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Agenda item 8

*Chemical Safety in a Vulnerable World*

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**FORUM IV**  
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**ACUTELY TOXIC PESTICIDES**  
**INITIAL INPUT ON EXTENT OF PROBLEM**  
**AND GUIDANCE FOR RISK MANAGEMENT**

**Prepared by: Forum Standing Committee Working Group chaired by U.S.A.**

**DECISION DOCUMENT**

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## **Acutely Toxic Pesticides**

### **Initial Input on Extent of Problem and Guidance for Risk Management**

#### **Mandate**

At the third session of the Intergovernmental Forum on Chemical Safety (IFCS) in Bahia, Brazil in October 2000, the issue of pesticide poisonings was identified as a priority for action (D5):

“Poisoning of pesticide users, especially agricultural workers and small farmers in developing countries and countries with economies in transition [shortened for this paper to DC/EIT’s], must be prevented. The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade will address aspects of this problem. However, in order to more comprehensively address the problem of acutely toxic pesticides, the Forum:

*Requests the Forum Standing Committee to provide initial input on the extent of the problem of acutely toxic pesticides, and provide guidance for sound risk management and reduction, including options for phasing out where appropriate, and report to Forum IV.”<sup>1</sup>*

#### **I. Issues for Consideration**

This assessment suggests that acutely toxic pesticides may pose significant public health problems for DC/EIT’s, and can present a spectrum of effects, ranging from severe (e.g., fatalities, permanent or temporary impairment) to mild effects such as skin irritations. This initial assessment presents an adequate basis for a discussion by the IFCS of possible activities to evaluate strategies that reduce or better manage the risks associated with the use of acutely toxic pesticides.

Forum IV should take into account:

1. the common conditions of use in DC/EIT’s that contribute to severity and frequency of pesticide poisonings;
2. the complementary roles and responsibilities of international organizations, governments, pesticide, agriculture and food industries, trade unions, farmers, public interest non-governmental organizations (NGOs), health care professionals and consumers in addressing the problem of pesticide poisonings, and the need to build upon the ongoing good work of non-governmental organizations;
3. how to expand scientific research on alternative pest control measures (chemical and non-chemical) and crop production methods; and, how to facilitate pesticide user access to information on new techniques that reduce reliance on acutely toxic pesticides;
4. the importance of surveillance and reporting systems in identification of poisoning incidents;
5. the need for countries to integrate pesticide management needs with their priorities for technical and development assistance.

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<sup>1</sup> Intergovernmental Forum on Chemical Safety, Priorities for Action Beyond 2000. Adopted at Forum III, 15-20 October 2000, Salvador Bahia Brazil.

(<http://www.who.int/ifcs/Documents/Forum/ForumIII/index.htm#priorities>)

## II. Action Requested

The Forum Standing Committee (FSC) Working Group (WG) has developed a series of recommendations, but does not suggest that they be implemented in any preferential order.

Forum IV is requested to urge national governments, with the commitment and support of stakeholders, to take a variety of actions, best suited to their needs and capacities, which could include:

1. develop national policies and measures for risk evaluation and reduction that:
  - a. utilize the tools of the Rotterdam Convention for access to information about acutely toxic pesticides and limiting import of acutely toxic pesticides and severely hazardous pesticide formulations;
  - b. consider risk mitigation mechanisms such as:
    - restriction on availability or prohibition of acutely toxic pesticides (such as those formulations classified by WHO<sup>2</sup> as Extremely Hazardous (class 1a) and Highly Hazardous (class 1b) and/or those frequently associated with poisoning incidents;
    - limitation of the use of toxic pesticides to crops where they can be applied more safely (e.g., field crops vs. orchards, where product spray can drip on workers)
    - substitution of reduced risk pesticide products and non-chemical control measures;
    - changes in container design and delivery system requirements and imposition of engineering controls;
    - establishment of use limitations
    - improved label warnings
    - require pesticide products be marketed in package sizes and formulation types suited to the conditions of use in DC/EIT's and the needs of individual end users (emphasis on ready-to-use formulations where feasible)
  - c. adopt national policies that promote Integrated Pest and Production Management and reduce reliance on acutely toxic pesticides;
  - d. strengthen workplace pesticide management and consider application of a hierarchical approach to workplace controls;
  - e. establish arrangements for the exchange of information on hazardous chemicals (IFCS Priority for Action C1<sup>1</sup>) and provision of safety information on any hazardous chemicals in circulation (IFCS Priority for Action C3<sup>1</sup>) in order to strengthen community right to know and access to information.
2. evaluate the efficacy of pesticide risk reduction programs currently implemented by international organizations, governments, pesticide, agricultural and trade sectors and other stakeholders and
  - a. determine lessons learned from programs that have achieved significant and sustainable risk reductions and those which have not
  - b. ensure that results are shared locally, regionally and internationally
  - c. incorporate evaluation mechanisms and measures in future projects;
3. expand research and capacity for research on alternative pest control (both chemical and non-chemical) and crop production measures; facilitate access by pesticide users, or those exposed to pesticides, to research results; emphasis implementation of alternative approaches;

