IPCS/98.2

IPCS

International Programme on Chemical Safety

UNEP
United Nations Environment Programme

International Labour Organisation

World Health Organization

WHAT IS IPCS?

Origins

In 1972, the United Nations Conference on the Human Environment took place in Stockholm, Sweden. There was intense international concern about the dangers posed by chemicals to human health and the natural environment. This Conference recommended that the World Health Organization (WHO) undertake programmes to prevent the harmful effects of the environmental contaminants to which humans were being increasingly exposed, both directly and indirectly.

In 1977, the World Health Assembly decided that it was necessary to establish long-term strategies to control and limit the impact of chemicals at the international level. This interest was shared by other international organizations concerned with chemical safety, and the International Labour Organisation (ILO) and the United Nations Environment Programme (UNEP) joined with the World Health Organization (WHO) in setting up the ***International Programme on Chemical Safety (IPCS).*** The IPCS was formally launched in 1980 as a joint collaborative programme of ILO, UNEP and WHO by the signing of a Memorandum of Understanding by the three Cooperating Organizations.

Furthermore, the 1992 United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro, recognized that environmentally sound management of chemicals was an important component of sustainable development and adopted in Agenda 21, Chapter 19, an international strategy for action on chemical safety into the twenty-first century. The Conference called for the strengthening of the IPCS and for improved coordination and enhanced cooperation among international chemical safety activities. In response to this recommendation, the Inter-Organization Programme for the Sound Management of Chemicals (IOMC) was established. IOMC is a mechanism to coordinate the work done on chemical safety by the three IPCS Cooperating Organizations and those of FAO, UNIDO, UNITAR and OECD. Within the framework of their own respective constitutional mandates, the IOMC members work together as partners to promote international work.

Objectives

The two main roles of the IPCS are to establish the scientific basis for the safe use of chemicals by means of health and environmental risk assessment (normative functions) and to strengthen national capabilities (technical cooperation) to respond to chemical emergencies and deal with the harmful effects of exposure to chemicals.

Areas of Activity

- To carry out and disseminate evaluations of the risk to human health and the environment from exposure to chemicals and produce health or environment-based guideline values for exposure to the agents evaluated;
- to promote the development, improvement, validation, harmonization and use of methods for laboratory testing and ecological and epidemiological studies and other methods suitable for the evaluation of health and environmental risks and hazards from chemicals;
- to promote the research to improve the scientific basis for health and environmental risk assessment to ensure a sound management of chemicals;
- to promote technical cooperation with Member States, in particular developing countries, to:
  - *(a)* facilitate the use of available evaluations of health and environmental risks and hazards from chemicals;
  - *(b)* improve the capabilities of national authorities in conducting their own evaluations of health and environmental risks and hazards from chemicals; and
  - *(c)* strengthen infrastructures for safety aspects relating to chemicals - their production, importation, transportation, storage, use and disposal;
- to promote effective international cooperation with respect to emergencies and accidents involving chemicals;
- to support national programmes for prevention and treatment of poisonings involving chemicals;
- to contribute to the harmonization of classification and labelling of chemicals; and
- to promote development of the human resources required in the areas above.

Structures

WHO is the Administrating Organization of the Programme, and the IPCS is implemented by the WHO Programme for the Promotion of Chemical Safety (PCS) on behalf of the three Cooperating Organizations. Scientific and technical work is undertaken either by PCS on behalf of the Cooperating Organizations, or by other Programmes/Units of these organizations. At WHO Headquarters, PCS is composed of two Units: Assesment of Risk and Methodologies (ARM) and Poisoning Prevention and Treatment (PPT); there is also an Interregional Research Unit (IRRU) located at the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina (USA). Participation of the three Cooperating Organizations in the Programme is ensured through regular meetings of the **Intersecretariat Coordinating Committee**. Within WHO, the **Steering Committee on Chemical Safety** is the mechanism for coordination of related chemical safety activities. Policy advice is provided by the IPCS **Programme Advisory Committee** (PAC), composed of external experts chosen in their personal capacity.

Countries or national agencies who wish to participate in the work of the IPCS sign a **Memorandum of Understanding,** in which scope and details of collaboration, financial arrange≤ents and support are specified.

Many of the activities of the IPCS are undertaken through a network of governmental and intergovernmental institutions, which are designated as **Participating Institutions** by the Director-General of WHO on behalf of the Cooperating Organi | ¡tions, after consultation with the PAC; these are various types of centres of excellence, usually involved in scientific activities concerning effects of chemicals. A number of specific IPCS projects have their own network of participating centres covering particular project activities. The International Agency for Research on Cancer (IARC) participates in the work of the IPCS in the field of chemical carcinogenicity.

All countries are encouraged to designate **National Focal Points,** through which the results of the work of the IPCS may be disseminated in the country and guidance may be given to the Programme on the needs and views of the country.

