International Action on Toxic Chemicals and Hazardous Wastes

Chemicals are essential for economic and social development. Yet the use of substances such as DDT, chlordane, PCBs, dioxin, sulphuric acid, mercury, lead and arsenic can pose significant risks to human health and the environment. Human exposure and pollution of the environment may arise at all stages in the life cycle of chemicals, from their production through to ultimate disposal.

Toxic chemicals and hazardous wastes produced around the world are capable of affecting brain development and behaviour as well as the endocrine, immune and reproductive systems. Current best practices demonstrate, however, that chemicals can be used and disposed of in a cost-effective manner and with a high degree of safety for both human health and the environment. Unfortunately, there is need for considerable improvement in the management of both toxic chemicals and hazardous wastes, as best practices in this area are often ignored throughout the world.

Exposure to these substances is unavoidable, as they exist in common everyday products upon which we all depend, whether at home, at the workplace or in transit. They are the result of 70 years of industrial chemistry which has produced plastics, new generations of pesticides, construction materials and canned foods. Some chemicals build up in body tissues over the years, while others do not. Adult human beings today carry at least 500 measurable chemicals in their bodies that were never in anyone's body before the 1920s, according to Dr. Theo Colborn, Director of the Wildlife and Contaminants Programme of the World Wildlife Fund. Scientists today do not fully understand the magnitude of health risks posed by toxic chemicals, nor do they comprehend completely the biological mechanisms affected.

In 1995, world chemical sales excluding crude oil and natural gas amounted to US$1.5 trillion. While two thirds of chemicals sold were manufactured in industrialized countries, the rest came from developing countries and central and eastern European countries with economies in transition. With economic prosperity increasing in many developing countries, it is expected that production and consumption of chemicals will also increase. While many of these countries have effective legislative mechanisms to deal with chemical and toxic wastes, they lack the infrastructure and trained personnel to implement rules and regulations and to monitor the movement of toxic wastes in the environment. Throughout the world, it is estimated that about 100,000 chemicals pass through chemical industries as either raw materials, reagents or intermediate and final products. Since pollution has no national boundaries, global action in the management of chemicals and toxic waste is of major importance to meet the goals of environmentally sustainable development.

Agenda 21

Chapter 19 of Agenda 21--the comprehensive plan for global action in all areas of sustainable development adopted by the United Nations Conference on Environment and Development (UNCED) in 1992, often referred to as the Earth Summit--identifies six areas where national and international efforts should be concentrated to manage chemicals in environmentally sound ways. Some of the key objectives of chapter 19 are:

- To strengthen international risk assessment. Several hundred priority chemicals, including major pollutants and contaminants, should be assessed by the year 2000.
- To produce guidelines for acceptable exposure to a greater number of toxic chemicals.
- To make available, by the year 2000, a globally harmonized hazard classification and labelling system.

- To promote greater exchange of information on chemical safety, use and emissions.
- To eliminate unacceptable or unreasonable risks and to reduce risks posed by toxic chemicals.
- To put in place, by the year 2000, national systems for environmentally sound chemical management.
- To reinforce national capacities to detect and halt any illegal attempt to introduce toxic and dangerous substances into States.
- To assist all countries to obtain all appropriate information concerning illegal traffic in toxic and dangerous products.

Similarly, Chapter 20 of Agenda 21 identifies the following major programme areas related to the environmentally sound management of hazardous wastes, which include DDT, PCBs, dioxin, sulphuric acid, phosphate fertilizer and heavy metals, such as lead, arsenic and mercury:

- Preventing and minimizing hazardous wastes through the promotion of cleaner production methods, recycling of materials and knowledge enhancement.
- Strengthening institutional capacities in hazardous waste management through promotion of appropriate national measures and programmes, research and development, human resources development and dissemination of information on hazardous waste.
- Strengthening international cooperation in managing transboundary movements of hazardous wastes by harmonizing procedures for identifying and controlling waste and promoting economically and environmentally sound recycling.
- Preventing illegal international traffic in hazardous wastes by providing countries with information and assistance, within the framework of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

The emphasis here is not only on promoting basic standards of hazardous waste management at the national level, but also on systematic international action to control transboundary

movements of wastes. In fact, Chapter 20 calls specifically for the ratification of or accession to the Basel Convention and for the expeditious elaboration of its related protocols (see box below), the ratification and full implementation by concerned countries of the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement of Hazardous Wastes within Africa, as well as for the elimination of the export of hazardous wastes to countries that--individually or through international agreements-- prohibit the import of such wastes.

Successful implementation of Chapters 19 and 20 depends, among other things, on improved international cooperation and coordination, especially among United Nations bodies and other international organizations involved in the assessment and management of toxic chemicals and hazardous wastes.

Progress Achieved at the International Level since UNCED

Since the Earth Summit five years ago, two important new international entities have been formed: the Intergovernmental Forum on Chemical Safety (IFCS) and the Inter-Organization Programme for the Sound Management of Chemicals (IOMC).

