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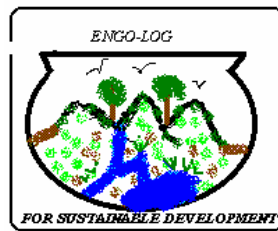


Swiss Agency for
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The International POPs Elimination Project

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

Hotspot Report – Identification of Activities or Practices that Release POPs in Uganda



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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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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

AGENDA	AGENDA for Environment and Responsible Development
BAT	British American Tobacco
BEP	Best Environment Practice
CSO	Civil Society organizations
DDT	Dichlorodiphenyltrichloroethane (DDT)
EHF	Environmental Health Facility
EU	European Union
GEF	Global Environment Facility
IPEN	International POPs Elimination Network
IPEP	International Project on Elimination of POPS
IPM	Integrated Pest Management
KCC	Kampala City Council
MT	Metric Tons
NEMA	National Environment Management Authority
PAN	Pesticide Action Network
PCBs	Polychlorinated biphenyls
PCDD	Polychlorinated para-dibenzo dioxin
PCDF	Polychlorinated para-dibenzo furan
POPs	Persistent Organic Pollutants
PVC	Polyvinylchloride
UCSD	Uganda Coalition for Sustainable Development
UEEF	Uganda Environmental Education Foundation
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNSPIN	Uganda National Symposium on Pesticides Information Network

ACKNOWLEDGEMENT

Environmental NGOs Lobby Group (ENGO-LOG) is pleased to present this IPEP Hotspot Report for Pattern of Practices in Uganda for which it is proud to be part of. We would like to acknowledge the financial support from UNIDO, UNEP and GEF extended through the IPEP project which made the work and preparation of this report possible. Special thanks go to IPEN, EHF and AGENDA for effective co-ordination and technical assistance. Thanks also go to Uganda Environmental Education Foundation (UEEF), National Environment Management Authority (NEMA) and Uganda Coalition for Sustainable Development (UCSD) for valuable information, technical assistance and valuable participation in this study. We also thank all other stakeholders who provided valuable inputs especially personnel in our study areas and valuable information provided that has made this report production possible.

1.0 INTRODUCTION

1.1 Summary

Uganda acceded to the Stockholm Convention on Persistent Organic Pollutants (POPs) in July 2004 and it has taken it on as part of the sustainable development agenda. It is however recognized that human activities in different sectors are exerting pressure and through the use of POPs chemicals and the releases of unintentional POPs (dioxins and furans) as by-products of combustion, raise concerns for attaining sustainable development due to the detrimental effects caused by these POPs to living organisms and the environment.

This report follows a study to identify activities or practices that release POPs into the environment in Uganda. Through study visits to Mulago and Rubaga Hospitals; GM Tumpeco, Crest Foam, Polyfibre, Ministry of Health, Kampala City Council and others. The team identified potential sources of POPs based on similar studies elsewhere, as there is no coherent data on the status of POPs in Uganda. Most of the people interviewed are not aware of the dangers of POPs and this has been mainly due to insufficient awareness at all levels.

The report highlights pattern of practices or activities that generates POPs into the environment and its implications or impacts to the social economic, human health and the environment. Alternatives practices to realize the gradual reduction and eventual elimination of POPs in Uganda are suggested for the areas of study. It is hoped that these can form part of the cleaner production processes hence cleaner materials and products, preferably free from POPs.

The last part of the report provides recommendations on what Civil Society Organizations can contribute to the newly acceded Convention in Uganda through local actions, networking and advocacy together with National Focal Point (National Environment Management Authority - NEMA), other global civil society networks like IPEN and other interested partners. The recommendations include the need for more information regarding the status of the POPs alongside inclusive and participatory capacity building and awareness-raising given that Uganda is only in the initial process of preparing a National Implementation Plan (NIP).

1.2 Scope of the study

The scope of this project was to identify activities or practices that releases POPs into the environment. The specific aims of the study include:

- To have concrete information on type of activities or practices that release POPs to the environment;
- To document specific information on selected POPs including, DDT, PCDD / PCDFs, and PCBs and how they impact on environment and human beings;
- To strengthen civil society work related to awareness, advocacy and networking on POPs; and
- To recommend to various stakeholders better management of their activities to avoid POPs release to the environment for sustainable development.

Pre- visits were done as part of the study process, to identify potential sites. A process was then developed to select sites based on its potential to release POPs in the environment. Several institutions, industries, Research institutions, private sector,

farmers, hospitals, municipalities were visited and communities were interviewed during the study. The findings have been used both as primary and secondary data in this report.

