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## **The International POPs Elimination Project (IPEP)**

*Fostering Active and Effective Civil Society Participation in  
Preparations for Implementation of the Stockholm Convention*

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# **Country Situation Report on POPs in Uganda**

**Climate and Development Initiative (CDI) *with  
contributions from:***

**National Association of Professional Environmentalists  
(NAPE)**

**National Union of Plantation and Agricultural Workers,  
Uganda (NUPAWU)**

**Environmental NGO Lobby Group (ENGOLOG)**

**Uganda Environmental Education Foundation (UEEF)**

**Uganda Coalition for Sustainable Development (UCSD)**

**Uganda  
March, 2006**

## 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>

IPEN gratefully acknowledges the financial support of the Global Environment Facility, Swiss Agency for Development and Cooperation, Swiss Agency for the Environment Forests and Landscape, the Canada POPs Fund, the Dutch Ministry of Housing, Spatial Planning and the Environment (VROM), Mitchell Kapor Foundation, Sigrid Rausing Trust, New York Community Trust and others.

The views expressed in this report are those of the authors and not necessarily the views of the institutions providing management and/or financial support.

This report is available in the following languages: English

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## LIST OF ABBREVIATIONS

CDI	Climate and Development Initiative
C/CP	Commissioner Crop Protection
C/OSH	Commissioner Occupational Safety and Health
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
EIA	Environmental Impact assessment
ENGOLOG	Environmental NGO Lobby Group
FAO	Food and Agricultural Organization
GCAL	Government Chemical and Analytical Laboratory
GEF	Global Environment Facility
HCB	Hexachlorobenzene
HCH	Hexachlorohexane
IPEN	International POPs Elimination Network
IPEP	International POPs Elimination Project
KARI	Kawanda Agricultural Research Institute
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MIA	Ministry of Internal Affairs
NAPE	National Association of Professional Environmentalists
NDA	National Drug Authority
NEMA	National Environment Management Authority
NGO	Non Governmental Organization
NIP	National Implementation Plan
NOTU	National Organisation of Trade Unions
NUPAWU	National Union of Plantation and Agricultural Workers, Uganda
PAN	Pesticide Action Network
PCBs	Polychlorinated biphenyls
POPs	Persistent Organic Pollutants
PROBICON	Pro-Biodiversity Conservationists in Uganda
UCPC	Uganda Cleaner Production Centre
UCSD	Uganda Coalition for Sustainable Development
UEDCL	Uganda Electricity Distribution Company Limited
UEEF	Uganda Environmental Education Foundation
UEPF	Uganda Environment Protection Forum
UIA	Uganda Investment Authority
UK	United Kingdom
UNCDF	United Nations Capital Development Fund
UNEP	United Nations Environment Program
UNIDO	United Nations Industrial Development Organization
URA	Uganda Revenue Authority
USA	United States of America

## UGANDA BACKGROUND

Uganda is a land-locked country with a surface area of 241,038 square km and lies astride the equator. The country is bordered by the Republic of Kenya to the East, United Republic of Tanzania and Rwanda to the South, the Democratic Republic of Congo to the West and Sudan to the North. It has a high altitude over 1000m above sea level and hence has a modified equatorial climate. The population is about 27 million. About 70% of this area is high potential agricultural land.

Arable land constitutes about 49% of the total land area of the country. Uganda's economy is agro-based and therefore, arable land is a very important resource, from which about 80% of the population derive their livelihood. Most of this agriculture is carried out by small land holders using simple traditional methods. There are however some plantation estates for tea, sugarcane and coffee mainly concentrated in the south and west of the country.

Thousands of tons of chemicals are unloaded into the country every year for use in agriculture, forestry, veterinary, health and industry. Pesticides as one of these classes of chemicals form a very important component to Uganda's national economy because of their extensive use in agriculture and their potential impact on public health. A wide variety of pesticides are used to improve the quality and quantity of crops and livestock. Most of these use being carried out by ill equipped small scale farmers.

A number of other chemicals are used in the industrial sector mainly in the manufacturing of goods using raw materials from agriculture, livestock and forestry. Chemicals are used in the primary processing (pre-cleaning, grading and packaging) of agricultural outputs for export such as coffee, cotton, tea, beans etc. There are also certain chemicals like *Askarels* (PCBs) that continue in use in industrial processes like power production and distribution.

Owing to meagre resources, the administrative and technical measures necessary for chemical safety are scanty, poorly manned and poorly equipped. Vital data on the presence, trade and use in chemicals including exposure incidences is lacking. Current chemical regulation is thin and fragmented within departments with the effect that many dangerous chemicals continue to find their way into the country. The population remains largely unaware of the dangers of chemicals they handle.

