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## **International POPs Elimination Project**

*Fostering Active and Efficient Civil Society Participation in  
Preparation for Implementation of the Stockholm Convention*

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# **Prevention of morbidity and mortality due to POPs pesticides in Morocco**

**Societe Marocaine de Toxicologie Clinique et Analytique  
(SMTCA)**

**Morocco  
September 2005**

## **About the International POPs Elimination Project**

On May 1, 2004, the International POPs Elimination Network (IPEN <http://www.ipen.org>) began a global NGO project called the International POPs Elimination Project (IPEP) in partnership with the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Program (UNEP). The Global Environment Facility (GEF) provided core funding for the project.

IPEP has three principal objectives:

- Encourage and enable NGOs in 40 developing and transitional countries to engage in activities that provide concrete and immediate contributions to country efforts in preparing for the implementation of the Stockholm Convention;
- Enhance the skills and knowledge of NGOs to help build their capacity as effective stakeholders in the Convention implementation process;
- Help establish regional and national NGO coordination and capacity in all regions of the world in support of longer term efforts to achieve chemical safety.

IPEP will support preparation of reports on country situation, hotspots, policy briefs, and regional activities. Three principal types of activities will be supported by IPEP: participation in the National Implementation Plan, training and awareness workshops, and public information and awareness campaigns.

For more information, please see <http://www.ipen.org>

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This report is available in the following languages: English

# Prevention of morbidity and mortality due to POPs pesticides in Morocco

## Activities carried out:

1. Conducting two workshops on persistent organic pollutants (POPs) and how to get rid of them. Workshop Venue: SMTCA (Société Marocaine de Toxicologie Clinique et Analytique) ;Workshop Dates: 25<sup>th</sup> August, 2005 and 24th December, 2005

## Workshop Topics

1. Speech by Dr. Monsef Edris on the definition of the Stockholm Convention with respect to Persistent Organic Pollutants and the role of the convention
2. Speech by Mrs. Farah Bokrtash covering a brief summary of the history of pesticides and the effects of organochlorine pesticides
3. Speech by Dr. Na'eema Rahalem dealing with health, environmental, economic and social considerations
4. Discussion
5. Recommendations

At the beginning, Dr. Monsef Edris welcomed the people present, adding that he suggested carrying out this project to promote community awareness of the persistent organic pollutants in Morocco during the workshops conducted by the society. He explained the meaning of persistent organic pollutants saying that they are toxic organic chemical compounds which are persistent in the environment. They build up in fat tissues with high concentrations. They biologically increase in the food chain and therefore, are considered very dangerous to the environment and to human health. These chemical substances may cause cancer. They may also cause disorders in the immune system, reproductive system well as growth and development. Consequently, they constitute a hazard to babies who may receive them through breast feeding.

During the last two decades, these chemical compounds drew the attention of international organizations. It was proved that such compounds move from one place to another because they can cross country borders. They have reached high concentrations, even in environments that have not used them. In 1998, the first international negotiations were started in Montreal, Canada for stopping or reducing the production of such substances.

On the global level, under the auspices of the United Nations Environment Agency, 126 countries approved in 2001 a convention called the Stockholm Convention on Persistent Organic Pollutants.

Persistent organic pollutants include 12 substances. They are aldrin, endrin, chlordane, DDT, mirex, dieldrin, heptachlor, toxaphene, hexachlorobenzene, PCBs, dioxins and furans. These POPs cause many diseases such as mental retardation, kidney diseases,

destruction of the immune system, cancer, and physical deformities. They also affect the reproductive system.

### **Aim of the Convention**

The convention binds the international community to protect human health and environment from POPs. The primary aim of the convention is to put a limit to the emissions of 12 pollutants which are considered the most hazardous POPs. The convention bans the production and use of endrin and toxaphene in the countries which have accessed the convention. It also calls upon member countries to stop producing aldrin and heptachlor. The convention limits the production amount and restricts the use of hexachlorobenzene and mirex to very limited purposes. It bans the production of polychlorinated biphenyls.

The convention restricts the production and use of DDT to the purposes of fighting disease carriers such as the malaria causing mosquito. It also restricts the import and export of POPs which are intentionally produced. The convention calls upon the member countries to prepare a national plan within two years for the implementation of the convention, and to establish national centres for the exchange of information related to POPs.

After that, Dr. Farah talked on the history of pesticides. Here are the main points she mentioned: Organochlorine insecticides appeared when the German scientist, Zeidler, prepared DDT in 1874. Its properties for fighting insects were discovered by Mueller in 1939. It was first manufactured in 1943 to be used by the Allies until the end of the Second World War. After that, it was used for civilian purposes, especially in the field of health, for fighting flies, mosquitoes and lice as an alternative to pyrethrum, a pesticide of a plant origin that was used at that time. This was followed by the appearance of the other group products that contributed to the protection of farm crops and man's health against dangerous diseases.

### **The Effects of Organochlorine Pesticides**

Organochlorine pesticides are chemicals which stimulate the central nervous system. Experiments show that DDT interferes in the movement of sodium and potassium ions through nervous membranes, and deactivates the sodium, potassium and manganese elements in the nervous membranes.

