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Executive Committee of  
the Multilateral Fund for the  
Implementation of the Montreal Protocol

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## **DRAFT TERMS OF REFERENCE FOR AN EXPERT GROUP ON THE PRODUCTION OF SUBSTITUTES FOR OZONE DEPLETING SUBSTANCES**

### Introduction

1. At its 12th Meeting, the Executive Committee reviewed a project submitted by the World Bank on behalf of the Government of China for the conversion of the production of CFC-12 to HCFC-22 at Shanghai Chlor-Alkali Chemical Co. While giving permission to proceed with the project, the Executive Committee withheld the final approval of the project until a general policy guideline and a credible methodology for calculating costs in production projects could be established. As part of the decision, the Committee requested:

"... the Secretariat to convene a group composed of experts on process engineering related to the production of ODS substitutes and financial experts to consider issues associated with the calculation of incremental costs in the production of ODS substitutes. The Secretariat would request the participation of the representatives of implementing agencies and experts from developed and developing countries as deemed appropriate. The group would strive where possible to identify specific areas that should be considered by the Executive Committee before approving production projects and to recommend potential solutions that could usefully inform the Executive Committee's consideration." (UNEP/OzL.Pro/ExCom/12/37, paragraph 109).

2. Since the conclusion of the 12th Meeting in Montreal in March 1994, the Fund Secretariat has been conducting consultations with experts from both Article 5 and non-Article 5 countries and implementing agencies in order to establish the TOR of the Group. As part of this effort, a brain-storming exercise was undertaken by the Secretariat with a Panel of Experts on 28 October 1994 in Montreal. This panel was composed of experts from both Article 5 and non-Article 5 country industries and represented a mix of experience of process engineering both in research and development and production, technology transfer between technology suppliers and developing countries and marketing and business.

3. The meeting identified and reviewed a wide range of issues regarding production of substitutes, the estimation of capital and operating costs and potential policy guidelines needed on these issues. On that basis the meeting provided provisional guidelines regarding the composition, functions and responsibilities, and modalities of operation of the Expert Group to be established.

4. Based on the discussion of this Panel and on its prior consultations, the Secretariat submits hereby the TOR (draft) of this Expert Group.

#### Title and Status

5. The title of this group is Expert Group on the Production of Substitutes for Ozone Depleting Substances.

6. The Group would have an advisory status with the Executive Committee. It may attend the Meetings of the Executive Committee or a future production sector sub-committee if so requested by the Committee.

#### Functions and Responsibilities

7. This Expert Group would:

- (a) Advise on operational policies and guidelines on various technical and economic issues associated with the production of substitutes for ozone depleting substances (ODS).

Some of these issues are identified in the preliminary list of issues to be reviewed and deliberated upon by the Expert Group as included in Annex A. However, this is not an exclusive list.

- (b) Draft the terms of reference for an audit of the ODS producing industries in each of the ODS producing Article 5 countries.

The purpose of such an audit is to examine:

- the structure and status of the existing plants;
- the current technologies applied;
- the likely conversion paths, taking into consideration the countries' strategies for phasing out ODS, the industrial policy of the country, the economies of scale and the market development; and
- estimate at national level a minimum the country should receive as incremental capital and operating costs to convert/close all of its existing ODS producing industries.

The end product from this audit will serve as the framework against which the Executive Committee will review production sector projects from that country.

- (c) Advise on any other issues in the production sector as may be requested by the Executive Committee.

#### Composition of the Group

8. Fields of expertise required:

- Chemical engineering, with emphasis on process engineering in fluorochemical industry, and not in-kind substitutes such as high purity hydrocarbons and ammonia;
- Technology transfer with background in fluorocarbon and chlorofluorocarbon production; and
- Knowledge in ODS and substitute production and marketing.