Aside from sustaining agricultural production, the good climate of Uganda also breeds an abundance of vectors (mosquitoes, tsetse flies, black flies, snails etc.) that cause disease such as malaria, sleeping sickness, river blindness, bilharzias, typhus, yellow fever, plaque etc.). A variety of pesticides is used to control the spread of vectors. Before 1960, DDT was the main pesticide used against vectors like mosquitoes and tsetse flies but owing to their resistance, DDT has been replaced by chemicals like dieldrin. Dieldrin is still used but on restricted basis. A total of 50 tonnes of dieldrin were removed from Uganda in 1993. Agencies involved in disposal were the Food and Agricultural Organization (FAO) and the United Nations Capital Development Fund (UNCDF). Large stocks of the chemical do exist in the country. The storage and disposal of this stock is now an issue since there is no appropriate disposal technology and facility available in the country.

## **1. KEY CONCERNS RELATED TO CHEMICAL PRODUCTION, TRADE AND USE IN UGANDA**

Increased industrial activities in the 1990's have necessitated use of more chemicals in the country, particularly within the agricultural and industrial sectors. Chemical production still remains minimal and accounts for less than 2% of total chemicals available.

Although Uganda does not import or export chemical waste for processing or disposal purposes, some chemical wastes generated such as used oils are utilized by some industries like the tea and sugar industry as furnace fuels.

Pollution of land, water and air is one of the major concerns regarding use of chemicals in Uganda. Industrial effluents are discharged into water ways with no pre-treatments. NEMA has developed standards to manage effluent and gaseous emissions.

Information on chemicals is still fragmented and scattered in various sectors and therefore there is an urgent need for a multi-stakeholder management approach, involving representatives from government as well as concerned parties outside of government, industry, research institutions, the private sector, labour as well as other public interest groups.

As far as agricultural and industrial chemicals are concerned there is insufficient information that addresses concerns related to chemical production, import, export and use due to the following reasons, among others:

- There is no statistical data in place to address the above-mentioned concerns;
- There is no adequate information on solutions to the nature of problems encountered.

## 2. PERSISTENT ORGANIC POLLUTANTS (POPs)

Persistent organic pollutants (POPs) are a group of synthetic organic chemical pollutants that are able to resist degradation by light, chemical and biological processes. These chemicals are characterized by their low solubility in water, high lipid solubility, resulting in bio accumulation in fatty tissues of living organisms. They accumulate in the food chain and persist in the environment taking up to centuries to fully degrade.

The semi-volatile nature of POPs enables them to be transported long distances by air currents and marine waters to locations where they have never been used before. Thus, both humans and environmental organisms are exposed to POPs around the world. These chemicals are threat to human health and the environment.

Initially 12 POPs were identified as requiring urgent attention. These chemicals dubbed “the dirty dozen” include aldrin, chlordane, DDT, dieldrin, dioxins, endrin, furans, heptachlor, hexachlorobenzene (HCB), mirex, polychlorinated biphenyls (PCBs), and toxaphene. Dioxins and furans are by-products of industrial manufacturing processes involving chlorine and by-products of municipal, medical and toxic waste incineration and manufacturing processes.

A single molecule of DDT released in the 1950’s may still be cycling in the environment today. Organisms at increasingly higher levels in the food webs are exposed to increasingly higher levels of POPs, principally through their diets, so that individuals at the top of food chains, including humans carry the greatest body burdens.

### Major POPs Characteristics

- 1. POPs can be transported long distances on air and water currents** creating environmental hazards thousands of miles from their source. POPs have been detected in areas where they have never been used. This capacity for long-range transportation and deposition makes their control an issue of international concern. “POPs are travellers without passports” – Klaus Toepfer, UNEP Executive Director.
- 2. POPs bioaccumulate in the fatty tissues of organisms:** Because of their high fat solubility, high concentrations of POPs have been found in animals at the top of the food chain.
- 3. POPs are toxic** and have the potential to injure humans and other organisms even at low concentrations.

## 3. POPs SOURCES AND USE LEVELS IN UGANDA

Like most developing countries, Uganda does not manufacture or formulate POPs chemicals or pesticides. Despite this fact, chemicals including POPs have been used throughout the country for the past few decades. Some of them expired and create a disposal problem. Sometimes they are buried near residential areas or sources of water, particularly polluting ground water. Although Uganda has accumulated some obsolete pesticides over the years, information about the quantity of obsolete pesticides stored in



the country is very scanty. Storage facilities for absolute pesticides, however do exist at the ministry of agriculture in Entebbe, Kawanda Agricultural Research Institute, and some other decentralized agricultural centres

Of the twelve initial POPs, DDT, PCBs and the unintentional by-products dioxins and furans are of direct and immediate concern to Uganda. Chemicals like dieldrin and aldrin continue to be used despite denial from the Ministry of Agriculture.

### **3.1 DDT**

A particular concern to Uganda is the fact that malaria has become prevalent in the country prompting consideration by government of Uganda to spray DDT to control malaria. Although DDT is banned for agricultural purposes, the resumption of DDT use in malaria control programmes is raising public concerns over possible leakage of this chemical into agricultural pest management particularly in rural areas. There are also concerns from NEMA that DDT use has not been subjected to an Environmental Impact Assessment (EIA) that would help identify some environmental impacts and measures to mitigate possible harms when DDT use starts. Generally, there is a conflicting stance on DDT use in the country. While the Ministry of Health is planning to use it for malaria control, NEMA is insisting on avoiding the same due to its known POPs effects. On the other hand, there is no clear public consultation on the use of DDT.

