



An NGO Guide to Hazardous Pesticides and SAICM

A Framework for Action to Protect
Human Health and the Environment
from Hazardous Pesticides

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ISDE - International Society of Doctors for the Environment



World Federation of Public Health Associations



Women In Europe for a Common Future

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List of Acronyms

AKST	Agricultural Knowledge, Science and Technology
CAS	Chemical Abstracts Service
CSO	Civil Society Organization
DAC	Development Assistance Committee
DDT	Dichloro-Diphenyl-Trichloroethane
DNOC	Dinitro-Ortho-Cresol
EU	European Union
FAO	U.N. Food Agriculture Organization
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
HCH	Hexachlorocyclohexane
HCWH	Heath Care Without Harm
HHP	Highly Hazardous Pesticide
IAASTD	International Assessment of Agricultural Science and Technology for Development
IARC	International Agency for Research on Cancer
ICCM	International Conference on Chemicals Management
ILO	International Labour Organization
IPEN	International POPs Elimination Network
IPM	Integrated Pest Management
ISDE	International Society of Doctors for the Environment
IUF	International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations
LD	Lethal Dose
MRL	Maximum Residue Levels
NGO	Nongovernmental Organization
ODS	Substances that Deplete the Ozone Layer
OECD	Organization for Economic Co-operation and Development
PAN	Pesticide Action Network
PBT	Persistent, Bio-Accumulative and Toxic
PDS	Pesticide Data Sheet
PIC	Prior Informed Consent
PIPs	Pesticide Information Profiles
POPs	Persistent Organic Pollutants
POPRC	Persistent Organic Pollutants Review Committee
SAICM	Strategic Approach to International Chemicals Management
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Program
UNITAR	United Nations Institute for Training and Research
US EPA	United States Environmental Protection Agency
vPvB	Very Persistent and Very Bio-Accumulative
WECF	Women in Europe for a Common Future
WFPHA	World Federation of Public Health Associations
WHO	World Health Organization

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Foreword

This booklet is about how nongovernmental organization (NGOs) and other civil society organizations (CSOs) can help protect farmers, workers, communities and the environment from harms caused by hazardous pesticides. It was produced for an international consortium of NGOs as part of a global NGO campaign to encourage organizations in all countries to contribute to efforts aimed at preventing the injuries that are caused by toxic chemical exposure. The booklet should be of special interest to organizations that work in countries where the national government has not yet established legislation, regulations and enforcement mechanisms that adequately protect public health and the environment from pesticide misuse.

This NGO campaign takes place in the context of a global program of action called the *Strategic Approach to International Chemicals Management (SAICM)*.¹ SAICM is a policy, strategy and plan of action that was adopted in 2006 by a consensus of environment ministers, health ministers and other delegates from more than one hundred governments. SAICM was also approved by representatives of relevant intergovernmental organizations including the World Health Organization (WHO), the U.N. Food and Agriculture Organization (FAO), the U.N. Environment Program (UNEP), the International Labour Organization (ILO), and others; and also by representatives of relevant NGOs and industry trade associations. The objective of SAICM is to change how chemicals are produced and used in order to minimize their harmful effects on human health and the environment.

One very important tool NGOs and others can use when working to prevent harms caused by the misuse of pesticides is the *International Code of Conduct on the Distribution and Use of Pesticides* (International Code).² The International Code, which was first adopted in 1985 and substantially updated in 2002, is a guidance document of FAO. It was adopted by Agriculture Ministries and has received formal support from health and environmental NGOs and from pesticide industry trade associations. Since its initial adoption, the International Code has been recognized as a globally accepted standard for pesticide management. It is a framework and point of reference for governmental agencies and private parties involved in pesti-

cide-related activities. Its purposes include the reduction of risks associated with the distribution and use of pesticides; the protection of human health and the environment; and support for sustainable agricultural development including the application of Integrated Pest Management (IPM) strategies. The Code is of particular relevance in those countries where pesticide use is especially risky due to the national and local conditions under which people live and work.

The intended audience for this booklet is leaders and members of those NGOs and CSOs for whom chemical safety is—or should be—a topic of concern. These include public health and environmental advocacy organizations; organizations of medical and healthcare professionals; organizations representing communities or constituencies potentially impacted by toxic chemical exposure; trade unions; and others. It is the third in a series of booklets on chemical safety topics for NGO audiences. The purpose of these booklets is to encourage NGOs and CSOs to engage in chemical safety campaigns and projects that promote the achievement of the SAICM goal: a world where chemical exposure is no longer a significant source of adverse effects on human health and the environment.

The booklet provides a brief introduction to the topic of hazardous synthetic pesticides, particularly their impacts on the developing world. It provides summary information on how hazardous pesticides harm human health and the environment; it reviews some international initiatives aimed at minimizing those harms; it proposes some actions that NGOs and CSOs can take; and it suggests some resource materials that may be useful.

Six international NGO networks are collaborating in the global campaign of which this booklet is a part. They are: Health Care Without Harm (HCWH);³ the International POPs Elimination Network (IPEN);⁴ the International Society of Doctors for the Environment (ISDE);⁵ the Pesticide Action Network (PAN);⁶ Women in Europe for a Common Future (WECF);⁷ and the World Federation of Public Health Associations (WFPHA).⁸

We thank the European Union, the governments of Sweden and Canada, the United Nations Institute for Training and Research (UNITAR), the SAICM Secretariat, several charitable foundations, and other donors for making this campaign and booklet possible. The views expressed do not necessarily reflect the opinions of the donors. We give special recognition to the Pesticide Action Network for its global contributions to work in all regions of the world to minimize and eliminate that harms caused by hazardous pesticides.

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Notes

- 1 The SAICM text can be downloaded from the web in Arabic, Chinese, English, French, Russian and Spanish at: <http://www.saicm.org/index.php?menuid=3&pageid=187>
- 2 The FAO Code can be downloaded from the web in Arabic, Chinese, English, French, Russian and Spanish at: <http://www.fao.org/agriculture/crops/core-themes/theme/pests/pm/code/en/>
- 3 HCWH: www.noharm.org/
- 4 IPEN: www.ipen.org
- 5 ISDE: www.isde.org
- 6 PAN: www.pan-international.org
- 7 WECF: www.wecf.eu
- 8 WFPHA: www.wfpha.org

3. Background and Introduction

Pesticides have been used, at least on a small scale, since ancient times. Arsenic was used as a pesticide by ancient Greeks and Romans, and there are reports that the Chinese were using arsenicals as pesticides as early as the sixteenth century. In the late nineteenth century, arsenic compounds came into widespread use as insecticides in Europe and North America and this led to the world's first pesticide legislation in 1900. It was not until the 1930s, however, that synthetic chemical pesticides were introduced.¹ Then, following the Second World War, synthetic chemical pesticides and fertilizers started to be produced and used on a very large scale. This resulted in initial dramatic increases in crop yields, and as a result, the use of pesticides and other agrochemicals spread rapidly. One consequence was to expand crop production in developing countries for sale in industrialized countries.² Another was the rise of monocropping: planting the same crop every year, without crop rotation and without resting the soil.

3.1 The Large Scale Introduction of Synthetic Pesticides and Its Consequences

With increasing use of pesticides, many of the targeted pests began developing resistance. This often led growers to use heavier doses to control them. Frequently, the pesticides killed not only the targeted pest, but also beneficial species. This led to a new phenomenon called *secondary pest outbreaks*: insects or mites that had been previously controlled by beneficial species, and that often went unnoticed, began to appear in epidemic numbers.³ New pesticides were then introduced to control the secondary pests and the total quantities of pesticides being used continued to grow.

The pesticides in use harmed soil microorganisms that play a key role in helping plants utilize the soil nutrients they need to grow and thrive. They often spread on air currents, contaminated surrounding areas, and disrupting populations of birds, mammals, fish and other species. Pesticide run-off into surface and groundwater systems began to compromise human drinking water supplies. By the mid-1950s, numerous researchers were documenting these and other problems associated with the use of pesticides.

In 1962, the book *Silent Spring* by Rachel Carson presented many of these findings and reached a broad public audience in the United States and elsewhere. Carson's book documented how the large scale use of DDT and other pesticides had decimated bird populations and was disrupting entire ecosystems. Although the book mainly addressed the environmental impacts of pesticides, it also included information and arguments about how pesticides can poison people and cause cancers and other diseases. Many see this book and the public response to it as the start of the modern environmental movement.⁴

Carson's book stimulated public policy debates in many countries. These debates and a growing body of scientific information led many industrial countries in the 1970s to strengthen national legislation and regulatory regimes to control the toxic effects of pesticide exposure, especially on farm workers, food consumers, wildlife, birds and non-target insects. In 1970, major responsibility for the regulation of pesticides in the US was transferred from the Department of Agriculture to the newly formed Environmental Protection Agency (US EPA) and new US pesticide control legislation was adopted.⁵

The new US legislation required every pesticide product to be registered by the EPA for each approved use. It included provisions that allow registrations to be refused or cancelled if it is determined that a use may cause "*unreasonable adverse effects*." The law prohibits the domestic sale of any pesticide unless it is registered and has a label that indicates both its approved uses and any restrictions. The law also makes it a violation for anyone to use a pesticide in a manner inconsistent with the label instructions. However, this law denied EPA the authority to regulate domestic production of unregistered pesticides for export even if the pesticide's U.S. registration was canceled for health or environmental reasons.⁶ In 1972, as a direct response to the debate that Rachel Carson initiated, EPA announced the cancellation of all crop uses of DDT (although US DDT production for export continued for many years).⁷

Despite growing concerns, the production and worldwide use of synthetic pesticides has continued to grow. Worldwide pesticide sales in 2006 had a value of over \$30 billion (USD). The top twenty pesticide producing companies control 95% of all trade in pesticides, and the top six—all Western European or American-based transnational corporations—control 75%.⁸ About half of the money spent for pesticides is for herbicides; most of the rest is split fairly evenly between insecticides and fungicides.⁹

3.2 Pesticides in the Developing World

At the same time that North America, Western Europe and other highly industrial regions were establishing elaborate national pesticide regulatory regimes in response to domestic public pressure, corporations based in these industrial regions actively promoted pesticide exports to the developing world, often to countries with weak or non-existent regulatory regimes. The recipient countries often had poorly educated agricultural work forces and little public awareness about the potential health and environmental harms caused by pesticide exposure.

A number of philanthropic organizations initially supported the export of pesticides to the developing world as part of well-intended efforts to raise agricultural productivity and to combat famine and hunger. For most of those supporting the increased use of pesticides, however, the main driving force was profit. Many large landowners and plantation operators began using large quantities of pesticides before they understood the harms that pesticides can cause. Many, however, also showed a callous lack of concern when the harms became evident. The same was doubly true for the pesticide manufacturers, exporters and traders.

In many countries, numerous small farmers and peasants also became increasingly reliant on agrochemicals. Often, before this reliance, these small producers were not fully integrated into market economies. Afterwards, their money needs greatly increased. Sometimes the use of pesticides helped farmers increase their yields sufficiently to cover these new costs of production, but not always. Furthermore, small farmers who became reliant on costly external inputs became increasingly vulnerable to market forces that they could not control.

Notes

- 1 *Public Health Impacts of Pesticides Used in Agriculture*, page 15, World Health Organization, 1990, <http://whqlibdoc.who.int/publications/1990/9241561394.pdf>
- 2 *The Success of a Voluntary Code in Reducing Pesticide Hazards in Developing Countries*, Barbara Dinham, in *Green Globe Yearbook 1996*, http://www.fni.no/YBICED/96_02_dinham.pdf
- 3 *What is Integrated Pest Management*, Protected Harvest; <http://www.protectedharvest.org/learnmore/ipm.htm>
- 4 *Rachel Carson (1907-1964)*; US Fish & Wildlife Service, Northeast Region; <http://www.fws.gov/northeast/rachelcarson/carsonbio.html>
- 5 *Federal Insecticide, Fungicide and Rodenticide Act, United States*; The Encyclopedia of the Earth; http://www.eoearth.org/article/Federal_Insecticide,_Fungicide_and_Rodenticide_Act,_United_States
- 6 Ibid.
- 7 *DDT Regulatory History: A Brief Survey (to 1975)*, USA EPA, 1975; <http://www.epa.gov/history/topics/ddt/02.htm>
- 8 *Pesticides: Sowing Poisons, Growing Hunger, Reaping Sorrow*, 2nd Ed., 2009, by Watts MA, Pesticide Action Network Asia and the Pacific, Penang. (This will soon be posted on the web.)
- 9 *The Dirty Portfolios of the Pesticides Industry*; a Greenpeace publication, <http://www.greenpeace.org/raw/content/eu-unit/press-centre/reports/dirty-portfolios-of-pesticides-companies.pdf>

4. Hazardous Pesticides and Human Health

Hazardous pesticides are not just a problem of the developing world. Highly industrial countries still use large quantities of hazardous pesticides and these still cause numerous health and environmental injuries. Virtually all countries need additional reforms to minimize and eliminate the harms caused by pesticide exposure. Nonetheless, exposure to hazardous pesticides is a particularly serious problem in much of the developing world. In many countries, toxic pesticide exposure is a serious health problem of epidemic proportions.