Created in Stockholm in April 1994, IFCS is designed to foster cooperation among Governments, intergovernmental organizations and non-governmental organizations (NGOs) in promoting chemical risk assessment and environmentally sound management of chemicals. The purpose of IFCS, a non-institutional forum, is to provide policy guidance, develop strategies in a coordinated and integrated manner, enhance understanding of the issues and promote the policy support necessary for these functions.

Established in 1995, IOMC serves as a mechanism for coordinating efforts of six major international organizations to assess and manage chemicals: the United Nations Environment

Programme (UNEP), the International Labour Organization (ILO), the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the United Nations Industrial Development Organization (UNIDO) and the Organization for Economic Cooperation and Development (OECD). The IOMC's scientific and technical work is carried out through the existing structures of these six organizations, either individually or jointly.

The Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal is a global environmental treaty that strictly regulates the transboundary movements of hazardous wastes. Administered by UNEP, it obliges Parties to the Convention to ensure the environmentally sound management of hazardous wastes, particularly in their disposal. The Convention, adopted on 22 March 1989, came into force on 5 May 1992. The Treaty recognizes that the most effective way of protecting human health and the environment from the danger posed by such wastes is to reduce their generation to a minimum and to minimize their hazard potential, while ensuring the environmentally sound management of hazardous waste. The Basel Convention stipulates three main interdependent and mutually supportive goals:

- Transboundary movements of hazardous wastes should be reduced to a minimum.
- Hazardous wastes should be treated and disposed of as close as possible to their source of generation.
- Hazardous waste generation should be reduced and minimized at the source.

To achieve these goals, the Convention aims through its secretariat to control the transboundary movement of hazardous wastes, monitor and prevent illegal traffic, provide assistance for the environmentally sound management of hazardous

wastes, promote cooperation between the 108 States parties in this field, and develop technical guidelines for the management of hazardous wastes.

The establishment of both IFCS and IOMC --together with the strengthening of the ongoing International Programme on Chemical Safety (IPCS) called for by the 1992 Rio Conference-- has contributed to considerable improvement in international cooperation in the area of toxic chemicals. The following are examples of activities developed through these new international mechanisms in support of the objectives of Chapter 19:

- Action by IPCS and OECD will meet the IFCS target of evaluating 200 additional chemicals by 1997.
- Work is on schedule to meet both the end-1997 and the year 2000 deadlines for the implementation of a globally harmonized system for classification and labelling of chemicals, within the framework of the IOMC Coordinating Group for the Harmonization of Chemical Classification Systems. Implementation of this system will benefit human health and the environment, reduce the need for animal testing and facilitate international trade in chemicals.
- FAO and UNEP are jointly implementing the two codes of conduct dealing with the voluntary procedure for prior informed consent (PIC). This procedure was established to assist chemical-importing countries by calling attention to those chemicals which may be of concern due to actions taken by other countries concerning toxicity levels, or because of previous uses of those chemicals. At present, 148 countries participate in the voluntary consent procedure which covers 17 chemicals. Primarily a system for information exchange, the procedure also provides the basic information needed for making health and environmental decisions concerning the future use of those covered chemicals. Negotiations are well under way for a PIC convention, and a high-level conference is to be held in the Netherlands during 1997.

- The recently published WHO Guidelines for Drinking Water Quality provides environmental guidelines on specific pollutants, and the second edition of the WHO Air Quality Guidelines for Europe is due in 1997.
- International standards on pesticide residues in food and food additives have been set by the FAO/WHO Codex Alimentarius.
- Several UN agencies are engaged in a variety of activities to address the problem of lead contamination. For example, a recent IPCS Environmental Health Criteria Task Group meeting developed a set of recommendations to reduce and prevent lead exposure caused by use of lead in gasoline, paints, food containers, water treatment and distribution systems, agriculture, folk remedies and cosmetics.
- The UNIDO Guidelines on Integrated Safety in Pesticide Formulation have been adopted in many developing countries.
- IPCS has published guidelines on what comprises a poison information centre and a handbook on poison control for field use.
- FAO is assisting countries in Asia to establish integrated pest management (IPM)--a major strategy for reducing reliance on pesticides--through training programmes for farmers and trainers.
- The IFCS recommendation calling for the preparation of national capacity profiles by all countries by the end of 1997 has received support worldwide. Through a programme established by the United Nations Institute for Training and Research (UNITAR), under the framework of IOMC, over 30 developing countries and economies in transition are receiving support to complete national profiles by the end of 1997. Many other countries are also preparing such profiles on their own. Once developed, national profiles should provide a better basis for directing and coordinating efforts to strengthen national infrastructure for chemicals management. Most of the assistance provided by the UN system in building national capacity comes from the United Nations Development Programme (UNDP), the World Bank, UNEP, ILO, FAO, WHO and UNIDO.

- As an additional capacity-building effort, UNIDO has joined with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Union of Pure and Applied Chemistry (IUPAC) in providing high-level training to experts from developing countries in state-of-the-art safety aspects related to chemical production practices in developed countries.
- ILO is implementing an action programme, in eight countries, aimed at strengthening factory inspections dealing with chemical safety issues.