DDT is not registered for (importation /use) with the Agricultural Chemicals Board and as such cannot be imported into the country. There are however obsolete stocks of DDT and smuggled stocks that would need to be disposed of without causing further injury to human health and the environment.

In 1999, the Food and Agricultural Organisation (FAO) carried out an obsolete pesticide inventory in Uganda that indicated that up to 214 tonnes of obsolete pesticide stocks (some of them POPs) need to be disposed of in a sound way. Although the FAO report does not indicate where the 214 tonnes are located, it is most likely that some of these chemicals remain stored in containers at the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) in Entebbe, Kawanda Agricultural Research Institute (KARI) and other storage facilities of the ministry.

### **3.2 Dioxins and Furans**

Uganda as a Party to the Stockholm Convention is required to monitor releases of dioxins and furans from the various release sources. No statistical data is available on dioxin and furan releases although there are many sources including open burning and semi-closed burning (incineration) of municipal and medical waste in the major hospitals in Uganda such as Mulago Hospital.

Open waste burning of mixed waste is a common practice in many parts of Uganda and this is one of the major sources of dioxin releases as by-product of POPs.

The table below gives a list of potential sources of dioxins and furans in Uganda.

**Table 1. Sources of POPs: Dioxin and Furan**

Sources	Estimated Relevant Quantities	Description
Asphalt mixing plant		No clear control strategies
By-products in the manufacture of chlorinated substances	Large quantities	No clear control strategies
Burning of PVC and other plastic materials	Large quantities	No disposal strategy for Kaveera – PVC and other plastic materials destroyed by open burning.
Chemical industry		Formulation industry processes
Burning of charcoal	Large quantities (over 90 % of energy used in Uganda is derived from biomass)	Large quantities of wood are burnt to yield charcoal for household use.
Expired pesticides	Large quantities	Chemicals expired during the periods of instability but have been dwindling due to poor storage.
Forest fires / bush burning		No clear control strategies
Waste burning/ incineration (municipal medical/)	Large quantities	Open air burning of plastic, paper, glass etc.
Industrial processes	Large quantities	No clear control strategies
Polluted chemical products (example PCB containing implements)	Large quantities	Burning of materials contaminated with PCBs at landfills Using PCB containing oils as fuels.
Transportation - combustion of petroleum products	Large quantities because of the fuel used in transport	Over 90% of the vehicles imported as second hand vehicles. - Regular petrol - 2- stroke mixture used by the Boda Boda (motorcycles). These have increased because of lack of public transport. - Burning of used oil as a fuel example in tea drying operations
Pesticides	Fairly large quantities	Used for agriculture, public health and consumers. Burning of expired pesticides in the open air
Expired drugs and medical wastes	Fairly large amounts	Large incineration operations at the NEC- Luwero Industries and many hospitals run incinerators.

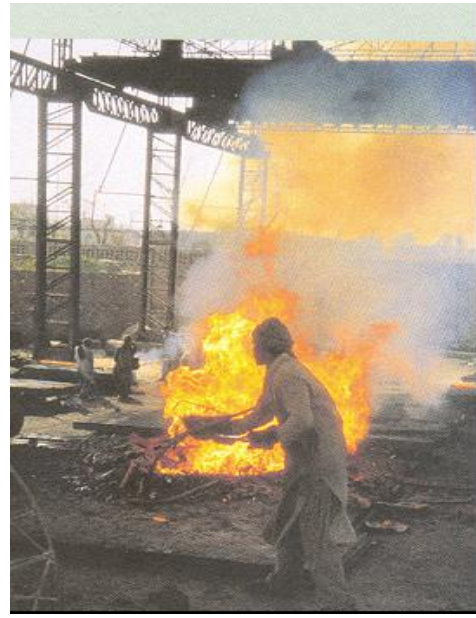


Plate 1. Open burning of waste



Plate 2. A modified open burning of waste

### 3.3 Polychlorinated biphenyls (PCBs)

PCBs are utilized as coolants in oils used in electrical appliances such as electric transformers of the Uganda Electricity Distribution Company Limited (UEDCL), dielectrics and capacitors. The oils containing PCBs are of great concern and have been in use for many years.

Contamination of the environment has happened when these equipment have leaked in many parts of the country. PCBs are also included in the formulation of a wide range of products including lubricants, cutting oils (used on a wide scale by local artisans in Katwe, Kisenyi), sealing compounds for the construction industry, plastics and rubbers, insecticides, paints / vanishes etc. Presently all new electric transformers purchased by UEDCL contain PCB-free oils. However there are hundreds of transformers currently in use that still hold PCBs. Changing of transformer oil from PCB containing to non-PCB containing oil lead to contamination of the environment through spillage. The structure of the inside of transformers would lead to retention of some oil which again contaminate the non-PCB filled oil.

There has been misuse of PCB oil by small scale industries (*Jua Kali*) especially in welding and in salons for hair dressing among others. It is not known where the *Jua Kali* and salons get the PCB-oils they use but there are some cases where the drained oil and replaced transformers are stored in open spaces. This means that a big population is under health threat from these practices.



