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on

Obsolete, unwanted and banned pesticide stocks
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Issues and problems associated with obsolete pesticides and the efforts to find solution for them

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Note

The paper focuses on in issues and problems associated with obsolete stocks in developing countries

Pesticides versus obsolete pesticides pesticide stocks

What are pesticides?

The International Code of Conduct on the Distribution and Use of Pesticides defines pesticides as: “Any substance or mixture of substances intended for preventing, destroying or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm during, or otherwise interfering with, the production, processing, storage, transport, or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs, or which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant, or agent for thinning fruit or preventing the premature fall of fruit, and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport”.

When are pesticides obsolete?

Obsolete pesticides are stocked pesticides that can no longer be used for their intended purpose or any other purpose and therefore require disposal. Common causes of this situation include the following:

- Use of the product has been prohibited or severely restricted for health or environmental reasons (e.g. through banning; withdrawal of registration; or policy decision by the Ministry of Agriculture or other authorized ministries):
- The product has deteriorated as a result of improper or prolonged storage and can no longer be used according to its label specifications and instructions for use, nor can it easily be reformulated to become usable again;
- The product is not suitable for its intended use and cannot be used for other purposes, nor can it easily be modified to become usable.

WHAT CONSTITUTES OBSOLETE STOCKS? A product has deteriorated when:

- It has undergone chemical and/or physical changes that result in phytotoxic

effects on the target crop, or an unacceptable hazard to human health or the environment;

- The product has undergone an unacceptable loss of biological efficacy because of degradation of its active ingredient and/or other chemical or physical changes;
- Its physical properties have changed to such an extent that it can no longer be applied with standard or stipulated application equipment. Obsolete pesticides are also referred to as pesticide waste. It should be noted that the term pesticide waste is a broader definition than just obsolete pesticides, since it also includes waste generated during the production of pesticides.

Obsolete pesticide stocks constitute the following four major categories:

1. Pesticides that are in the form of liquids, powders, granules, emulsions, gasses, etc.
2. Empty and contaminated pesticides containers that reach the farm gates annually in thousands and millions and left there with little or no attention to their impact on the environment and the human health. Unfortunately most end up for domestic purposes such as for water or food storage by poor farmers and others.
3. Heavily contaminated soil either at storage site or in the open and
4. Buried pesticides either in engineered landfills or in shallow open or closed pits. Burial being a temporary solution, buried pesticide stocks almost always need to be excavated and destroyed or disposed of in an environmentally sound and safe manner but often at much higher cost.

Gravity of the issue and problems

Obsolete pesticides are global environmental tragedy. They are direct results of decades of misuse and mishandling of pesticides and accumulations owing to one or several reasons (Table 1). There is hardly a country that is free from the harmful environmental legacy brought about by obsolete stocks. Unfortunately, the situation is most dramatic and serious in the developing world where there is little or no unawareness of the inherent danger of pesticides or pesticide waste, no expertise, no facilities for destruction or disposal and above all there no financial resources to address the problem. Often, leaking and corroding metal drums and other containers filled with obsolete and dangerous pesticides litter the rural landscapes of developing countries and populated zones around the world. These chemical leftovers have become time bombs in the agricultural world they were designed to help. They seriously affect not only a nation's agriculture and its environment, but also the health of its people and consequently development. People that are poor, sick and particularly those directly and constantly exposed to pesticides either obsolete or otherwise are incapable to work or are less interested in development activities because. They even lack the stamina and the energy required for simple work for survival.

Types of obsolete pesticides involved

Obsolete pesticides involve all kinds of pesticides and most of all nine of the 12 or 75% of those currently identified as Persistent Organic Pollutants (POPs) namely, Aldrin, Chlordane, Dieldrin, DDT, Endrin, Heptachlor, Mirex, Toxaphene, Hexachlorobenzene are pesticides. The other three namely, PCBs, Dioxins and Furans and Hexachlorobenzene are industrial chemicals. The nine that are pesticides are widespread and are commonly kept mixed with other pesticides. Subsequently the negative impact on the environment has been rendered more serious and complicated.

Therefore separate solutions for POPs and pesticides are not feasible as they are often impossible to separate from their mixed conditions in stores, in soils, etc. POPs are universally toxic, resist degradation in environment, are low water soluble but are high so in lipids, bio-accumulate in fatty tissues, are semi-volatile, multi-media, mobile locally, regionally and are long range transportable and thus globally distributed either via air, wind or ocean currents.