2.0 ACTIVITY AND HOW IT GENERATES POPs

General description

The United Nations Environment Programme (UNEP) adopted a decision on persistent organic pollutants (POPs) to initiate an expedition assessment process beginning with a short list of twelve POPs including PCBs, Dioxins, Furans, Mirex, Dieldrin, Aldrin, DDT, Endrin, Chlordane, Hexachlorobenzene, Toxaphene and Heptachlor. The move is intended to eliminate POPs because of their negative impacts on the environment and human beings. POPs are known to be toxic, they cause harm to people and other living creatures by interfering with biological processes in the bodies, they are lipophilic or fat loving as they move through the environment and they concentrate in fats and oils. They are stable and persistent and do not breakdown readily as they move through the environment.

Realizing the impact of POPs on human beings and environment, the United Nations developed a legally binding instrument, the Stockholm Convention, to control production and use of POPs. In order to ensure an effective participation of NGOs and Civil Society in the implementation of the Stockholm Convention, GEF, UNEP and UNIDO through IPEP provided a grant to assist NGOs and CBOs to build their capacity in POPs activities. ENGO-LOG was one of the beneficiaries NGOs to carry out research on Hotspot pattern of practices in order to identify activities and/or practices that release POPs into the environment in Uganda.

The study is limited to selected POPs like DDT and PCBs used and PCDDs/ PCDFs released from municipal, medical and municipal waste incineration in Uganda. These POPs were selected on the ground that there is evidence of their possible releases for example dioxin release from medical and municipal waste incineration, uncontrolled combustion, chemicals production, use of pesticides in agricultural production and in disease vector control like in malaria. Incomplete combustion through open burning or incineration is one of major sources of dioxin and furan releases to the environment.

The wastes normally contain mixture of materials ranging from plastics, biological and clinical wastes, biodegradable and non-biodegradable when burnt or incinerated releases Dioxins which are even more toxic than the original waste. These are practiced in Uganda, hence a need to get more information and indicative data on the same.

3.0 HISTORY OF ACTIVITY IN COUNTRY

3.1 Incineration of hospital waste in Mulago Hospital

In 1959 Mulago Hospital constructed an incinerator to be used for disposal of medical wastes. Currently there are two incinerators at the Hospital. The type of medical waste handled by the two incinerators currently operating in Mulago include used syringes, used canulars¹, IVG sets, blood transfusion sets, used cotton and gauze, swabs, amputated rings, uterus and unwanted blood.

The workers operating the incinerators are ignorant about the health effects of uncontrolled burning although they associate some health complications due to being exposed to this type of activity. These incinerators are used 24 hours a day in order to avoid accumulation of medical wastes, and they have the capacity of handling 800kgs per day.

3.2 Pesticides use in agriculture sector

Different pesticides are widely used for different purposes in Uganda. These include protection of human health, and enhancement of quality and quantity of crops and livestock. They are most easily accessible and widely stocked in farmers' houses, stores and by traders. It is estimated that over 2,224 tons of pesticides are imported annually.

There are over 300 pesticide formulations in use in Uganda and this shows a significant and varied load of toxic chemicals on the environment with a corresponding variety of health effects. Many of the pesticides used in Uganda are organochlorine. These are well known for their persistent and accumulation in the environment, the POPs.

3.3 DDT use for Malaria control

In recent months, DDT has come up in the news over several malaria epidemic flares-ups that have broken out in a number of African countries prompting Health Officials to threaten use of DDT to control malaria. Ugandan Minister of Health Brigadier Jim Muhwezi said that "the ministry was determined to use DDT to control mosquitoes because the cost for treating malaria and the burden it had on the country outweighed environmental repercussions." Malaria exerts a heavy economic price in lost productivity and it has caused deaths to thousands of people.

There are some approaches to malaria control alternatives such as bed nets and prevention and treatment drugs but still there is limitation of costs, user acceptance and infrastructure on a wide scale use options. It is for this reason that Uganda is planning to introduce DDT for malaria vector control.

3.4 Manufacturing and power production

Uganda is among countries where industrialization is taking root. Presently there are so many mushrooming industries which manufacture PVC plastic related materials and products. These are well known for the release of POPs by products when burned. The old transformers that use PCB oil are still in use in Uganda, creating PCB handling problems. The Electric Power generation, the Government through Uganda

¹ disposable equipment for handling blood, water and drugs

Electricity Transmission and Distribution companies is now phasing out the old transformers and electrical appliances which are potential sources of PCBs and they are being replaced by new safe ones but the process is not yet complete. Table 1 shows common pesticides used in Uganda.

