

**DISPOSAL OF OBSOLETE PESTICIDES STOCKS
AND
PREVENTION OF THEIR BUILD-UP :
EXPERIENCES FROM MADAGASCAR**

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DISPOSAL OF OBSOLETE PESTICIDE STOCKS
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What and when ?	<p>The inventory, conditioning, export and incineration of 100 tons of obsolete pesticides : 1996 - 2000</p> <ul style="list-style-type: none"> • The development and implementation of a Prevention program against the build-up of pesticide stocks : 1999 - 2000
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After a first disposal action in **1993**, 43 tons of Dieldrin®, action conducted by the Direction for Plant Protection, GTZ and the Shell Company , a first survey on the existence of obsolete pesticide stocks was started in 1994.

In **1996** a complete nation-wide inventory was initiated by the Direction for Plant Protection in close collaboration with Voarisoa, an environmental project financed by Switzerland (SDC).

By **1997**, first results of the quality analysis of samples taken from 170 tons of suspected pesticides, indicated that at least 80 tons constituted obsolete stocks.

Long negotiations with the owners of some obsolete stocks, rough road and weather conditions, ensuring maximum security in handling and transportation of pesticides, are some of the characteristics of the conditioning and collection operation undertaken during **1998**. Some warehouses had to be destroyed, others decontaminated.

Based on the analysis of the reasons that had led to the build-up of unused stocks a prevention program is developed in **1999** to avoid repeating such situations in future (see Annex 1).

The collected stocks are re-packed following UN regulations, re-exported in accordance with the Basel Convention and incinerated in Switzerland in April **2000**.

The prevention program is implemented (see Annex 2)

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Where ?	Nation-wide action concerning 62 different geographical sites in Madagascar, known for its unique biodiversity.
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Madagascar is the fourth biggest island on this planet. 14 million Malagasy people live on and from it. Madagascar is characterised by its **unique flora and fauna** that developed separately from that of the neighbouring African Continent.

Agriculture is the main source of revenue, rice is staple food.

Pesticides are used mainly on export crops and on vegetables.

The national inventory was carried out in 62 different sites.

Only few storage facilities were complied the national legislation.

Pesticide runoff contamination of the immediate surroundings was often evident.

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Who ?	National Working group on Obsolete Pesticides (public, and private stakeholders), SDC, GTZ, GCPF.
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The Direction for Plant Protection initiated all the actions related to the disposal of obsolete pesticides.

GTZ and the Shell Company conducted the first disposal action, by re-exporting 43 tons of Dieldrin to England for incineration in 1993.

Yet it was the achievement of a national intersectoral Working Group on Obsolete Pesticides that organised the current action.

The members of the Working Group are :

- Direction for Plant Protection , Ministry of Agriculture
- Office of Donations, Ministry of Agriculture
- Direction of transmittable diseases, Ministry of Health
- Direction of pollution, Ministry of Environment
- Public sugar production agency
- National Committee for Chemical Security
- National Association of Agrochemical importers, PHYTOMAD
- Environmental project Voarisoa

Further participated and contributed :

- the Swiss development Agency SDC (participated trough the Voarisoa project,)
- the German Development Agency, GTZ, through the supra regional project for the Disposal of Obsolete Pesticides, and
- the Global Crop Protection Federation, GCPF, through Novartis

• **DISPOSAL OF OBSOLETE PESTICIDE STOCKS
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How ?	National and international resources
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**COSTS OF THE DISPOSAL OPERATION OF OBSOLETE
PESTICIDES**

GCPF	Standardised packing Packaging equipment Protective equipment Transport from Madagascar to Basle Incineration	135,000 USD
GTZ	International expert in supervision Local co-ordinator Local team for packaging Additional analysis Drawing up of the Prevention Program	75,000 USD
SDC - VOARISOA	All local logistics Human resources Transport	93,000 USD
DPV	Quality control analyses Human Resources	12,500 USD
PHYTOMAD	Local transport	3,000 USD
TOTAL COST = 318,000 USD		
COST PER TON = 3,200 USD		