International efforts to address the issue

With increasing environmental problems brought about by obsolete stocks, the gradual international awareness and particularly as a result of serious and negative impact on human health, many countries having been preoccupied and no solutions resorted to the Food and Agriculture Organization of the United Nations (FAO/UN) seeking both advice and assistance to the problem of obsolete pesticides. However, FAO being short of finance in its own regular budget was obliged to seek for donor support. The Government of the Netherlands responded to FAO's call for support. Beginning in mid 1994, FAO embarked on a programme to address the issue. The first initiative was to focus on taking inventory of stocks to determine the size and type of pesticides involved. The initial regions for its activities focused in Africa and the Near East. Unfortunately the donor support being limited, the coverage also had to be limited at least in the initial phase. So far inventories of stocks have been completed in at least 46 countries in Africa and nine in the Near East. The results of the inventories were indicative and by no means exhaustive, as additional obsolete stocks have been constantly discovered in each of the countries concerned. For this reason the inventories have to be revised and updated until disposal operations are undertaken. In a few cases and with limited financial support from other sources; in inventory taking exercise is gradually extended to several countries in the Far East and Latin American countries. Although taking inventories are still in progress in various countries, initial survey results and experience has made it possible to make a conservative global estimate of stocks in developing countries. The current global estimate now stands at 500 metric tonnes but it is likely the total will be on the higher side if all types of stocks (i.e. pesticides, empty and contaminated containers, contaminated soil and buried pesticides) are taken into consideration. Unfortunately funds are not available to dispose of this estimated total which at an average cost of disposal of US\$ 3,000 per tonne will require a total of at least US\$ 1.5 billion.

International collaboration to address the problem

Despite many efforts made to date by the Food and Agriculture Organization of the United Nations (FAO/UN) and few collaborative agencies, only less than 3,000 tonnes has been disposed of (Table 2) so far. The various agencies that are actively involved and that will further continue to be active and in finding collaborative solutions in their respective domains are:

- The FAO which will remain active and a lead agency in pursuing and in finding solutions to the issues and problems of obsolete pesticides and disposal that it has pioneered so far including the Code of Practice on Pesticides on the distribution and use of pesticides.
- The United Nations Environment Programme (UNEP) is expected to continue to focus on industrial chemicals, monitoring and providing information, management, etc.

- The World Health Organization (WHO) can be adept in providing advice and can lead in vector control, human health, etc.
- The United Nations Industrial Development Organization (UNIDO) is geared and will be resourceful in providing guidance and lead in the areas of alternative technologies on disposal of obsolete stocks. Its work can go hand in hand with that of FAO's global prevention and disposal of obsolete pesticide stocks' programme.
- The International Labour Organization (ILO) might focus in areas of labour health and safety.
- The United Nations Institute on Training and Research (UNITAR) shall be useful in areas of chemical profiles; management capacity, etc.
- The Chemical Industry represented by the Global Crop Protection Federation (GCPF) can and should contribute financial support for disposal of obsolete stocks which in many ways and so far mainly played active roles in focusing aggressively and in promoting the distribution and sells of pesticide worldwide. Unfortunately so far it contributed little or no part in disposal of stocks. The GCPF can help much if it shall focus on training and raising awareness of the various pesticide vendors in almost every developing and other countries as most are either unaware or less equipped in their areas of pesticide management.

Methods of disposal of obsolete stocks

The currently preferred method of disposal is high temperature in dedicated incinerators. But this is facing increased opposition particularly by environmental NGOs for fear that incineration might likely release dioxins. Unfortunately there are no reliable alternatives to replace dedicated incinerators that are cheaper, better, widely acceptable, etc. The moment alternative methods prove to be reliable the use of high temperature incinerators will naturally phase out.

Some useful hints to minimise the accumulation of stocks

The following measures are few among others that can minimise the accumulation of obsolete stocks. Regulative and administrative control on the use of pesticides, control, restriction and guidance of users of pesticides both on voluntary and legal ways, developing ways of dissemination of information related do pesticides and obsolete stocks, education of the public through the intensive use of the media, reduction of the use of pesticides by replacing them with alternative method of pest control such as Integrated Pest Management (IPM) and where possible enhancing the use of organic agriculture which means the use of zero pesticides will be advisable. Ratification of international conventions directly related to transboundary movement of wastes also will have direct bearing on minimisation of accumulation of obsolete stocks.

