



United Nations Environment Programme



Distr.
GENERAL

UNEP/GC.9/2/Add.6
23 April 1981

Original: ENGLISH

GOVERNING COUNCIL
Ninth session
Nairobi, 13-26 May 1981
Item 4 of the provisional agenda

INTRODUCTORY REPORT OF THE EXECUTIVE DIRECTOR Addendum

PRELIMINARY REPORT ON LISTING OF DANGEROUS CHEMICAL SUBSTANCES

1. INTRODUCTION

1. At the eighth session of the Governing Council, it was suggested ^{1/} that the Executive Director submit to the Governing Council at its tenth session a provisional list of 10 to 20 of the most dangerous substances, groups of substances or processes, to which Governments should pay special attention. A provisional list could be submitted to the Council at its ninth session, which could determine the procedures for its adoption at the tenth session. It was subsequently clarified that the list should be restricted to dangerous chemical substances harmful at the global level.

2. There are tens of thousands of chemical substances in the environment the use of which has become essential to human life. Only a relatively small number of them cause environmental damage, and most of the damage could be avoided by judicious management of their releases. The task of listing a handful of chemical substances as being the most dangerous is certainly difficult, and the present report is a preliminary analysis of the problems that may be encountered in preparing such a list. An attempt is made to give objectives and definitions, and the difficulties of selecting the substances and the possible solutions to the problem are then discussed. Finally, a practical approach to the preparation of a list is outlined.

1/ Report of the Governing Council on the work of its eighth session, Official Records of the General Assembly, Thirty-fifth Session, Supplement No. 25 (A/35/25), para. 101.

II. OBJECTIVES

3. Lists of priority pollutants have been prepared for various purposes by national authorities and by international organizations. The purpose of preparing an additional list is to stimulate awareness among Governments and the public about the hazardous effects of environmental chemicals on man and the environment, so that necessary measures may be adopted to prevent serious impacts.

III. DEFINITIONS

4. For the present purpose, environmentally "dangerous chemical substances" are defined as those substances that enter the environment as the product or the by-product of the normal activities of man; that, in the opinion of experts, pose - directly or indirectly - a real and urgent threat to man and the environment; and that, at least now, can only be eliminated from the environment with difficulty.

5. According to the suggestion made at the eighth session of the Governing Council, the list is to be limited to substances of "global impact". The term substances of global impact is taken to mean substances which occur widely in the environment in significant quantities as a result of their transport through air, water and food chains, or because they are present in commodities traded internationally on a large scale. Chemicals of global environmental impact also include those that have regional or local impact but that are of such frequent occurrence as to cause common concern in a large number of countries.

IV. PROBLEMS TO BE ADDRESSED

6. The range of the list depends on its intended use. The more specific the objectives, the narrower the range and the easier it will be to identify priorities. Lists have been produced for special purposes by various international and national agencies. ^{2/} For a list of more general purpose, the range is more difficult to define. In the present instance the basic criterion will be the global impact, which excludes substances of limited use and of strictly localized concern. Substances with global impact, as defined above, must be produced in considerable amounts and have widespread use over a vast area. Therefore, it would be logical to limit the present list mainly to substances from non-point sources. Pollutants from point sources, such as those in industry, where modern technology is capable of preventing their spreading into the environment, would thus be excluded. One exception would be when the amount of a substance released is so great, its sources so numerous, and the technology to prevent its dispersion still so poorly developed or so prohibitively expensive, that it can no longer be treated as a point source. Releases from coal-fired power plants would fall into this category.

^{2/} For example, the FAO/WHO lists of Pesticide Residues in Food and Additives for Their Safety in Use in Foods, the IARC list of Chemicals with Sufficient Evidence of Carcinogenicity in Experimental Animals, the IPCS list of Priority Industrial Chemicals; the IRPTC Working List of Priority Chemicals.

7. The concept of "dangerous substances" is relative, and depends on a great many factors, such as knowledge of the substance, geographic and natural conditions, and on socio-economic consideration. Pesticides are dangerous in some developing countries because of misuse by untrained farmers, improper storage, or lack of knowledge of the hazard, whereas accidents due to the use of pesticides in developed countries are relatively rare. Chlorofluorocarbons, once considered "safe", are now known to affect the ozone layer, as a result, international co-operation in research for a better understanding of stratospheric ozone and the factors controlling it has been initiated. It is obvious that decisions on action to be taken on any chemical substance depend to a large extent on socio-economic considerations, rather than on purely scientific ones. Thus, the type of attention given to dangerous substances will differ depending on the policy governing the national activities concerned.