4.1 The Scale of the Problem

More than one-third of all employed workers worldwide are in agriculture, but the percentage varies greatly by region. In highly industrial countries, agriculture generally occupies less than 5% of the employed workforce. In Latin America, the Middle East and the countries of the former Soviet Union, nearly one-fifth (20%) of employed workers are in agriculture. In North Africa and East Asia the number rises to more than one-third. In South and Southeast Asia, nearly half the workforce is in agriculture. And in Sub-Saharan Africa, two-thirds of all employed workers engage in agricultural activities.¹

A recent World Bank report estimates that 355,000 people worldwide die each year from unintentional pesticide poisoning.² An older, but authoritative study³ estimates that there are possibly one million cases of serious unintentional pesticide poisonings each year, and an additional two million cases of people hospitalized for suicide attempts with Pesticides. The author notes that this necessarily reflects only a fraction of the real problem and estimates that there could be as many as 25 million agricultural workers in the developing world suffering some form of occupational pesticide poisoning each year, though most incidents are not recorded and most patients do not seek medical attention. One of the conclusions this author reaches is that acute pesticide poisoning may in some developing countries be as serious a public health concern as are communicable diseases.⁴

4.2 The Conditions of Work

Most studies on pesticide health impacts and most pesticide risk analyses have been performed with reference to the conditions of highly industrial countries. In many cases, agricultural labor is performed in these countries by migrant workers, immigrants, ethnic minorities and the poor. National laws and regulations that govern the conditions of work and that restrict how pesticides are used are often inadequately enforced. Nonetheless, the conditions and circumstances in the developing world are generally quite different, and the likelihood of exposure to hazardous pesticides is often much greater:

- Pesticide containers are frequently unlabeled or are labeled with information that farmers or agricultural workers cannot read (because they are not in local languages or because of insufficient literacy).
- National pesticide regulatory regimes are often very weak and inefficient. They sometimes lack meaningful controls on even the most hazardous pesticides and they frequently lack effective surveillance systems and enforcement mechanisms.
- Pesticides are frequently used inappropriately or in the wrong concentrations.
- Agricultural workers and small farmers frequently lack training and have little access to necessary information. And even when agricultural workers do know that they are using pesticides inappropriately or unsafely, they often fear the consequences of refusing unsafe work practices or even reporting them. In many cases, especially where casual labor is being used, agricultural workers may have few if any rights that they can exercise.
- Necessary protective equipment may not be available, may be poorly maintained, and/or may be inappropriate for climatic conditions, especially in regions that are hot and humid. And even where protective equipment is available, many small farmers may be too poor to purchase them.

In highly industrial countries, reported rates of acute pesticide poisoning in agricultural workers may be more than 18 cases per year for each 100,000 full time workers.⁵ In many developing countries, because of the frequently different conditions and circumstances, the rates of acute pesticide poisoning are almost certainly much higher. The number of workers employed in agriculture in most developing countries is also much higher. The combination of higher pesticide poisoning rates and larger percentages of the population engaged in agriculture makes pesticide poisoning a much greater health problem in the developing world than in highly industrial countries. However,

because public health priorities often tend to emphasize the health problems and concerns of the industrial world, the problem of health injuries caused by pesticide exposure often receives less attention from the public health community than it should.

Additionally, approaches to the regulation of pesticides often assume that conditions of work and regulatory capabilities in developing countries are similar to those in highly industrial countries, but this frequently is not the case. As a case example, consider the pesticide aldicarb which is used on a variety of crops, including cotton, beans, and others. The “internationally accepted” Pesticide Data Sheet (PDS) prepared by WHO and FAO states that national regulations governing the use of aldicarb should require that it only be available for use in farms where it will be applied under strictly controlled and supervised conditions, using trained operators. The PDS further states that protective clothing should be provided for workers; adequate washing facilities should be available close at hand; and eating, drinking and smoking should be prohibited during handling and before washing after handling. The PDS suggests that pre-employment medical examinations for workers are desirable; workers suffering from active hepatic or renal diseases should be excluded from contact; pre-employment and periodic cholinesterase tests for workers is desirable; and training of workers in techniques to avoid contact is essential.⁶

However, in many developing countries, once a pesticide like aldicarb is imported, it would be difficult or impossible for the national authorities to effectively enforce laws and regulations that would ensure the pesticide will be used only in accordance with the regulatory guidelines in the above-cited PDS. In such countries, the responsible regulatory approach should be to prohibit the import and use of pesticides such as aldicarb and to help farmers identify effective, less-hazardous alternatives.

4.3 Acutely Toxic Pesticides

The pesticide aldicarb that was considered in the example above is one of many pesticides that are classified as *highly hazardous pesticides or HHPs*. This classification has its origins in a 1973 decision of the World Health Organization to develop a system for classifying pesticides according to the hazards they pose. In this decision, the term “hazardous pesticide” is defined as a pesticide that poses an *acute risk to health*, that is, a pesticide that can cause serious injuries with short-term exposure.

WHO maintains an updated list of HHPs that are acutely toxic in its publication: *The WHO Recommended Classification of Pesticides by Hazard*.⁷ The primary method that WHO uses to identify which pesticides pose an acute risk to health is a test in which rats are fed the pesticide or are exposed to it through the skin. This test produces a value called LD_{50} (lethal dose, 50%), which is a statistical estimate of the number of milligrams of the toxicant per kilogram of bodyweight that will kill 50% of a large population of test animals. Under this system, WHO considers a pesticide to be extremely hazardous (class Ia) or highly hazardous (class Ib) if it has a low LD_{50} value.⁸

4.4 Chronic Health Impacts

In recent years, the term *highly hazardous pesticide* or HHP has been expanded and is now used to describe not only acutely toxic pesticides but also pesticides that cause serious chronic health effects. It is generally much more difficult to demonstrate chronic health effects than it is to demonstrate acute toxic effects, but important research is ongoing. When there is a weight of evidence that links a pesticide to a serious chronic health effect, that pesticide is also considered to be an HHP. Chronic health impacts associated with pesticides include cancers and tumors, nervous system disorders, reproductive problems, immune system effects, and endocrine system disruption.⁹

4.4.1 Cancer

Many pesticide active ingredients are known or suspected to cause cancer. Individual pesticides have been linked, either by laboratory evidence or epidemiological studies, to a long list of cancers, including multiple myeloma, soft tissue sarcoma, Ewing's sarcoma, lymphoma, non-Hodgkin's lymphoma, leukemia, melanoma, neuroblastoma or Wilm's tumor, germ-cell tumors, retinoblastoma (eye tumor); and cancer of the esophagus, stomach, prostate, testis, breast, ovary, cervix, bladder thyroid, lung, brain, kidney, pancreas, liver, colon and rectum.^{10,11}

4.4.2 Nervous System Disorders

Pesticide exposure has been associated with impaired development of the nervous system which can result in lowered intelligence and behavioral abnormalities.¹² There is evidence linking various pesticides to effects on the central nervous system, the peripheral nervous system and the pre-birth developing brain. These include:

- Inferior developmental skills and increased aggression in children
- Depressive effects that may lead to suicides

- Delayed neuropathy, involving degeneration of the peripheral nerves in the limbs with muscular aches and pains and influenza-like symptoms
- Personality change, impaired concentration and memory, language disorder, heightened sense of smell, deterioration of handwriting, impaired tolerance of exercise and neuromuscular deficits
- Parkinson's disease and parkinsonism, a disorder with symptoms like Parkinson's disease, but which may be reversible¹³

4.4.3 Reproductive Problems

Some pesticides may be linked to a number of reproductive problems, including birth defects, infertility, delayed time to pregnancy, spontaneous abortion and still births, preterm births, intrauterine growth retardation, perinatal mortality, endometriosis, and lowered sperm counts. Epidemiological studies have linked parental exposure of some pesticides to neural tube defects, cardiac birth defects, cleft lip and cleft palate, musculoskeletal birth defects, urinary tract defects and male genital defects.¹⁴

4.4.4 Immune System Effects

Pesticide exposure can compromise the immune system which increases the risk of infectious disease and cancer. This is of special concern when the immune system is already compromised by other factors, such as malnutrition.¹⁵ Some pesticides alter the development of immune system organs such as the thymus and spleen and impair the ability of white blood cells and lymphocytes to kill bacteria, viruses and cancer cells.¹⁶

4.4.5 Endocrine System Disruption

Some pesticides, in very small doses, may mimic or block hormones or may trigger inappropriate hormone activity. This can contribute to harmful health effects such as sterility, lowered sperm counts and breast cancer.¹⁷ Other possible adverse health outcomes include spontaneous abortion, skewed sex ratios within the offspring of exposed communities, male and female reproductive tract abnormalities including genital deformities, other birth defects, precocious puberty, polycystic ovary syndrome, impaired immune function and a variety of cancers. One study has identified 127 pesticides as suspected of having endocrine disrupting effects.¹⁸

4.5 Suicide

Self-poisoning with hazardous pesticides is likely to be the most frequently used method of suicide worldwide and is a practice largely confined to the developing world.¹⁹ Research shows that many individuals who attempt suicide do not intend to die. In highly industrial countries, a common form of attempted suicide is overdosing with sleeping pills or similar drugs. The fatality rate from such attempts may be as low as 0.5%, and studies carried out in industrialized countries have found that only 2% go on to commit suicide in the subsequent 12 months. On the other hand, attempted suicide by the ingestion of agricultural pesticides may have fatality rates more in the range of 10% to 20%.²⁰ By WHO statistics, 18 million people attempt suicide each year and this results in more than 800,000 deaths.²¹ According to a WHO flyer on suicide prevention:

“The highest rates of suicidal behavior among females are found in rural areas of Asian countries, where the main risk factor is the availability of pesticides—which turns impulsive attempts to commit suicide through poisoning into deadly acts within 3 hours.”²²

This flyer lists interventions that have demonstrated efficacy in preventing suicidal behavior. The first item on the list is: *“Control of availability of toxic substances (particularly pesticides in rural areas of Asian countries).”²³*

Notes

- 1 *Employment by sector*, ILO 2007; <http://www.ilo.org/public/english/employment/strat/kilm/download/kilm04.pdf>; (cited by MA Watts, 2009)
- 2 World Development Report: *Agriculture for Development*, World Bank 2008; http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf (cited by MA Watts, 2009)
- 3 *Acute Pesticide Poisoning: A Major Global Health Problem*, J. Jeyaratnam, World Health Statistics Quarterly, Vol. 43, No. 3, 1990, pages 139-44, <http://www.communityipm.org/toxictrail/Documents/Jeyaratnam-WHO1990.pdf>
- 4 Ibid.
- 5 *Acute pesticide poisoning: a proposed classification tool*, Josef G Thundiyl et al in Bulletin of the World Health Organization, March 2008, <https://www.who.int/bulletin/volumes/86/3/07-041814.pdf>
- 6 See http://www.inchem.org/documents/pds/pds/pest53_e.htm
- 7 *The WHO Recommended Classification of Pesticides by Hazard;2004* http://www.who.int/ipcs/publications/pesticides_hazard_rev_3.pdf

- 8 Ibid. Note: a pesticide is classified as extremely hazardous or highly hazardous (class I) if its LD₅₀ for oral exposure is less than 50 for a solid or less than 200 for a liquid; or if its LD50 for dermal exposure is less than 100 for a solid or less than 400 for a liquid. Additionally, if for a particular pesticide, the rat is not the most suitable test animal, information from other species may be taken into account.
- 9 This section makes extensive use of a 2009 report by Watts MA prepared for PAN Asia/Pacific and entitled *Pesticides: Sowing Poison, Growing Hunger, Reaping Sorrow* (2nd Edition, 2009). This report will be posted on the PAN Asia Pacific website and include detailed references.
- 10 *Children in the New Millennium: Environmental Impact on Health; Possible Health Effects of Pesticide Exposure*; UNEP, UNICEF and WHO, 2002, <http://www.unep.org/ceh/main01.html> .
- 11 Watts MA 2009
- 12 UNEP et al 2002
- 13 Watts MA 2009
- 14 Ibid.
- 15 UNEP et al 2002
- 16 Watts MA 2009
- 17 UNEP et al 2002
- 18 Watts MA 2009
- 19 *Deaths from pesticide poisoning: a global response*, J. M. Bertolote et al; *The British Journal of Psychiatry* (2006) 189: 201-203; <http://bjp.rcpsych.org/cgi/content/full/189/3/201> .
- 20 *Suicide by intentional ingestion of pesticides: a continuing tragedy in developing countries*, Gunnell and Eddeleston, *International Journal of Epidemiology* 2003;32:902-909; <http://ije.oxfordjournals.org/cgi/reprint/32/6/902>
- 21 *Preventing suicidal behaviours*, a WHO flyer; http://www.who.int/nmh/donorinfo/msd_preventing_suicide.pdf
- 22 Ibid.
- 23 Ibid.

