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STUDY ON THE ASSUMPTIONS AND METHODOLOGIES FOR ESTIMATING COSTS OF CONVERSION FOR DEVELOPING COUNTRIES TO SUBSTITUTES FOR OZONE-DEPLETING SUBSTANCES

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Executive Summary

1. Implementing the provisions of the Montreal Protocol will entail the incurring of costs by all countries adhering to the Protocol. Developing countries have expressed concern regarding the substantial costs arising from the need to adopt substitutes for ozone-depleting substances, especially CFCs and halons. While the industrialized nations party to the Montreal Protocol have agreed to facilitate access to environmentally safe alternative substances and technologies, evaluation of the additional costs arising from CFC substitution has been handicapped by significant uncertainties about the technological and economic options likely to be available.

2. In order to evolve suitable recommendations, the Working Group will need to establish:

(a) The overall costs of compliance to developing countries;

(b) The breakdown of such costs;

(c) The possible sources of funds;

(d) The financial and other modalities required to defray these costs.

3. This draft report presents the assumptions and a methodology needed for calculating the additional costs that can be expected to be incurred by developing countries as a result of implementing the Montreal Protocol. These costs are categorized in a manner which can permit a reliable calculation of the incremental costs to various groups of countries, depending on whether they are currently producers or importers of CFCs and user equipment and systems based on CFCs. It should be possible to submit these to discussion among the concerned parties and to allow specific agreement to be reached on what the costs of conversion are and which of these can be included in legitimate claims for additional financing or other support. Some of the assumptions might need to be altered in the light of the deliberations and decisions of the Working Group.

4. The manner and circumstances in which developing countries generally acquire technologies make their economies particularly vulnerable to externally imposed changes. The externally driven technology or policy changes are usually more disruptive and pervasive than internally induced ones. The growing restrictions on the availability of CFCs combined with the uncertainties concerning the performance of CFC substitutes will inevitably lead to a relatively significant retardation of growth in the operations and new investment plans of CFC user industries.

5. It becomes necessary, therefore, to explore the cost impacts of CFC substitution in developing countries in greater detail than might be the case in industrialized economies. In particular, the relatively weak industrial and technological base in developing countries means that suddenly imposed regulations can have relatively long-term and wide spreadripple effects, the costs of which can be quite considerable. While the direct costs of using more expensive substitutes and technologies are relatively easy to calculate, it is the indirect costs which are a little complex to compute but are relatively high in magnitude.

6. This study presents a set of explicit assumptions on the basis of which cost calculations can be carried out for introducing substitutes for ozone-depleting substances for varied possible technological and economic scenarios. At present, the best that can be hoped for is a reduction, rather than elimination, in the ozone depletion potential since even the most likely candidate substances for substitution are still capable of reacting with stratospheric ozone, only not so strongly.

7. Further, the stages of development differ for the various applications but most substitutes are expected to be widely available by the late 1990s. In order to facilitate changeover, the developing countries will have to await substantial market penetration in developed countries before they are able to undertake their own substitution process. It may be assumed that the introduction of the new substitutes to replace CFCs for various applications in the developing countries can be effected only by the year 2000. Also, no direct substitutes for halons are expected to be available even by then.

8. The period required for the new technologies based on the substitutes to be established in the developing countries will depend on their industrial infrastructure, availability of the technologies and finances and the Contracting Parties' commitment to the provisions of the Montreal Protocol. Assuming that the developing countries will have full access to the new technologies, the assumptions considered to be basic include the types of

substitutes likely to be available, the mode of replacement of existing production and manufacturing facilities, the time periods involved and the degree to which the consequential losses are to be considered. The costs to be legitimately attributable to conversion include the capital costs, the operating costs, the replacement and restoration costs, and the transition costs. Each of these generic costs can be disaggregated into more specific cost elements which are amendable to evaluation, negotiation, and, eventually, international agreement.

9. A few developing countries have production facilities for the manufacture of CFCs and/or user equipment and systems. The others are totally dependent on imports of both. Actual phase-out opportunities and funding needs will therefore have to be assessed individually for each country, taking into account its economic infrastructure and special national circumstances.

10. The last part of the study lists the types of information that need to be obtained to carry out country-specific assessments of the above conversion costs (see annex to the present summary).

Annex

COUNTRY SPECIFIC COMMERCIAL DATA

1. Projections of estimated yearwise consumption/demand and prices of CFCs.

2. Estimates of installed user equipment and systems along with capacities, costs and age.

3. Projected growth rate of new user equipment and systems.

4. Capacities, costs and age of existing CFC production units.

5. Existing bank of CFCs in the economy.

6. Impact of CFC substitution on mini-businesses.