Guidelines related to obsolete pesticides

FAO has developed several guidelines and published in four languages (English, French, Arabic and Spanish) on how to address the issues of obsolete pesticides and related problems. The titles of the English version of the guidelines concerned are listed below:

Ref. No	Title of the guidelines
V8419	Prevention and disposal of obsolete and unwanted pesticide stocks in Africa and the Near East (The first FAO consultation meeting)
V7460	Prevention of accumulation of obsolete pesticide stocks
V8966	Pesticide storage and stock control manual
W1604	Disposal of Bulk quantities of obsolete pesticides in developing countries (Provisional technical guidelines)
W3338	Prevention and disposal of obsolete and unwanted pesticide stocks in Africa and the Near East (Second consultation meeting)
W9143	Prevention and disposal of obsolete and unwanted pesticide stocks in Africa and the Near East (Third consultation meeting)
X1531	Guidelines for the management of small quantities of unwanted and obsolete pesticides
X2570	Assessing soil contamination: a reference manual
X8639	Baseline study on the problem of obsolete pesticide stocks
X9899	FAO Training manual for inventory taking obsolete pesticides
Y2566	Country guidelines
Website	http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPP/Pesticid/Disposal/index_en.htm
Useful reference	The FAO International Code of Conduct on the use and distribution of pesticides

The future

Attempts made so far to find solutions to obsolete stocks problems and disposal on country-by-country basis are futile. In the future the basis of finding solution to the issue lies only in the enhancement and the formation of a global concerted effort that is committed to address the problem with financial resources adequate enough for disposal of all stocks that have accumulated so far and ensuring the avoidance of further accumulation of stocks in the environment.

Table 1: Reasons for accumulation of obsolete pesticides

(Any of the few factors would suffice to contribute to the accumulation of stockpiles).

Other than direct misuse and abuse, experience has shown that several factors have contributed to accumulation of stocks of which the following are salient.

- Donations by donors in excess of requirements or uncoordinated donations by several donors at the same time.
- Aggressive pesticide sales or promotion by the Pesticides Industry
- No accurate assessment of pesticide requirements
- Dumping of pesticides as a pretext of donations
- Banning of products while pesticides are still in store

Issues and problems of obsolete, unwanted and banned pesticides

- Lower pest incidence than expected
- Insufficient storage capacity, poor or substandard pesticide stores
- Lack of storage management or stock taking
- Absence of pesticide legislations or inability to implement of existing ones
- In appropriate government decisions to request or procure pesticides not required particularly this happens without consulting technical or qualified staff
- Improper labels of either imported, purchased or received pesticides
- Product or pesticides are inappropriate for intended use
- Fraudulent practices in administration
- Civil war
- Over-stocking of products with a short shelf-life
- Lack of product knowledge
- Government policy on trade liberalisation or subsidy
- Change in agricultural crops
- Products replaced by newer products
- Unsuitable packaging of pesticides
- Introduction of non-chemical crop protection methods

Table 2: Summary of obsolete pesticide stocks disposed of in Africa and the Near East

Country	Product	Quantity (t)	Agency involved
Niger	Dieldrin	60	USIAD and Germany
Madagascar	Dieldrin	135	70 (t) Germany, 65 (t) GCPF, Swiss and Government
Uganda	Dieldrin	50	FAO/UNCDF
Mozambique	DDT/Monocrotophos	160	Germany-GTZ
Tanzania (Zanzibar)	Various	280	The Netherlands-DGIS/USAID
Seychelles	Various	12	FAO/the Netherlands-DGIS
Tanzania	Dinitro-O-Cresol (DNOC)	57	57 (t) Germany
Yemen	Various	262	FAO/the Netherlands-DGIS/KfW-Germany
Mauritania	Various	200	Germany-GTZ & (Shell contributed 37.5%)
Qatar	Various	5	Government
Zambia	Various	360	FAO/the Netherlands-DGIS/Germany-GTZ
Lebanon	Mainly Fenitrothion	10	FAO 1999
Iraq	Contaminated containers	0	90,000 by FAO (different weights) 1999
South Africa	Various	603	South African Government 98/1999)
Swaziland	Various	9	South African Government 98/1999)
Namibia	Mainly HCH	202	South African Government 98/1999)
Gambia	Various	14	Industry and Overseas Development Corporation
	Total	2,419	

Note to acronyms:

DGIS	Ministry of Foreign Affairs, Government of the Netherlands
UNCDF	United Nations Country Development Fund
Kfw	Kreditanstalt für Wiederaufbau; (German Kredit Bank in Frankfurt).
(t)	tonnes, (i. e. equal to 1,000-kilo grammes).