5. The International Code of Conduct on the Distribution and Use of Pesticides

As late as the mid-1980s, a large number of developing country governments, possibly most, still lacked any national pesticide control legislation or regulations. Also at that time, pesticide use, including especially the use of highly toxic pesticide formulations, was increasing in the developing world. This resulted in rising health injuries from toxic pesticide exposure and led to international concern. In response, the governing body of the Food and Agriculture Organization of the United Nations (FAO) adopted the *International Code of Conduct on the Distribution and Use of Pesticides* (International Code), an attempt to begin addressing this problem by creating universal standards of conduct for everyone involved in pesticide use and regulation, especially national governments and the pesticide industry.^{1,2}

The International Code has already had a positive impact and has twice been updated to reflect changing circumstances: in 1989 and again in 1992. Since the Code was first adopted in 1985, many additional governments have established legislation to regulate the distribution and use of pesticides; awareness of the problems associated with pesticide use has grown; and many new and successful Integrated Pest Management (IPM) programs that decrease dependence on pesticides are being implemented. Nonetheless, problems remain, especially in many developing countries. The preface to the most recent, 1992 version of the International Code states:

- Even where national pesticide legislation has been adopted, it is often not widely enforced due to lack of technical expertise and resources
- Highly hazardous or sub-standard pesticide formulations are still widely sold
- End-users are often insufficiently trained and protected to ensure pesticides are handled with minimum risk³

The International Code is not perfect. Compliance is purely voluntary and in 1992 when the most recent version of the Code was approved, FAO was

not as clear as it is today about its organizational role in promoting national bans on the importation and use of those hazardous pesticides whose proper management and safe use cannot be consistently ensured under prevailing national conditions. Nonetheless, the International Code is a very important and positive document that NGOs should be familiar with, especially NGOs in developing countries and countries with economies in transition whose missions include support for public health and/or environmental objectives. After reviewing the International Code, NGOs may wish to take actions such as:

- Promoting the full and effective national implementation of the Code and its guidelines
- Undertaking national advocacy campaigns to press for national reforms addressing problem areas where national policy or practice falls short of what is called for in the guidelines
- Contributing to training in IPM and safe occupational practices in support of improved implementation of the Code

NGOs have additionally been invited to monitor the implementation of the code in their own country and to report their findings to the FAO Director-General in Rome.⁴ A summary of the International Code and its provisions is included in this booklet as an appendix (Chapter 11 below).

Notes

- 1 The International Code is available in all six UN languages at: <http://www.fao.org/agriculture/crops/core-themes/theme/pests/pm/code/en/>
- 2 *Designing national pesticide legislation*, Jessica Vapnek et al for the Development Law Service FAO Legal Office, 2007, http://www.fao.org/Legal/LEGSTUD/LS97_pesticides.pdf
- 3 Preface to the Code, 1992, by FAO Director General Jacques Diouf
- 4 The Code, Article 12.9

6. Initiatives to Ban Highly Hazardous Pesticides

6.1 Civil Society Initiatives

The Pesticide Action Network has been working for more than 25 years on programs, projects and campaigns that seek to protect human health and the environment from harms caused by pesticide exposure. Many physicians groups, trade unions and others are also engaged in pesticide reform efforts. These efforts have included many different kinds of advocacy campaigns, projects and training programs. Some promote workplace safety; some help farmers institute integrated pest management (IPM), agro-ecological methods of pest control and other agricultural reforms; some promote controls on the amount of harmful pesticide residues allowed in food; some develop consumer markets for “*organic*” foods that are grown without using any synthetic agro-chemicals; and so on. In recent years, growing emphasis has been given to initiatives aimed at achieving phase-outs and bans on the use and import of highly hazardous pesticides.

6.1.1 Minimum Pesticides List Proposal

An important 2002 advocacy article in the British medical journal *The Lancet*¹ identifies pesticide poisoning as a serious public health problem, stating that: “*In parts of the developing world, pesticide poisoning causes more deaths than infectious diseases.*” To address this problem, the article suggests that severe restrictions on the availability of pesticides be instituted. The authors are familiar with the International Code but express skepticism whether it will be effectively implemented. They point out that “*policing the code is the responsibility of national governments*” and express concern that because of the lack of resources and political will, there will be “*no effective mechanism to enforce it or to publicize violations.*”

The article points out the physicians have often taken the lead in requesting that specific pesticides be banned, and it references physician requests to ban paraquat in Trinidad and aluminum phosphide in India. The article cites statistics from three countries where the acutely toxic pesticide parathion

was banned, and it suggests that the decisions by these governments to ban parathion led to significant decreases in the number of deaths in each country from pesticide poisoning. The conclusion that the article's authors draw is that it is necessary to restrict the use of toxic pesticides to prevent deaths of people and damage to the environment. To achieve this, the article proposes that the international community develop a *Minimum Pesticides List* which identifies a restricted number of less-dangerous pesticides to do specific tasks within an integrated pest management system. Such a list, the authors argue, “*would allow legislators to decide which few pesticides should be used in their region and then actively register them; other pesticides would not be registered, removing a large number of obsolete and dangerous pesticides from circulation.*”

Some NGOs may not fully agree with the above-mentioned proposal to establish a Minimum Pesticides List because of a concern that such a list might have the unintended consequence of encouraging pesticide use. However, virtually all NGOs that work to protect human health and the environment from harms caused by pesticide exposure do agree with the authors of the *Lancet* article on the need to remove many hazardous pesticides from use because the severe risks that these pesticides pose cannot be effectively managed under the conditions that prevail in many developing countries.

6.1.2 Campaigns to Ban Paraquat

NGOs in the PAN network, in collaboration with trade unions and other organizations, have been campaigning for years to secure a global ban on the manufacture and use of the herbicide paraquat. Paraquat, one of the most widely used herbicides in the world, is used on bananas, cocoa, coffee, cotton, palm oil, pineapple, rubber, and sugar cane, both on plantations and by small-scale farmers. It is highly toxic: one teaspoon is fatal. There is no known antidote for paraquat ingestion and it is relatively available and cheap. As a result, paraquat is commonly used in suicides and has high fatality rates. (Fatality rates as high as 58% have been reported in Fiji and rates of nearly 80% in Southern Mexico.)²

Paraquat also injures farmers, agricultural workers and community members as a result of occupational and accidental exposure. It can be absorbed by the skin, especially if skin has been exposed to the chemical. Acute poisoning may occur, but symptoms are often delayed. The outcome can be fatal and in these cases death results from respiratory failure. Localized skin damage or dermatitis, eye injury and nose bleed occur frequently among paraquat users.

Long-term exposure to low doses of paraquat is linked to changes in the lung and appears to be connected with chronic bronchitis and shortness of breath.³ Recent studies also link occupational and community exposure to paraquat to increased incidence of Parkinson's disease.⁴

The IUF, the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations, has joined the campaign to ban production and use of paraquat. Its General Secretary has called the pesticide a major health hazard for its members in agriculture.⁵ One of the key battlegrounds in global efforts to ban paraquat is Malaysia, where it is widely used by plantation workers who spray the herbicide from canisters on their backs. A previous national paraquat ban in Malaysia was reversed by the government in 2006 after growers asked to be allowed to use it because of its low cost. NGOs and human rights advocates are now pressing for its reinstatement.⁶

6.1.3 Campaigns to Ban Endosulfan

The insecticide endosulfan is also the focus of NGO efforts in many countries, and at the international level. The largest uses of endosulfan are on cotton, tea, coffee and soy bean, but it is also used on vegetables and fruits and in forestry. It is a wide-spectrum insecticide that is not associated with any particular insect. Therefore, many non-target species, including humans, are harmed. Endosulfan is highly toxic and can be fatal if inhaled, swallowed or absorbed through the skin. It directly affects the central nervous system and may contribute to epileptic seizures. Endosulfan exhibits estrogenic properties: experimental and epidemiological evidence links it to dysfunctions of the male reproductive system including effects on semen quality and sperm count. Endosulfan also has potential to induce hypothyroidism. However, this and other long-term endosulfan health effects have still never been properly studied.⁷

In the Indian state of Kerala, until very recently, endosulfan was routinely sprayed from airplanes onto cashew plantations. A local NGO, Thanal, learned that entire villages near these plantations were suffering from chronic poisoning. People in these villages suffered from an unusually high incidence of cerebral palsy and other central nervous system disorders, congenital neurological disorders, body deformations, cancers, reproductive disorders, miscarriages and endocrine disruption. Endosulfan residues measured in cow milk and flesh showed endosulfan contamination more than 100 times permissible levels.⁸ NGOs and the Kerala medical community joined together, and in 2002, they secured an order by state officials banning all uses of endosulfan in the state of Kerala.

The use of endosulfan is currently banned in at least 57 countries.⁹ NGOs are campaigning to encourage governments to agree that endosulfan should be added to the Rotterdam Convention list of banned and restricted chemicals so that exports of endosulfan to developing countries will be prohibited unless the government of the importing country is notified and gives its prior informed consent.¹⁰ NGOs are also campaigning to list endosulfan as a Persistent Organic Pollutant under the Stockholm Convention with the intent of establishing a worldwide ban on its production and use.¹¹

6.2 FAO Support for Banning HHPs Grows

In response to demands from the medical community, the NGO community and others, FAO's posture on banning HHPs has continued to evolve since 2002 when the most recent version of the International Code was adopted. In 2006, the Council of the FAO—whose members are government representatives from Agriculture Ministries—endorsed the Strategic Approach to International Chemicals Management (SAICM). They agreed to join in the global SAICM effort aimed at minimizing all harms to human health and the environment from toxic chemical exposure and they noted that the International Code of Conduct on the Distribution and Use of Pesticides is as an important element of the SAICM process. The Council stressed the need for the agricultural sector to be fully involved in SAICM implementation. Significantly, the 2006 Council meeting indicated that FAO's role in SAICM implementation could include *support for progressive bans of highly hazardous pesticides*.¹²

The following year, in October 2007, FAO and WHO held their First Joint Meeting on Pesticide Management. In opening remarks to the meeting, the Chief of the Plant Protection Service of FAO said that not only had the FAO Council adopted a request that FAO assist countries in progressively banning HHPs, but that this request had been reiterated by FAO's Committee on Agriculture. He pointed out that these decisions indicate a significant evolution of international opinion within the agricultural sector on the issue of banning HHPs. Stressing that there is a need for FAO to move forward rapidly, he requested that the Joint Meeting provide clear advice on how to do so.¹³

Participants in the Joint Meeting included the FAO Panel of Experts on Pesticide Management, the official statutory body that advises FAO on matters pertaining to pesticide regulation and management. The FAO Panel was joined by members of the WHO Panel of Experts on Vector Biology and

Control and other WHO-nominated academic or government experts.¹⁴ The experts at the Joint Meeting took up the issue of HHPs and the proposal that FAO assist countries in progressively banning them.

The panel of experts recommended that a list of HHPs be prepared and regularly updated for use by governments and industry including both acutely toxic pesticides as well as those that cause cancer, mutations or interfere with reproduction. The panel further noted that some additional pesticides have shown repeated and severe adverse effects on human health or the environment and criteria should be developed to also include these in an HHP list.¹⁵

Significantly, the experts debated whether classification of HHPs should be made on hazard-based or risk-based criteria, and they concluded by recommending that *any classification of HHPs should be mainly hazard-based*. The experts acknowledged that the goal is to reduce the risk posed by certain pesticides but recognized that risk-based criteria can be very unwieldy and their development might slow down much needed activities in this field.¹⁶ This was an important decision and is one that reflects the experience of many regulators, NGOs and others who have seen how industry groups have been able, time and again, to manipulate pesticide risk assessment processes in order to prevent or delay effective regulation.

The pesticide industry has already indicated that it will oppose the use of hazard-based assessments in regulatory decision-making; that it will only accept risk-based decisions.¹⁷ This will likely lead to controversy since NGOs and regulators in a growing number of countries insist that the only practical way forward is to use approaches that are more hazard-based. This is because a hazard assessment is a relatively straight-forward analysis that uses toxicology and epidemiology to reach conclusions about the kinds of adverse effects that can result from various exposures to a particular pesticide.

Chemical risk assessments, on the other hand, are very complicated, very subjective, and highly prone to manipulation. A pesticide risk assessment must be based on assumptions about the conditions under which the pesticide will actually be used and on assumptions about the likely exposures associated with each of the conditions under consideration. The risk assessor must make further assumptions to quantify the injuries associated with the various exposure scenarios. In the end, the outcome of a pesticide risk assessment is wildly dependent on the assumptions used and thus often on the budgets that

interested parties are able to spend on experts. Often, the only definitive conclusion that all stakeholders can agree is that not enough is known; that more study and information is needed.

6.3 Europe Acts to Ban HHPs

Europe was the first region to take comprehensive action aimed at banning HHPs, and it has done so using hazard-based criteria despite strong opposition from the pesticide industry. New European Union pesticide legislation adopted in 2009 will progressively ban numerous pesticides within the European Community based on their hazard characteristics. The target of this legislation was not mainly acutely toxic pesticides. Many of these have already been banned in Western Europe, and regulatory systems there have been relatively successful in controlling the use of those that remain. Instead, the main focus of the new European initiative was to ban pesticides that cause cancer, mutations and reproductive disorders; pesticides whose active ingredients bioaccumulate in the environment; and pesticides that are harmful to honey bees.