Plate 3. Juakali welding suspected to use PCB oil

### 3.4 Dieldrin

Dieldrin was the major pesticide used until 1989 when there was a mix up in importation resulting in a wide destruction of banana plantations in Uganda. Dieldrin has been abandoned in favour of furadan (carbofuran). However large stocks of dieldrin held by farmers were irresponsibly dumped into the environment. Some farmers continue with use of dieldrin although the chemical is outlawed.

Dieldrin is still used in tsetse fly control but on a restricted basis. It is used for ground spraying and selective treatment of tree trunks (landing bases for flies) and fly traps. Its use has been highest from 1962 to 1988, but has now drastically decreased owing to a ban on its manufacture and use in Europe and the USA.

According to the Pesticide Action Network (PAN) UK, the FAO and the [United Nations Capital Development Fund](#) (UNCDF) carried out a pesticide disposal operation in Uganda in 1993 that disposed of 50 tonnes of dieldrin<sup>1</sup>. According to FAO, the 50,000 litres of dieldrin were disposed of from one storage facility in the western town of Fort Portal where repacking and on-site clean-up activities were done<sup>2</sup>. However unknown stocks of the pesticide still do exist in the country, having been imported with intent to be used on the tsetse fly control programme through aerial spraying, a project which has been stopped. The storage and destruction of this chemical is an issue since there is no appropriate disposal technology or facility available in Uganda.

### 3.5 Contaminated Food

In a study conducted by *Ejobi, F, Opuda-Asibo*<sup>3</sup>, *Muller, P and Kruger, J*<sup>4</sup> on Nile Perch fish (*lates nilotica*) caught from the Ugandan part of Lake Victoria; concentrations of PCBs and organochlorine pesticides were determined in muscle and liver samples. Six (6) organochlorine pesticide residues and three (3) polychlorinated biphenyl congeners were found in fillet samples in the following proportions.

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<sup>1</sup> [PAN International Website](#): Obsolete pesticides in developing countries ([www.pan-uk.org/pestnews](http://www.pan-uk.org/pestnews))

<sup>2</sup> FAO Corporate Document repository: [http://www.fao.org/documents/show\\_cdr.asp?](http://www.fao.org/documents/show_cdr.asp?)

<sup>3</sup> Department of veterinary Public Health and Preventive Medicine, Faculty of Veterinary Medicine, Makerere University, P.O. Box. 7062 Kampala, Uganda

<sup>4</sup> Biogeographie Fachbereich VI, Geozentrum Gebaude, Universitat Trier, 54286 Trier, Germany.

**Table 2. POPs Found in Nile Perch Muscle Samples**

Substance
Hexachlorobenzene
Dieldrin
pp-DDE
o,p-DDD
p,p-DDD
p,p-DDT
PCB-153
PCB-138
PCB-180

Source: *Ejobi, F, Opuda-Asibo, Muller, P and Kruger, J* (Department of veterinary Public Health and Preventive Medicine, Faculty of Veterinary Medicine, Makerere University)

The concentrations of these contaminants in muscle tissue were generally low. The mean concentration of total DDT in muscle was 0.001 mg/kg fresh weight and the highest recorded level was 0.003 mg/kg fresh weight. DDE constituted on average 94% of total DDT in muscle.

In the liver samples, nine organochlorine pesticide residues and 4 PCB congeners were found in the following proportions:

**Table 3. POPs Found in Nile Perch Liver Samples**

Substance
Hexachlorobenzene
$\alpha$ -HCH
$\beta$ -HCH
Lindane
dieldrin
p,p-DDE
o,p-DDD
p,p-DDD
p,p-DDT
PCB-52
PCB-101
PCB-153
PCB-138

Source: *Ejobi, F, Opuda-Asibo, Muller, P and Kruger, J* (Department of veterinary Public Health and Preventive Medicine, Faculty of Veterinary Medicine, Makerere University)

The mean total DDT was 0.003 mg/kg fresh weight, with the highest concentration of 0.01 mg/kg fresh weight.

No study of this type has been conducted on humans and therefore it is hard to establish cause and effect relationship for human exposure of POPs and incident disease. However, POPs even at low concentrations can cause serious long-term injury to human health and



the environment. On the other hand, the bioaccumulation tendency of POPs means that the concentrations in the human body will be higher than those in fish.

#### **4. DAMAGE CAUSED BY POPs**

Scientists have observed a wide variety of health effects in wildlife, including gross birth defects, reproductive disorders and changes in nesting behaviour among birds. The most troubling of these observed effects may be those that lead to reproductive failure and thus threaten entire bird populations. Among the best documented is eggshell thinning in birds, associated with exposure to DDT since the 1960's and responsible for endangering the bald eagle and other bird species. Dioxins, one of the most extensively studied of these chemicals, produces effects in laboratory animals at very low levels of exposure. Monkeys exposed prenatally to dioxin suffer impaired cognitive function. In rhesus monkeys, chronic low-dose exposure to dioxin increases the risk of endometriosis.

