WHO Chemicals Safety - Activity Report 2007

This document presents a summary of activities undertaken in 2007 which have contributed to the International Programme of Chemical Safety (IPCS).

It covers the following areas:

1. Applied Risk Assessment (including Food Safety-related assessments, Concise International Chemical Assessment Documents (CICADs), and International Chemical Safety Cards (ICSC))
2. Risk Assessment Methodology (including the IPCS Harmonisation Project; Environmental Health Criteria Documents)
3. Poisons Prevention, Information and Management
4. Environmental Emergencies
5. Children's Environmental Health
6. International Conventions and Agreements
7. Capacity Building

A list of IPCS publications is given in Annex 1 and a list of IPCS Events in 2007 is given in Annex 2.

1. APPLIED RISK ASSESSMENT

1.1 Food Safety-related assessments

1.1.1 JECFA (Joint FAO/WHO Expert Committee on Food Additives)

The 68th JECFA meeting was held in June 2007.

The Committee made recommendations on the safety of several food additives and contaminants in food. Acceptable daily intakes (ADIs) or other safety advice were given for twelve food additives, including advice on the suitability of use of specific food additives in infant formulas. The Committee also evaluated the risk posed by two food contaminants, mycotoxins, with a detailed exposure assessment for aflatoxins and a risk assessment of ochratoxin A, where the Committee retained the previously established tolerable intake. These assessment are aimed at advising on risk management options for the purpose of public health protection.

The report of the meeting also contains several general recommendations, in particular on the principles of safety assessment of flavours and of enzymes produced by genetically modified organisms.
The first part of the meeting report contains a general discussion of the principles governing the toxicological evaluation and assessment of intake of food additives (in particular, flavouring agents) and contaminants. A summary follows of the Committee’s evaluations of technical, toxicological and intake data for certain food additives (acidified sodium chlorite, asparaginase from Aspergillus oryzae expressed in Aspergillus oryzae, carrageenan and processed Euchema seaweed, cyclotetraglucose and cyclotetraglucose syrup, isoamylase from Pseudomonas amylofera, magnesium sulfate, phospholipase A1 from Fusarium venenatum expressed in Aspergillus oryzae, sodium iron(III) ethylenediaminetetraacetic acid (EDTA) and steviol glycosides); eight groups of related flavouring agents (linear and branched-chain aliphatic, unsaturated, unconjugated alcohols, aldehydes, acids and related esters; aliphatic acyclic and alicyclic terpenoid tertiary alcohols and structurally related substances; simple aliphatic and aromatic sulfides and thiols; aliphatic acyclic diols, triols and related substances; aliphatic acetals; sulfur-containing heterocyclic compounds; aliphatic and aromatic amines and amides; and aliphatic alicyclic linear α,β-unsaturated di- and trienals and related alcohols, acids and esters); and two food contaminants (aflatoxin and ochratoxin A).

Specifications for identity and purity for the following food additives were revised: maltol and ethyl maltol, nisin preparation, pectins, polyvinyl alcohol, and sucrose esters of fatty acids. Specifications for the following flavouring agents were revised: maltol and ethyl maltol, maltyl isobutyrate, 3-acetyl-2,5-dimethylfuran and 2,4,5-trimethyl-delta-oxazoline (Nos 1482, 1506 and 1559), and monomenthyl glutarate (No. 1414), as well as the method of assay for the sodium salts of certain flavouring agents.

The Committee’s work identifies and if possible quantifies the public health significance of additives, flavours and contaminants in food through an international consensus scientific risk assessment. It highlights the complexity of the process, which includes assembling and analysing all relevant data; interpreting studies of general toxicity, carcinogenicity, genotoxicity, reproductive toxicity, teratogenicity, etc.; extrapolating to humans the effects observed in experimental animals; and characterizing hazards to humans based on available toxicological and epidemiological data.

The Committee’s recommendations are used by the Codex Alimentarius Commission for setting international food standards. Such standards are established only for substances that have been evaluated by the Committee and have been allocated an ADI, tolerable intake or other relevant safety statement. This ensures that food commodities in international trade meet strict safety standards. The advice provided by the Committee is also considered by Member States directly when setting national/regional food safety standards.


JECFA publications include the WHO Technical Report Series and the WHO Food Additive Series providing concise toxicological evaluations and detailed descriptions of the biological and toxicological data as well as intake assessments. A brief electronic summary and conclusion from each JECFA meeting is also published on the IPCS web site pending publication of the official reports.