8. There is no accepted systematic method for setting priorities among hazardous chemicals. Various methods have been used, but none is entirely satisfactory. Essentially, two methods are in use, the method of scoring (or "hazard index") and the method of committee consensus. The limitation of the former is that quantitative data must be available, and that emphasis is placed on an over-all score which may overshadow some important effects. The assignment of a weight to each factor and the quantification of socio-economic factors pose additional difficulties. The method of committee consensus, on the other hand, depends on the judgement of experts, which is more flexible but also more subjective.

9. For a short list containing a limited number of chemical substances, the form of presentation is important. A list comprising groups of chemical substances would cover a wider range, but groups are hard to define and their effects on human health and the environment difficult to determine. Substances within a group have of course some properties in common, but in general their effects on human health and the environment vary significantly, and are sometimes entirely different, so that it is not possible to identify the specific hazard of a group of substances, each individual member requiring different types of attention. For example, pesticides as a group include different types of structurally and functionally dissimilar substances, and including them in a list as a group would be meaningless. Thus, a list comprising groups that may include a wide range of substances is seldom of practical use. On the other hand, to list a limited number of substances out of thousands is not only a challenge, but may also be misleading in certain respects, since there is a wide spectrum of substances dangerous to the environment, and those not on the list might be classified as equally or even more dangerous if different criteria had been used. Listing of priority chemicals may thus divert the attention of national authorities to those few only that are included in the list.

10. The most difficult part of the work will probably arise from the inadequacy of the data base. With chemical substances, damage to human health, particularly the long-term health effect of prolonged exposure to low concentrations of pollutants, can seldom be proved directly. This is also true of damage to the environment: for example, although the

greenhouse effect of carbon dioxide has been predicted, and air concentrations of carbon dioxide are known to be rising, no evidence of climate change has yet been observed. On the other hand, the amount of any chemical released or the extent of exposure cannot be accurately measured, but only estimated with various degrees of precision.

11. The wide variety of chemicals and their various impacts on the environment further complicate the selection of priorities. Some are well known environmental hazards, for example as sulphur dioxide and such chlorinated pesticides as DDT and hexachlorobenzene. Other chemicals and their impacts are less known, except to experts. Examples are asbestos (and the extent of the population exposure to it) and TCDD (tetrachlorodibenzodioxin, formed from the reaction of trichlorophenol at high temperature), which result from the disposal of household articles or is present as an impurity in some chemicals. All these substances and those mentioned earlier are examples of potential candidates for inclusion in the list of dangerous substances.

V. SUGGESTED APPROACH

12. The preparation of a list with the objectives indicated in paragraph 2 would best be undertaken with the participation of Government experts and of international organizations. It is suggested that the task be assigned to a committee of some ten Government experts representing different areas of expertise and different geographical areas. At an initial meeting, the committee would lay down the criteria and the methodology for the screening process. On the basis of these, and making full use of IRPTC facilities, the UNEP secretariat, with the help of consultants as necessary, would prepare a short list of up to 100 substances. This list would then be submitted to the committee, at a further meeting, to enable it to select the twenty or so substances that it regarded as most dangerous. The list, to be transmitted to the Governing Council at its tenth session, would justify the selection of each substance in a brief explanatory paragraph. Interested organizations of the United Nations system would be invited to participate in the work of the committee and consulted by the UNEP secretariat between sessions.

Annex

SUGGESTED ACTION BY THE GOVERNING COUNCIL

The Governing Council may wish to:

(a) Express its views on the objectives of the list, the definitions to be used and the scope of the problems addressed;

(b) Advise the Executive Director as to the nature of the decision the Governing Council intends to take on the basis of such a list, so that he may guide the further work accordingly;

(c) Advise the Executive Director on its views regarding further action required, including the convening of a group of Government-nominated experts representing different areas of expertise and different geographical areas to prepare the list with the assistance of UNEP machinery, particularly IRPTC.