The IPCS has also established close collaboration with the European Commission (EC) and the Organisation for Economic Co-operation and Development (OECD), as well as with several nongovernmental organizations active in the field of chemical safety, for example the European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC), the Global Crop Protection Federation (GCPDF), the International Life Sciences Institute (ILSI), the International Organisation of Consumers Unions (Consumers International), the International Union of Pharmacology (IUPHAR), the International Union of Pure and Applied Chemistry (IUPAC), the International Union of Toxicology (IUTOX) and the World Federation of Associations of Poisons Centres and Clinical Toxicology Centres (WFAPCCTC).

Budget

About 20% of the resources are provided from the regular budget of the WHO. These are predominantly used to finance on a long-term basis key positions in the Central Unit of IPCS ensuring a certain degree of continuity. The majority of resources come from voluntary donations from some Member States and institutions; these are mainly spent on operational activities and some extrabudgetary positions. In addition, Member States provide in-kind support through the activities of their Participating Institutions and centres participating in specific projects.

WHAT ARE IPCS ACHIEVEMENTS?

Risk Assessment

The IPCS has a global mandate to conduct evaluations of risks posed by priority chemicals to human health and environmental integrity. Some of these assessments are comprehensive by nature, covering all aspects of risk assessment including hazard identification, dose-response evaluation, exposure assessment and risk characterization. Other evaluations are more targeted to given exposure media (food, drinking-water, air) or to given outcomes. All evaluations provide consensus expert evaluations which are subjected to a rigorous global peer-review process.

(1) **Comprehensive risk assessment documents** include:

- *Environmental Health Criteria documents (EHCs)*, which provide assessments of the effects of chemicals on human health and the environment; they are designed for scientific experts responsible for risk evaluation, enabling relevant authorities to establish policies for the safe use of these chemicals;
- *Concise International Chemical Assessment Documents (CICADs)*, which are based on selected high-quality national or regional evaluations; they characterize hazard and dose-response from exposure to a chemical; and
- *Health and Safety Guides (HSGs)*, which provide concise information on risks from exposure to chemicals, with practical advice on medical and administrative issues; they are designed for a wide range of administrators, managers, and decision-makers in various ministries and governmental agencies, as well as in commerce, industry and trade unions, who are involved in various aspects of using chemicals safely and avoiding environmental health hazards.

(2) **Targeted documents** include:

- *Reports and toxicological monographs of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)* that contain toxicological evaluations of food additives, contaminants and veterinary drug residues, and propose acceptable daily intakes (ADIs) for food additives and veterinary drugs or provisional maximum tolerable daily intakes (PMTDIs) and provisional tolerable weekly intakes (PTWIs) for contaminants;
- *Toxicological monographs of the Joint FAO/WHO Meeting on Pesticide Residues (JMPR)* that contain toxicological evaluations of pesticide residues and ADIs;
- *Air quality guidelines (AQG)*, which provide health-based information on exposure to air pollutants; and
- *Guidelines for Drinking-Water Quality (GDWQ)*, which provide guidance for standard setting of chemicals in drinking-water.

(3) **Documents containing validated information** include:

- *International Chemical Safety Cards (ICSCs)* that summarize essential product identity data and health and safety information on chemicals; they are designed for use at shop-floor level, in factories, agriculture and other work places. They have no legally binding status and are not intended to be used in the regulatory process (in any specific process);
- *Pesticide Data Sheets (PDSs)*, which contain health and safety information on pesticides that are widely used in public health programmes and/or agriculture, and have high or unusual toxicity records; and
- *Classification of Pesticides by Hazard and Guidelines to Classification*, in which pesticides are classified according to their potential toxicity, taking into account oral or dermal toxicity, whichever is higher, but also any irreversible effects that might be recognized.

Methodology

In the field of methodology, the IPCS promotes the development, improvement, validation, harmonization and use of generally acceptable, scientifically sound methodologies for the evaluation of risks to human health and the environment from exposure to chemicals. The result of such work

should enhance mutual acceptance of risk assessment products and increase the volume of information made available to Member States. In this field, the following activities are undertaken by the IPCS :

(1) Preparation of **international consensus documents**, of which some present the state-of-the-art information on relevant aspects of risk assessment methodology, some describe the scientific basis for health risk assessment and approaches to their application, some address the principles of assessment of toxic effects in various organs, such as the kidneys, the nervous system, and the reproductive system, and some deal with the principles for the evaluation of health effects in susceptible population groups, for example infants and young children, as well as the elderly. These monographs are generally published in the IPCS EHC series.

(2) Organization of a number of **scientific workshops** addressing risk assessment methodology issues; the proceedings are generally published in special issues of scientific journals. Some of these workshops are conducted in cooperation with the Scientific Committee on Problems of the Environment (SCOPE), under the umbrella of the Scientific Group on Methods for the Safety Evaluation of Chemicals (SGOMSEC). The proceedings of such workshops are issued in the SGOMSEC series.

(3) A few **interlaboratory validation studies** are being conducted to evaluate evolving methodologies for risk assessment of given end-points.

