

## **USAID's Initiatives and Contributions to Pesticide Disposal Programs in Developing Countries**

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### **Introduction**

Most developing countries lack the capacity to respond to natural disasters such as pest plagues. Quite often, these countries turn to the international organizations, donors, and development agencies for assistance to respond to such disasters. International organizations and donors reply generously to requests by providing pesticides, spray equipment and materials as well as technical assistance. Unfortunately, some of the donated pesticides arrive late, are in formulations that are incompatible with the existing application equipment, or are unsuitable for the intended purpose, or are provided in quantities that require a better organized infrastructure to store, transport, and apply them safely and efficiently. In addition, recipient countries often submit requests to multiple donors and receive quantities greater than required and for which they do not have an adequate capacity to handle them. Affected countries also procure large quantities of pesticides in anticipation of future shortages. As a result, donated and excess pesticide stocks are often stored under unfavorable conditions for many years, become serious human health risks and jeopardize safety and the environment. Donors and the international community are then approached to assist in the removal of pesticides that have become obsolete and dangerous. Thus, benevolent donors often end up in the clean up process.

The United States Agency for International Development (USAID) has consistently demonstrated commitments and interests in safeguarding human health and preventing environmental hazards associated with dangerous obsolete pesticides in developing countries. USAID has been and is still actively involved in fulfilling and implementing its commitments and interests. The Agency's development objectives promote and encourage host countries to create and foster the capacity for developing and implementing mechanisms that ensure human health and environmental safety. Without these mechanisms in place, development initiatives may fall short of achieving their goals.

In an effort to improve human health and safeguard the environment, the Agency has been providing technical and financial assistance to a number of countries in Africa, southwest Asia, and Latin America to address pesticide related problems.

In 1988, USAID provided a pesticide safety specialist to Morocco to ensure safe handling and use of pesticides that it provided for the locust and grasshopper control. In 1989, the Agency assisted the Government of Pakistan (GOP) to dispose of approximately 17,000 liters of organophosphate and organochlorine pesticides and a herbicide in a state-of-the-art cement kiln. In 1990, USAID and the German Technical Assistance Agency (GTZ - Duetsche Gesellschaft für Technische Zusammenarbeit) supported the survey of pesticides in Morocco. In 1990, USAID sponsored a regional workshop on obsolete pesticides and empty pesticide containers in which a large number of technical and management staff from West African countries participated. In 1991 USAID, in collaboration with the, the Royal Dutch Shell Groups (Shell), and the Government of Niger (GON), helped Niger dispose of 56,000 liters of obsolete stocks of dieldrin and more than 14,000 kilograms of contaminated soils and containers. In 1995, USAID took the initiative and collaborated with the governments of the Netherlands (GON) and Tanzania (GOT) to dispose of 245,000 kilograms of old and unusable pesticide stocks from the islands of Pemba and Unguja, Zanzibar, Tanzania The Agency also responded to requests from the governments of Guinea Bissau and El Salvador by providing technical assistance to conduct feasibility studies for a safe and cost-effective means of disposing obsolete pesticides. It has had an important role in providing technical assistance to east European countries to address obsolete pesticides and pesticide management issues in general. Recently, it assisted Mali and Senegal with pesticide management and reformulation activities, respectively. Currently, the Agency is assisting Ethiopia with the disposal of nearly 1,500 metric tones of old, dangerous, and unusable pesticide stocks, contaminated soil and empty containers.

### **Ethiopia Pesticide Disposal Program**

Ethiopia has an astounding estimated 1,500 metric tones of dangerous obsolete pesticides, empty containers, and contaminated soil, and probably ranks number one among sub-Saharan African countries where such stocks exist. These materials are at over 460 sites scattered through out the country mostly at old state farms and storage facilities of the ministries of agriculture and health. As in many developing countries, much of these pesticides were acquired through generous donations by the international communities for the control of public health pests (e.g., mosquitoes) and emergency outbreak pests such as locusts, grasshoppers, and

armyworms. Considerable amount of these pesticides were also imported in the 1980s by the communist regime for the control of crop pests and weeds on the government-owned state farms. Experts agree that if left as is, these pesticides can and will continue to pose serious human health problems and adversely affect the environment.

Concerned about the eminent danger these pesticides could pose to human health and safety of the environment, the USAID Mission in Ethiopia provided U.S. \$1 million grant through the FAO, to support the pesticide disposal initiative in the country. The current USAID contribution to the Ethiopia disposal program constitutes nearly 25% of the estimated total cost of the whole operation. These funds were provided as part of the national environmental assistance for the program in Ethiopia and are being used for various activities described in the disposal project document submitted to donors. USAID funds for the proposed activities are planned to be available through 31 December 2001; however, it is possible that the grant period may be extended to ensure proper and complete implementation of the program.