1.1.2 JMPR

The 2007 Joint FAO/WHO Meeting on Pesticides Residues (JMPR) (September 2007) evaluated 31 pesticides, of which 6 were new compounds, and 10 were re-evaluated within the periodic review programme of the Codex Committee on Pesticide Residues (CCPR). One compound, atrazine, was evaluated on request of the WHO Drinking Water Guidelines programme. The Meeting established acceptable daily intakes (ADIs) and acute reference doses (ARfDs). The Meeting estimated maximum residue levels, which it recommended for use as maximum residue limits (MRLs) by the CCPR. It also estimated supervised trials median residue (STMR) and highest residue (HR) levels as a basis for estimation of the dietary intake of residues of the pesticides reviewed.

Pesticides for which the estimated dietary intakes might, on the basis of the available information, exceed their ADIs are marked with footnotes, as explained in detail in the report of the 1999 Meeting (section 2.2). Footnotes are also applied to specific commodities when the available information indicated that the ARfD of a pesticide might be exceeded when the commodity was consumed.

The JMPR also reported on a number of important general considerations, including further considerations related to short-term dietary intake assessment; considerations regarding the toxicological relevance of triazole fungicides and their common metabolites to be considered for a cumulative risk assessment.

The Meeting's recommendations are used by the Codex Alimentarius Commission for setting international food standards. Such standards are established only for substances that have been evaluated by the Committee and have been allocated an ADI, and ARfD (if necessary) or other relevant safety statement. This ensures that food commodities in international trade meet strict safety standards. The advice provided by the Meeting is also considered by Member States directly when setting national/regional food safety standards.

JMPR Evaluations are available free-of-charge on the IPCS web site http://www.who.int/ipcs/publications/jmpr/en/ and also the INCHEM web site. Electronic summaries of the conclusions and recommendations from the JMPR meetings are available on the IPCS web site shortly after the meeting and pending publication of the official full report.
1.1.3 Risk-Benefit of use of chlorine-containing compounds in food production and food processing

This Joint FAO/WHO Project to assess the benefits and risks of the use of “active chlorine” in food production and food processing was initiated following a request by the Codex Alimentarius Commission and Member States.

The main goals of this project are to consider the risk of chemical residues in products (excluding environmental impact), following the use of active chlorine for disinfection purposes in food production versus the benefit of lowering the risk of microbial hazards. The efficacy of active chlorine treatment needs to be considered, taking into account different treatment scenarios, different chlorine-containing substances and different pathogens and pathogen/food combinations. These considerations need to be based on current practices, as well as take into account proposed new practices, including the relevance and feasibility of potential alternative approaches.

The main areas to be considered relate to the treatment of irrigation water (only as it relates to hydroponic production systems and production of sprouts but not for agricultural field use), processing water, food contact surfaces as well as direct treatment of foods, with fresh produce, fish and seafood, meat and poultry as main food categories.

This project is a joint activity between several departments, at WHO, the Departments of Food Safety, Foodborne Diseases and Zoonoses, and of Public Health and the Environment (with water sanitation and health and chemical safety) are collaborating on this project, together with the FAO Departments of Agriculture and Consumer Protection, Fisheries and Aquaculture.

Calls for experts and for information have been published and a Core Group of experts established to assist the secretariat in preparing a large expert consultation to be held in Ann Arbor, USA, May 27-30 2008. The Core Group met in Rome November 7-9 to define in detail the scope of the project, identify detailed subject areas to be covered by background papers as well as possible experts to contribute to these papers. The background papers from the basis for discussion at the consultation and are in preparation now, they cover the following subject areas:
current practices; chemistry of disinfection compounds; chemical risk assessment; microbial risk assessment; risk benefit assessment; unintended consequences.

More information on the project is available from the web site: http://www.who.int/ipcs/food/active_chlorine/en/index.html

1.2 Non-food related assessments

1.2.1 Concise International Chemical Assessment Documents (CICADS)

Work continues on the preparation of high-quality chemical assessments that can be used by countries to protect human health. One new CICAD was published in 2007 and a further six CICADs were in process of being published following their approval by the 14th CICAD Final Review Board, held in Helsinki from 26 to 29 March 2007. A progress report showing the different stages of the work in the preparation of CICADs is regularly updated on the IPCS web site http://www.who.int/ipcs/publications/cicad/progress/en/index.html. New publications are disseminated through print and through the IPCS and INCHEM web sites free-of-charge (http://www.inchem.org/).