(4) The IPCS is conducting a project on **harmonization** aiming at promoting mutual understanding of the results of national/regional risk assessment efforts. This activity comprises two components: (a) the project on *Harmonization of Approaches to the Assessment of Risk from Exposure to Chemicals*, aiming at promoting the global understanding of how countries view specific issues and at reaching agreement on basic principles; it is considering qualitative and quantitative risk assessment methods for specific end-points, as well as cross-cutting issues such as uncertainty and variability considerations in quantifying chemical risks, and (b) the joint IPCS/OECD Project on *Harmonization of Terminology for Chemical Hazard/Risk Assessment* which aims at improving coordination among international chemical safety authorities and globally harmonizing approaches to risk assessment through increased understanding.

Poisoning Prevention

Through the **INTOX Project**, the INTOX Poisons Information Package has been developed, which consists of a database and an information management system. Evaluated information related to the diagnosis and treatment of poisoning cases and the prevention of toxic exposures from chemical substances, including pharmaceuticals and toxins of natural origin, such as from animals, plants, fungi and bacteria, are published as *Poisons Information Monographs (PIMS)*. Treatment guides summarize medical management of syndromes and clinical features of poisoning. These monographs, along with other related material, form the global INTOX database issued on CD-ROM. The INTOX software provides an information system with standardized methodologies for Member States to collect, store and analyse relevant data on locally available commercial products and on poisoning case data. Harmonized formats and classification schemes, and controlled vocabulary for reporting communications with poisons centres and other health institutions are important features of the INTOX system.

Through the **Antidotes Project**, the IPCS evaluates antidotes and other substances and techniques used in the treatment of cases of poisoning, and improves the exchange of information on their field of use and availability. Principles for the evaluation of antidotes have been agreed upon and the preparation of a series of monographs undertaken; they are published in the *IPCS/EC Evaluation of Antidotes series*.

As risk communication is a prerequisite for risk reduction, the IPCS organizes public and community awareness campaigns on risk, and information on safe use and prevention of exposure to toxic chemicals. Guidance material is under preparation and a number of countries have been advised on the preparation, and implementation of prevention activities based upon toxicovigilance.

Chemical Accidents

Work is conducted by the IPCS to provide guidance on the role of the health sector in the field of chemical accidents and a joint OECD/IPCS/UNEP Industry and Environment Office publication entitled *Health Aspects of Chemical*

Accidents: Guidance on Chemical Accidents Awareness, Preparedness and Response of Health Professionals and Emergency Responders was issued in 1994. Further guidance material for the public health sector is under preparation. A database for first responses and an information management software for collecting chemical incident information are being developed and an international data exchange mechanism established.

Technical Cooperation and Human Resources Development

In the field of technical cooperation, the IPCS has prepared guidelines for strengthening national capabilities in chemical safety, and collaborates with UNITAR and other organizations to assist countries in developing national profiles on chemical safety capacities. The IPCS has also developed special training modules for basic chemical safety, chemical safety in occupational health and hygiene, safe use of pesticides and environmental awareness.

Human resources development is an important part of capacity building for the sound management of chemicals. Training courses have been developed, and are conducted by the IPCS on: (a) health aspects of chemical accidents prevention, preparedness and response; (b) poisoning prevention and treatment programmes; (c) promotion of national chemical safety programmes; (d) capacity building in developing countries in relation to health and environmental aspects of toxic chemicals, and (e) safe use of pesticides.

Information Dissemination

The IPCS promotes wide dissemination of information on chemicals. Every six months, the Programme issues a compact disk (INCHEM CD-ROM) containing all of the published outputs of the chemical programmes of WHO and its partners. INCHEM is also available on the World Wide Web. In addition, the IPCS contributes to the Global Information Network on Chemicals; GINC aims at providing information on chemicals electronically, with access through the INTERNET, to any enquirer.

CONTACT DETAILS:

OFFICE OF THE DIRECTOR:

Dr M. Mercier
Director, International Programme on Chemical Safety
Tel.: +41 22 / 791 35 88
E-mail: merciermjg@who.ch

Dr P. Toft
Associate Director, International Programme on Chemical Safety
Tel.: +41 22 / 791 42 89
E-mail: toftp@who.ch

ASSESSMENT OF RISK AND METHODOLOGIES UNIT (ARM)

Dr M. Younes
Chief, Assessment of Risk and Methodologies
Tel: +41 22 / 791 35 74
E-mail: younesm@who.ch

POISONING PREVENTION AND TREATMENT UNIT (PPT)

Dr J.A. Haines
Chief, Poisoning Prevention and Treatment Unit
Tel.: + 41 22 / 791 35 73
E-mail: hainesj@who.ch

IPCS Fax: + 41 22 / 791 48 48

IPCS E-mail: pcsmail@who.ch or ipcsmail@who.ch
(To be used to obtain general information on the Programme and its outputs and copies of documents)