The new legislation was accompanied by a directive on the sustainable use of pesticides that will guide national regulations in EU member countries. The directive establishes the principle of Integrated Pest Management including the promotion of non-chemical pest control methods to be used wherever possible in place of pesticides. It also establishes a general ban on aerial crop spraying which has some exceptions, but which will prohibit all spraying near residential areas. The directive additionally mandates the protection of the aquatic environment and drinking water from pesticides, and it requires the minimization or prohibition of pesticides in parks, public gardens, sports and recreation grounds, school grounds and playgrounds, and in the close vicinity of healthcare facilities.¹⁸

This new EU legislation covers insecticides, fungicides and herbicides and it specifically addresses their active substances. At the time the new legislation passed, there were approximately 500 active substances on the market in the EU. As the new legislation is progressively implemented, the EU will develop a list of active substances that have been determined to be safe to human health, including a consideration of their residues in the food chain. The impacts of substances on animal health and the environment will also be taken into account. As the list is developed, EU member states will be responsible for ensuring that the only pesticides used are those whose active substances are on the list of substances determined to be safe.¹⁹

The new legislation bans certain classes of highly hazardous pesticide active ingredients but allows exceptions in some cases where it has been determined that exposure would in practice be negligible. The substances that are to be banned include those that are carcinogenic (cause cancer), mutagenic (induce mutations), toxic to reproduction or that disrupt the endocrine system. Additionally, the legislation would ban active substances that are persistent, bio-accumulative and toxic (PBT) or that are very persistent and very bio-accumulative (vPvB). Active substances likely to be harmful to honeybees will be outlawed.

Active substances that interfere with development or that are toxic to the nervous system (neurotoxic) or the immune system (immunotoxic) will not automatically be banned despite strong NGO efforts to include such substances in the phase-out list. Such pesticides will, however, be subject to high safety standards. Additionally, these pesticides, along with the other hazardous active substances in categories the new legislation does not explicitly ban, will nonetheless be phased out and replaced when safer alternatives are shown to exist.

In cases where a pesticide on the ban list is needed to combat a serious danger to plant health, it may be approved for up to five years even if it does not meet the EU safety criteria.²⁰ The new legislation will be gradually phased-in and those pesticides already on the market under previous legislation will remain available until their existing authorization expires.²¹ As a result, it will take a number of years before the new European legislation comes into full force. Nonetheless, this legislation represents a new and progressive trend in pesticide regulation and is an important step forward. It mandates phase-outs and bans of all pesticides that meet certain, defined hazard criteria. A similar approach may be taken in the developing world, but in most cases, more attention would need to be given to the acutely toxic pesticides that are of national or regional concern.

6.4 Criteria for Establishing an International List of HHPs to Ban

The joint FAO/WHO panel of experts on pesticide management (discussed above) met for a second time in October 2008.²² Agreement was reached on the criteria to be used in determining which pesticides should be classified as highly hazardous for purposes of implementing the FAO commitment to promote the progressive banning of HHPs. The criteria that were adopted incorporate elements of two existing approaches to hazard classification that have

wide international acceptance. One is the *WHO Recommended Classification of Pesticides by Hazard*²³ which primarily focuses its attention on acutely toxicity. The other is the *Globally Harmonized System of Classification and Labeling of Chemicals* (GHS)²⁴ which additionally includes criteria on carcinogenicity, mutagenicity and reproduction toxicity.

The WHO classification system for acutely toxic pesticides has already been briefly described above. The GHS system classifies all kinds of chemicals by the various types of hazards they pose. These hazards include not only toxicological hazards but also hazardous associated with combustibility, explosiveness, etc. The purpose of these classifications is to establish harmonized approaches to hazard communication such as labels and safety data sheets. Among the different kinds of chemical hazards identified by the GHS are classification standards for acute toxicity,²⁵ germ cell mutagenicity,²⁶ carcinogenicity,²⁷ and reproductive toxicity.²⁸

The second Joint FAO/WHO Meeting on Pesticide Management agreed that HHPs should be defined as pesticides which have one or more of the following characteristics:

1. Pesticide formulations that meet the WHO criteria for **acute toxicity** (WHO Class Ia and Ib)
2. Pesticide active ingredients and their formulations that meet the GHS criteria for **carcinogenicity** (GHS Categories 1A and 1B)
3. Pesticide active ingredients and their formulations that meet the GHS criteria of **mutagenicity** (GHS Categories 1A and 1B)
4. Pesticide active ingredients and their formulations that meet the GHS criteria of **reproductive toxicity** (GHS Categories 1A and 1B)
5. Pesticide active ingredients that are listed by the *Stockholm Convention* or that have similar characteristics as defined in Convention Annex D
6. Pesticide active ingredients and formulations listed by the *Rotterdam Convention*
7. Pesticides listed under the *Montreal Protocol*
8. Other pesticide active ingredients and formulations that have shown a **high incidence of severe or irreversible adverse effects** on human health or the environment

There are still some important weaknesses in this list. For example, it does not explicitly name pesticides that disrupt the endocrine system or pesticides that are toxic when inhaled. Also, the second meeting appears to have retreated from the decision of the first joint expert meeting on pesticide management to prepare a comprehensive list of highly hazardous pesticides in international commerce that should be banned. Nonetheless, the criteria agreed by the joint FAO/WHO panel of experts should be very helpful to governments and others who need to make decisions about which pesticides should be considered highly hazardous and made subject to phased-outs and bans.

Notes

- 1 *Pesticide poisoning in the developing world—a minimum pesticides list*, M. Eddleston et al, The Lancet, Volume 360, Issue 9340, Pages 1163 - 1167, 12 October 2002, [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(02\)11204-9/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(02)11204-9/fulltext)
- 2 *Paraquat and Suicide*; a 2003 fact sheet prepared by PAN Germany; http://www.evb.ch/cm_data/Fact_Sheet_Paraquat_Suicide.pdf
- 3 *Paraquat: Unacceptable health risks for users*, Richard Isenring; 2006; http://www.evb.ch/cm_data/EvB_Paraquat_E.pdf
- 4 Dopamine Transporter Genetic Variants and Pesticides in Parkinson's Disease, *Beate Ritz et al, 2009, Environmental Health Perspectives*; <http://www.ehponline.org/members/2009/0800277/0800277.pdf>
- 5 IUF Press Release, http://www.iuf.org/cgi-bin/dbman/db.cgi?db=default&uid=default&ID=5681&view_records=1&en=1
- 6 *Hazardous material*, Tan Ee Lyn, The Malaysia Star online, February 10, 2009, <http://thestar.com.my/lifestyle/story.asp?file=/2009/2/10/lifefocus/3177228&sec=lifefocus>
- 7 *Endosulfan Factsheet and Answers to Common Questions*, Usha S. and Harikrishnan V. R., IPEN Pesticide Working Group, 2004, http://thanaluser.web.aplus.net/sitebuildercontent/sitebuilderfiles/endosulfan_factsheet.pdf
- 8 *Endosulfan around the world*, a 2008 fact sheet prepared by PAN North America; <http://www.panna.org/node/1686>
- 9 *Submission by PAN and IPEN to the Stockholm Convention POPs Review Committee*, Meriel Watts and Pamela Miller, 2009, <http://chm.pops.int/Convention/POPsReviewCommittee/Meetings/POPRC4/AnnexEinformationrequest/Responses/tabid/460/language/en-US/Default.aspx>; the countries include: Albania, Australia, Austria, Bahrain, Bulgaria, Canada, China, Congo (RDC), Costa Rica, Croatia, Czech Republic, Ecuador, Egypt, Ghana, Honduras, Japan, Lithuania, Mali, Mauritius, Mexico, Mozambique, New Zealand, Nigeria, Norway, Peru, Romania, Slovakia, Switzerland, Togo, and United States of America.
- 10 An update on the status of endosulfan under the Rotterdam Convention can be found on its web site at: <http://www.pic.int/home.php?type=t&id=238>
- 11 An update on the status of endosulfan under the Stockholm Convention can be found on its web site at: <http://chm.pops.int/Convention/POPsReviewCommittee/Chemicalsunderreview/NewProposals/tabid/245/language/en-US/Default.aspx>

- 12 *Report of the 131st Session of the FAO Council, Rome, 20-25 November 2006*; paragraphs 82-86; http://www.fao.org/unfao/bodies/council/cl131/index_en.htm
- 13 *Report of the First FAO/WHO Joint Meeting on Pesticide Management*, page <http://www.fao.org/ag/agp/agpp/pesticide/Code/expmeeting/Report07.pdf>
- 14 *Ibid.*, page 5
- 15 Report of First Joint FAO/WHO Meeting cited above.
- 16 *Ibid.*, pages 2, 14 & 15
- 17 *Report of the 2nd FAO/WHO Joint Meeting on Pesticide Management*; October 2008, page 16 http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Report.pdf
- 18 *MEPs approve pesticides legislation*, a press release from the European Parliament, http://www.europarl.europa.eu/news/expert/infopress_page/066-45937-012-01-03-911-20090112IPR45936-12-01-2009-2009-false/default_en.htm
- 19 *FAO on New EU Pesticides Regulation*; January 15, 2009; HIS; <http://engineers.ihs.com/news/2009/eu-en-pesticides-directive-faq-1-09.htm?WBCMODE=t>
- 20 European Parliament press release cited above
- 21 *MEPs approve pesticides legislation*, Jan. 14, 2009; Environmental Expert Com; <http://hs.environmental-expert.com/resultEachPressRelease.aspx?cid=26908&codi=43578&idproducttype=8>
- 22 See: *Report of the 2nd FAO/WHO Joint Meeting on Pesticide Management*; October 2008, http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Report.pdf
- 23 *The WHO Recommended Classification of Pesticides by Hazard*; 2004 http://www.who.int/ipcs/publications/pesticides_hazard_rev_3.pdf
- 24 *The Globally Harmonized System of Classification and Labeling of Chemicals*; http://www.unece.org/trans/danger/publi/ghs/ghs_rev01/01files_e.html
- 25 GHS, Chapter 3.1, page 109
- 26 GHS, Chapter 3.5, page 157 (note: germ cell mutagenicity means the pesticide can cause a mutation in the cell of a parent that is then passed on to their children and future generations)
- 27 GHS, Chapter 3.6, page 165
- 28 GHS, Chapter 3.7, page 175

7. Taking Action to Ban HHPs

While there is growing support, in principle, for phasing-out and banning highly hazardous pesticides, few countries outside of Western Europe have made much headway in actually doing so. Many countries do, however, have sympathetic supporters for such bans among the personnel of national Health and/or Agriculture Ministries. Furthermore, most governments have agreed to support the implementation of SAICM which, at least in principle, commits them to take action aimed at minimizing adverse effects caused by chemical exposure. Governments also formally support the International Code which indicates that those hazardous pesticides a government is not able to regulate and control sufficiently to ensure their safe use should be phased out.

Nonetheless, national action to institute bans and phase-outs of HHPs will still be difficult for most governments. Those who manufacture, import and distribute pesticides, together with some large institutional pesticide users, will likely strongly oppose such bans. Additionally, many countries lack the policies and capabilities that they would need to effectively help growers change their present agricultural practices to enable them to maintain good crop yields without using any highly hazardous pesticides.

7.1 National Action

In many countries, a key to making progress toward banning HHPs will be active constituencies that are aware of the harms HHPs cause and that are willing to work to promote and develop the national policies, regulations, and capabilities that will be needed to institute such bans. Most countries already have some NGOs with a history of working on agriculture and pesticide issues. In many cases, these NGOs have contacts and good relations with staff members of national Agriculture and Health Ministries who may be sympathetic to such bans. Nonetheless, substantial additional support may be needed to achieve successes and more national organizations may need to take up this effort. These may include concerned academics, organizations of medical professionals, trade unions, impacted community-based and constituency organizations, environmental organizations, religious organizations and others with missions that include the defense of the public's health and the

environment. NGOs may also need to bring these issues to the broader public through outreach and awareness-raising campaigns, reports in the media, and by other means.

In order to succeed in securing national bans on HHPs, a solid and honest case must be made that as hazardous pesticides are phased-out and banned, good alternatives will become available that are affordable, less hazardous and adequately effective. To make this case, those who advocate banning HHPs should be able to identify alternatives and should be in a position to indicate how those who need help in implementing the alternatives will be able to get it. In some cases, the alternative may involve a simple substitution of a less hazardous pesticide for a highly hazardous one. In some cases, the alternative may require greater use of integrated pest management techniques. In some other cases, those providing assistance with alternatives may be able to help growers become less pesticide reliant while maintaining good agricultural yields through biodiverse ecological agriculture and organic farming and by other means.

A decision by society to move toward phasing-out all HHPs can lead to some difficult practical problems and expert help may be needed. In some countries, NGOs may be able to provide such help. The practical experience of peasant and growers' organizations in the country that may already be using alternatives can often provide examples. Since FAO has decided that it will help countries progressively phase-out HHPs, help from FAO experts should also be requested. However, some developing countries may also need to secure external technical and financial development assistance to enable them to fully phase-out all of the highly hazardous pesticides that are now causing severe health and environmental injury.

The World Bank initiated the International Assessment of Agricultural Science and Technology for Development (IAASTD), an international effort to examine the effectiveness of agriculture-related public and private sector policies and institutional arrangements, and to evaluate the relevance, quality and effectiveness of agricultural knowledge, science and technology (AKST). Its overarching question was how to reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development. The assessment concluded that:

“Governments may wish to align public sector AKST funding to support research explicitly directed to improving small-scale, diversified farming practices that promote improved yields and enhanced food safety through sustainable pest management practices. Plant protection options that successfully manage pest populations and minimize the adverse human health impacts sometimes associated with synthetic pesticides include increasing institutional and policy support for—and investment in—participatory, agroecologically-based pest management research, extension and education.”¹

NGOs may wish to encourage governments and large growers to make such investments in conjunction with efforts to phase-out and ban HHPs. They may also wish to encourage their government to identify investment in AKST as a component of the assistance requests they develop and submit to international development donor agencies.