Following the meeting of the Risk Assessment Steering Group (RASG) in 2006, business was continued through regular telephone conferences. Discussions centred around the implementation of the review of the Future Direction of the CICAD Programme in the context of WHO's Strategy for Public Health and the Environment and also in the context of work planning for the 2008 – 2009 Biennium. A proposal for a Chemical Assessment Plan was prepared covering all chemical-specific risk assessment activities. This was circulated for discussion with stakeholders.

A new CICAD on the health aspects of DDT and its metabolites was progressed through peer review. Discussion at the Final Review Board meeting in March 2007 concluded the need for additional work particularly to better characterise and understand sources and extent of exposure under conditions of use during indoor residual spraying for vector control.

CICAD (No 73)
Mono- and disubstituted methyltin, butyltin and octyltin compounds
http://www.who.int/ipcs/publications/cicad/cicad73.pdf

1.2.2 International Chemical Safety Cards (ICSC)

The IPCS work on the International Chemical Safety Cards (ICSCs) continues to be one of the major points of collaboration with the International Labour Organization (ILO). ICSCs have been translated into 24 languages and are available on the Internet in 17 languages, through the ILO web site (www.iolo.org/public/english/protection/safework/cis/products/icsc/index.htm), the INCHEM Databank (www.inchem.org) and the web sites of participating institutions such as US NIOSH. In 2007 the average number of monthly downloads for the English versions of the Cards from the INCHEM web site was 61,400.

Work has continued on harmonizing the criteria and the precautionary information provided in the ICSCs with that of the GHS. In addition, GHS classifications are now included in new and updated ICSCs.
In 2007 development work started on a new ICSC database. This will enable a move from the current process of producing ICSCs on individual standalone PCs in different institutions to working from a single database server. This will make the production of the ICSCs more efficient and will simplify the tracking and management process. The new database will also facilitate translation of the ICSC by providing compilers and translators with a library of standard sentences, rather than sentence phrases. Ultimately all language versions of the ICSCs will be provided from a single server, rather than, as now, from a number of different web sites.

A total of 51 ICSCs were produced or updated in 2007. A further 133 ICSCs were updated using a fast-track procedure. This procedure is used for updating individual elements of ICSC such as Occupational Exposure Limits. The number of ICSCs produced was smaller than in previous years, because meeting time had to be devoted to the development of standard sentences for the new database.

The ICSC Compiler’s Guide which sets out the list of standard phrases on identity, hazardous effects and precautionary statements is continually updated by IPCS

ICSC Compiler's Guide, August 2007
http://www.who.int/ipcs/publications/icsc/comp_guide.pdf

2. RISK ASSESSMENT METHODOLOGY

2.1 The IPCS Harmonization Project

The IPCS “Project on the Harmonization of Approaches to the Assessment of Risk from Exposure to Chemicals” (commonly referred to as the “Harmonization Project”) aims to harmonize global approaches to risk assessment through both increased understanding and agreement on basic principles, and to develop international guidance documents on specific issues.

The Project has a global Steering Committee, which includes experts drawn from national risk assessment agencies, representatives of supra-national bodies (such as the EU (ECB/JRC), EFSA, and the OECD), and representatives of non-governmental organizations in official relations with WHO and working in the field of chemical risk assessment (ECETOC and ILSI/RSI). The Steering Committee meets every 2-3 years to recommend the Project workplan.

In March 2007, the Steering Committee met in Berlin, Germany to review progress and recommend the next workplan for 2007-2009. The meeting report and a new Project Brochure containing the workplan were published on the web site.

Harmonization Project publications have been taken up across the range of assessment sectors, i.e. industrial chemicals, biocides, pesticides, veterinary products, pharmaceuticals, occupational and public health, and are known to be used by many national and supra-national risk assessment bodies, e.g. Australia, EFSA, the European Union, Canada, Japan, OECD, UNECE (GHS guidance), United Kingdom, and the United States. At their May 2007 meeting, the Committee made a number of recommendations for redoubled efforts to facilitate uptake by other countries, particularly developing countries. These included the establishment of a training group, development of a risk assessment toolkit and establishment of a risk assessment network.

A summary report on workplan activities in 2007 follows:
• **Non-Cancer Human Relevance Framework.** The IPCS Framework for Analyzing the Relevance of a Non-cancer Mode of Action for Humans was finalized and accepted for publication in Critical Reviews in Toxicology. It is anticipated to appear in print in early 2008.

