WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR EUROPE

ORGANISATION MONDIALE DE LA SANTÉ
BUREAU RÉGIONAL DE L'EUROPE

ВСЕМИРНАЯ ОРГАНИЗАЦИЯ ЗДРАВООХРАНЕНИЯ
ЕВРОПЕЙСКОЕ РЕГИОНАЛЬНОЕ БЮРО

Working Group on Hazards to Health and Ecological Effects of PCBs in the Environment

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SUMMARY REPORT

1. Introduction

The Regional Office for Europe of the World Health Organization, in collaboration with the Government of Belgium, and under the project "Hazards to Health and Ecological Effects of Persistent Substances in the Environment", which forms part of the long-term programme in environmental pollution control, convened a working group in Brussels from 3 to 7 December 1973 to discuss PCBs (polychlorinated biphenyls) in the environment.

Professor S. Halter welcomed the participants on behalf of the Government of Belgium. Dr V. Krichagin addressed the meeting on behalf of Dr Leo A. Kaprio, Regional Director of WHO.

2. Topics discussed

The scope and purpose of the working group was to make a critical review of available information on long-term health hazards and ecological effects of PCBs in the environment and to discuss analytical problems in connexion with the detection and quantification of PCBs in environmental and biological samples.

Furthermore, the group was to consider the need for continuous attention to be given to PCBs in view of the steps already agreed on to reduce their use and, finally it was to discuss possible problems in connexion with substances like PCTs (polychlorinated tars) that are used or are being considered for use to replace PCBs.

Before the meeting, working papers dealing with analytical human health and ecological aspects of PCB contamination had been prepared and distributed to the participants for review and comments.

3. Conclusions

3.1 New analytical techniques, especially those involving capillary columns, seem to offer possibilities for separation, identification and quantification of individual chlorobiphenyls, and these may greatly increase the possibilities of understanding the medical and ecological effects of PCBs.

3.2 The interpretation of results of toxicity studies is complicated by the possible contamination of PCB mixtures with toxic impurities. Estimation of an Acceptable Daily Intake (ADI) for use is not possible at this time since the composition of different PCB compounds present in food differs from that of the commercial PCB mixtures used in animal experiments.

3.3 The information at present available on levels in different parts of the biosphere is not frequent and reliable enough to support any firm mass-balance or transport-rate calculation or assessment of large-scale ecological impact, or to provide a good basis for future trend analysis. Much more data are undoubtedly needed.

4. Recommendations

Bearing in mind the most disturbing gaps in existing knowledge on this subject, the group adopted a series of specific research recommendations that will appear in the final report in connexion with the chapters to which they relate.

In addition, some general recommendations were adopted.

4.1 After examination of the data now available concerning health and environmental effects of PCBs, their high persistence and their present widespread distribution in the biosphere, the working group concluded and strongly recommended that, firstly, the use of PCBs should be limited to the few critical applications for which no substitutes are presently available and in which highly efficient containment and recovery are possible; secondly, that safe substitutes for these and other uses be developed. In pursuit of the latter objective, the substitution of another toxic and persistent agent for an existing one can only result in further harm. Accordingly, adequate pre-testing is imperative.

4.2 The group agreed that as a first step towards achieving this purpose, uses of PCBs that lead to environmental contamination should be avoided along the lines of the decisions and recommendations adopted by the OECD[1]. These provisions should be extended to all countries and further steps should be taken.

Member States should ensure that, in their respective territories, polychlorinated biphenyls (PCBs) will not be used for industrial or commercial purposes, except in the following categories of use:

- dielectric fluids for transformers or large power factor correction capacitors;

- heat transfer fluids (other than in installations for the processing of foods, drugs, feeds and veterinary products);

- hydraulic fluids in mining equipment;

- small capacitors;

and as far as the above categories are concerned, PCBs may be used only in those applications in which the requirements for non-inflammability outweigh the need for environmental protection and regarding which Member States are satisfied that sufficient controls are exercised in order to minimize risk to the environment.

4.3 Substitutes should be sought and carefully studied in advance of their use, for possible toxicological effects on human health and the environment. Substitutes already in use should be examined for their adequacy and safety and should be withdrawn if necessary. The concept of pre-testing should be applied to all new chemicals developed for widespread use.

4.4 Analytical techniques should be developed to ensure the detectability, at levels causing non-admissible harmful effects, of any technical chemical which can accumulate in biological samples.

[1] Adopted by the Council of the Organisation for Economic Co-operation and Development (OECD) 315th meeting, 13 February 1973