7.2 Identifying the HHPs to Ban

In many countries, it may not be possible in the short term to secure national legislation or a regulation that will phase-out and ban all HHPs. Instead, efforts to secure such bans may need to proceed in a progressive, step-by-step way. As a start, there may be certain pesticides in a country that have already been identified by physicians, by organizations working with agricultural communities, or by others that are known to be causing serious and irreversible harm. Examples of such pesticides may include ones mentioned previously in this booklet such as aluminum phosphide, endosulfan, paraquat and parathion. In cases where these or some other pesticides have been identified to be causing serious problems, this local knowledge should be valued and given full consideration in the development of a national strategy to promote bans of HHPs.

To assist NGOs and national governments identify HHPs to be banned, the Pesticide Action Network has produced the *PAN International List of Highly Hazardous Pesticides*,² a comprehensive international list of more than 390 pesticides that PAN considers to be HHPs. In preparing this list, PAN used the criteria that were established by the FAO/WHO Joint Meeting (listed above). It also uses three additional categories: endocrine disruption, inhalative toxicity and bee toxicity.

Each pesticide on the PAN HHP list has one or more of the following characteristics:

- High acute toxicity (including inhalative toxicity)
- Long-term toxic effects at chronic exposure (carcinogenicity, mutagenicity, reproductive toxicity, endocrine disruption)
- High environmental concern either through ubiquitous exposure, bioaccumulation or toxicity
- Known to cause a high incidence of severe or irreversible adverse effects on human health or the environment

The PAN list was compiled using a systematic approach that its authors describe in detail. It is based on authoritative sources including the *WHO Recommended Classification of Pesticides by Hazard*, findings of the International Agency for Research on Cancer (IARC), Directives of the European Union (EU), and publications of the United States Environmental Protection Agency (US EPA). The PAN list is posted on the internet and is ready to use. Its authors, however, have indicated that it is still incomplete and have promised an updated future version.³ PAN has also provided (at a separate location on the web) an important *Annex to the PAN List* which indicates, for each pesticide on the list, the basis upon which the list's authors made the determination to include the pesticide in question on PAN's list of HHPs.⁴

The PAN list is very useful in that it establishes a comprehensive list of the HHPs that PAN wants all countries to eventually ban. In most cases, however, national authorities may not be ready to immediately ban all the pesticides on the list. Therefore NGOs and government officials will generally need to prioritize their pesticide targets for phase-outs and bans. In establishing these national priorities and in building their case, numerous additional resources may be useful.

7.3 Information Resources

There are a number of different sources of information that may be useful to NGOs and governments in prioritizing the HHPs to target for phase-outs and bans, and in building their case.

7.3.1 WHO Classification and Guidelines

As indicated above, the World Health Organization maintains a list of Extremely Hazardous Pesticides (class Ia) and Highly Hazardous Pesticides

(class Ib). These lists can be found in the publication: *WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification: 2004*, pages 16 to 19.⁵

The pesticides in these lists are acutely toxic, which means that death or serious injury can result from a single dose or from short-term exposure. The harms that these pesticides cause can therefore be quickly visible and apparent. Furthermore, because this list is compiled by the WHO, and because this list has a long history, it may be considered highly authoritative, especially by the medical community and by national health ministries. It may therefore be useful to investigate which pesticides on the WHO list are imported, formulated or produced in your country and in what quantities. It may also be useful to investigate how they are used and what kinds of health and environmental problems they are known to cause.

Examples of pesticides classified by WHO as being extremely hazardous (class Ia) include the insecticides Parathion and Parathion-methyl, and the soil insecticides aldicarb and terbufos. Examples of pesticides in this list classified as highly hazardous (class Ib) include the insecticides carbofuran, methamidophos, methomyl and monocrotophos.

Not all the pesticides that cause serious health and environmental injury are given classification Ia or Ib by WHO. For example, the WHO report categorizes both endosulfan and paraquat as class II pesticides. They are listed by WHO as being *moderately hazardous* even though these two have been identified as among the most problematic pesticides in wide use in the world today. This is an example of why the 2009 joint FAO/WHO meeting of experts on pesticide management expanded the criteria for identifying which pesticides are to be considered HHPs beyond the those satisfying the criteria for acute toxicity that WHO has been using.

The WHO, itself, recognizes that the methodology used in its *WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification* needs to be updated and revised. The methodology and guidelines upon which these classifications are based were established in 1975 by WHO's governing body and they have continued to be used without substantial revision. The 2004 version of the WHO classification document is the most up-to-date available at the time of this writing, although a new, revised version is overdue. The new version is expected to be the first in the more than 30 year history of

this list to use a revised and updated methodology for classifying acutely toxic pesticides.⁶ It will likely, however, still not address the full range of toxicity criteria that were elaborated by the joint FAO/WHO panel.

7.3.2 Pesticide Data Sheets

WHO in collaboration with FAO prepares Pesticide Data Sheets (PDSs)⁷ that provide basic information about many pesticides, with priority given to substances that are widely used or that have a high or an unusual toxicity record. The PDSs provide toxicological information about many pesticides and also provide information on the symptoms of poisoning and emergency and medical treatment for those exposed to the pesticide. The authors of the data sheets start from the premise that it is possible to safely use the pesticide being reviewed and provide recommendations on how it should be used, controlled and regulated to ensure safe use. Pesticide industry trade associations play an active role in the review of the data sheets and it appears that they often significantly influence the presentation of the information that the PDSs contain. Nonetheless, the PDSs are an important and authoritative source of information about many pesticides.

7.3.3 EU Pesticides Database

In 2009, the EU established an online pesticides database that is another useful resource.⁸ This database is the result of a review carried out by the European Commission that began in 1993. At that time, approximately 1,000 pesticide active substances were on the market in Europe, and they were contained in tens of thousands of products. Based on a detailed assessment, more than two thirds of them have subsequently been removed from the market. This assessment evaluated each substance with respect to the health of consumers, farmers, groundwater, and non-target organisms, such as birds, mammals, earthworms and bees. Only 250 of the evaluated active substances passed the EU safety assessment and were included on the EU “safe use” list. For each pesticide active substance in the database, one can find information on its status: whether the active substance has been *included* on the EU “safe-use list”, *not included*, or whether the decision is still *pending*. The database also includes information on what the EU considers to be the maximum residue levels (MRL) in food for the substance. Many entries also have a link to a more detailed report on the assessment of the substance.

7.3.4 PAN Pesticide Database

PAN North America maintains and regularly updates an online pesticide database that is a comprehensive source of information on pesticide toxicity and

on regulatory information for more than six thousand pesticide active ingredients.⁹ The information in this database comes from numerous sources but is most complete for pesticides that are registered for use in the United States. All the data sources are fully referenced and a user of the database should be able to fairly quickly find the original data sets.

The PAN Pesticide Database can be searched in several different ways:

- By trade name or by U.S. EPA product registration number for formulated pesticide products
- By chemical name or by Chemical Abstracts Service (CAS) number for pesticide active ingredients, breakdown products and other chemicals used in pesticide products
- By country, providing information on those pesticides registered for use in countries for which this data is available
- By observed symptoms and other information to help identify a pesticide or class of pesticides that may be responsible for a pesticide-related illness
- By aquatic species, by effect or by chemical to help identify a pesticide's aquatic ecotoxicity

This database covers not only HHPs, but also most other pesticides in commerce and is a good general source of information about pesticides.

7.3.5 PAN UK List of Lists

The Pesticide Action Network United Kingdom (PAN UK) prepares and updates a List of Lists¹⁰ which is an online catalog of pesticides that identifies those associated with particularly harmful health and environmental impacts. It is in an easy to use format and includes lists of: organophosphate pesticides, pesticides associated with cancer, endocrine disrupting pesticides, pesticides that are toxic to bees, pesticides that are banned or severely restricted in the European Union, and others. It also includes useful information on European Union pesticide regulations and an extensive list of pesticide web resources.

7.3.6 Pesticide Information Profiles

An online Database called EXTNET (the EXtension TOXicology NETwork), which is prepared and updated by a consortium of universities in the United States, provides useful information on pesticides in a format called

Pesticide Information Profiles (PIPs).¹¹ PIPs provide extensive information on the health and environmental effects of many pesticides that may be more comprehensive than information found in the WHO/FAO PDSs.

7.3.7 Compendium of Pesticide Common Names

A useful online resource is the Compendium of Pesticide Common Names.⁸⁴ A single pesticide or pesticide active substance may have many different common names, which may make it difficult to research information about it. This website has a search engine which allows one to enter the common name of a pesticide and it returns systematic information about the pesticide including other names, its CAS Registry Number and its molecular and structural formulas.

Notes

- 1 *Food Safety, Plant and Animal Health; Human Health and Sustainability Dimensions*; the International Assessment of Agricultural Science and Technology for Development; http://www.agassessment.org/docs/10505_FoodSafe.pdf
- 2 *PAN International List of Highly Hazardous Pesticides*; January 2009; by PAN Germany, approved by PAN International Regional Coordinators; http://www.pan-germany.org/download/PAN_HHP-List_090116.pdf
- 3 Ibid.
- 4 *Annex to PAN International List of HHPs*; http://www.pan-germany.org/download/PAN_HHP-List_090209_Annex1
- 5 *WHO recommended classification of pesticides by hazard and guidelines to classification: 2004*; http://www.who.int/ipcs/publications/pesticides_hazard_rev_3.pdf
- 6 Ibid., page 1
- 7 Pesticide Data Sheets can be accessed online at the *Pesticide Documents* page of the INCHEM site of the Intergovernmental Program on Chemical Safety (IPCS) at <http://www.inchem.org/pages/pds.html>
- 8 *EU Pesticides Database*; http://ec.europa.eu/sanco_pesticides/public/index.cfm
- 9 *PAN Pesticide Database*; PAN North America; <http://www.pesticideinfo.org/>
- 10 *Pesticide Information Profiles*; <http://extoxnet.orst.edu/pips/ghindex.html>
- 11 *Compendium of Pesticide Common Names*; <http://www.alanwood.net/pesticides/>

8. International Agreements

Governments have entered into a number of international agreements that have relevance to NGO efforts aimed at protecting human health and the environment from harms caused by exposure to hazardous pesticides. Some of them are legally-binding treaties and some, while not legally-binding, are considered to be politically-binding. It should be understood, of course, that because a government has formally accepted or adopted an international agreement does not automatically mean that it will fully honor the commitments spelled out in the agreement. Nonetheless, the fact that a government has formally accepted an agreement at the international level strengthens the hands of the government officials and the NGOs who want that policy effectively implemented at the country level. Additionally, a sometimes useful feature of most international agreements that address issues related to the safe management of chemicals is that they often explicitly recognize that NGOs and CSOs with an interest and competence in the field should be considered stakeholders and should have a role in formulating and implementing national chemical safety policies and initiatives.

The International Code of Conduct on the Distribution and Use of Pesticides which has been described above (and which is summarized below in section 9) explicitly states that it may be desirable for government authorities to prohibit the import, sale and purchase of highly toxic and hazardous pesticides if other control measures and practices are insufficient to ensure that the product can be handled with acceptable risk to the user.¹ Other relevant international agreements include SAICM, the Stockholm and Rotterdam Conventions and various international sustainable development initiatives.

8.1 Strategic Approach to International Chemicals Management

The Strategic Approach to International Chemicals Management (SAICM)² is an international policy, strategy, and global plan of action that was adopted in 2006 by Environment Ministers, Health Ministers and other high level delegates from more than 100 governments, and which has also been endorsed by relevant intergovernmental organizations, NGOs and industry trade associations.

SAICM addresses both agricultural and industrial chemicals. Its overall objective is to achieve the sound management of chemicals throughout their life-cycle so that, by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment. In order to achieve this overall objective, SAICM establishes subsidiary objectives under five headings: risk reduction, knowledge and information, governance; capacity-building and technical cooperation; and illegal international traffic.

In accepting SAICM, governments and intergovernmental organizations have agreed that those chemicals which pose an unreasonable and otherwise unmanageable risk to human health and the environment should no longer be produced; chemical uses which pose such a risk should no longer be permitted for those purposes. Governments have also agreed that all sectors of civil society should be given meaningful and active participation in regulatory and other decision making processes that relate to chemical safety, particularly women, workers and indigenous communities. Additional NGO-relevant information about SAICM can be found in the booklet, *An NGO Guide to SAICM*.³

In its Global Plan of Action, SAICM explicitly addresses a number of important pesticide issues. These include:

- Encourage full implementation of the FAO International Code of Conduct on the Distribution and Use of Pesticides
- Promote the development and use of reduced-risk pesticides and promote substitution for highly toxic pesticides including effective non-chemical alternatives
- Promote integrated pest and integrated vector management
- Encourage industry to extend product stewardship and to voluntarily withdraw highly toxic pesticides which are hazardous and cannot be used safely under prevalent conditions
- Provide training in alternative and ecological agricultural practices, including non-chemical alternatives
- Undertake research on and implement better agricultural practices, including methods that do not require the application of polluting or harmful chemicals
- Give appropriate priority to pest and pesticide management in national sustainable development strategies and poverty reduction papers to enable access to relevant technical and financial assistance, including appropriate technology.⁴

8.2 International Treaties

There are three international, legally-binding treaties that identify pesticides that can be considered to be HHPs: the Stockholm Convention on Persistent Organic Pollutants (POPs), the Rotterdam Convention on Prior Informed Consent (PIC) and the Montreal Protocol on Substances that Deplete the Ozone Layer (ODS). All pesticides listed by these treaties are considered to be HHPs according to the criteria established by the 2009 joint FAO/WHO panel.