• **Aggregate/cumulative Risk Assessment.** An international workshop on aggregate/cumulative risk assessment took place in March 2007 with the objective to focus on methods for assessing the combined risk from exposure to one or more agents via all relevant routes and pathways and to review approaches employed to date in different sectors (e.g., pesticides, industrial chemicals, therapeutics) and disciplines (e.g., consumer exposure, occupational exposure, environmental exposure). The workshop identified threshold issues to address (e.g., terminology), outlined the conceptual basis for development of a framework for aggregate/cumulative risk assessment, and provided valuable advice for a longer term activity by WHO/IPCS on this issue. The May 2007 Harmonization Steering Committee meeting supported the next phase of the work to develop the framework and case studies. Release of the draft framework and case studies for public and peer review is scheduled for early 2008.

• **Exposure assessment.** The draft harmonized guidance on Characterizing and Communicating Uncertainty in Exposure Assessment was released for public and peer review over late 2006-early 2007. Comments received were reviewed at an expert meeting in March, and the document was finalized for publication. A symposium on this topic was presented at the ISEA annual conference in October. The associated guidance on Exposure Data Quality was released for public and peer review in early 2007. An expert process to consider the comments commenced (finalization planned for 2008).

• **Update of the IPCS Qualitative Scheme for Mutagenicity.** The 1996 IPCS Qualitative Scheme for Mutagenicity Testing is being updated. An expert meeting met in April 2007 and prepared a draft updated guidance, which was subsequently released for public and peer review. The meeting to finalize the document is scheduled for mid-2008.

• **Immunotoxicity (skin sensitization).** Following an international workshop in October 2006, a summary workshop report was published on the internet in 2007. The full workshop report along with commissioned extended abstracts was accepted for publication in Regulatory Toxicology and Pharmacology.

• **Development of Harmonized Guidance for Immunotoxicity Risk Assessment.** Planning commenced on the development of the guidance and an expert scoping meeting is scheduled for early 2008.

• **PBPK modelling in risk assessment.** The Harmonization Project activity on PBPK (physiologically-based pharmacokinetic) modelling aims to promote best practice in PBPK modelling, including transparency, and will result in a high-level guidance document on "Principles of Characterizing and Applying PBPK Models". The PBPK planning group met in Buxton, UK, on 5-6 November 2007 to further develop the document, which will be released for public and peer review comment (scheduled for 2008). Following this, an international workshop will take place, either in late 2008 or early 2009.
• **Risk Assessment Toolkit for Country Use and Guidance on Problem Formulation.** Work on these two related activities commenced, and meetings scheduled for early 2008.

• **Guidance on Interpreting Effects that may be modest or adaptive.** Consultation on the topics to be addressed in this project commenced in late 2007.

• **Reproductive and developmental toxicity**: development of harmonized morphological terms (by the WHO Collaborating Centre on Developmental Toxicology in Berlin). This activity progresses with regular Expert Workshops.

• **Dermal absorption.** IPCS contributed to an OECD led process on this topic, with a view to development of harmonized international guidance. The work will continue in 2008.

• **Harmonization Project Training and Uptake Activities.** The role of function of the new Training Group was agreed by the Steering Committee Core Group after input from interested Steering Committee members. The Group will now be established and commence its work. Following successful continuing education courses on Mode of Action and CSAF in North America, a UK-based course was scheduled for 2008. Courses in other parts of the world are anticipated to follow.

New publications issued in 2007:

- **Report of a WHO/ IPCS International Workshop on Skin Sensitization in Chemical Risk Assessment**

- **Guidance Document on Exposure Data Quality** (Draft for public and peer review).

- **Guidance on Mutagenicity Testing for Chemical Risk Assessment** (Draft for public and peer review)
  [http://www.who.int/entity/ipcs/methods/harmonization/areas/mutagenicity_testing_draft.pdf](http://www.who.int/entity/ipcs/methods/harmonization/areas/mutagenicity_testing_draft.pdf)

- **Report of the 8th Meeting of the Harmonization Project Steering Committee**

- **Harmonization Project Brochure (2nd Ed)**
Web Updates: Harmonization Project Newsletters were published in February, August and December. See http://www.who.int/ipcs/methods/harmonization/en/index.html

2.2. Environmental Health Criteria Documents (EHC)

In 2007, four Environmental Health Criteria in the (yellow cover) methodology series appeared in print or were in the final stage of development, i.e. Elemental Speciation in Human Health Risk Assessment (published); Principles and Methods for Assessing Autoimmunity Associated with Exposure to Chemicals (published); Principles and Methods for Evaluating the Health Risks to Children from Exposure to Chemicals (published), Dose-Response Characterization (being finalized subsequent to peer review). Work commenced on a new EHC document on Dermal Exposure, following wide consultation on the proposed document and its contents.