Hazardous Waste

The secretariat of the Basel Convention has assisted many countries in establishing appropriate national mechanisms to implement the Convention and to promote environmentally sound management of hazardous wastes. It has provided support for the adoption of national legislation and technical guidelines for the environmentally sound management of wastes and disposal facilities. The Convention secretariat has published technical guidelines for the environmentally sound management of wastes subject to the Convention (organic solvents, used oils, PCBs, household wastes). It has also issued guidelines for the management of disposal facilities (landfill, incineration, oil-refining) and other special publications.

In addition, there has been increasing worldwide interest in cleaner production methods, which can at the same time reconcile economic and environmental objectives. UNIDO is cooperating with UNEP in many areas related to hazardous waste management, including the establishment of cleaner production centres. Eight such centres have been set up, in Brazil, China, the Czech Republic, India, Mexico, Slovakia, Tanzania and Zimbabwe, with UNEP and UNIDO support, to assist local industry, especially small and medium-sized enterprises, in operating their facilities profitably and in an environmentally friendly manner. This has been accomplished through their adoption of cleaner production techniques, ranging

from simple good housekeeping to modifying operational procedures and improving production technology. Another 43 similar centres in 37 countries, such as Indonesia, South Africa and Tunisia, have also been established by the countries themselves or with bilateral assistance.

Emerging Priorities for Action

The IFCS target of 300 more chemical evaluations by 2000 will be more difficult to meet, due to a waning commitment on the part of Governments and industry to devote adequate resources to this work. Priority must be given to the allocation of additional resources and efforts by all concerned if the year 2000 target is to be met.

On the question of information exchange on toxic chemicals and chemical risks, more work needs to be done to ensure that the information needs of developing countries are met, including identifying what information is needed and determining the most effective way to get the information to those who need it.

Top priority should also be given to the expeditious conclusion of a legally binding convention on prior informed consent, including the provision of international assistance to Governments to develop or maintain the required infrastructure for a PIC procedure. Intergovernmental negotiations on such a convention are scheduled for completion by the end of 1997.

Equally urgent is the need to reach agreement on a global, legally binding instrument on the use of the 12 specified persistent organic pollutants (POPs) already assessed by IFCS, together with IOMC member organizations (see below). It is also important to develop sound criteria to identify chemicals beyond the 12 specified POPs that could be included in a global POPs convention, and to determine whether there are chemicals that pose significant risks that are not being addressed under ongoing initiatives. In particular, there has been increasing

concern about certain toxic chemicals--such as lead, immuno-toxic chemicals and endocrine disruptors--that may adversely affect human health at low environmental levels.

Persistent Organic Pollutants

Persistent organic pollutants (POPs) are chemical substances that persist in the environment, enter the food chain and pose adverse health and environmental risks. With the evidence of long-range transport of these substances to regions where they have never been used or produced and the consequent threats they pose to the environment throughout the world, the international community has repeatedly called for urgent global action to reduce and eliminate release of these chemicals. With decision 18/32, the UNEP Governing Council invited IOMC to initiate an assessment process on POPs, starting with a list of twelve substances (aldrin, dieldrin, endrin, DDT, chlordane, heptachlor, hexachlorobenzene, mirex, toxaphene, PCBs, dioxins and furans). It further invited IFCS to make recommendations and provide the information needed for a possible decision regarding international action on POPs at the UNEP Governing Council in 1997. IFCS has decided to initiate negotiations on a legally binding international instrument on POPs, and the UN Commission on Sustainable Development supports the expeditious conclusion of a global POPs convention.

Further Action Needed

Both humans and wildlife are exposed daily to many different synthetic chemical compounds that, even in small doses, can disrupt development of reproductive, immune, nervous and endocrine systems. Contamination by endocrine disruptors may not be visible, but may cause population-threatening changes in the way an organism functions. Reproductive effects reported in wildlife should be of concern to humans, especially in food-related cases such as contaminated fish. In human beings, evidence of lowered sperm counts around the world and

significant increases in testicular cancer and breast cancer, as well as of cases of undescended testes and endometriosis, is heightening concern about human health. The IFCS recommendations for a legally binding instrument on eliminating POPs cover some endocrine disruptors, but further action is needed, as many endocrine disruptors are not POPs.

Regarding hazardous wastes, emphasis has so far been placed on waste reduction from industrial processes. However, there is now a need to take action on several other fronts. It is necessary to develop ways to minimize the production of hazardous wastes from other sources, such as hospitals, agriculture and households. There is also an urgent need to address the demand side by promoting more environmentally sustainable consumption patterns. Soil and water contamination resulting from past inadequate management of wastes clearly deserves higher priority in all countries. The continued use of outdated technologies which contribute to the generation of unnecessary hazardous wastes remains a problem, particularly in developing countries and economies in transition. Finally, there is a need for Governments to elaborate and implement a protocol on liability and compensation in the area of hazardous wastes.

Development and Human Rights Section
Department of Public Information
United Nations
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