8.2.1 Stockholm Convention

More than 150 governments are Parties to the Stockholm Convention on POPs.⁵ This treaty requires its Parties to ban eight pesticides that have POPs properties: aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex and toxaphene.⁶ Most Parties have already done so. It additionally requires its Parties to ban the use of the pesticide DDT in agriculture and to restrict its use exclusively to disease vector control following guidelines established by WHO.⁷ Three additional pesticides with similar properties have been nominated for future listing by the convention. These are the pesticides: chlordecone, endosulfan and lindane along with its associated alpha and beta isomers.⁸

8.2.2 Rotterdam Convention

The Rotterdam Convention on PIC⁹ has almost 140 government Parties. The Rotterdam Convention establishes a list of pesticides and pesticide formulations that have already been banned or severely restricted for health or environmental reasons by governments in two or more regions. The pesticides listed are:

2,4,5-T and its salts and esters; aldrin; captafol; chlordane; chlordimeform; DDT; dieldrin; dinitro-ortho-cresol (DNOC) and its salts; dinoseb and dinoseb salts; EDB (1,2-dibromoethane); ethylene dichloride; ethylene oxide; HCH (hexachlorocyclohexane); heptachlor; hexachlorobenzene; lindane; mercury compounds; pentachlorophenol and its salts and esters; and toxaphene (camphechlor).

The pesticide formulations listed are:

Dustable powder formulations containing a combination of benomyl at or above 7%, carbofuran at or above 10% and thiram at or above 15%; and methyl-parathion emulsifiable concentrates at or above 19.5% active ingredient and dusts at or above 1.5% active ingredient.

The list of these pesticides and formulations together with additional information about them can be found on the PIC web site.¹⁰

The PIC treaty creates simplified procedures for those governments that may wish to ban any or all of the HHPs on its list. The government notifies the Convention Secretariat that it does not consent to future exports of any or all of the pesticides on the list. Since most pesticide exporting countries are Party to the Convention, these governments are obliged to prevent shipments of listed pesticides from their country to developing country Parties that do not consent. The non-consenting government, of course, would still need to ban domestic production of the pesticide and to also prevent imports from non-Party countries.

8.2.3 Montreal Protocol

The pesticide methyl bromide is subject to phase-out and elimination under the Montreal Protocol on ODS.¹¹

8.3 Sustainable Development

In 1992, the United Nations Conference on Environment and Development (UNCED, Earth Summit) held in Rio de Janeiro, adopted *Agenda 21* which establishes linkages between economic and social development and environmental protection. Since then, there have been numerous follow-up international initiatives to promote sustainable development.

NGOs usually advance the argument for phasing out and banning HHPs as an ethical argument in defense of human health and the environment. However, the argument can also be advanced that phasing out HHPs is part of the sustainable development agenda. When agricultural workers, communities near large agricultural enterprises, and small farmers are exposed to hazardous pesticides, not only does this cause human suffering, it also increases na-

tional healthcare costs, decreases the productivity of labor, and in some cases, decreases the learning ability of exposed children. When hazardous pesticides leave harmful residues on crops grown for export, these crops may be rejected by the national authorities of importing countries or by consumers.

For these and other reasons, phasing out and banning HHPs can be promoted as good sustainable development policy. The linkage between sound chemicals management and sustainable development is clearly articulated in SAICM which calls for the integration of the Strategic Approach objectives into multi-lateral and bilateral development assistance cooperation. In particular, SAICM calls upon developing countries to integrate SAICM objectives into national documents that influence development assistance cooperation; and it calls on donors to recognize SAICM objectives as an important element of bilateral aid agency cooperation.

International donor agencies have already taken note of this. In 2006, the Organization for Economic Development and Cooperation (OECD) held a Joint Ministerial Level Meeting of its Development Assistance Committee (DAC) and its Environmental Policy Committee which adopted a joint policy entitled: *Framework for Common Action around Shared Goals*.¹² The DAC coordinates the donor policies of rich country government agencies providing bilateral development assistance to developing country governments and calls itself the “venue and voice of the world’s major bilateral donors.”¹³ The framework document adopted at a joint meeting with Environment Ministers following the 2006 adoption of SAICM, for the first time, identifies *chemical management* as a global environmental objective that should be integrated into national and local development policies and plans.

8.4 Illegal International Traffic

In Agenda 21, Chapter 19¹⁴ calls for the *Prevention of Illegal International Traffic in Toxic and Dangerous Products*. This issue has subsequently been taken up by the Intergovernmental Forum on Chemical Safety and by SAICM. However, insufficient progress is being made, and this remains a problem of particular concern to many governments, especially many in the Africa region. Illegal traffic relates to efforts aimed at banning HHPs in a critical way.

Government officials from a number of developing countries have reported that it is difficult or impossible for them to control hazardous pesticides and

other hazardous chemicals in their country because their borders are porous. Even if they decide to ban a hazardous pesticide, it will continue to enter the country illegally, especially from neighbor countries. This suggests that efforts aimed at phasing-out and banning HHPs may have only partial success in the absence of parallel international efforts aimed at securing borders.

In the context of SAICM implementation, international recommendations on how to address illegal international traffic in hazardous chemicals were developed by a *Symposium on Illegal International Traffic in Hazardous Chemicals* that was organized by UNEP in 2006 and that involved representatives of governments in all regions of the world.¹⁵ In addition, an international partnership entitled the *Green Customs Initiative*¹⁶ has been established that includes as partners, the secretariats of several multilateral environmental agreements, Interpol, the Organization for the Prohibition of Chemical Weapons, UNEP and the World Customs Organization. The objective of this initiative is to enhance the capacity of customs and other relevant enforcement personnel to detect and prevent illegal trade in environmentally-sensitive commodities including toxic chemicals and hazardous wastes that are covered by relevant multilateral environmental agreements.

Despite these initiatives, illegal international traffic remains a serious concern in many countries and one that will likely not soon be overcome. Where borders are porous, the best solution may be for governments of neighboring countries to act in a coordinated fashion to phase-out and ban HHPs that cannot be safely managed or controlled in their region or sub-region.

Notes

- 1 Code, Article 7.5
- 2 Information on SAICM is at www.saicm.org
- 3 *An NGO Guide to SAICM*, Jack Weinberg, IPEN, 2008, <http://www.ipen.org/campaign/education/introduction%20booklet.html>
- 4 *SAICM Documents: List of possible work areas and their associate activities, actors, targets/ timeframes, indicators of progress and implementation aspects*: <http://www.saicm.org/index.php?menuid=3&pageid=187>
- 5 Information on the Stockholm Convention is at: <http://www.pops.int/>; for a list of Party countries, click on *Countries*, then on *Status of Ratification*
- 6 See Stockholm Convention Article 3 and Annex A
- 7 See Stockholm Convention Article 3 and Annex B
- 8 See Annexes to the Report of the fourth meeting of the Stockholm Convention POPs Review Committee; (endosulfan addressed in Annex I; chlordecone and lindane addressed in Annex II); <http://chm.pops.int/Convention/POPsReviewCommittee/Meetings/POPRC4/POPRC4ReportandDecisions/tabid/450/language/en-US/Default.aspx>
- 9 Information on the Rotterdam Convention is at: www.pic.int/; for a list of Party countries, click on *Parties*
- 10 To access this list and information on the listed pesticides go to <http://www.pic.int/>, click *Chemicals* and then click *Additional information on Annex III*
- 11 Information on the Montreal Protocol is at: <http://ozone.unep.org>
- 12 *Framework for Common Action around Shared Goals*, Adopted by OECD Development and Environment Ministers 4 April 2006; <http://www.oecd.org/dataoecd/44/27/36427017.pdf>
- 13 *The History of OECD's Development Assistance Committee*, 2006 Edition, page 3, <http://www.oecd.org/dataoecd/44/27/36427017.pdf>
- 14 *Agenda 21: Chapter 19* <http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter19.htm>
- 15 *Symposium on Illegal International Traffic in Hazardous Chemicals, Draft report, 6-8 November 2006*, http://www.chem.unep.ch/unepsaicm/prague_nov06/default.html
- 16 *Green Customs Initiative*; <http://www.greencustoms.org/>

9. Summary, Conclusions and Next Steps

Human and environmental exposure to hazardous pesticides is a source of serious injury in all regions of the world, but especially in developing countries and countries with economies in transition. In 2006, with the international adoption of the SAICM, governments, international organizations and representatives of global civil society made formal commitments to work together to achieve a future world where exposure to toxic chemicals is no longer a significant source of harm to human health and the environment. NGOs in all regions of the world are taking actions to realize this ambitious goal, and in most countries they are giving high priority to efforts aimed at minimizing and eliminating the injuries caused by exposure to hazardous pesticides.

9.1 Regulatory Reform

NGOs in many countries are working to reform national policies, laws and regulations that address the import, trade, use and manufacture of pesticides. In the developing world, this is often linked to efforts aimed at building and strengthening the national infrastructures needed to disseminate information about chemicals, to enforce laws and regulations and to monitor compliance.

9.2 Integrated Pest Management

NGOs work on projects and programs to help growers decrease their dependence on the use of pesticides. Some work on programs that promote participatory integrated pest management (IPM) with the aim of reducing use and reliance on pesticides. Such programs generally have three components: research into the best IPM practices for local crops and local conditions; policy changes, such as removing pesticide subsidies; and establishing farmer participatory training programs.¹

9.3 Organic Agriculture

Some NGOs work to encourage and help growers go beyond IPM and develop effective farming methods that largely avoid the use of pesticides and synthetic fertilizers. The organic agriculture movement promotes farm meth-

ods that rely on crop rotation, green manure,² compost, biological pest control and mechanical cultivation. In this way, growers can maintain soil productivity and control pests while excluding or strictly limiting the use of synthetic fertilizers and synthetic pesticides, plant growth regulators, livestock feed additives and genetically modified organisms.³

NGOs are also working in many countries to help build markets for the products of organic agriculture and they have been achieving considerable success. According to recent survey information from 138 countries, more than 30 million hectares of land worldwide are farmed organically in more than 700,000 farms.⁴ This is the equivalent of 300,000 square kilometers or 115,000 square miles. Estimated worldwide sales of organic products reached more than \$38 billion (USD) in 2006, and sales of organic products are increasing at a rate of more than \$5 billion (USD) per year.⁵

9.4 Occupational Safety and Health Training

Hazardous pesticides remain in use and will likely continue to do so for many years. Therefore, farmers, agricultural workers and workplace managers all need training to ensure that when they use pesticides, they do so as safely as possible. Trainings help build awareness and knowledge about the harms pesticides can cause. They promote a commitment to safe practices and they provide instruction on how to implement this commitment. Many trade unions and NGOs develop programs to deliver such trainings.

WHO produces and distributes materials on occupational health that might be used in developing training programs. WHO has a series of instructor manuals in occupational health that includes one for the agricultural sector.⁶ WHO also has an occupational health document on preventing health risks from pesticides that provides simple problem statements and good illustrations that those developing training programs may wish to use.⁷

9.5 International Code Monitoring

NGOs in many countries are working to promote the full implementation of the International Code of Conduct on the Distribution and Use of Pesticides, and are monitoring compliance by pesticide distributors, government agencies and others. In some countries, NGOs are also monitoring non-compliance with the Code. One much publicized example is a letter from PAN affiliated NGOs in Southeast Asia to the FAO Director General protesting that the Swiss pesticide manufacturer Syngenta was violating Code provisions against promotional activities that include inappropriate incentives or gifts to encour-

age the purchase of pesticides. The NGO letter documented a Syngenta promotion for paraquat in Thailand that used prizes such as t-shirts and jackets and even motorcycles and a truck.⁸

9.6 Conclusion

Following the 2006 adoption of SAICM, there has been growing understanding within the international community of the need for action to protect human health and the environment from harms caused by exposure to hazardous pesticides. At the national level, key staff members within the Agriculture and Health Ministries of many countries may be more willing than in the past to initiate or support interventions aimed at minimizing and eliminating these harms. At the international level, both FAO and WHO have promised to provide assistance in these efforts. Therefore, the time is ripe for NGOs, trade unions, organizations of physicians, organizations representing impacted constituencies, and others to take these issues up in their countries. An important longer-term objective is strengthening national pesticide-related laws, regulations and enforcement capabilities including phase-outs and bans on the production, import and use of highly hazardous pesticides that are causing significant health and environmental injury under national conditions. Other useful initiatives include the development and enhancement of national programs on integrated pest management, the promotion of organic agriculture, occupational safety and health training programs, and others.