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<sup>2</sup>World Health Organization, The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification 2000-2002, WHO/PCS/01.5, [\[http://www.who.int/pcs/docs/Classification%20of%20Pesticides%202000-02.pdf\]](http://www.who.int/pcs/docs/Classification%20of%20Pesticides%202000-02.pdf).

4. establish or enhance national systems for surveillance and reporting of poisoning incidents affecting workers and communities, including:
  - a. training of waged agricultural workers, farmers, communities, and public health professionals to recognize pesticide poisoning symptoms and enable first aid treatment in the field
  - b. education and resources for health care workers to treat health effects appropriately;
5. give priority to pesticide management activities when technical assistance and development projects are developed;

### III. Background, Extent of Problem, Guidance for Risk Management

Pesticide poisoning may be a significant public health problem in DC/EIT's. The FSC constituted a WG on Acutely Toxic Pesticides to prepare an initial assessment of the problems commonly associated with acutely toxic pesticides. The assessment was based on a review of reports and analyses of poisoning incidents that result from both occupational and community exposures to such products, but specifically excludes consideration of use of pesticides for suicide.

Precise quantification of the extent of poisoning is hampered by a lack of effective surveillance and reporting systems concerning pesticide poisoning at the field level. The methodology used by the WG in preparing its report (retrospective review of information in the literature) precluded quantification of the number of poisoning incidents; such a study was considered to be beyond the scope of the resources available to the WG. This analysis is not intended to represent a scientifically acceptable risk assessment, as it has relied on secondary sources for its information, which used differing definitions or investigation procedures. No attempt has been made to develop a definition of "poisoning" or other terms used throughout the document, nor has the WG applied such terminology retroactively to the variety of sources used here.

#### Study Approach:

The WG conducted a qualitative analysis of the problem by reviewing the selected reports and published articles of numerous organizations, governments, epidemiologists and public health professionals. The resulting annotated bibliography includes reports selected on the basis of the following characteristics:

- representative of a global geographic and climatic range and a variety of conditions of use
- a range of agricultural production methods
- clarity about the types and severity of health effects
- possibility of identifying pesticide product associated with the poisoning incidents
- published after 1992 (as a matter of priority)

While the sources and the data collection methods of the reports' authors varied considerably, the WG noted the remarkable consistency of the conclusions regarding the possible causes of occupational and community pesticide poisonings. Taken as a whole, the bibliography presents a reasonably clear picture of the problems of pesticide poisonings and the conditions that contribute to them. It serves as a reasonable basis for discussion by the IFCS and agreement on recommendations for and evaluation of risk mitigation measures.

The WG focused on acute poisonings resulting from both occupational and community exposures to acutely toxic pesticides. Chronic health effects were beyond the scope of this analysis, but it is noteworthy that the WG did not discover a significant body of research on this topic in developing countries. Similarly, environmental incidents have not been included.

The use of pesticides for suicides is often cited as a reason for a large percentage of reported poisoning incidents. Further, it must be recognized that some reports are based on data collection and analyses of reports from hospitals and poison control centers. Such reports do not present a complete picture of the spectrum of the frequency or severity of poisoning incidents that are known to routinely occur at the field level or in villages where there is no system for recognizing or collecting information on pesticide poisonings. A few reports offer conflicting conclusions, and indicate that the incidence of severe poisoning (fatalities, permanent or temporary impairment) through occupational exposures may be relatively low.