It is encouraging and worthwhile mentioning that USAID's financial contributions and completion of a thorough Programmatic Environmental Assessment (PEA) for the disposal program have played a significant role in leveraging other international donors' contributions to the disposal program. As of now, the governments of the Netherlands and Sweden have pledged to provide U.S. \$2.25 and \$1.3 million for the disposal program, respectively. It is expected that the contributions from the three donors will cover the total cost of the disposal operation.

### **Senegal Pesticide [Sevin] Reformulation Project**

The USAID Mission in Senegal has provided close to U.S. \$338,000 to reformulate 80,000 liters of carbaryl (Sevin-4-Oil) into 900 tons of dust. The pesticide was provided in the early 1980's by the international and bilateral donors including USAID for the control of locust and grasshopper outbreaks and plagues. Without the reformulation, the pesticides could have otherwise posed a serious danger to human health and the environment, and cost host country and donors thousands of dollars more for safe disposal operations.

Although various safety and mitigation measures were adequately described in the original project proposal and an Initial Environmental Examination (IEE) was developed by USAID to ensure proper implementation of these measures, the initial stage of the reformulation process did not meet the proposed standards. Some of the safety procedures were not followed and persons involved in the reformulation activities were not using safety equipment. The USAID Mission in Senegal had to exhort the company to live up to its contractual agreement and follow guidelines described in the original project plan and the IEE. The dialogue with the company resulted in considerable improvements in safety and well being of workers at the reformulation plant. It is evident that host-country authorities involved in these activities were also equally concerned and the guidance and advice provided by the Agency made a positive contribution in helping these authorities to ensure that applicable regulations were properly enforced.

### **Mali Disposal Initiatives**

USAID's Africa Bureau staff in Washington and its field mission in Mali have played a crucial role in initiating a dialogue among the various ministries in the country to address the existing obsolete pesticide problems. As a result, the pesticide problems in the northern region of Kolda, in Tin Essak, Anefis, Agulhock, and Gao were brought to the attention of the concerned authorities in the country, and initiatives were taken by these authorities to launch a joint field mission to these and other areas to assess the extent and severity of the problem. USAID/Mali has also made a very important contribution to enhance the country's overall

pesticide management by providing state-of-the-art pesticide residue testing facilities at the National Veterinary Toxicology laboratory in Bamako. To ensure effective and appropriate use of the facilities, USAID/Mali has sponsored training of technicians who are in charge of the facilities. This training was provided through the Integrated Pest Management Cooperative Research Support Program (IPM CRSP) that is managed by Virginia Polytechnic and State University.

### **Zanzibar-Tanzania Disposal Project**

In 1995, USAID played a lead role in initiating a program to safely and effectively remove old and dangerous stocks of pesticides from the islands of Pemba and Uguja in Zanzibar, Tanzania. After consulting with the USAID Mission in Dar es Salaam, Tanzania, USAID's Bureau for Africa commissioned a team of experts to conduct an environmental assessment (EA) and provided financial and technical assistance to support the proposed disposal program. The disposal operation, which was largely funded by the Netherlands' government and supported by USAID, successfully and safely removed nearly 245,000 kilograms/liters of DDT and malathion as well as other types of obsolete and dangerous pesticides. DDT and malathion, which constituted much of the obsolete pesticide stocks, were originally acquired for a multi-donor malaria mosquito control program. The pesticides were later transferred to large state farms to be used against crop pests, but expired in the interim period. The total cost of the Zanzibar disposal operation was \$740,000. USAID provided about \$130,000 to support the EA and purchase equipment necessary for safe, effective, and sustainable implementation of the disposal operations and subsequent management of pesticides. USAID funds were also used to train the staff of the Department of Environment (DOE), and strengthen the DOE's capacity to establish an effective and sustainable system for management and monitoring of pesticides in the country.

### **Niger Dieldrin (Pop) Disposal Program**

Niger is one of the countries in Sahelian west Africa that face constant threats of crop losses to locusts, grasshoppers, grain eating birds, and other vertebrate pests, including rodents and gerbils. During outbreak and plague years, these pests are known to cause substantial crop losses leading to food insecurity at the local and/or regional levels. Pests of this nature are considered public pests and their control is the responsibility of the host country government's ministry of agriculture and others that are charged with overseeing public land, including parks, game reserves, sanctuaries, etc.

Over the past decades, Niger has been relying extensively on external assistance for the prevention and control of emergency pest outbreaks and plagues. As in most developing

countries, Niger has been the recipient of large quantities of donated pesticides for the control of these pests. Unfortunately, for the reasons described earlier, donated pesticides became a serious human health risk and compromised the safety of the environment.

In 1986, the USAID Mission in Niger (USAID/Niger) and the GON initiated a dialogue on the use and associated risks of dieldrin. By 1988, the GON agreed to stop the use of dieldrin provided that alternative products were available. The U.S. Government (USG) and other donors later satisfied this condition by donating approved pesticides to substitute for the dieldrin.