Additional evidence implicating POPs comes from recent research on endocrine disruptors, chemicals that disturb the hormone system by mimicking or blocking the action of an organism's naturally occurring hormones. All the initial twelve of the short-list POPs are known or suspected endocrine disruptors.

Despite well-documented evidence of the impact of these POPs chemicals on human health and wildlife, these chemicals remain in use and unregulated in many countries like Uganda. However, at present there is no scientific evidence available to link POPs exposure to adverse health effects in Uganda. This could be attributed mainly to the absence of toxicity centres that could help diagnose cases of chemical pollution.

#### **5. LEGAL INSTRUMENTS AND NON-STATUTORY MECHANISMS FOR MANAGEMENT OF POPs IN UGANDA**

In Uganda there is no single institution dealing with all aspects of chemical management. At national level, the responsibility of management of chemicals lies with ministries responsible for agriculture, the environment, health, trade and industry, labour, transport customs and NEMA.

Currently it is NEMA that handles all issues relating to chemicals except the agro-chemicals that are managed by the Agricultural Chemicals Board on which NEMA is represented. There is no specific law on POPs rather some few laws which address some issues related to POPs. The current regulatory controls on chemicals are ineffective and need to be updated in accordance with several international chemical conventions to which Uganda is a party.

##### **5.1 Legislation Related to POPs Management**

###### *5.1.1 The Agricultural Chemicals Statute, 1989*

This is the only significant law directly governing the use of pesticides in Uganda. The law has created a body (pesticide control board) to ensure safe use of chemicals. This law

however is not comprehensive and is short of the objective relevant to the international chemical conventions. It is strictly crop protective and waste disposal and does not promote sound use and management of pesticides.

#### *5.1.2 The National Environment Statute, 1995*

This is the most significant law on the use of chemicals at the moment. It prohibits the discharge of hazardous substances into any part of the environment except with the guidelines of NEMA; prohibits pollution contrary to established standards; prohibits the illegal traffic of hazardous wastes; and give any person generating hazardous wastes the duty of management of wastes generated from its activities. This is a fairly new law compared to others whose effect from its enforcement is yet to be felt.

#### *5.1.3 The Public Health Act, 1964*

This provides for prevention of diseases to the public arising from sewage, poor sanitation, and pollution of environment. It regulates the use of chemicals for public health and sets up the Health Inspectorate to ensure compliance. It also sets up the drainage and sanitation rules which specifically mention technical aspects of waste disposal.

Others include:

- The National Drug Statute 1993; Part III of the statute provides for control of the drugs supply. The importation or sale of drugs not appearing on the National formulary is prohibited. Drugs specified in schedules 1, 2 and 3 are classified as drugs, those in schedule 4 are exempted drugs, while those not classified or exempted are restricted drugs.
- The Uganda National Bureau of Standards Act 1983: the act ensures that the chemicals used conform to internationally accepted standards. Therefore, the major function of the bureau is regulatory one and ensures that standards are maintained and that adulteration of chemicals is curtailed.
- The Plant Protection Act. Cap. 244 of 1964
- The National Medical Stores Act, 2000;
- The Factory Act 2000.

## **5.2 Non-Regulatory Mechanisms for the Management of Chemical Products**

Not all important aspects of chemicals management are covered by legal instruments. Non-regulatory instruments and mechanisms as instruments are of a fairly recent and, therefore, have not yet taken hold.

- i) A list of banned pesticides has been produced by the Ministry of Agriculture. This list is intended to avoid the importation and use of these chemicals thus facilitating control;
- ii) Prior Informed Consent procedure (PIC) affects all chemical products and enables information to be exchanged between Western countries and Eastern Africa; its implementation has not taken place; and
- iii) Prior notification of importation (types and amounts) as often as possible.



The control and monitoring of the importation, production and disposal of toxic chemicals are not centralized in one single institution. There is a need to harmonize these regulations so as to allow for better coordination. Administrative organs should also be established to ensure compliance and enforcement, and duties of the various stakeholders involved in chemicals management should be well spelt out.

In general Uganda lacks the necessary infrastructure to adequately manage POPs chemicals. As such there are no data references and standards which would be used to provide the technical basis for practical implementation, monitoring and surveillance of chemicals.

Non-compliance is also attributed to lack of awareness on the potential health and environment hazards associated to POPs exposure. There is a need for policy implementers like licensing officers, physical planners, customs officers, industrialists to be sensitized on POPs.

### **5.3 Link to International Conventions**

While Uganda is signatory to several conventions and agreements related to the management of chemicals, the national implementation of the principles of these agreements has been extremely limited. Some commendable efforts and activities, however, have been realized relating to the Basel Convention, the Montreal Protocol, as well as the Framework Convention on Climate Change. Being a main recipient of second hand refrigerators and other second hand items that are responsible for emitting ozone depleting gases, Uganda has undertaken a process of initiating projects phasing-out and recycling refrigerants. The country has also undertaken training of target groups on hazardous waste management. Further more, a cleaner production centre, the Uganda Cleaner Production Centre (UCPC), has been established as a joint project of the Government of Uganda and the United Nations Industrial Development Organisation (UNIDO). The main objective of UCPC is to introduce Cleaner Production practices to enterprises in Uganda in order to help companies reduce operating costs through increased overall efficiency, especially in the use of materials and energy.