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Main Results	
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- 1.100 TONS OF OBSOLETE PESTICIDES ARE DISPOSED OF**
- 2.ONE OF THE MOST IMPORTANT SOURCES OF POTENTIAL ENVIRONMENTAL CONTAMINATION, AT THE NATIONAL LEVEL, IS ELIMINATED**
- 3.PREVENTION PROGRAM IS BEING IMPLEMENTED, THE RISKS OF FUTURE BUILD-UP OF STOCKS STRONGLY REDUCED**
- 4.NATIONAL CAPACITIES FOR THE MANAGEMENT OF PESTICIDES IS IMPROVED AND AWARENESS FOR A SOUND MANAGEMENT OF CHEMICALS IS RISEN**
- 5.MADAGASCAR BECOMES PARTY OF THE BASEL CONVENTION IN 1999**

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Main Lessons learned	
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- **OBSOLETE STOCKS CONSTITUTE AN IMPORTANT THREAT FOR HUMAN HEALTH AND THE ENVIRONMENT**
- **THE ELIMINATION OF OBSOLETE PESTICIDE STOCKS IS VERY DANGEROUS AND HIGHLY EXPENSIVE**
- **AN EFFECTIVE COLLABORATION BETWEEN ALL SECTORS CONCERNED AND A REAL COMMITMENT OF INDUSTRY ARE THE KEY OF SUCCESS**
- **35% OF THE OBSOLETE STOCKS CAME FROM KR II PESTICIDE DONATIONS**
- **THE OFFER HAS TO BE ADEQUATED TO THE DEMAND**
- **THE MAIN OBJECTIVE IS NOT TO CLEAN-UP OBSOLETE STOCKS BUT TO AVOID STOCKING UNNECESSARY QUANTITIES OF PESTICIDES**

ISPOSAL OF OBSOLETE PESTICIDE STOCKS AND PREVENTION OF THEIR BUILD-UP : EXPERIENCES FROM MADAGASCAR	
Annex 1 : Causes of the build-up of unused stocks of pesticides	
CAUSES	CONSEQUENCES
<ul style="list-style-type: none"> • Prohibition of use (p.e. case of organochlorines) • Warehouses do not comply with minimum requirements (lack of ventilation system, products directly put on the ground, doors unlocked, etc...) • Warehouses in bad conditions • Poor handling conditions of cans and barrels (due to transport and handling, no lifting equipment) • No observance of the FIFO principle • Non existence or loss of labels • No stock sheets • No quality control • Suppliers deliver large container)s, do not correspond to user's needs • Wrong estimation of needs • Lack of training and supervision • Donations do not match the actual 	<ul style="list-style-type: none"> • The products decay quickly • Products are exposed to the elements (rain) • Damaged cans and barrels • Accumulation of old stocks • Unidentifiable products • Inexact stock situations • Doubtful quality of products • Insufficient storage capacity • Purchases superior to needs • Slowdown in use • Build-up of stockpiles of undesirable products in our country

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Main elements of the prevention plan

PUBLIC AWARENESS :

- **Dissemination of contents of the national pest control legislation through radio, traditional theatre, comics**
- **National campaign against re-using empty pesticide containers**
- **Lobbying activities in order to reduce the quantities of pesticides donated to the country**

TRAINING of farmers, agricultural advisors (public and NGO) and retailers.

Module 1 : Promotion of IPM (with emphasis on the use of natural control methods)

Module2 : Reducing risks when handling pesticides

Module 3 : Golden rules for adequate storage of pesticides

• **UPDATING NATIONAL LEGISLATION specifically on :**

- 1. Labelling ;**
- 2. Re-conditioning practices ;**
- 3. « Return to sender » concept ;**
- 4. Harmonisation of tender procedures**

So far approximately 250 people have benefited from the training modules.

A final impact evaluation will be undertaken in December 2000