Following a 1988 report by the Worldwide Fund for Nature (a non-Governmental Organization) on leaking dieldrin barrels at a site near Tamgak nature reserve, USAID and the GON implemented the Dieldrin Risk Reduction Plan in 1989-90. In 1990, USAID and the GON sponsored a West Africa Regional Conference on the Disposal of Obsolete Pesticides and Pesticides Containers in Niamey, Niger. After the Conference, USAID/Niger received a suggestion from the Shell Chemical Company that the dieldrin stocks in Niger should be collected and destroyed in a commercial chemical incineration plant. The technical and policy discussions that involved USAID/Niger, GON, Shell, and GTZ lead to a successful collection, evacuation, overland and overseas transportation and incineration of 56,000 liters of old dieldrin stocks and 14,000 kilograms of contaminated soil and containers. The incineration was done in August 1991 at a dedicated disposal facility in the Netherlands and the total cost of the project, including development of a pilot program, collection, evacuation, and safe disposal was US \$640,275. USAID contributed US \$323,275, approximately 51%.

### **Current USAID Disposal Efforts**

Despite resource constraints, USAID's Africa Emergency Locust/Grasshopper Assistance (AELGA) Project, the Africa Bureau's mechanism for responding to emergency trans-boundary crop pests, has chosen pesticide disposal as one of its objectives. Through this, AELGA intends to provide technical assistance for disposal initiatives in developing countries in Africa, south of the Sahara. Healthy citizens and the environment are key to implementing productive and sustainable development programs. A timely removal of unwanted and dangerous pesticides and empty containers has a crucial role in ensuring human health and safety of the environment and releasing resources for development activities.

USAID's Africa Bureau is cognizant of the need for and the scarcity of technical skills and guidance in developing countries to provide a better and safer handling and use of pesticides and to implement effective environmental monitoring systems. The Bureau for Africa makes effort to provide technical and financial assistance to these countries. The

Agency has been and is still instrumental in assisting host countries to develop sound and effective policies and guidelines for pesticide management and environmental protection. It contributes a great deal to facilitate adequate implementation of these policies and guidelines.

It is evident that proper disposal of old and dangerous stocks contributes a great deal to the well being of the citizens and safety of the environment. It is also equally important that systems that prevent future accumulations are put in place. Without such systems, it would be difficult to guarantee a safe and healthy environment. In this regard, USAID plays a crucial role in implementing a sustainable preventive mechanism that will minimize future accumulation of obsolete pesticide stocks by conducting environmental reviews and action plans before implementing emergency responses.

The efforts USAID has been making in promoting and encouraging the removal of subsidies and other policy level interventions, including supports for privatization of the pesticide delivery systems, have witnessed key successes in eliminating accumulation problems in a number of countries.

Currently USAID's Bureau for Africa has a grant with the U.N. Food and Agriculture Organization (FAO) to support pesticide disposal and management initiatives in sub-Saharan African countries and these funds are intended to be used as seed money to support disposal related activities and leverage funds from other organizations.

### **Lessons Learned**

- Financial and technical contributions play a key role in solving pesticide disposal problems. It is also equally important that generous offers by the international communities and donors are sufficiently reciprocated by the recipient countries through strong and lasting commitments. Host country commitments and dedications that are translated into developing and implementing clear and enforceable policies and guidelines will play a very valuable role in minimizing and avoiding future potential accumulations. Host countries should be vigilant in making every effort to enforce such policies and guidelines. For example, importing quantities on as needed basis is a simple and direct way of avoiding potential disposal problems.
- It is evident that prevention is more economical and safer than disposal. To this effect, it is crucial that recipient countries and donors assume full accountability and develop appropriate mechanisms to promote prevention as a means of avoiding accumulation and eliminating future disposal problems.

- Illegal importations and importations of expired or nearly expiring pesticides contribute to the disposal problems and must be strictly prohibited and offenders must be reprimanded with heavy fine and their business licenses must be suspended.
- Both government and private importers and venders must adhere to the Afirst-in-first-out@ principle and older and usable pesticides must be used before moving on to the latter batches..
- Pesticide triangulation, which involves non-traditional donors as contributors of pesticides to a third country where they are needed, is another unique way of avoiding potential disposal problems. USAID has been promoting and facilitating this mechanism as a means of supplying the much needed pesticides and a mechanism for preventing potential disposal problems.
- It is evident that obsolete and dangerous pesticides are and can be effectively and safely evacuated, but at a substantial cost. However, disposal costs can be minimized with a better and a timely planning – if left an addressed, the human, environmental, and financial costs of disposal will escalate with time.
- Pesticide disposal is a joint effort and no single country can fully address it by itself. A better coordination of all stakeholders, including affected countries, donors and international organizations, pesticide industry, NGOs, etc. is critical to launching safe, effective and sustainable disposal operations.

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