Table 1: The most common pesticides used in Uganda

Scientific name	Common name	Used crop /weed/ vector	Estimated qty per year
Bromacil	Hyver-x	Pine apple herbicide	5MT
Glyphosate	Round w	Coffee/tea herbicide	40MT
Mn-Zn Carbonate	Dithane m-44	Tomato/vegetables herbicide	30MT
Mn-Zn Carbonate	Dithane m-45	Tomatoes	10,500MT
Malathion	Malthion drid	Grain storage	20MT
Malathion	Kill pest mda	Grain storage	1652MT
Dichlorvos	Vapona 48EC	Warehouse/public health	2MT
Chlorrfenriphos	Supona extra	Cattle ticks	5 MT
Paraquat	Gramanoxone	Lead killer	200MT
Paraquat	Grammoxone	Coffee/Tea/Weed	640MT
Zicloran	Tordon	Bush killer	20MT
Neta		Weed killer	10MT
Dieldrin*	Dudubitooke	Banana weevil	40MT
Dieldrin*	Dieldrex 15T	Tsetse flies	30MT
Dieldrin*	Dieldrex 18EC	Termites	2MT
Dieldrin*	Dieldrin 2.5%	Banana weevil	100MT
Dieldrin*	Diadrin 21%	Banana weevil	250MT
Aldrin*	Aldrin 2.5%	Soil pests	250MT
Carbofuran	Furadan 5a	Banana weevil Nematodes	80MT
Cypermethrin	Ripcord 5EC	Sugarcanes herbicide	100MT
2-4 D	Shellmine 72	Broad leaflet weeds	
2-4-D	Murphamine	Broad leaflet weed	245TINS
2-4-D	Furnimine	Broad leaflet weed	50CTNS
Alichlor/ Atrazine	LassoAtrazine	Maize herbicide	20CTNS
Dalazon	Gramevin	Couch grass	5MT
Dalazon	Ddapon 1X6X1	Coffee/tea/ plantation	900 CTNS
Ddazon	Ddapon	Coffee/tea/ plantation	20MT
Diazion	No-Bug	Bed bugs	20MT
Pernethrin	Ambush	Cotton/fruits	150DRUMS
Maneb	Dithane n-45	Tomatoes	160MT
Fenitrothion	Sumi thion	Leaf eating pests	60 MT
Mancozeb 80	Penncozeb	Tomatoes/potatoes	90MT
Dimethoale	Rogor 40%	g/nuts	151MT
Copper oxide	Shell copper 50%	Citrus fruits	10MT
Copper oxide	Cuprous oxide	Cotton seed dressing	20MT
DDT*	Proposed	Mosquitoes	Not known

* POPs chemicals as listed in the Stockholm Convention
Source: UNEP (2000)

NB: Most of the listed POPs were banned in Uganda but their use cannot be totally ruled out since there have been no further studies since 1994 about their status in Uganda. There is a need to do further survey especially with farmers who were for example using Dieldrin to control banana weevils.



Dangerous medical and unsorted wastes being put directly to the incinerator

4.0 MECHANISTIC DESCRIPTION OF HOW THE ACTIVITY GENERATES POPs

Since Uganda acceded to the Stockholm Convention recently, most of the information that the study relied on was not from government sources as there has not been a deliberate information depository or research coordination unit for POPs. This has been precipitated by the lack of awareness about the unintentional by-products of combustion (and ignoring of actions to offset potential effects) by private sector and government institutions that deal with POPs generating activities. For the selected POPs, a summary of the findings from the sites visited are as follows:

4.1 Hospitals

Incineration of both medical and municipal wastes has been attracting attention of the private sector since there are no guidelines or alternatives to this ‘quick fix’ in Uganda. Hospitals and other health institutions have continued to rely on incinerators as the solution to disposal of medical wastes. This has been due to insufficient awareness at all levels about the problems and consequences of incineration. There seems to be neither awareness and information about the unintentional by-products of combustion – dioxins and furans, nor information about the status of the wastes with respect to the release of POPs.

In the past incineration was also used to destroy expired drugs, but of recent these drugs are taken to Bombo Barracks to be handled by a modern incinerator. The two incinerators at Mulago Hospital use diesel and they destroy wastes at 1000 °C.

The old one consumes 80 litres in a week and the new one consumes 80 litres per hour which is not cost effective according to the engineers. The two incinerators have burners which inject fuel into the waste and burn it to ash which is later on removed and buried at a 'safer' place.

The Ministry of Health has recommended to other major hospitals to use incineration to handle medical wastes. Municipalities are also buying the idea and it is expected that over 50 new incinerators are to be constructed in the near future to handle both medical and municipal wastes, a sample of which is already being tested at Bombo Army barracks.

The neighbouring clinics and health centers also bring medical wastes at a fee for incineration at Mulago Hospital, proceeds of which are used for maintenance of the incinerators.