Most organochlorine pesticides have low acute toxicity properties. They are absorbed through the skin and are easily absorbed in fats. Since this group of substances was discovered, the hazards of their use became clear. Their hazards on health and the ecosystem became certain because they disintegrate slowly in the environment, and remain for long periods. Therefore, they were listed as persistent organic pollutants (POPs).

The persistency of these pesticides for a long period, and their solubility in fat tissues led to the build-up in the fats of living organisms, and their concentration hundreds of times through the food chain in animals such wild birds and sea animals.

These pesticides move for long distances from the places they are used in. High concentrations were found in creatures living in the North Pole, where such pesticides were never used.

Their chronic effects on man were discovered a long time after exposure to such pesticides in the sixties. It was found that they cause cancer in animals on which they were experimented. It is probable that the same thing may happen to man. Some of these pesticides are believed to deactivate man's immune system. It was revealed that they affect the endocrine system because they deactivate the functions of natural hormones in the body such as androgen, estrogen and testosterone.

There is documented evidence that DDT, for instance, has bad effects on health and environment such as:

Wild birds decreased as a result of the decrease in the density of egg shells as a result of the effects of a pesticide similar to DDT called DDE, and a result of the effects of DDT on reproductive development and on the behaviour of some birds such as the sea gull. There are important comments on the effect of DDT on man's immune system and nervous system when exposed to DDT at the first stages of children's development. It also affects mother's breastfeeding.

She pointed out that solving the problem lies in the awareness and practice of the concepts of clean agriculture, which focus on the biological fighting of pests, in addition to the comprehensive fighting of persistent organic pollutants through the creation of procedures for handling, transport, import and treatment. Reducing the consumption of ocean fish, drinking low fat milk, avoiding the consumption of chlorine products used for cleaning and bleaching, avoiding waste incineration, encouraging waste recycling, washing fruit and vegetables before eating them, and the use of safe pesticides can partly solve the problem. Dr. Monsef also emphasized the importance of the role played by non-government organizations for raising awareness regarding persistent organic pollutants and their risks.

Then, Dr. Na'eema Rahalem talked about persistent organic pollutants. Here is what she said. Persistent organic pollutants are chemical compounds derived from carbon. They are persistent in nature and biologically build up through the food chain. They constitute a group of the most hazardous pollutants in the world, and cause a serious threat to man's health and environment. They move for long distances from the source of emission. Therefore, they may be found in areas which do not produce or use such compounds. The following are some of the health, environmental, economic and social ideas that should be taken into consideration.

#### Positive Social and Economic Effects

They are useful for providing food security because most of them are used as pesticides. They are used for fighting insects which carry diseases such as malaria. They can promote economic development. They can provide job opportunities for this sector.

### Negative Effects

Diseases slow down production and increase the cost of treatment.

The basic environmental elements such as water and soil are polluted and become unsafe for drinking or farming. Their treatment will be costly.

Deterioration in environment affects the resources of economic development and increase the rate of unemployment and poverty.

The country's resources will be wasted for spending on emergency issues.

They are a threat to food security and national security (Insecure spread of diseases).

They affect the tourism industry and harm farming produce (unclean food and water).

### Health and Environmental Considerations

They accumulate in fats and reach the body through the food chain.

Cancer threat

Weakness and mental retardation in children

Memory weakness

Abortion in women

People who are directly exposed to POPs may suffer from:

Damage of liver cells

Damage of nervous system cells

Weakness of the immune system

Rash and skin eruption

Eating contaminated foods such as meat, chicken and fish which feed on contaminated plants, cereals and water and eating dairy products can cause 90% of contamination with dioxin.

Dioxin has the following negative effects:

It affects the function of the endocrine glands.

It weakens the immune system.

It decreases male sexual hormones.

It causes deformities in fetuses.

High concentrations of dioxin cause cancer.

It causes the risk of having chloracne, which is a skin disease known to cause rash, blisters and pimples similar to the serious conditions of acne. These may spread to the whole body and cause ulcers.

It also weakens learning abilities.

After that, discussions began and the following recommendations were suggested.

### **Recommendations**

Continue the efforts to make people aware of persistent organic pollutants among people through non-government organizations and mass media

Collaboration among governments, individuals and civil society establishments to conduct public awareness campaigns

Proposal of alternatives to harmful chemicals

Monitoring the export and production of hazardous substances

Issuing laws that regulate dealing in such substances for protecting human health  
Conducting studies that show the reality of these pollutants, the effects left by them, the current concentrations and how and where they are used  
Exercising pressure on government authorities to carry on their duties  
Sectors using such chemicals should bear responsibility for the resulting bad effects  
Preparation of studies and submission of reports on the reality of such chemicals and the problems arising from their uses  
Education and training of employees and people who deal in such substances on ways of protection, and providing them with the necessary equipment and technologies  
Avoiding the use of banned and smuggled substances even if they cheaper as a kind of responsible behaviour



**La Société Marocaine  
de Toxicologie Clinique & Analytique**

Organise à l'occasion du  
Jour de la Terre  
une journée sous le signe

**Pesticides,  
il y a danger.**

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