Disposals undertaken in Uganda, Niger, Mozambique and Madagascar were limited either to Dieldrin or few other types of stocks. There are still stocks in these countries that require disposal.

References

1. The International Code of Conduct on the Distribution and Use of Pesticides; FAO, Rome, M/R8130/E.86/1/5000, 1986 and 1990
2. Disposal of bulk quantities of obsolete pesticides in developing countries (Provisional Technical Guidelines); D/W/1604E/1/7.96/2000
3. Prevention of accumulation of obsolete pesticide stocks; (Provisional Technical Guidelines); FAO, Rome, D/V/460E/2/2.98/2000.
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6. Assessing Soil Contamination (A reference manual); FAO, Rome, D/X2570E/1/1.00/2000.
7. Baseline study on the problem of obsolete pesticide stocks, FAO, UNEP, OECD, WHO, Rome, TC/D/X8639E/1/2.01/2000

Disposal and related activities undertaken Under Germany-GTZ support

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The Pesticide disposal project of the Technical Co-operation of Germany successfully completed two disposal operations since the last Consultation meeting (4th) in May 1999.

Gusathion Disposal NWFP

The GTZ, the Bayer AG Germany and the Environmental Protection Agency EPA of the North West Frontier Province of Pakistan safeguarded and disposed of 62 tonnes of the insecticide Gusathion. The Gusathion was shipped to Great Britain for final disposal in a special high temperature incinerator.

The Gusathion originally supplied by Bayer had been bought by the Government of Pakistan more than 20 years ago. At that time all pesticides were purchased centrally and distributed to the farmers free of charge. Pakistan changed this policy in 1980 to become more market oriented. By mistake or mismanagement the product was transported to a government store in a non-cotton growing area with the result that the pesticide was overlooked and eventually deteriorated.

With the years, the drums corroded and the pesticide leaked in the store which was directly located behind a public school in the middle of the city of Peshawar. The smell was terrible especially in the hot season so that the public complained.

The three parties worked together to get rid of the problem. The EPA carried out the technical part of the safeguard operation, with the technical and financial support of the GTZ. The Bayer AG, the manufacturer of the pesticide, paid the cost for the incineration.

Pesticide Disposal Project Punjab/Pakistan

The second successfully completed Project was the Pesticide Disposal Project in the Province of Punjab in Pakistan. The GTZ, commissioned by the Royal Netherlands Embassy, Islamabad, carried out this project.

The achievements during the last 32 months are:

- the collection of 328 tonnes of obsolete pesticides and associated waste from 13 high risk stores distributed within the Province of Punjab
- the shipment of the waste in 15 freight containers to the high temperature incinerator of AVR in Holland
- the cleaning and decontamination of the 13 stores of the Doa Punjab

- the completion of a detailed Analytical Survey within the Province of Punjab. The survey was planned for additional 100 pesticides stores, but was extended to 168 stores.
- 1872 batches of obsolete stocks were found during the inventory, having a total weight of more than 1000 tonnes.
- 752 samples were taken and analysed qualitatively and quantitatively in a Pesticide Laboratory in Germany.
- a risk assessment was carried out in all pesticide stores. All stores were categorised in 4 groups, from low risk stores up to high-risk stores.
- design of a special database for the processing, handling and evaluation of the thousands of collected data and information
- completion of an assessment of potential local disposal capacities, like cement kilns and steel mills for local capacity building.

The analytical survey was carried out by a local core survey team, which was trained and supervised through the GTZ. The fieldwork, the safeguarding operation was carried out by AVR from Holland and a team of local workers. The whole operation was supervised jointly by the GTZ and DoA.

The technical part of the project has been completed end of March 2001; the incineration of the waste is still going on. According to AVR the last batch of waste will be disposed of at the end of May 2001.

The funding of the Punjab Disposal project was mainly sponsored by the Royal Netherlands Embassy, Islamabad. But also a number of GCPF companies have signed a contract with GTZ to pay the incineration costs of those pesticides that they originally manufactured.

The local partner, the Department of Agriculture facilitated the project by providing local support and other assistance. The total cost of the operation is around 1.35 million US\$.

Fenitrothion Disposal Congo

In 1999 the GTZ started with the planning of a disposal operation in the Democratic Republic of Congo, where 360 tonnes of Fenitrothion and other pesticides are stored in a number of freight containers. The containers are in a poor shape and they are now an acute risk for the environment and the public.

The funding for the project was promised by the German Government as well as Sumitomo Chemical, Japan, the manufacturer of the insecticide.

