the Multilateral Fund has its origin in the Indicative List of Categories of Incremental Costs.

3. The incremental operating costs of the majority of investment projects that have been funded to-date come under the ambit of the second category of incremental costs, i.e. “Use in manufacturing as an intermediate good”; whereby “operational cost, including the cost of raw materials except where otherwise provided for” is included as apart of the incremental cost of a project.

4. The Indicative List stipulates in paragraph 2 that “recurring [*operational*] costs apply only for a transition period to be defined”, and in paragraph 1 (c) that “Savings or benefits that will be gained at both the strategic and project levels during the transition process should be taken into account on a case-by-case basis, according to criteria decided by the Parties and as elaborated in the guidelines of the Executive Committee”.

5. Based on the principles laid down in the Indicative List, calculation of both incremental capital and operating costs/savings went through an evolutionary process as experience was gained in the formulation by the implementing agencies of project proposals in different sectors, and their review by the Secretariat. (Please refer to Annex I for the relevant decisions of the Executive Committee on incremental operating costs).

6. Determining the incremental capital cost of a project was a matter of agreeing on the eligibility and suitability of equipment items and the associated technology transfer needed for conversion. This was made easier by the fact that suppliers of equipment and technology were generally well known and were able to provide technology and equipment directly. The costs were therefore not difficult to determine and/or ascertain. Once a cost was determined and agreed upon by the Secretariat and the Agencies it was recommended for approval to the Executive Committee. When a project incurring such a cost was evaluated after completion, it was easy to verify that the relevant equipment was procured and the technology transfer was accomplished. Templates for major equipment items in refrigeration and rigid foam sectors were developed and agreed by the Secretariat and the implementing agencies.

7. At its 7th and 10th Meetings the Executive Committee considered definitions of recurrent costs and a methodology for calculating incremental capital and operating cost for different sectors and sub-sectors. The methodology for calculating incremental operating costs or savings includes the following steps:

- (a) determination of the actual cost of material and components for the level of production used in the project baseline (including consumption of ODS, raw materials, components, energy and labour);
- (b) determination of the estimated cost of material and components for the same level of production after conversion;
- (c) calculation of the difference between (a) and (b) above (which can be either positive, if there are net costs, or negative if there are net savings).

8. Determination of IOC/IOS therefore involved an accurate knowledge of several parameters and the unit cost of each parameter. The parameters include those that are common to all sectors, e.g.

- (a) ODS consumption and price;
- (b) Quantity of substitute chemicals and price
- (c) Duration of the transitional period of incremental operating costs/savings.

9. Other parameters are sector specific, e.g., number of units produced by an enterprise in sectors such as aerosol, domestic and commercial refrigeration and halon for extinguishers; weight or volume of foam products in the case of foams, energy and labour in the case of some solvent and process agents projects.

10. The most important of these parameters were subject to several Executive Committee decisions.

ODS consumption:

11. Projects submitted prior to the Fifteenth Meeting of the Executive Committee were not uniform regarding the amount of ODS consumption and the year in which the consumption was attributed.

12. The Executive Committee decided at its 16th Meeting that ODS consumption should be calculated on the basis of either the year, or an average of three years, immediately preceding project preparation.

13. At the Sixteenth Meeting also, the Executive Committee established a list of cost-effectiveness thresholds for most of the sectors, including several sub-sectors. The thresholds, which did not apply to any project from a country classified by the Committee as a low-volume-

consuming country (annual consumption less than 360 ODP tonnes), established a ceiling for funding of projects in the relevant sectors/sub-sectors.

14. This decision added more importance to the accuracy of ODS consumption reported in project proposals; which in turn led to further refinement of what should be considered as a consumption to be phased out. Two examples can be cited for illustration:

- (a) by agreement between the Secretariat and the implementing agencies the amount of CFC-12 used for servicing of domestic/commercial refrigeration projects was not included in the calculation of incremental operating costs/savings of such projects and was therefore excluded from calculation of cost-effectiveness. This was done because CFC-12 consumption for servicing was expected to continue after conversion since most of the refrigeration enterprises provide services for the large population of CFC-12 based units produced prior to conversion to non-ODS technologies.
- (b) evaporative losses in foam projects, which the Committee debated at its 26th and 27th Meetings. Decision 27/76 (c) states: “to consider as eligible ODS consumption of the enterprise losses of up to 10 per cent of the ODS purchased and used in the production of foam.”