## **6. PUBLIC INTEREST GROUPS AND POPs**

### **6.1 NGOs Involvement in POPs**

As concerns related to POPs grow in the country, NGOs and other public interest groups like workers unions have played a central role in increasing public awareness on the potential health threats of POPs to human health. The number of NGOs involved with training on safe use of pesticides, waste management and disposal are however very few.

Some of the few active NGOs involved in work related to POPs management include.

- ***National Union of Plantation and Agricultural Workers- Uganda (NUPAWU):*** This organization is affiliated to the National Organisation of Trade Unions (NOTU). The organization raises awareness on occupational health and safety.

The union conducts frequent briefing and training to its members and also shares information with other trade unions.

- ***Climate and Development Initiative (CDI)***: This organization raises awareness on the potential health threats related to POPs exposure. It produces newsletters, public lectures, seminars, workshops and conferences and is a Participating Organisation of the International POPs Elimination Network (IPEN).
- ***National Association of Professional Environmentalists (NAPE)***: Conducts awareness on waste management and deals with organic substitutes to toxic chemicals. The organization has a bimonthly newsletter/magazine; titled the NAPE LOBBY, addressing a variety of environmental issues. It also has a website ([www.nape.or.ug](http://www.nape.or.ug)) where environmental awareness including awareness on POPs is carried out. Occasionally, the organization organizes radio programmes on its activities.
- ***Uganda Environment Protection Forum (UEPF)***: Raises awareness among the public on dangers associated with chemical wastes. It is also spearheading a number of NGOS with an aim to promote safe storage and disposal of petrochemical wastes.
- ***Uganda Environmental Education Foundation (UEEF)***: Focuses on creating awareness on misuse / abuse of agro-chemicals among the rural farmers.
- ***Environmental NGO Lobby Group (ENGOLOG)***: Focuses on lobbying and advocacy activities and it is a member to the NGO networks in Uganda and operates a quarterly newsletter. Also disseminates information through leaflets and fliers.
- ***Pro-Biodiversity Conservationists in Uganda (PROBICON)***: The organization focuses on lobbying against the unsustainable use of incinerators as a way of waste disposal. It also produces an annual magazine on waste incineration and alternatives to incineration. PROBICON has also organized a number of awareness seminars and workshops attracting participants from different countries.

POPs are a new and emerging concern in Uganda and have come with a number of challenges. The levels of NGOs communication on POPs issues in the country/region are still low and information dissemination remains a challenge. Many of the institutions that are involved in information dissemination do not have the support to produce sufficient awareness materials. Before the start of the IPEP project, there was a very few organizations that were actively involved in POPs activities. Today, many institutions are more knowledgeable on POPs than ever before and are raising awareness. However, for these NGOs to continue doing these activities effectively there is need for their capacities to be built.

Participation of NGOs in POPs awareness and lobbying activities has not gone unnoticed. The government of Uganda is considering NGOs as partners in its efforts to fight against POPs and has put NGOs and other CSOs at the forefront. NGOs have

been given equal opportunity to fully participate in the NIP along side other stakeholders. The biggest challenge to participation however is the challenge of time constraints to the NIP process, given that it started late and must be done within the time framework given by UNEP to Uganda.

## **6.2 NGO Capacity**

The capacity of NGOs to deal with POPs remains largely low in Uganda as their activities are often conducted as short-term project measures. There are few or sometimes no poisoning diagnosis centres in some areas, therefore NGOs lack scientific information that would help link POPs exposure to health problems. Also NGOs in Uganda lack the financial and technical resources required to adequately deal with POPs issues. There is a need for a concerted programme to develop the capacity of NGOs and other public interest players to undertake public awareness on the hazards related to POPs.

## **7. EFFORTS TO DEAL WITH POPs**

The Government of Uganda has shown interest in its efforts to deal with importation, trade, use and storage of POPs. It is important however to note that POPs are new phenomenon in Uganda and there are limited levels of awareness among the population in general. There has been very limited or no participation by the corporate section of society mainly because many of them remain unaware of the impacts of POPs. Because of lack of awareness, monitoring of POPs in the country has remained low or nonexistent. Although Uganda's health services are greatly improving, the number of people affected by POPs and other chemicals remains unknown. In many health places, the potential to identify the effects of POPs is still low.

Uganda Acceded to the Stockholm Convention on 20<sup>th</sup> July 2004 and is currently at the initial stages of developing the NIP. Several NGOs are participating in the NIP including NAPE, ENGOLOG, NUPAWU, CDI and UEEF. However, effective public participation is yet to be achieved as the public is more on the receiving end. There is a need to further define the coordination structures under the NIP for clear roles. In November 2005 in the Eastern town of Jinja, NEMA held a stakeholders meeting as an effort towards inventory. Participants at the meeting undertook training in Action Planning skills building to assist with the Stockholm Convention implementation. This training is to be followed by another training that will impart skills on information sourcing for the POPs inventory.