Notes

- 1 See the FAO web site on *Integrated Pest Management*; <http://www.fao.org/ag/agp/agpp/ipm>
- 2 The term “*green manure*” is used to describe cover crops that are grown before or between the main crops, cut before maturation, and then used to provide nutrients to the main crop.
- 3 *Introduction to Organic Farming*; Infonet-BioVision; <http://www.infonet-biovision.org/default/ct/241/soilFertilityManagement>
- 4 *The World of Organic Agriculture: Statistics and Emerging Trends 2008*; Helga Willer et al, for the International Federation of Organic Agriculture Movements (IFOAM), <http://orgprints.org/13123/04/world-of-organic-agriculture-2008.pdf>
- 5 Ibid.
- 6 *WHO Modules in Occupational Health – Economic Sector: Agriculture: Instructor Manual*, Leslie Nickels et al; http://uic.edu/sph/glakes/who_modules/ag/ag_instructor_manual.pdf
- 7 *Preventing Health Risks from the Use of Pesticides in Agriculture*; Antonella Fait et al. 2001, WHO, http://www.who.int/occupational_health/publications/en/oehpesticides.pdf
- 8 *Stop unethical advertising of paraquat in Thailand*; a PAN Asia and the Pacific Press Release; http://www.pan-germany.org/download/panap_paraquat07_2004.pdf

10. Afterword: NGOs and SAICM

As indicated above, the Strategic Approach to International Chemicals Management is a global policy, strategy and plan of action to protect human health and the environment from harms caused by exposure to toxic chemicals of all kinds.¹ The agreed objective of SAICM is to:

“[A]chieve the sound management of chemicals throughout their life-cycle so that, by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment.”

Both NGOs and industry trade associations were permitted to fully participate, alongside government delegates, in the preparatory meetings where the SAICM text was initially drafted and negotiated, and also in the ICCM, itself. In the end, SAICM was adopted by consensus agreement of delegations from more than one hundred governments, and also delegations of NGOs and industry trade associations. Some portions of the SAICM were weaker or less comprehensive than what participating NGOs would have preferred. Nonetheless, health and environmental NGOs familiar with the process agreed that SAICM can be a very useful tool that civil society in all countries can use in their efforts to advance a wide range of chemical safety objectives.

In January 2008, representatives of six international NGO networks met in Toronto and agreed to launch a *Global SAICM Outreach Campaign* to encourage NGOs and civil society organizations in all countries to engage in efforts toward achieving the SAICM objectives and a *Toxics Free Future*. One agreed element of the campaign is to produce a series of educational booklets on chemical safety topics. Booklet titled *An NGO Guide to SAICM* and *An NGO Guide to Persistent Organic Pollutants* have already been produced and are available in several languages.² This present booklet has also been produced as part of the campaign.

A second element of the campaign is an NGO/CSO Common Statement on SAICM that was adopted by the six international NGO networks. This statement was prepared as a tool to introduce civil society organizations

to SAICM and to encourage them to commit themselves to working for a future where exposure to toxic chemicals is no longer a source of harm to human health and ecosystems. A goal of the campaign is to secure at least 1,000 endorsements of the common statement from NGOs and CSOs in at least eighty countries. The text and endorsement form for the *Global Common Statement* follow:

NGO/CSO Global Common Statement on The Strategic Approach to International Chemicals Management³

Recognizing that “fundamental changes are needed in the way that societies manage chemicals,”⁴ Environment Ministers, Health Ministers and other delegates from over 100 governments together with representatives of civil society and the private sector declared in Dubai, February 6, 2006, that “the environment worldwide continues to suffer from air, water and land contamination, impairing the health and welfare of millions.”⁵ They adopted the Strategic Approach to International Chemicals Management (SAICM), a global plan of action whose stated goal is: “to achieve the sound management of chemicals throughout their life-cycle so that, by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment.”⁶

The SAICM addresses both agricultural and industrial chemicals; covers all stages of the chemical life-cycle of manufacture, use and disposal; and includes chemicals in products and in wastes.

We, _____ (*Name of organization*), a civil society organization, join in this global effort to work for a future where exposure to toxic chemicals is no longer a source of harm.

We agree with the SAICM:

- On the need to take action to “prevent the adverse effects of chemicals on the health of children, pregnant women, fertile populations, the elderly, the poor, workers and other vulnerable groups and susceptible environments.”⁷
- On the need to “apply the precautionary approach”⁸ and “give priority consideration to the application of preventive measures such as pollution prevention.”⁹

- On the need to address the “lack of capacity for managing chemicals in developing countries and countries with economies in transition, dependency on pesticides in agriculture, exposure of workers to harmful chemicals and concern about the long-term effects of chemicals on both human health and the environment.”¹⁰
- With the commitment to “promote and support the development and implementation of, and further innovation in, environmentally sound and safer alternatives, including cleaner production, informed substitution of chemicals of particular concern and non-chemical alternatives.”¹¹
- On the need to promote “adequate transfer of cleaner and safer technology”¹² and with a call to make available both “existing and new sources of financial support.”¹³
- On the need to promote “capacity-building, education and training and information exchange on sound management of chemicals for all stakeholders.”¹⁴
- That “the sound management of chemicals is essential if we are to achieve sustainable development, including the eradication of poverty and disease, the improvement of human health and the environment and the elevation and maintenance of the standard of living in countries at all levels of development.”¹⁵
- With the commitment to “promote and support meaningful and active participation by all sectors of civil society, particularly women, workers and indigenous communities, in regulatory and other decision-making processes that relate to chemical safety.”¹⁶
- With the commitment to facilitate access to “information and knowledge on chemicals throughout their life cycle, including the risks that they pose to human health and the environment.”¹⁷

We commit ourselves and call upon all stakeholders including governments, non governmental organizations, the private sector, intergovernmental organizations and others to work together to implement SAICM policies, and to reform domestic chemicals assessment and management laws, policies and practices to achieve the 2020 goal in all countries.

Global Outreach Endorsement Form

Organization's name:	
Country and headquarters address:	
Contact Name:	
Contact email address:	
Website (if any):	
<p>Geographic Area of Organization's Work</p> <p><input type="checkbox"/> Locality, State, Province or Region of Country</p> <p><input type="checkbox"/> National</p> <p><input type="checkbox"/> Regional (two or more countries)</p> <p><input type="checkbox"/> International</p> <p>Name of Geographic Area : _____</p>	<p>Possible Chemical Safety Issue Areas of Interest (check as many as apply)</p> <p><input type="checkbox"/> Promoting improved national legislation, regulations and/or enforcement aimed at achieving the SAICM 2020 goal;</p> <p><input type="checkbox"/> Protecting farmers, peasants, workers and/or communities from harms caused by exposure to harmful agricultural chemicals;</p> <p><input type="checkbox"/> Protecting children, the general public and the environment from harms caused by exposure to toxic metals such as lead, mercury and cadmium;</p> <p><input type="checkbox"/> Protecting human health and/or ecosystems from harms caused by exposure to persistent organic pollutants and other toxic chemicals of concern;</p> <p><input type="checkbox"/> Protecting workers from occupational exposures to toxic chemicals;</p> <p><input type="checkbox"/> Monitoring the presence of toxic chemicals in consumer products; in humans; and/or in the environment;</p> <p><input type="checkbox"/> Promoting waste minimization and sound waste management, such as zerowaste strategies, aimed at protecting the public from harms caused by polluting facilities and practices such as open burning, waste dumping, inappropriate landfills, and polluting incinerators.</p>
<p>Type of Organization (check one)</p> <p><input type="checkbox"/> Environmental Organization</p> <p><input type="checkbox"/> Health Advocacy Organization</p> <p><input type="checkbox"/> Development Organization</p> <p><input type="checkbox"/> Professional Organization</p> <p><input type="checkbox"/> Peoples Organization</p> <p><input type="checkbox"/> Trade Union</p> <p><input type="checkbox"/> Consumer's Organization</p> <p><input type="checkbox"/> Other: _____</p>	

Please return endorsement to: ipen@ipen.org

Notes

- 1 SAICM is comprised of three core documents: the *Dubai Declaration on International Chemicals Management*; the *SAICM Overarching Policy Strategy*; and the *SAICM Global Plan of Action*. The SAICM has a Secretariat based in Geneva to facilitate its implementation, and it maintains a web site at: <http://www.saicm.org>.
- 2 The booklet is available in Arabic, Chinese, English, French, Russian and Spanish at: <http://www.ipen.org/campaign/education.html>
- 3 The *Strategic Approach to International Chemicals Management* (SAICM) comprises three core texts: *The Dubai Declaration*, which expresses the commitment to SAICM by Ministers, heads of delegation and representatives of civil society and the private sector; *The Overarching Policy Strategy*, which sets out the scope of SAICM, the needs it addresses and objectives; and *A Global Plan of Action*, which sets out proposed work areas and activities for implementation of the Strategic Approach. These texts can be found in all UN languages at: <http://www.chem.unep.ch/saicm/SAICM%20texts/SAICM%20documents.htm>
- 4 SAICM Dubai Declaration paragraph 7
- 5 SAICM Dubai Declaration paragraph 5
- 6 SAICM Overarching Policy Strategy paragraph 13
- 7 SAICM Overarching Policy Strategy paragraph 7 (c)
- 8 SAICM Overarching Policy Strategy paragraph 14 (e)
- 9 SAICM Overarching Policy Strategy paragraph 14 (f)
- 10 SAICM Dubai Declaration paragraph 6
- 11 SAICM Overarching Policy Strategy paragraph 14 (j)
- 12 SAICM Overarching Policy Strategy paragraph 10 (b)
- 13 SAICM Overarching Policy Strategy paragraph 19
- 14 SAICM Global Plan of Action, Executive Summary, paragraph 8 (i)
- 15 SAICM Dubai Declaration paragraph 1
- 16 SAICM Overarching Policy Strategy paragraph 16 (g)
- 17 SAICM Dubai Declaration paragraph 21

11. Appendix: Summary of the International Code of Conduct on the Distribution and Use of Pesticides

The following is a brief summary of the International Code of Conduct on the Distribution and Use of Pesticides. The full text is available on the web in Arabic, Chinese, English, French and Spanish at <http://www.fao.org/agriculture/crops/core-themes/theme/pests/pm/code/en/>.

11.1 The Objectives and Scope of the Code

The International Code is not intended as an alternative to national laws and regulations. Rather it is to be used within the context of national legislation. The Code is a basis by which to judge whether national policies and the actions of those engaged in the manufacture and trade in pesticides constitute an acceptable practice. The Code describes the shared responsibility of different sectors of society so that the benefits derived from the use of pesticides are achieved without significant adverse effects on human health or the environment. The International Code also includes guidelines to be followed by the governments of countries that manufacture and export pesticides, calling upon them to cooperate with importing countries in the promotion of practices that minimize health and environmental risks. The Code establishes standards that:

- Encourage responsible and generally accepted trade practices
- Help those countries that still lack regulations to address the potential risks associated with pesticides
- Promote practices which reduce risks in the handling of pesticides, including minimizing adverse effects on humans and the environment and preventing accidental poisoning caused by improper pesticide handling
- Ensure that pesticides are used effectively and efficiently

- Adopt the “life-cycle” concept to address the development, regulation, production, management, packaging, labeling, distribution, handling, application, use and control of pesticides including post-registration activities and the disposal of pesticides and used pesticide containers
- Promote Integrated Pest Management (IPM), including integrated vector management for public health pests¹

11.2 Pesticide Management

The Code establishes the principle that national governments have the responsibility to regulate pesticides including the control of their availability, distribution and use within the country. The Code notes that in order to fulfill this mandate, adequate resources need to be allocated.

The governments of pesticide exporting countries are requested to:

- Provide technical assistance to importing countries lacking technical expertise in the assessment of the relevant data on pesticides
- Ensure that good trading practices are followed in the export of pesticides

Pesticide manufacturers, exporters and traders are requested to observe the following practices:

- Supply only pesticides of adequate quality, packaged and labeled as appropriate for each specific market
- Pay special attention to the choice of pesticide formulations and to pesticide packaging and labeling in order to reduce risks to users
- Provide, with each pesticide package, information and instructions on effective use and on risk reduction during handling, and to do so in the appropriate language and form
- Maintain the capability of providing effective technical support, backed up by full product stewardship to the field level
- Provide advice on disposal of pesticides and used pesticide containers
- Keep track of major uses and the occurrence of any problems that arise from the use of their products as a basis for determining the need for changes in labeling, directions for use, packaging, formulation or product availability

The Code states that those pesticides which require uncomfortable, expensive or not readily available personal protective equipment should be avoided, especially in the case of small-scale users in tropical climates. The Code requests that national and international organizations as well as governments and the pesticide industry disseminate useful educational materials to pesticide users, farmers, farmer organizations, agricultural workers, unions and other interested parties.