15. The importance of ODS consumption lies not only in its primacy in determining incremental operating costs or incremental operating savings, but also in its impact in enabling a country to fulfil its commitment under the Montreal Protocol. The Executive Committee at its 19th Meeting decided to request the implementing agencies and countries to include with each project proposal submitted for approval by the Executive Committee a brief description on how the project would contribute to helping the country to achieve the 1999 freeze. This decision was confirmed at subsequent meetings.

16. Due to the importance of the accuracy of consumption data, the Executive Committee took a decision at its 26th Meeting on ODS consumption by requesting the implementing agencies to ensure the reliability and accuracy of data on ODS consumption.

Price of chemicals

17. The second important parameter in the calculation of incremental operating costs/incremental operating savings is the price of chemicals and components used before and after conversion.

18. Chemicals that appear in Multilateral Fund projects include CFCs, HFCs, CFC-HCFC mixtures, halons, HFC-134a, hydrocarbons, carbon dioxide, polyols, methylene di-isocyanate/chemicals additives and catalysts, and other ODSs and their substitutes.

19. Variation in the prices of chemicals was observed quite early in the history of Multilateral Fund projects. Different prices were reported in projects emanating from the same country

which were submitted to the same meeting. In some instances local prices were much higher than international or even regional prices. Sometimes prices were much higher for some countries than those quoted from others. The first instance when price of chemicals was brought to the attention of the Executive Committee was the cost of a locally produced substitute which was much higher (as reported in the relevant project) than the international or regional price. This case was considered by the Executive Committee at its Twelfth Meeting when the Committee decided: "for future projects for all recipient countries to disallow the use of growth projections in determining operational costs and benefits either positive or negative. It further recommended that national pricing be used, except where it was higher than 20 per cent from the regional border price" (UNEP/OzL.Pro/ExCom/12/37, para. 62).

20. The Secretariat has reviewed hundreds of projects in which it noted and analyzed the prices of chemicals. The Secretariat has continually needed to seek clarifications and substantiation of the prices used because of the lack of consistency between agencies within countries, and with documented international trends. The prices were therefore agreed to on an ad-hoc basis.

21. Implementing agencies usually referred to vouchers or invoices indicating purchase of chemicals displaying the quoted prices.

22. The issue of prices of chemicals was considered at the 22nd Meeting at which the Committee decided "to request the Secretariat and the implementing agencies to hold discussions on and review the process of setting the prices of ODS and other chemicals for the purpose of calculating incremental operating costs, taking fully into account the earlier decision of the Executive Committee on limiting the variation in prices to 20 per cent of the regional border price, and to prepare, by the Twenty-third Meeting of the Executive Committee, a paper outlining the process proposed to be followed".

23. Accordingly, the Secretariat in consultation with the implementing agencies, proposed a methodology to the Executive Committee at its 23rd Meeting for preparation of a report on chemical prices by a consultant.

24. A report was produced by a consultant which identified inconsistencies between regional prices, prices reported by the implementing agencies in project proposals and prices provided by NOUs. It also provided information on the structure of the supply chain and the actual bulk prices pertaining to each region for thirty chemicals including ODS and alternatives. Finally, a model was developed to allow determination of the border price for the respective chemicals, the likely additional costs attributable within the consuming country, and thus an estimate of the actual national prices for each chemical in a particular Article 5 country.

25. Although comprehensive, the work undertaken did not succeed in resolving all the inconsistencies observed in chemicals prices, including reconciliation of prices indicated in the study with data reported by NOUs.

26. The general principle applied by the Secretariat and the implementing agencies has been to use the chemical prices existing in the country. Recently (August 1999) the Secretariat

proposed a methodology to the implementing agencies for the calculation of prices of chemicals using a price differential between CFCs and their substitutes determined on a region by region basis. This approach is still under discussion between the Secretariat and the implementing agencies.

Prices of compressors in the refrigeration sector

27. The Secretariat and the implementing agencies agreed on the IOC arising from the use of new compressors (HFC-134a) in the domestic refrigeration application which amounted to US \$3.00 per unit. This was recently modified to US \$2.00 unit to reflect the changing reality in the compressor market.

28. The Executive Committee debated the issue of IOC associated with compressors at its 22nd and 26th Meetings. Decision 26/36 established a methodology to avoid-double counting in calculating IOC for compressors in refrigeration projects in countries which have received or will seek compensation for conversion of their compressor manufacturing facilities.

Duration of the transitional period for which IOC/IOS

29. In July 1993, the Secretariat produced a paper on the duration of incremental operating cost/savings which was considered by the 10th Meeting of the Executive Committee. In the decision the Committee noted that the guidelines could be subject to further interpretation and/or amendment, and that policy decisions on all guidelines would be taken by the Executive Committee.

