PROGRAM AREA D
OBSOLETE PESTICIDES AND CHEMICALS

Preventing the Accumulation of Unwanted Stockpiles of Pesticides
A Thought Starter

Prepared by: US Environmental Protection Agency

Introduction

Prevention is a critical component of solving the world's obsolete pesticide stockpile dilemma. This is because stockpile disposal assistance will always be considered a one-time only operation, and thus will not solve the problem of subsequent accumulation of obsolete pesticide stockpiles. In addition, when compared to the management and disposal of stockpiles, prevention is cost-effective, environmentally sound, and permanent.

This paper outlines policies and practices that governments, aid agencies, development banks, industry, and farmers can implement to prevent further accumulation of pesticide stockpiles. These policies and practices aim to remediate the underlying causes of pesticide accumulation, thereby providing a permanent solution to a recurring problem. For an in-depth discussion of the topics described below, refer to the Food and Agriculture Organization of the United Nations (FAO) *Provisional Guidelines on Prevention of Accumulation of Obsolete Pesticide Stocks* (FAO, 1995).

ISG3 may wish to consider ways to:

- encourage governments, aid agencies, development banks, industry, and farmers to include prevention policies and practices as they develop strategies to manage and dispose of unwanted pesticide stockpiles;
- include prevention in capacity building activities for the sound management of chemicals.

Causes of pesticide stockpile accumulation

Obsolete pesticides are stocks of pesticides that can no longer be used for their intended purpose (to control pests) and therefore are wastes that need to be disposed of in an environmentally sound manner. Common causes of pesticide obsolescence include:

- lack of proper storage facilities; poor stock management

- missing or incomplete labels
- poor packaging
- prohibition of use due to regulatory action or policy decision
- lower than expected pest incidence
- purchase or donations of unsuitable products or packaging of impractical size
- excessive donations of pesticides by aid agencies
- damage during transport
- overstocking of products with a short shelf-life.

Additionally, many unwanted pesticides deteriorate as a result of improper or prolonged storage, leading to chemical and physical changes that may result in:

- decreased product potency
- loss of solvent carrier
- increased phytotoxicity to the target crop
- increased toxicity to the applicator
- inability to be applied with available application equipment.

What Governments Can Do

Governments can develop policies to minimize the potential for the accumulation of obsolete pesticide stockpiles. In addition, governments should ensure that suitable arrangements and organizational structures exist to implement such policies. These policies should focus on the following practices:

Test the potency of older products

It is important to test old pesticides to determine if they are obsolete and require disposal or if they are still useable. In one instance, approximately half of the pesticides earmarked for disposal in an African country were found to be useable after testing, repackaging, and relabeling (FAO, 1997).

Anticipate the effects of product bans

Governments should develop policies to deal with existing stocks of products which they take measures to ban. One possibility is to consider a phase-out period for the use of existing stocks. This should be considered on a case-by-case basis, taking into account economic factors and environmental and human health risks. Governments may want to avoid procuring products that are of increasing international concern, such as the nine pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, and toxaphene) among the twelve chemicals being considered as Persistent Organic Pollutants (POPs) under the United Nations Environment Program (UNEP)-sponsored negotiations on a new legally-binding instrument on POPs.

Estimate pesticide needs accurately

Keep stocks as low as possible but large enough to meet pest management requirements. Assure that procurement procedures are in place to facilitate rapid purchases. Purchase only the stocks needed, based on a realistic forecast of pest incidence. Avoid a situation like that which developed between 1950 and 1970 in one central European country, where artificially low prices and a centralized distribution system led to the overstocking of an estimated 60,000 metric tons of pesticides (Stobiecki, 1997). They were never used and now require disposal.

Reduce pesticide use

Governments can reduce pesticide use through policies that take a more comprehensive approach to pest control, such as integrated pest management (IPM) for agricultural pests and integrated vector control (IVC) for disease vectors. Pesticide use can also be reduced by carefully selecting more modern, highly specific low-dosage products, such as biological pesticides and growth inhibitors, many of which have the added advantage of lower toxicity to humans.

Identify appropriate products and package size

It is important to be as specific as possible when procuring pesticides, whether directly or through an aid agency or development bank. Provide detailed specifications in tender documents. The FAO developed the *Provisional Guidelines on Tender Procedures for the Procurement of Pesticides* for this purpose (FAO, 1994). Choose products with an adequate shelf-life and that are suitable for the available application equipment.

Packaging and labeling are also important considerations. Select package sizes that are practical for the end users. For example, do not purchase pesticides in 200-liter drums if there are no available repackaging facilities and the end user needs small quantities. Specify long-life containers if storage time is expected to exceed two years, or if storage conditions will be severe. Request light-colored drums to reduce the rate of thermal decomposition and solvent pressure build-up. Request durable containers if rough handling is expected. Specify long-life labels that are well attached and resistant to sun, heat, and rain damage. Request extra containers, packing materials, and spill clean-up materials with each consignment. Consult the FAO *Provisional Guidelines on Tender Procedures for the Procurement of Pesticides*.

Maintain appropriate handling, storage, and transport infrastructures

Invest in new storage facilities or upgrade old ones. Train staff in stock management, ensuring the “first-in, first-out” rule is followed. Refer to the FAO *Guidelines on Pesticide Storage and Stock Control* (FAO, 1996b).

Anticipate effects of price changes

Re-evaluate the role of government in distributing pesticides free or at subsidized prices. Governments with such policies usually maintain large stocks of pesticides which subsequently contribute to accumulation.