9. Principles in selecting membership

Bearing in mind that this is an Expert Group established for a very specialized subject, the following principles are proposed to be followed in selecting the membership:

- Members of the Group serve on the Group in their own capacity and not as representatives of the organizations they belong to;
- Technical and professional expertise;
- Balance between Article 5 and non-Article 5 countries with due regard for geographical representation; and
- Independence of the individuals.

### Size of the Group

10. For effective conduct of business, it is proposed to limit the size of the Expert Group to ten members.

### Modality of the Operation of the Group

11. The Group will work closely with the Fund Secretariat. The Chief Officer will be the contact point between the Group and the Executive Committee, and is responsible for providing Secretariat assistance to the Group in conducting its business. Meetings of the Group will be attended by representatives of the relevant implementing agencies that are likely to be involved in production sector projects.

### Confidentiality

12. The proceedings and the report of the meetings of the Expert Group remain confidential until they are cleared by the Group and presented to the Executive Committee.

## ANNEX A

### PRELIMINARY LIST OF ISSUES TO BE REVIEWED BY THE EXPERT GROUP

#### Types of anticipated projects

1. Conversion or partial conversion of existing CFC-11/12 manufacturing facilities to produce substitutes: e.g. HFCs (HFC-134a, HFC-152a), hydrocarbons (cyclopentane, iso-butane, etc.) ammonia, HCFCs.
2. Shut down of equivalent ODS production capacities.
3. Production of halon substitutes (e.g. ABC powder, CO<sub>2</sub>, nitrogen).
4. Shut down of equivalent halon production facilities.
5. Establishing production facilities for the processing, production, storage or distribution of nonfluorocarbons, e.g. high purity hydrocarbons and ammonia.
6. Enforced idleness of ODS plants.

#### Policy issues that are likely to be encountered

1. Technology transfer
  - (a) Availability of technologies to Article 5 countries;
  - (b) Terms and conditions of technology transfer from non-Article 5 country suppliers
    - Patents, know-how (cost)
    - Transfer to one enterprise, group of enterprises, or to the country
    - Modalities of license payment, lump-sum, royalties, etc.
  - (c) Development of indigenous technology
    - Feasibilities
    - Scope of support from the Fund
    - Timing
    - Intellectual property rights
    - Cost-effectiveness.

## 2. Incremental costs

### (a) Conversion and establishment of new production facilities

- (i) What would be the baseline scenario?
- (ii) What would be the capital costs?
- (iii) What would be the operating costs?
  - Duration
  - Savings and benefits
  - Future revenues (and future price and sales estimate)
  - Designed or utilized capacities, growth projection.
- (iv) Double counting
  - Linkage with consumer sector in the country
  - Export potential to Article 5 vs. non-Article 5 countries
  - Certain costs which could be incurred in the shut-down of the old plant can be balanced at the stage when the new plant is constructed (e.g. unemployment insurance and foregone profits).
- (v) Project lifetime to be used as the basis for calculation.
- (vi) Production vs. imports (cost-effectiveness, tariffs).
- (vii) Preferential exports from Article 5 countries vs. savings to the Multilateral Fund.
- (viii) Economies of scale: size of plants and project specific vs sector phase out plans.

### (b) Shut down of ODS production facilities

- (i) Remaining useful life
- (ii) Computation of profit forgone
- (iii) Social benefits
- (iv) Production capacity vs actual production and replacement of specific chemicals

3. Modernization and expansion of production
  - How to measure direct (increased output) and indirect benefits (environmental, socio-environmental)?
4. Choice of technology.
5. Possibility of developing cost norms on the basis of type of technology employed.
6. Other issues:
  - (a) Eligibility of funding raw material and feedstock production
    - Shut down of CTC plants
    - New chlorinated solvents production facilities
    - Production of raw material vs. import (cost-effectiveness, safety concerns).
  - (b) Eligibility of funding production of chemicals and materials indirectly involved in ODS phase-out (optional)
    - e.g. Polyols for foam-blowing, polyalkylene glycol and polyester lubricants
    - Production vs. import.