At the moment, the project stopped due to the difficult political situation within the Congo. A second implication occurred just after the tender was completed when the state owned transportation company Amicongo billed the GTZ for the storage fee for the past 10 years.

Future activities of the GTZ

After more than 10 years and a number of successful activities and projects the **Pesticide Disposal Project** of the GTZ closed down.

The know-how as well as the activities have been shifted to a new project, the **Pilot Project Chemical Safety**, based in Bonn, Germany. The main focus of the Pilot Project

Chemical Safety is to indicate ways of improving chemical safety in developing countries and how this could be sustainably implemented in accordance with internationally accepted standards.

Details of the activities of the closed down Pesticide Disposal Project as well as the project activities of the new project can be read up in two brochures which I will leave as handouts.

Statement on environmental, health and related issues, Government of the Netherlands

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As a donor, the Netherlands attempts to deal with the environmental and health problems of pesticides in a broad sense, tackling the whole “chain” of pesticides, from supplier to end-user, including support for the disposal of unwanted stocks, the prevention of accumulation of stocks, and the reduction of pesticide use. Specifically, the Netherlands has focused on the following five areas:

1. Legislation, such as on implementing the Prior Informed Consent (PIC) procedures in developing countries through FAO and, in West Africa, through implementation of the FAO Code of Conduct.
2. IPM, with focus on vegetables and rice programmes in Southeast Asia and Africa.
3. NGO support, with an emphasis on awareness raising (e.g. PAN, IFOAM).
4. Pesticide disposal, including involvement with other donors in disposal projects in Ethiopia, Tanzania, Yemen, Zambia, the Seychelles, Pakistan, and others.
5. Seed money to be given to FAO for the development of inventories of obsolete stockpiles and in securing funds for removal operations.

The Netherlands has funded the first two phases of the FAO project on the Prevention and Disposal of Obsolete and Unwanted Pesticide Stocks in Africa and the Near East, and approved the third phase in October 2000.

Since 1997, the Dutch Embassies in selected developing countries are in charge of the content of their bilateral co-operation programmes, in due consultation with recipient countries. This enables them to respond to emergency needs if deemed necessary. Furthermore, the Dutch Ministry for Environment supports Obsolete Pesticide removal operations in Central and Eastern Europe

Africa Emergency Locust and Grasshopper Assistance (AELGA) Project

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Since its inception in the late 1980's, AELGA has indirectly contributed to the mitigation of stocks of obsolete pesticides in Africa by promoting sound integrated pest management (IPM) strategies for the major locust pest species in Africa. These efforts include:

1. A three-phase bilateral training workshop series currently being implemented in ten target countries in Africa that are at highest risk from outbreaks of locusts and other migratory pests. Workshops are designed to build in-country capacity for pest surveillance and monitoring so that outbreaks are detected and controlled in a timely manner.
2. Regional training workshops to promote increased awareness and understanding of alternative, non-chemical solutions to pest control, such as biological control and cultural practices, and workshops designed to build capacity and infrastructure in Africa for improving environmental regulation and management.
3. Support for an international emergency prevention system that establishes and promotes an effective network for linking countries at risk of outbreaks, so that transboundary pest outbreaks cannot develop unimpeded in countries where they pose little or no risk, only to migrate to regions where they can have a catastrophic impact on crops and food security.

The AELGA Project has also taken direct action to mitigate obsolete pesticides in Africa. These efforts have included support for the removal of obsolete pesticides from Zanzibar and Niger in the past. Current initiatives include grant support to FAO totalling \$1.0 million (USD) for removal of obsolete stocks and clean-up of contamination in Ethiopia. In addition, AELGA sponsors a \$0.5- million grant through FAO as a rapid response mechanism to address hazards in Africa associated with obsolete pesticides that are an immediate threat to human health and/or safety.

As part of its objective to promote IPM and reduce reliance on chemical pesticides, AELGA has provided support for research on biopesticide development totaling more than \$2 million during the past five years. New research and development directions currently under consideration include evaluation of in situ methods for treatment of pesticide contaminated soil and economic modeling for cost/benefit analysis of locust control strategies and operations.

**A note from the Economic Commission for Africa
Statement at the 5th Consultation**

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The African environment is heavily contaminated with stockpiles of obsolete pesticides that have accumulated over a period of decades. This burden disproportionately threatens the health and the well-being of the poor; those that carry out subsistence farming on marginal land that may be contaminated by pesticides, those that live in urban slums next to old pesticides stores, and those that buy cheap but dangerous pesticides to protect their crops, without understanding the dangers. The environment is also contaminated by obsolete pesticides, and the impact is not exclusively on the poor since the pollution can be carried by water and air and as residues in food over vast distances. Sometimes, pesticides that are only used in tropical regions appear in fish in northern seas. The problem is therefore not only African-it is global.