30. The Secretariat and the implementing agencies agreed to the following duration of IOC/IOS which were endorsed by the relevant decisions of the Executive Committee.

- (a) Aerosols: 4 years
- (b) Foam: 2 years (except for flexible slabstock foam: 4 years)
- (c) Halons: 6 months then 4 years
- (d) Refrigeration:
 - (i) Commercial: 2 years
 - (ii) Domestic: 6 months or 10% of the incremental capital costs
- (e) Solvents: 4 years
- (f) Sterilants: 3 years
- (g) Process Agents: has not been established.

ANNEX I

DECISIONS OF THE EXECUTIVE COMMITTEE RELATED TO INCREMENTAL OPERATING COSTS

Methodologies for calculation of incremental operating costs or savings

1. At its 7th Meeting the Executive Committee considered a paper prepared by the Secretariat on a methodology for calculating incremental capital and operating cost for different sectors and sub-sectors and a paper prepared by the World Bank on operational interpretations of incremental costs and eligible expenditures. The Executive Committee decided:

“to take note of the two documents and consider the subject at a later stage. For the time being it would follow the indicative list of the London documents, but it could consult the two documents in cases where the London documents proved not to provide sufficient guidance.”

(UNEP/OzL.Pro/ExCom/7/30, para. 79)

Incremental savings and benefits

2. At its 10th Meeting the Executive Committee considered definitions of recurrent costs proposed by the Fund Secretariat and decided:

“(a) the Multilateral Fund would not finance such costs as taxes, duties or other such transfer payments, nor the loss of economic subsidies or rates of return in excess of cost of capital which might incorporate non-economic financial effects such as administered prices or interest rates. Funding of the enterprises’ financial costs by the Multilateral Fund would effectively be making the country a grant that exceeded the country’s actual additional costs, which was not the intention of the Parties;

(b) The policy of the Fund was to take savings and benefits into account when determining the grant amount. Savings and benefits of the project would be taken into account as outlined in that document and its Annexes. Where the savings and benefits of the project were uncertain, the estimate of the present value should, while remaining realistic, be made conservatively. The savings and benefits must be discounted to the net present value. In cases where savings and benefits were not considered as defined in the document (UNEP/OzL.Pro/ExCom/10/39) and its Annexes, a justification for that approach must be given to the Executive Committee by the implementing agency;

- (c) Incremental costs would not be financed by the Fund where there was evidence of double-counting.”

(UNEP/OzL.Pro/ExCom/10/40, Paragraph 171)

3. In regard to projects that might realize net incremental savings the Executive Committee decided at its 13th Meeting, inter-alia, that:

“(a) the Parties and the Executive Committee have addressed the issue of savings and determined that only incremental costs should be financed with grants and projects with net savings may be funded through concessional loans. Although Fund activities currently demonstrate that projects with incremental savings are feasible (through the financing of project preparation), such projects may be good candidates for concessional loans from resources provided by the Fund or from other funding sources;

(b) it is, therefore, recommended that consideration of projects with net incremental savings might be provided through the consideration of sector strategies for each country. In such strategies, the impact of funding one company’s project over another could be assessed and remedial action recommended as part of an overall sector plan that might include both grant and loan components.”

(UNEP/OzL.Pro/ExCom/13/47 Paragraph 176)

4. Subsequently, the Executive Committee continued its consideration of concessional loans separately.

Calculation of ODS consumption and production level

5. The 16th Meeting of the Executive Committee decided that ODS consumption should be calculated on the basis of either the year, or an average of three years, immediately preceding project preparation.

(UNEP/OzL.Pro/ExCom/16/20 Paragraph 32(b))

6. The 26th Meeting of the Executive Committee decided:

“(a) 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;

- (b) 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.”

(UNEP/OzL.Pro/ExCom/26/70, Decision 26/13)

Duration of incremental operating costs or savings

8. In regard to the duration of incremental operating cost, at its 10th Meeting the Executive Committee considered definitions of recurrent costs proposed by the Fund Secretariat and decided:

- “(b) given the uncertainty associated with projecting future cash flows, recurrent costs would be considered for a transitional period as defined in the document and its Annexes. In cases where recurrent costs were not considered as defined in the document (UNEP/OzL.Pro/ExCom/10/39) and its Annexes, a justification for that approach must be given to the Executive Committee by the implementing agency;”

(UNEP/OzL.Pro/ExCom/10/40, Paragraph 171)

9. Additionally, the Executive Committee took several decisions on duration of operating costs pertinent to specific sectors and circumstances as follows.