The Code calls upon governments, lending institutions and donors to support national IPM policies and practices. These should be based on strategies that promote increased participation of farmers (including women's groups), extension agents and on-farm researchers. All stakeholders, including farmers and farmer associations, IPM researchers, extension agents, crop consultants, food industry, pesticide and application equipment manufacturers, environmentalists and representatives of consumer groups, should play proactive roles in the development and promotion of IPM. Governments, with support from relevant international and regional organizations, should encourage and promote research on alternatives that are less risky. These alternatives may include biological control agents and techniques and non-chemical pesticides. They may also include pesticides that are target-specific and that degrade after use into constituents that are of low risk to humans and the environment.²

11.3 Reducing health and environmental risks

The Code calls upon governments to:

- Implement a pesticide registration and control system
- Periodically review the pesticides marketed in their country including their uses and their availability by sector
- Carry out health surveillance programs on those who are occupationally exposed to pesticides including investigation and documentation of poisoning cases
- Provide guidance and instructions to health workers, physicians and hospital staff on the treatment of suspected pesticide poisoning
- Establish national or regional poisoning information and control centers
- Collect reliable data and maintain statistics on health aspects of pesticides and pesticide poisoning incidents

- Provide advisory services and farmers' organizations with adequate information about practical IPM strategies and methods
- Ensure that where pesticides are available through outlets which also deal in food, clothing, medicines or other products, they are physically segregated to prevent contamination and/or mistaken identity
- Collect reliable data on environmental contamination
- Monitor pesticide residues in food and the environment

The Code calls upon the pesticide industry to:

- Cooperate in the periodic reassessment of the pesticides they market
- Provide poison-control centers and medical practitioners information about pesticide hazards and suitable treatments
- Halt the sale of a pesticide when its handling or use poses an unacceptable risk and recall products still in circulation
- Reduce risks posed by pesticides by:
 - Making less toxic formulations available
 - Introducing products in ready-to-use packages
 - Developing application methods and equipment that minimize pesticide exposure
 - Using returnable and refillable containers where effective container collection systems are in place
 - Using containers that are not attractive for subsequent reuse and promoting programs to discourage reuse
 - Using containers that are not easily opened by children, particularly for domestic use products
 - Using clear and concise labeling

The Code calls upon government and industry to cooperate in:

- Promoting the use of proper and affordable personal protective equipment
- Providing for safe pesticide storage at warehouse and at the farm level
- Establishing services to collect and safely dispose of used containers
- Protecting biodiversity and minimizing adverse effects of pesticides on the environment including on non-target organisms

When pesticide production facilities are established in developing countries, the Code calls upon manufacturers and governments to cooperate to ensure:

- Adoption of appropriate engineering standards and operating practices and the availability of appropriate protective equipment
- All necessary precautions are taken to protect workers, bystanders, surrounding communities and the environment
- Proper siting of manufacturing and formulating plants and adequate control of wastes and effluents
- Quality-assurance procedures and compliance with the relevant standards of purity, performance, stability and safety³

11.4 Regulations

The Code calls upon governments to introduce the necessary legislation for the regulation of pesticides and to make provisions for effective enforcement. This should include the establishment of educational, advisory, extension and health-care services. The legislation should take full account of local needs, social and economic conditions, levels of literacy, climatic conditions and availability of appropriate pesticide application and personal protective equipment.

Insofar as governments have the capability, they are asked to establish pesticide registration schemes and infrastructures so that pesticides are registered prior to domestic use and a pesticide must be registered before it can be made available for use. Governments are to conduct risk evaluations and make risk management decisions based on all available data or information. They should establish a re-registration procedure to ensure periodic reviews of pesticides and to ensure that prompt and effective measures be taken if new information or data indicate that regulatory action is needed.

Governments are called upon to collect and record data on the import, export, manufacture, formulation, quality, quantity and use of pesticides in order to assess the extent of any possible effects on human health or the environment. The marketing of pesticide application and personal protective equipment should be permitted only if they comply with established standards.

In the context of regulation, the pesticide industry is called upon to:

- Provide an objective pesticide data assessment together with the necessary supporting data on each product, including sufficient data to support risk assessment and to allow a risk management decision to be made

- Provide national regulatory authorities with any new or updated information that could change the regulatory status of a pesticide, as soon as it becomes available
- Ensure that the active ingredient and other ingredients of pesticide products being marketed correspond in identity, quality, purity and composition to the substances tested, evaluated and cleared for toxicological and environmental acceptability
- Ensure that active ingredients, and formulated products of pesticides for which international specifications have been developed conform with the relevant FAO specifications for agricultural pesticides and with WHO specifications for public health pesticides
- Verify the quality and purity of pesticides offered for sale
- Voluntarily take corrective action when problems occur and, when requested by governments, help find solutions to difficulties
- Provide national governments with clear and concise data on export, import, manufacture, formulation, sales, quality and quantity of pesticides

The Code further encourages technical assistance funding agencies, development banks and bilateral agencies to give high priority to requests for assistance from developing countries which do not yet have the facilities and expertise for establishing pesticide management and control systems.⁴

11.5 Availability and Use

The Code Article on the availability and use of pesticides is particularly important. It calls upon government authorities to give special attention to developing rules and regulations that restrict the availability of pesticides. In restricting pesticide availability, there are two possible methods a government can use. The government may decide not to register the pesticide; or it may restrict the availability of the pesticide to certain groups of users. Most importantly, the International Code states that it may be desirable for government authorities to *prohibit the import, sale and purchase of highly toxic and hazardous pesticides* if other control measures and practices are insufficient to ensure that the product can be handled with acceptable risk to the user.⁵

11.6 Distribution and Trade

The Code calls on governments to:

- Develop regulations and implement licensing procedures to ensure that those involved in the sale of pesticides, are able to provide buyers sound advice on risk reduction and efficient use
- Take regulatory measures to prohibit repackaging or decanting of any pesticide into food or beverage containers and rigidly enforce punitive measures that effectively deter such practices
- Encourage a market-driven supply process, as opposed to centralized purchasing, in order to reduce the potential for accumulation of excessive stocks
- Ensure that any pesticide subsidies or donations do not lead to excessive or unjustified use which may divert interest from more sustainable alternative measures

The Code calls on the pesticide industry to take the necessary steps to ensure that pesticides entering international trade conform at least to:

- Relevant specifications by FAO, WHO or their equivalent (where such specifications have been developed)
- Principles embodied in relevant FAO guidelines on classification, packaging, marketing, labeling, procurement and documentation
- Rules and regulations set forth in the *UN Recommendations on the Transport of Dangerous Goods* and by relevant international organizations dealing with specific modes of transport

Exported pesticides should have the same quality requirements and standards as those applied to comparable domestic products. Additionally, when a pesticide is manufactured or formulated by a subsidiary company, it should meet appropriate quality requirements and standards consistent with the requirements of the host country and of the parent company.

The Code calls upon importing agencies, national, regional formulators and their trade organizations to cooperate to achieve marketing and distribution practices that reduce the risks posed by pesticides, and to collaborate with authorities in stamping out any malpractice within the industry. The industry is asked to do what it can to ensure that pesticides are traded by

and purchased from reputable traders, preferably by members of a recognized trade organization. The industry should also do what it can to ensure that persons involved in the sale of pesticides are trained adequately, hold appropriate government licenses (where such licenses exist), and have access to sufficient information so that they can provide buyers with advice on risk reduction and efficient use. Pesticides should be made available in a range of pack sizes that are appropriate for the needs of small-scale farmers and other local users, in order to discourage sellers from repackaging products in unlabelled or inappropriate containers.⁶

11.7 Information Exchange

The Code calls on governments to promote networks for information exchange on pesticides through national institutions, international, regional and sub-regional organizations and public sector groups. The information to be exchanged should include:

- Actions to ban or severely restrict a pesticide in order to protect human health or the environment, and provide additional information upon request
- Scientific, technical, economic, regulatory and legal information about pesticides including toxicological, environmental and safety data
- Availability of resources and expertise associated with pesticide regulatory activities

Governments are encouraged to develop legislation and regulations that permit the provision of information to the public about pesticide risks and the regulatory process. They should also establish administrative procedures to provide transparency and facilitate the participation of the public in the regulatory process.

International organizations are called upon to provide information on specific pesticides by providing criteria documents, fact sheets, training and other appropriate means. All parties are called upon to support information exchange and facilitate access to information about pesticide residues in food and related regulatory actions. The Code encourages collaboration between public sector groups, international organizations, governments and other interested stakeholders to ensure that countries receive the information they need to meet the objectives of the Code.⁷

11.8 Labeling, Packaging, Storage and Disposal

According to the Code, all pesticide containers should be clearly labeled. The pesticide industry should use labels that:

- Comply with registration requirements and include recommendations consistent with those of the recognized research and advisory agencies in the country of sale
- Include appropriate symbols and pictograms and also written instructions, warnings and precautions in the appropriate language or languages
- Comply with national or international labeling requirements for dangerous goods in international trade
- Include a warning against the reuse of containers and instructions for the safe disposal of decontamination or used containers
- Identify each lot or batch of the product in numbers or letters that can be understood without the need for additional code references
- Clearly show the month and year when the lot or batch was released
- Include relevant information on the storage stability of the product

The Code calls upon the Pesticide industry, in cooperation with government, to ensure that:

- Packaging, storage and disposal of pesticides conform in principle to relevant international guidelines
- Packaging or repackaging is carried out only on licensed premises where the responsible authority is satisfied that staff are adequately protected against toxic hazards
- The repackaged product will be properly packaged and labeled, and its content will conform to the relevant quality standards

Governments, with the help of pesticide industry and with multilateral cooperation, are called upon to inventory obsolete or unusable stocks of pesticides and used containers, implement an action plan for their disposal, and remediate contaminated sites. They should record these activities. Governments, pesticide industry, international organizations and the agricultural community are called upon to implement policies and practices to prevent the accumulation of obsolete pesticides and used containers.⁸

11.9 Pesticide Advertising

Governments are called upon to pass laws that control pesticide advertising in all media to ensure that advertising is not in conflict with label directions and precautions. In particular, advertising should not be in conflict with: precautions that relate to proper maintenance and use of application equipment, the dangers of reusing containers and the special precautions needed for children and pregnant women.

The pesticide industry is called upon to ensure that:

- All statements used in advertising are technically justified
- Advertisements do not contain any statement or visual presentation that is likely to mislead the buyer, especially about the “safety” of the product, its nature, composition or suitability for use, official recognition or approval
- Pesticides that are legally restricted for use only by trained or registered operators are not publicly advertised through journals other than those catering to such operators, unless the restricted availability is clearly and prominently shown
- No company or individual in any one country simultaneously market different pesticide active ingredients or combinations of ingredients under a single brand name
- Advertising not encourage uses other than those specified on the approved label
- Promotional material not include recommendations at variance with those of recognized research and advisory agencies
- Advertisements do not misuse research results, quotations from technical and scientific literature or scientific jargon to make claims appear to have a scientific basis that they do not possess
- No safety claims are made, including statements such as “safe,” “non-poisonous,” “harmless,” or “non-toxic” with or without a qualifying phrase such as “when used as directed”
- No statements are made comparing the risk, hazard or “safety” of different pesticides or other substances
- No misleading statements are made concerning the effectiveness of the product

- No guarantees or implied guarantees are given, such as “more profits with...” or “guarantees high yields,” unless definite evidence to substantiate such claims is available
- Advertisements not contain any visual representation of potentially dangerous practices, such as mixing or application without sufficient protective clothing, use near food or use by or in the vicinity of children
- Advertising or promotional material draws attention to the appropriate warning phrases and symbols
- Technical literature provides adequate information on correct practices, including recommended application rates, frequency of applications and pre-harvest intervals
- No false or misleading comparisons with other pesticides are made
- All staff involved in sales promotion are adequately trained and possess sufficient technical knowledge to present complete, accurate and valid information about the products they sell
- Advertisements encourage purchasers and users to read the label carefully, or to have some read the label read to them if they cannot read
- Advertisements and promotional activities not include inappropriate incentives or gifts to encourage the purchase of pesticides

The Code calls upon NGOs, other public sector groups and international organizations to call attention to pesticide advertising that departs from the above guidelines.⁹

11.10 Monitoring and Observance of the Code

Governments, the pesticide industry and other stakeholders agreed that the Code should be published and should be observed through collaborative action by governments (either individually or in regional groupings), organizations and bodies of the United Nations system, intergovernmental organizations, non-governmental organizations and the pesticide industry. The Code is to be brought to the attention of everyone with a role in the regulation, manufacture, distribution and use of pesticides so that all involved understand their shared responsibility to work together to ensure that the objectives of the Code are achieved.

All parties are called upon to observe the Code and should promote the principles and ethics expressed in it. The pesticide industry is called upon to cooperate fully in the observance of the Code whether or not the national government is fully able to observe its responsibilities.

Governments, in collaboration with FAO, should monitor the observance of the Code and should report on progress to the Director-General of FAO. The pesticide industry is invited to provide reports to the Director-General of FAO on its product stewardship activities related to observance of the Code. NGOs and other interested parties, including NGOs, are invited to monitor activities related to the implementation of the Code and report these to the Director-General of FAO.

The Governing Bodies of FAO should periodically review the relevance and effectiveness of the Code which should be brought up to date as required, taking into account technical, economic and social progress.¹⁰

Notes

- 1 Code, Article 1, Objectives
- 2 Code, Article 3, Pesticide management
- 3 Code, Article 5, Reducing health and environmental risks
- 4 Code, Article 6, Regulatory and technical requirements
- 5 Code, Article 7, Availability and use, especially Article 7.5
- 6 Code, Article 8, Distribution and trade
- 7 Code, Article 9, Information exchange
- 8 Code, Article 10, Labeling, packaging, storage and disposal
- 9 Code, Article 11, Advertising
- 10 Code, Article 12, Monitoring and observance of the Code

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