Lack of an updated legislation for the management of POPs in Uganda is an obstacle to the sustainable management of existing and new POPs. There is need for enacting laws and regulations as to conform to the new challenges from the threats of POPs.

## **8. STATE OF STOCKHOLM CONVENTION AND THE NATIONAL IMPLEMENTATION PLAN**

In response to health concerns related to POPs, UNEP<sup>5</sup> assumed the lead in mounting the first international effort to control POPs on a global scale. The Stockholm Convention on POPs was adopted in May 2001 to deal with this threat, and offers an opportunity for worldwide elimination of POPs. The treaty offers provisions for hard pressed developing countries to access financial and technical assistance to carry out their obligations under the convention. Countries like Uganda do not have the capacity to monitor POPs in the environment, or to assess background levels in their environments, including the technology to control emissions of dioxins and furans. However, with the Convention there are opportunities for assistance.

The status of the Convention in Uganda is as follows:

- Uganda acceded to the Stockholm Convention on 20<sup>th</sup> July 2004.
- The Global Environment Facility (GEF) approved the “*Enabling Activities for the Stockholm Convention on POPs – NIP for Uganda*” project on 15<sup>th</sup> March 2005.
- The project is being executed by the NEMA as the Convention’s Focal Point in Uganda. NEMA as National Focal Point has set up a multi-sectoral project coordinating committee.

## **9. PUBLIC AWARENESS ACTIVITIES**

Public awareness is the key to mobilizing popular opinion and to generating appropriate political action on POPs. The capacity to communicate the impact of POPs is critical to the success of any POPs management programme. However, awareness on the potential health effects of POPs in Uganda is very low, limited mainly to higher centres of education, research bodies and a small number of NGOs. This is mainly because very little public education materials on POPs are available. Very little scientific research has been conducted in the country to generate data that would be useful in developing linkage of disease to POPs exposure in humans.

Without access to such vital information, poor communities continue to be exposed to POPs, particularly at the work-place. Local artisan metal workers use PCB containing *Askarel – oils* in their local welding plants as heat retardants. These oils are spilled into drainage channels that eventually drain into Lake Victoria. The lake is the main source of water around Kampala City and a number of countries.

In as far as raising awareness among the public on POPs is concerned, the various ministries and institutions have made very little or no efforts in ensuring that the public is made aware of risks associated to POPs. Nonetheless, NEMA and some NGOs have played a key role in this area. NEMA as the governmental body responsible for POPs management in the country as well as civil society lacks the resources to under-take a country-wide POPs public education campaign.

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<sup>5</sup> United Nations Environment Programme

The level of public awareness on POPs even within in NGOs remains minimal. A few public interest NGOs have been involved in POPs awareness activities. Some of these activities include:

1. A flyer – POPs a Human Health Threat, May 2002.
2. An NGO Skill-share Workshop on POPs and Human Health Impacts organized by Climate and Development Initiatives in collaboration with the Uganda Coalition for Sustainable Development (UCSD) in 2002.
3. A slide presentation to the media on POPs and their health impacts. This was organized as part of activities the Global Day of Action for the Stockholm Convention in May 2003.
4. A National POPs Workshop organized by Climate and Development Initiatives in collaboration with NEMA on 6<sup>th</sup> August 2003.
5. A public dialogue on DDT and POPs Stockholm Convention in 2004. This was organized by Climate and Development Initiatives.
6. A regional workshop on persistent organic pollutants with special emphasis on DDT organized by the African Network for the Chemical Analysis of Pesticides, Makerere University, April 2004.
7. The National Association of Professional Environmentalist (NAPE) together with Hon. John Ken Lukyamuzi (MP Lubaga South) in January 2005 Co-organized a demonstration against use of DDT for malaria control in Uganda.

In 2003 NEMA organized a Regional Training Workshop on a dioxin and furan Toolkit.

Further awareness activities by NGOs would include:

- i) Translation of POPs materials to simple and local languages;
- ii) Materials with targeted illustrations for simple and quick understanding;
- iii) Brief radio and TV coverage;
- iv) Focused drama.

The target groups will include special groups as women, children, school and colleges and policy makers.

## **10. RECOMMENDATIONS ON ELIMINATING POPs**

### **10.1 Issues to address POPs**

The following are key issues to address towards POPs Elimination in Uganda

- i. Establishment of a multi-stakeholder national coordinating committee on POPs. This committee will take central role: undertaking POPs emission inventories, identification of polluted sites, undertaking inventories of obsolete POPs stocks;
- ii. Harmonization of existing chemical legislations in Uganda with legal requirements of the Stockholm Convention;

- iii. Develop a comprehensive information and awareness raising campaign on the dangers and risks of POPs. This should involve all sectors including NGOs and other public interest groups like trade unions;
- iv. Raise financial resources to introduce chemical and non-chemical alternatives to POPs, introduction of technologies and techniques for effective disposal of POPs wastes and build human resources in various sectors including NGOs to manage POPs; and
- v. Interaction and harmonization of sub-regional and regional (block) legislation in East, Central and Southern Africa.