All EHC publications are available free-of-charge on the IPCS web site http://www.who.int/ipcs/publications/ehc/en/index.html

- Environmental Health Criteria No. 234
  Elemental Speciation in Human Health Risk Assessment
  http://www.who.int/ipcs/publications/ehc/ehc234.pdf

- Environmental Health Criteria No. 236
  Principles and Methods for Assessing Autoimmunity Associated with Chemicals
  http://www.who.int/ipcs/publications/ehc/ehc236.pdf

- Environmental Health Criteria No. 237
  Principles for Evaluating Health Risks in Children Associated with Exposure to Chemicals

2.3. Harmonization and update of the principles and methods for the risk assessment of chemicals in food

JECFA and JMPR have served as scientific advisory bodies to the Codex Alimentarius Commission, to WHO and FAO Member States, as well as to the organizations themselves since its inception in the early 1960s. In response to requests by JECFA and JMPR for general guidance for risk assessments, the International Programme on Chemical Safety (IPCS) sponsored in the 1980s the preparation of two Environmental Health Criteria (EHC) monographs, EHC 70 (Principles for the safety assessment of food additives and contaminants in food) and EHC 104 (Principles for the toxicological assessment of pesticide residues in food). JECFA has regularly held meetings at which veterinary drug residues in foods were assessed. While general principles have been developed in these meetings, they have not been consolidated in a similar document.

In light of the advances in the science of risk assessment and the recognition that the evaluations performed by JECFA and JMPR serve as the scientific foundation for international food...
standards that are of increasing importance within the Codex Alimentarius Commission and the World Trade Organization, FAO and WHO have initiated a joint Project to Update and Consolidate Principles and Methods for the Risk Assessment of Chemicals in Food.

Through a series of workshops and smaller expert consultation chapters on various subjects were developed. Two consultants have now been hired to draft a final consolidated document which will be posted on the web site for public comments in early 2008. A final expert consultation is planned for 2008 to finalize the draft document and address the public comments. The final document will be Published as Environmental Health Criteria document and will serve as the guide for good risk assessment practices of chemicals in food.

http://www.who.int/ipcs/food/principles/en/

3. **POISONS PREVENTION, INFORMATION AND MANAGEMENT**

3.1 Poisons Information and Management.

A mission was undertaken to Sudan in January to advise on the establishment of a poisons centre. Training and other materials were provided to the committee responsible for the poisons centre, and a training placement was offered in a European poisons centre.

A week-long training placement was provided for a representative of the Mongolia National Toxicological Emergency Centre at the National Poisons Information Centre in Sweden.

IPCS provided membership of the European Association of Poisons Centres and Clinical Toxicologists (EAPCCT) or the American Academy of Clinical Toxicology (AACT) to individuals working at 23 poisons centres in developing countries. Membership benefits include a subscription to the journal Clinical Toxicology, a monthly current awareness bulletin on toxicology and reduced registration fees to scientific congresses.

Free access to the INTOX Databank via CD-ROM and the Internet continues to be provided. This databank contains information on chemicals, antidotes, and management of poisoning and chemical accidents. The web site is currently averaging over 68,300 unique visitors per month resulting in an average of 121,000 sessions monthly. One hundred CD-ROM subscriptions were also provided in 2007.

The following Poisons Information Monographs (PIMs) were updated and peer reviewed: Alkalis, Amodiaquine, Chlorine, Dieldrin, Endosulfan and Paraquat. A further four PIMs were updated and are awaiting peer review: Inorganic Lead, Aluminium Phosphide, Paracetamol and Diethylene Glycol.

3.2. **Network of poisons centres and INTOX**

Seventeen subscriptions to the INTOX Data Management System were provided to poisons centres in developing countries and countries with economies in transition.

Training in use of advanced functions of the INTOX Data Management System was provided to a total of 30 poisons centre experts from countries around the world at three workshops: in London
UK in July, in Dar Es Salaam, Tanzania in September, and in Bangkok, Thailand in December. In addition, a further trial was carried out of pooling data from multiple centres using the INTOX Data Management System.

4. ENVIRONMENTAL HEALTH EMERGENCIES (INCLUDING CHEMICAL INCIDENTS)

In 2007, WHO has further strengthened on environmental health emergency preparedness, alert and response, including chemical incidents and emergencies. A new web site has been developed.