Develop policies and guidance to reduce excessive donations

Some obsolete pesticide stockpiles in Africa resulted directly from excessive donations by bilateral and multilateral aid agencies. Such donations may have been well-intended, such as for locust control and other major pests, but have gone unused. Governments can develop policies, guidance, and coordination strategies regarding pesticide donations to avoid this situation.

Establish effective delivery systems

Many of the obsolete pesticides in Africa are left-over strategic stocks for locust control. In coordination with donors and industry, governments should develop effective delivery systems to provide products as needed.

What Aid Agencies and Development Banks Can Do

Public and private aid agencies and development banks provide many of the pesticides used by developing countries. Therefore, it is important that these organizations develop policies on the topics outlined below to minimize the potential for the accumulation of obsolete stockpiles. Aid agencies should refer to the recommendations contained in the Organization for Economic Cooperation and Development's *Guidelines for Aid Agencies on Pest and Pesticide Management* (OECD, 1995).

Reduce pesticide use

Develop and adhere to guidelines that promote the principles of IPM and IVC. Where appropriate, replace conventional pesticides with specific low-dosage pesticides.

Identify appropriate products, package size, and quantities

Develop guidelines and procedures for selecting and using pesticides, especially tender and procurement guidance specifying formulation, package type, package size, and label information. Satisfy requests only of those countries that provide an adequate justification for the pesticides. Supply pesticides in quantities that the recipient country can realistically use. Ensure that the pesticide supplier provides the correct product and formulation compatible with the availalbe application equipment. Avoid providing large quantities of pesticides for strategic stocks.

Improve stock management

Donors should ensure that recipient countries have adequate facilities for the safe storage of pesticides in-country. Upgrade existing storage facilities or construct new ones, if necessary. Train warehouse personnel in proper stock management. Test old stocks to determine if they are still useable. Provide safety equipment to warehouse personnel, such as protective clothing, spare drums, and materials to contain and clean up spills and leaks.

Coordinate with recipient country and other donors

To avoid providing excess donations, duplicating pesticide shipments, or delivering them too late, it is important that aid agencies and development banks coordinate with all likely donors and the recipient country. For example, the FAO coordinates donors in African countries experiencing locust plagues. Ensure that all donations are consistent with the UNEP/FAO Prior Informed Consent procedure.

Provide technical and financial assistance

Aid agencies, development banks, and other stakeholders need to make a concerted effort to provide technical assistance and funds to dispose of current pesticide stockpiles, especially pesticides that they provided, and to improve stock management, including upgrading storage facilities and training personnel.

What Industry Can Do

As the producer and supplier of pesticides, the chemical industry has an important role to play in reducing obsolete pesticide stockpile accumulation. Industry can encourage the following practices:

Adopt product stewardship

Industry should provide appropriate, fresh, high quality products in durable containers with long-life labels. Industry should question orders of seemingly inappropriate products or quantities. With each consignment, industry also should provide all relevant information, such as the certificate of analysis, batch number, material safety data sheet, information on shelf-life in the country of use, and stacking recommendations. Industry should be encouraged to provide training to farmers and extension workers to ensure the correct use of their pesticides. To prevent the build up of pesticides that may become obsolete, industry, in conjunction with the recipient government, should provide post-sales monitoring of pesticide use. Industry should adopt the FAO recommendation to develop “return services...to take back unused quantities of pesticides, in particular unwanted products that can be reformulated, and surplus stocks that can be used elsewhere. The modalities for such arrangements need to be worked out by the pesticide industry in conjunction with

international organizations and national authorities" (FAO, 1995a).

Establish effective delivery systems

In coordination with donors and governments, industry should develop effective delivery systems to provide products as needed.

Provide technical and financial assistance to dispose of existing pesticide stockpiles

Industry should continue to make efforts to provide technical assistance, funding, and other resources to dispose of existing stocks of unwanted pesticides.

What Farmers Can Do

In many countries where pesticide supply and management are not government functions, the decisions farmers make have a major impact on whether pesticides stocks accumulate. Through a national IPM program, farmers can be encouraged to buy pesticides only at the appropriate times and in the quantities needed.

Purchase appropriate products, package size, and quantity

Pre-plan likely pesticide use and purchase only what will be needed for one season. Choose package sizes and formulations compatible with available equipment. Purchase products approved for planned crops, and do not accept damaged or poorly labeled containers (McB Allan, 1998).

Improve stock management

Maintain on-farm storage sites to be orderly, rain-proof, secure, and well-ventilated. Restrict stack height to avoid damage by crushing and avoid cross contamination. Keep records of incoming and outgoing stock to facilitate stock rotation, or "first-in, first-out." Do not repackage pesticides - store products in original container. If a container is damaged, place it in an oversized package to prevent leakage so that original label is preserved.

Stay informed

Seek and accept training on sustainable agricultural methods and safe use of pesticides. This training may be offered by government agencies or international organizations, or non-governmental organizations such as trade unions, trade associations, and environmental groups. Seek information on whether the products you wish to purchase are registered in your country.

Conclusions

To prevent future accumulation of unwanted pesticide stockpiles, it is critical that governments, aid agencies, development banks, industry, and farmers work together to develop coherent, effective policies and collaborate on their immediate implementation.

References and Further Information

The Plant Production and Protection Division of the Food and Agriculture Organization of the United Nations (FAO) has developed a series of guidelines that are applicable to the prevention of obsolete stocks. Contact address: Chief, Plant Protection Service, Plant Production and Protection Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy, tel. (3906) 570.53.441, facsimile (3906) 570.56.347. *WEBSITE*: http://www.fao.org

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