#### **IV. Current Situation**

The incident reports included in the annotated bibliography provide a basis for a preliminary understanding of the conditions in DC/EIT's that contribute to the problems commonly associated with pesticide poisonings.

In general, poisoning incidents are characterized by problems related to weak national infrastructures for regulation, education and communication, and lack of participation of concerned parties in decision-making structures. Regulatory resources are so limited that enforcement of regulations and implementation of compliance programs is inconsistent and ineffective. Inadequate or non-existent continuous education and training programs result in a lack of awareness of the problems associated with pesticide use or an understanding of how to reduce exposure. Similarly, there is generally limited knowledge of, or access to, information on less toxic products or alternative approaches (chemical or non-chemical) to pest control.

Where waged agricultural workers and farmers are aware of what needs to be done, they often do not have reliable access to any form of personal protective clothing (beyond cotton clothing), equipment, or modern application equipment. Many pesticides are used by waged workers and small landholders, and they are frequently repackaged into smaller containers with inadequate or no labeling, while larger quantities may be improperly stored in and around the home. The International Labor Organization's recommendation concerning Safety and Health in Agriculture (R192) is one source of guidance in this area.

There is only limited systematic collection and reporting of poisoning incidents at the field or village level. When specific pesticides are identified in incident reports, those most frequently associated with these poisoning incidents are classified by WHO as extremely or highly hazardous<sup>2</sup>. Specific factors associated with pesticide poisoning incidents include:

##### **1. Toxicity and types of products**

- As classified by the World Health Organization's (WHO) Hazard Classification Scheme<sup>2</sup>, most of the pesticides are Extremely Hazardous (class 1a) and Highly Hazardous (class 1b), and specifically are of organophosphorus and carbamate categories. However, two pesticides classified by WHO as Moderately Hazardous (class 2), paraquat and endosulfan, were associated with several cases of fatal poisonings
- Certain types of formulations result in higher levels of exposure (e.g., dustable powders, liquids)
- Formulation or mixtures of pesticides with few quality controls can result in products of unknown toxicity

## 2. Exposures related to lack of technical and organizational measures, safe systems of work, and appropriate information and training

- Inappropriate product packaging and package size; re-use of contaminated containers;
- Individual workers mixing product at the field and loading product into application equipment
- Inappropriate application equipment and equipment failures (leaking back-pack sprayers)
- Inadequate storage capacity and inappropriate retail sites for pesticide products;
- Most effective personal protective measures beyond cotton clothing and gloves simply cannot be used in tropical climates and if used, may even exacerbate exposures;
- Lack of personal protective clothing or equipment; if available, often not replaced when needed, or not fitted to individual user, or the worker is often made to pay for its provision and replacement;
- Few mechanisms for isolation of contaminated gear or clothing; lack of washing facilities for waged workers and farmers or clothing; continued use of contaminated clothing;
- Proximity of agricultural areas with community living spaces.

## 3. Infrastructure weaknesses

- Scientific procedures to assess the potential risks from pesticides not suited to capacities of DC/EIT's, and regulatory programs to control their use lack sufficient enforcement resources.
- Education programs to reduce risk and exposure for waged workers, farmers and community are infrequent and ineffective:
  - failure to: emphasize and implement Integrated Pest Management strategies; use safer pest control alternatives; or consider programs such as the Farmer Field Schools
  - exposed individuals fail to recognize poisoning symptoms or dismiss the significance of health implications
- Public health system deficiencies:
  - few surveillance systems which collect field incident and community data
  - lack of recognition and awareness of poisoning symptoms as well as the means to manage or treat the effects by public health workers
- Inadequate communications and access to information:
  - lack of information about less toxic alternative pest control methods
  - little dialogue among business, agricultural and public health sectors
  - fear of loss of employment inhibits acknowledgment and reporting of incidents by affected individuals.

### *Note*

*The Working Group that developed this paper at the request of the Forum Standing Committee was comprised of representatives from a number of different governments, international organizations, public interest groups and the pesticide industry. While this final paper does reflect the collective views of the Working Group, CropLife International (the primary association representing the pesticide industry) nevertheless has an alternative perspective on certain issues addressed here. The Forum Standing Committee has therefore agreed to include at Forum IV a lunchtime presentation by CropLife based on its Room Document providing further details of its own analysis of the Acutely Toxic Pesticide issue.*