In February 2007, a WHO consultation was held on the development of stockpiles for the international response to radiation and chemical emergencies. In June 2007, a WHO consultation was held to develop a framework for a WHO roster of environmental health emergency responders, including the layout of a pre-deployment training scheme. In addition, potential roster candidates have been identified through calls of interest. In September 2007, a WHO consultation was held to discuss environmental health emergency toolkits to be used for chemical, radio-nuclear and basic environmental health emergency response.

In May 2007, the draft WHO Guidelines for the Public Health Management of Chemical Incidents have been reviewed and revised. In terms of national preparedness, a national training course on the same subject matter has been organized and delivered to China.

As in the previous years, also in 2007, health intelligence has been reviewed on a daily basis for environmental health emergencies of (potential) international public health concern. Relevant information has been verified and partners have been alerted. In October 2007, a field mission was sent to Luanda, Angola, to identify the cause of a "mysterious" disease that had affected more than 450 people. WHO was able to identify the cause of the event as a mass poisoning with sodium bromide that has been confused with sodium chloride (table salt) and to support risk management measures.

[WHO Environmental Health in Emergency web site](http://www.who.int/entity/environmental_health_emergencies/en/)

[Revised draft WHO Guidelines for the Public Health Management of Chemical Incidents and Emergencies](http://www.who.int/ipcs/emergencies/en)

Work has been coordinated within the Inter-Agency Standing Committee for Humanitarian Work and, in particular, within its Clusters for Health and Water/Sanitation and Hygiene (WASH). In addition, activities have been fully coordinated within the context of the IHR (2005) implementation.

The EC funded project to develop and test a pilot alert system for (potential) public health events resulting from (potential) deliberate releases of chemicals has been finalized (of which IPCS was one of the partners).

During 2007, the environmental health and emergency activities have further been reflected in WHO strategy papers, including in the draft WHO Mid Term Strategic Plan (MTSP) and the Strategic Objectives.
5. CHILDREN'S ENVIRONMENTAL HEALTH

The training package on children's environmental health has been used for the implementation of capacity building activities in 10 countries (India, Haiti, Singapore, Greece, China and Canada, as well as Cono Sur countries: Argentina, Uruguay, Paraguay and Chile). The translation of modules and the related guidance materials into French and Spanish has enabled access to many more countries and larger audiences. Some modules are also available in Russian (slides only). Trainees have reported the preparation of local translations of selected modules into Italian, Greek and Slovenian. Plans are in place to adapt the modules to the needs of Nurses and Midwives, professionals involved in reproductive health issues, and those with an interest in creating leadership on children's environmental health (CEH) and/or curricular courses (e.g. at medical and nursing schools).

In 2007, the training modules were used as an integral part of the following events:

- WHO Training in Reproductive Environmental Health, WHO/HG. Geneva, Switzerland (March 2007) www.gfmer.ch
- Workshop on Children's Environmental Health (CEH) in Delhi, India (January 2007)
- Workshop on Children's Environmental Health (CEH) in Port-au-Prince, Haiti (June 2007)
- Workshop on Children's Environmental Health (CEH) for Family Doctors. Singapore. August 2007
- Workshop on Children's Environmental Health and Pediatrics, organized in the context of the World Congress of Pediatrics in Athens, Greece (August 2007)
- Workshop on Children's Environmental Health (CEH) in Beijing, China (October 2007)
- Building Children's Environmental Health Capacity among Health Care Professionals in Canada. Ottawa, Canada. (November 2007)

Information materials on heavy metals and children's health and development are close to finalization (e.g. Lead, Mercury) and also on persistent organic pollutants, as well as reproductive health and environment. Plans are in place for their printing and/or web site dissemination in 2008.

The promotion of longitudinal cohort studies on children's environmental health is advancing and the document addressing the needs of developing countries has been drafted (and will be finalized in 2008).

Preparatory and networking work has advanced on the promotion of specialized children's environmental health centres.
Informal discussions have taken place with professionals from Canada, USA, Argentina, Chile, Mexico, Uruguay and Spain, in order to better define the optimal elements of a PEH centre: its structure, roles and responsibilities, location, staffing and funding, as well as the training needs identified. The information and technical advice provided by WHO has contributed to the development of CEH centre initiatives in several countries and to international informal collaboration networks on the subject.
6. IMPLEMENTATION OF INTERNATIONAL CONVENTIONS AND AGREEMENTS

Activities in this area in 2007 have focused on:

- **Work to align relevant WHO instruments to the Globally Harmonized System for Classification and Labelling (the GHS) and to support health-sector participation.** The work in 2007 focused on the system for International Chemical Safety Cards (ICSC). Work was undertaken at two meetings of the ICSC to identify changes needed in the standard phrases used to create ICSC so that they can be aligned with the GHS. Updates on the work being undertaken by WHO to implement the GHS were provided to the UN Sub-Committee of Experts on the GHS as part of the work programme of the Sub-Committee for 2007-2008. As part the North American Congress on of Clinical Toxicology, a symposium on health sector interests in the GHS was coordinated. Planning is in hand to hold a Workshop in the Economic Community of West African States (ECOWAS) on GHS Implementation, in collaboration with UNITAR. In this Workshop health sector interests will be further identified along with follow-up actions.

- **Strengthening the support, awareness and the need for engagement of the health-sector in the Strategic Approach to International Chemicals Management (SAICM).** The work continue on facilitating the engagement of the health-sector interests at SAICM Regional Meetings through WHO Regional Offices and health sector networks. In 2007, in collaboration with colleagues working on occupational and environmental health, a Global Plan of Action on Worker’s Health (2008-2017) was agreed by the World Health Assembly (WHA60.26) which draws links with SAICM and other actions to incorporate worker’s health into other policies. In September 2007, WHO joined the SAICM Secretariat fulfilling resolution I/1 of the International Conference on Chemicals Management.

7. CAPACITY BUILDING

Presentations and Training Courses:

**Brazil:**
Participation as Keynote speaker at (1) the XV Congresso Brasileiro de Toxicologia and (2) the II. Symposio Brasiliiero sobre Residuos de Agrotoxicos em Alimentos.

Title of presentations:
(1) Risk assessment of carcinogenic chemicals: an international perspective; with the main purpose to explain and promote WHO's work in this area, in particular the IPCS Cancer mode of action and human relevance framework; and illustrating different approaches for genotoxic and non-genotoxic compounds via examples.
(2) Risk Assessment of Pesticide Residues in Food for International Standard Setting: main purpose was to explain the difference between a hazard and a risk assessment, describe how JMPR performs pesticide risk assessments by applying internationally harmonized risk assessment methodologies; illustrate via an example; and illustrate some of the challenges and future perspective in pesticide risk assessment.

Justification and Outcome:
There is on-going debate on the risk assessment of carcinogenic chemicals, and the IPCS (through the harmonization program and through JECFA) have recently developed guidance to provide better advice to risk managers for such compounds for priority actions and interventions.
Current approaches applied in the international setting have been explained. The presentations were very well received and detailed discussions followed which also focused on the ways of implementing such approaches on the national level.

It is clear that developing countries and countries in transition, in particular countries like Brazil with a rapidly developing economy, are depending on WHO to advise on appropriate approaches for risk assessment of chemicals for improved public health decision making.

**China**
A two-day national training course on the public health management of chemical incidents was held in Beijing, China in April. This was held in collaboration with the Ministry of Health, the State Environmental Protection Administration (SEPA) and was attended by 30 participants. The course was well received. In the evaluation session, participants requested additional training on: modelling of chemical releases; follow-up for chronic/long term effects of chemical exposure; land-use planning; prevention and preparedness for chemical accidents; psychiatric/psychological interventions after an incident; and communication with the mass media.

**Tanzania**
A two-day sub-regional training session on poisons centre operations and management of poisoning was held in Dar-Es Salaam, Tanzania in September for 11 representatives of poisons centres from seven countries.

**Thailand**
Participation as a Keynote Speaker at the Sixth Congress of the Asia Pacific Association of Medical Toxicology. Titles of presentations:

(1) The International Health Regulations - Not Just Communicable Diseases: An Opportunity for Poison Centres (keynote). The International Health Regulations (2005) came into force in June 2007 and require countries to develop capacity for identification and surveillance of disease outbreaks caused by chemicals as well as communicable diseases. The purpose of the presentation was to alert professionals outside of the communicable disease world to this new need and to highlight the role that poisons centres can play in this.

(2) Stockpiling Antidotes for Mass Poisoning - A New Who Initiative. In 2007 work started on building WHO capacities to respond to environmental health emergencies through the establishment of a roster of experts and stockpiles of equipment and antidotes. The purpose of the presentation was to inform the toxicology community and to obtain views on this activity.