## **10.2 Proposed Measures to Address Risks Associated with POPs**

To help further address the country's concerns or needs regarding POPs management, the following measures are being considered.

1. Provision of specialized infrastructure and man-power quality control;
2. Supporting extensive awareness activities involving NGOs, media and educational programmes in high learning centres;
3. Establishment of a national POPs information centre including database for the management of POPs; and
4. Information link with toxicology centres.

## **11. RECOMMENDATION ON INVENTORIES**

Although Uganda conducted a countrywide inventory on chemicals, the inventory does not include POPs chemicals. This is one of setbacks of immediate plans and actions to reduce the use and release of POPs while developing the NIP. Therefore Uganda does not have an inventory on POPs, and the recommendations include:

- Develop an inventory of POPs releases in the whole country and frequent updating of the same;
- Carry out systematic studies and monitoring of POPS releases in possible major sources;
- Develop an inventory of PCB containing equipment in the country;
- Develop an inventory of obsolete POPs pesticides and other POPs stockpiles; and
- Introduce POPs chemicals alternatives both chemical and non-chemical.

## 12. ALTERNATIVE TO POPs

The Uganda Clean Production Centre (UCPC) supported by UNIDO is pioneering clean production in an effort to reduce pollution in industry. The centre is supporting demonstrations of cleaner production technologies and techniques in Uganda, training industry and government professionals. There is, however no POPs specific project that has been implemented by the clean production centre. The centre has however been active in reducing use of PVC (plastic) materials which contain chlorine. Burning is a real plastic problem as it results to dioxin formation, affecting human health and the environment.

The Ministry of Agriculture together with some NGOs is involved in several projects intended to substitute pesticide usage with non-chemical alternatives. Using the Farmer Field School Approach farmers are being trained on pest management that uses less or no pesticides. These need to be strengthened and extended for wider and long-term use.

There are also some alternative approaches for malaria control that avoid use of DDT which need further support and improvement through research. They include:

- elimination of potential mosquito breeding grounds;
- The use of mosquito nets;
- The planting of locally abundant mosquito-repelling plants such as lemon grass (*Cymbopogon citratus*) and neem tree (*Azadirachta indica* A. Juss) around homesteads.

To have these approaches in a sustainable way, capacity building in case of research and promotion of alternatives within and outside Uganda is a crucial element. The capacity is both in terms of human (technical) and financial resources. Simple packages on alternatives would be needed for wider promotion and application.

## 13. NEW POPs

While there is still discussion on the inclusion of new chemicals and pesticides as new POPs candidates since COP1, five substances are currently examined by the POPs Review Committee. These are Lindane, chlordecone, PFOS, penta-BDE (flame retardants), and hexabromobiphenyl. There are also proposals from different stakeholders including public interest NGOs to examine other chemicals such as paraquat, endosulfan and dicofol (pesticides) among others. There is urgent need for the Ugandan government to take necessary measures to avoid importation and use of these chemicals at the same level with the initial 12 POPs. Although, some of these chemicals are not officially imported into the country, there is fear that some of them may be smuggled into the country given the porous nature of the country's borders.



## 14. RESOURCES ON POPs

**Table 4. Data Sources Related to Chemicals Management**

Type of Data	Location(s)	Data Source	Access
Production statistics	UBOS-Entebbe, Uganda Investment Authority	Data office	Public
Import Statistics, General Agricultural, pharmaceuticals	URA-Customs, MAAIF, Entebbe, Min. Health-Kampala	C/CP agr. Che NDA	Public
Chemicals use statistics	Ministry of Agriculture, Entebbe, Ministry of Health Kampala	C/CP – Ag. Ch	Public
Industrial Accident reports	Min. Gender, Labour and Social Devt.	C/OSH	Public
Transport accident reports	Police / CPS Kampala	Data base	Police
Occupational health data	MAAIF, Entebbe, Min. gender and Labour	C/CP-Agr.ch C/OSH	Public
Poisoning statistics	Ministry of Internal affairs	GCAL	Restricted
Hazardous waste data	NEMA, Kampala	S/environmental inspectors	Public
Inventory of existing chemicals Agrichemicals, pharmaceuticals	MAAIF, Entebbe, Ministry of Health, Kampala	C/CP Agr.ch/ NDA	Public
Register of pesticides	MAAIF, Entebbe,	C/CP-Agr. ch	Public
Register of toxic chemicals	NEMA Kampala, MAAIF Entebbe	S/env. Inspector C/CP Agr. ch	Public

### 14.1 Reports

Final Report National Profile on the assessment of chemicals management infrastructure in Uganda, November 2002.

Report of a Regional Workshop on Persistent Organic Pollutants, ANCAP, Makerere University

Report of National Workshop on Persistent Organic Pollutants, Climate and Development Initiatives, 1999

### 14.2 Contacts

#### POPs / IFCS Focal Point

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#### UNIDO / Uganda Cleaner Production Center

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## APPENDICES



Waste burning



Containers with unknown chemicals



Tanks containing unknown toxic waste