The responsibility for the creation of these stockpiles lies in part with the countries themselves. Regulation, storage, purchasing practices and a heavy dependence on pesticides can be improved, but knowledge, expertise and resources are needed for this to be effective. However, the fault is not only that of the countries. Poor practice on the part of donors has also contributed. It is hard for poor African countries to turn away gifts and pesticides have been given without regard to actual needs, they have eventually become obsolete. The pesticide industry is also an important contributor to the problem. They sell pesticides with too much enthusiasm where farmers cannot use them fast enough, and the people who sell them often know very little about their products. The key issue is to make money without regard for the consequences.

I am pleased to attend this meeting which demonstrates a commitment on the part of the international community to helping solve the problems of obsolete pesticides. I am also encouraged by other international activities that could help in solving these problems such as Africa Stockpiles Project initiated by WWF and PAN-UK and now involving FAO, UNEP, UNIDO, World Bank, GEF, OAU, ADB, and GCPF.

We in Africa are committed to improving our environment for the benefit of our people and the global environment. We will do what we can within our capabilities and capacities, but we call upon the international community and the pesticide industry to help in supporting solutions to the serious problem of obsolete pesticides that they in part created.

11 May 2001 Recommendations

Participants of the meeting:

1. Endorse the recommendations of the OECD/FAO/UNEP Workshop on Obsolete Pesticides held in Alexandria in September 2000.
2. Encourage the development of the concept of the Africa Stockpiles Project to remove obsolete pesticide stockpiles and implement prevention measures in all African countries.
3. Called upon FAO to re-approach the EU for support in prevention and disposal of obsolete pesticides on behalf of the EU member states represented at the meeting.
4. Called upon ECA to facilitate raising the matter of obsolete pesticides at a high political level among African/developing countries as appropriate (e.g. OAU summit, July 2001)
5. Recommended that foreign ministries and assistance organisations of developed countries that are working in developing countries should facilitate access to the existing FAO and other related guidelines, publications, CD-ROMs videos, internet links and other information sources that can assist in raising awareness on prevention and disposal of obsolete pesticides in developing countries.
6. Agreed that prevention of accumulation of obsolete pesticides is a matter for all stakeholders who should be included in all relevant initiatives. Such initiatives should include crop production and vector management strategies that aim to minimise reliance on pesticides, such as IPM/IVM (Integrated Vector Management).
7. Recommended that industry be encouraged to be involved in inventory taking before their commencement in countries where disposal projects are planned.
8. Called upon stakeholders to develop incentives for both users and suppliers of pesticides to eliminate excessive procurement or supply of pesticides that could lead to obsolescence.
9. Urged that "Return to vendor" strategies for the management of unused pesticides that are supported by legislation and financial instruments, should be considered by governments, international organisations, industry and other stakeholders.
10. Agreed that container management should be improved in developing countries by practicable means and by following existing successful models and guidelines to minimise hazards to pesticide end users. This should be facilitated by national and local governments, international organisations, NGOs, industry and other stakeholders.

11. Requested that donors supplying pesticides should follow procurement guidelines to ensure quantities of pesticides supplied match the needs of users and that unused products can be returned to suppliers. An example of such procurement guidelines exists in the EC.
12. Encouraged the pesticide industry to establish National Associations for pesticide producers and distributors in developing countries to support implementation of the Code of Conduct on the Distribution and Use of Pesticides, national legislation and other guidelines and codes of good practice.
13. Reiterated the recommendations to FAO from previous consultations and from the Alexandria workshop to:
 - a) Work in cooperation with Member States to raise the status of obsolete pesticides within the organisation to regular programme level, including financial commitment, prior to October 2003;
 - b) Place the issue of obsolete pesticides on the agenda of "Rio+10";
 - c) Further strengthen coordination and communication between agencies on matters related to obsolete pesticide prevention and disposal;
 - d) Develop a website providing information on potential funding sources for prevention and disposal of obsolete pesticides.
 - e) Consider the development of pictorial guidelines on pesticide handling and waste management targeted at the grass-roots level.
 - f) Expand the training programme on awareness raising and inventory taking, where relevant this can be done in conjunction with other agencies.

Participants of the consultation included from

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