- (a) Aerosol sector:

“Noting that the low price of the replacement propellant frequently resulted in incremental operating savings, the Executive Committee decided, *inter alia* at its 17th Meeting to continue taking into account incremental operating savings when preparing aerosol project proposals.”

(UNEP/OzL.Pro/ExCom/17/60, Decision 17/15 para. 24 (a))

- (b) Domestic refrigeration:

“At its 15th Meeting the Executive Committee agreed that incremental operational costs could be paid on the basis of either ten per cent of incremental cost to be paid up-front, six months of incremental operating costs calculated at current prices and paid up-front, or incremental operational cost for a duration of one year adjusted according to the prevailing costs at the time of disbursement when the modified plant was operating.”

(UNEP/OzL.Pro/ExCom/15/45 para. 167)

- (c) Portable fire extinguishers:

“At its 16th Meeting the Executive Committee agreed that over the next three years, it would consider projects in this sub-sector taking into consideration six months of operating cost/savings. Following this time frame, the calculation of

incremental cost/savings would be expected to revert to the four-year level that had been the tradition for this sub-sector.”

(UNEP/OzL.Pro/ExCom/16/20 para.81)

(d) Foam sector :

The Executive Committee decided:

- “(a) to approve a time-frame of up to two years for the calculation of incremental operating costs of all rigid polyurethane foam projects other than those relating to the domestic refrigeration sector; and
- (b) to request the Secretariat and the implementing agencies to prepare a guidance paper for consideration by the Committee at its Nineteenth Meeting on the transition periods for calculating the incremental operating costs for all sectors and sub-sectors.”

(UNEP/OzL.Pro/ExCom/18/75, Decision 18/8)

(e) Sterilant sector:

“As part of initial guidelines for projects in the sterilants sector the 28th Meeting of the Executive Committee decided that the operating costs should be calculated for a duration of three years. “

(UNEP/OzL.Pro/ExCom/28/57 Decision 28/45)

(f) Phase-out of the remaining enterprises in a sector:

“At its 25th Meeting the Executive Committee decided that on a trial basis, where there are significant numbers of small or informal enterprises remaining, the final project should be developed using a new approach in which, inter alia, incremental operating costs or savings will not be included in project costs.”

(UNEP/OzL.Pro/ExCom/25/68, Decision 25/50)

Specific methodologies for calculation of incremental operating costs or savings

10. The Executive Committee adopted specific methodologies for calculation of incremental operating costs or savings applied in projects related to individual sectors or new technologies within sectors as follows:

- (a) Methylene chloride technology in foam projects (UNEP/OzL.Pro/ExCom/18/75, Decision 18/8);
- (b) Liquid carbon dioxide technology in foam projects (UNEP/OzL.Pro/ExCom/24/47, Decision 24/58);
- (c) The tobacco fluffing sector (UNEP/OzL.Pro/ExCom/20/72, Decision 20/44); (UNEP/OzL.Pro/ExCom/21/36, Decision 21/8); (UNEP/OzL.Pro/ExCom/23/68, Decision 23/19);

- (d) incremental operating costs for compressors in the refrigeration sector (UNEP/OzL.Pro/ExCom/26/70, Decision 26/36);
- (e) evaporation losses in foam projects (UNEP/OzL.Pro/ExCom/27/48, Decision 27/76);
- (f) guidelines for methyl bromide projects (UNEP/OzL.Pro/ExCom/24/47, Decision 24/12).

Chemical prices

11. The Executive Committee took several decisions in relation to the prices of chemicals used in calculation of incremental operating costs as follows:

- “(a) The Committee further decided for future projects for all recipient countries to disallow the use of growth projections in determining operational costs and benefits either positive or negative. It further recommended that national pricing be used, except where it was higher than 20 per cent from the regional border price.”

(UNEP/OzL.Pro/ExCom/12/37, para. 62)

- (b) “to request the Secretariat and the implementing agencies to hold discussions on and review the process of setting the prices of ODS and other chemicals for the purpose of calculating incremental operating costs, taking fully into account the earlier decision of the Executive Committee on limiting the variation in prices to 20 per cent of the regional border price, and to prepare, by the Twenty-third Meeting of the Executive Committee, a paper outlining the process proposed to be followed.”

(UNEP/OzL.Pro/ExCom/22/79/Rev.1, Decision 22/25)

- (c) “to approve the document , amended by inserting in its paragraph 13 the words “and Article 5” following “Article 2”.

(UNEP/OzL.Pro/ExCom/23/68, Decision 23/52)