**Sweden**
Participation as a Keynote Speaker at the Meeting on Operating in Conflict and disaster areas, 15-16 March 2007, Stockholm. The meeting specifically addressed environment and health issues in crises situation. A presentation was delivered on environmental health in emergencies.
List of IPCS Publications during 2007

Monographs in a series

**JECFA publications**


- Safety evaluation of certain food additives and contaminants. WHO Food Additives Series No. 59 (in press)

**JMPR Publications**


**Concise International Chemical Risk Assessment Documents (CICADs)**

- Mono- and disubstituted methyltin, butyltin, and octyltin compounds. Concise International Chemical Assessment Document; 73 [http://www.who.int/entity/ipcs/publications/cicad/cicad73.pdf](http://www.who.int/entity/ipcs/publications/cicad/cicad73.pdf)
Environmental Health Criteria

- Elemental speciation in human health risk assessment. Environmental Health Criteria; No. 234
  http://www.who.int/ipcs/publications/ehc/ehc234.pdf

- Principles and methods for assessing autoimmunity associated with exposure to chemicals. Environmental Health Criteria No. 236
  http://www.who.int/ipcs/publications/ehc/ehc236.pdf


Harmonization Project

- Guidance Document on Exposure Data Quality (Draft for public and peer review).

- Guidance on Mutagenicity Testing for Chemical Risk Assessment (Draft for public and peer review)
  http://www.who.int/entity/ipcs/methods/harmonization/areas/mutagenicity_testing_draft.pdf

International Chemical Safety Cards

- 51 new and updated cards have been published in 2007. These are listed in Appendix 1.

Publications not in a series

- Report of the 8th Meeting of the Harmonization Project Steering Committee.

- Harmonization Project Brochure (2nd Ed)

- Report of a WHO/IPCS International Workshop on Skin Sensitization in Chemical Risk Assessment. The full report workshop report will appear in Regulatory Toxicology and Pharmacology. The workshop summary is available at:

Articles published in scientific journals.

### List of International Chemical Safety Cards published in 2007

Available online


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IPCS Meetings held in 2007

14-16 February 2007
WHO Consultation on the Development of Stockpiles for Radiation and Chemical Emergencies
Geneva, Switzerland

12-13 March 2007
Meeting of the Working Group on Uncertainty in Exposure Assessment
Bradford, United Kingdom

19-21 March 2007
International Workshop on Aggregate/Cumulative Risk Assessment
Washington, D.C., United States

26 – 29 March 2007
14th Final Review Board Meeting for the Concise International Assessment Document Series
Helsinki, Finland

11-12 April 2007
Expert meeting on the IPCS Scheme for Mutagenicity Testing
Hannover, Germany

16-20 April 2007
International Chemical Safety Cards Peer Review Meeting
Munich, Germany

23-25 April 2007
Peer review group meeting for draft WHO Guidelines for the Public Health Management of Chemical Incidents and Emergencies
Beijing, China

10-11 May 2007
8th Meeting of the IPCS Harmonization Project Steering Committee
Berlin, Germany

4-5 June 2007
Joint WHO-IWA Meeting to strengthen who environmental health response to chemical, natural and deliberate emergencies - development of a roster of environmental health experts
London, UK

19-28 June 2007
68th Meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)
Geneva, Switzerland
2-4 July 2007  
Fifth Meeting of Users of the INTOX Data Management System  
*London, United Kingdom*

3-6 September 2007  
African Sub-Regional Workshop on Poisons Centres and Clinical Toxicology  
*Dar Es Salaam, United Republic of Tanzania*

9-18 September 2007  
Joint FAO/WHO Meeting on Pesticide Residues (JMPR)  
*Rome, Italy*

19-21 September 2007  
Technical Consultation on the Development of WHO Tools to Strengthen Environmental Health in International Emergency Response  
*Geneva, Switzerland*

18-27 September 2007  
Joint FAO/WHO Meeting on Pesticide Residues (JMPR)  
*Geneva, Switzerland*

19-21 September 2007  
Technical Consultation on the Development of WHO Tools to Strengthen Environmental Health in International Emergency Response  
*Geneva, Switzerland*

5-6 November 2007  
WHO/IPCS Harmonization Project PBPK Modelling Planning Group Meeting  
*Buxton, United Kingdom*

7-9 November 2007  
Active Chlorine Project: Core Group meeting  
*Rome, Italy*

19-23 November 2007  
International Chemical Safety Cards Peer-Review Meeting,  
*Lyon, France*

10-11 December 2007  
Poisons Information Monograph Peer Review Meeting  
*Bangkok, Thailand*

10-11 December 2007  
Sub-Regional Training Course on the INTOX Data Management System  
*Bangkok, Thailand*