This is compounded by the lack of proper guidelines on how to handle POPs and their by-products. The dangers to workers health and the environment which interfaces with these activities remain unreported and unknown. Workers engaged in the combustion of medical wastes who were interviewed for example complained of skin disorders and other illnesses which need to be examined.



Waste burning in the incinerator

4.2 Pesticides in agriculture

Data is scattered and scanty but it is known that while the demand for agrochemicals has increased in the 1990s because of agricultural rehabilitation, inflow of inputs and utilization within the country have declined markedly. This is largely due to the withdrawal of government subsidies (PAN, 2000).

Pesticides use is concentrated on cash crops such as coffee, cotton, sugar cane tea and on migratory pests and it is lower on food crops. However, there are problems in use of pesticides for example lack of adequate and reliable information on their proper

usage, repackaging and adulteration of pesticides for sale to unsuspecting, illiterate and poor farmers and lack of protective and safety measures when using them.

The tonnage of agricultural chemicals will continue to increase as agricultural production intensifies. The presence of persistent bio-accumulative pesticide residues in foods, body tissues and human breast milk indicate that even consumers far removed from agricultural operations can also be significantly exposed (PAN, 2000).

Since 1989 Uganda has an Agrichemicals Statute to control and regulate the manufacture, storage, distribution, use, importation and exportation of agricultural chemicals. But due to poor facilitation, the statute cannot be fully implemented (PAN, 2000). The result is the emergence of restricted and banned pesticides on the market, particularly within vendors and retail distributors.

4.3 Manufacture of plastic materials or products

There are a number of industries manufacturing plastic materials in Uganda for example *Crest tanks, GM Tumpeco and Polyfibre*. The issue of concern is how they handle the inputs and waste materials, some of which could release POPs. The production process and combustion of by products are likely releases of unintentional POPs.

Though no data is readily available, studies from other countries indicate that a variety of toxic chemicals including PCBs and PCDD/Fs arise from the manufacture of PVC with resultant human exposure and damage to health sometimes resulting in death. There is no coherent data about the tonnage of PVC and the associated POPs release, though the sector is growing fast.

4.4 Electrical appliances

In Uganda, like in other African countries, standards are set by Government and their agencies on the assumption that all chemical pollution problems can be dealt with by end of pipe approaches. Electrical transformers and capacitors that have been imported into the country over time remain a potential source of PCBs which are highly toxic, bioaccumulate and persistent. Though studies about the status of the transformers and capacitors have not been fully carried out, there are concerns that since some PCBs are obtained illegally, and being used by *Jua kali* (small scale industrialists) in welding industry all over the country. The problem may be larger than has been thought. Information from the Uganda Electricity Distribution Company and Uganda Electricity Transmission Company indicates that the amount of transformer oil containing PCBs imported in the past is being phased out for less polluting ones.

4.5 Intentional use of DDT to control malaria

DDT is currently being sought as a vector control management strategy for malaria by Uganda despite having been banned in developed countries. Though close monitoring and control is being mentioned, there are concerns of spill-overs that could affect the economy since our export bulk goes to market destinations that have since banned it. Also there are concerns about the health effects of DDT, much as its ability to combat malaria is unquestionable. Tight control to avoid diversion to agriculture is not assured.

4.6 Kampala Municipal waste handling

Special wastes generated mainly from hospitals, slaughter houses and chemical processing plants are regarded as hazardous or potentially toxic, requiring special handling, treatment and disposal (NEMA, 2000/1).

Several institutions have installed incinerators for ‘safe’ combustion of these hazardous wastes (NEMA, 2000/1). This has raised concerns about production of dioxins and furans, though there is no concrete study that has been done. Limited incineration is practiced – mostly by major hospitals for clinical wastes due to cost of installation and operations (NEMA, 2000/1). Kampala City Council (KCC) does not yet have incinerators but rely on the landfill to handle the waste collected. On average, solid waste generation rate is estimated to be about 900 tonnes per day (NEMA, 2000/1).

Also the technological issues for solid waste management in Uganda point to several gaps in KCC’s land filling at Kiteezi. This is related to lack of proper operations, poor siting (site selection), lack of technical capacity including operations and post landfill development plans. Since the landfill also handles special wastes, they are a public health concern as the waste sometimes could burst into flame and release furans and dioxins.

5.0 ENVIRONMENTAL, SOCIOECONOMIC AND HEALTH CONSEQUENCES

The main sources and impact of POPs on the social, economic and the environment in Uganda is just being built up by the NEMA – the National Focal Point for the Stockholm Convention in the country. Based on the selected POPs, the study has the following information

5.1 Hospitals

According to the study visits conducted, Mulago and Rubaga, which are some of the major hospitals in Uganda, use incineration and open air burning. Hospital incineration is a potentially significant source of air pollutants of concern from incineration including dioxins/furans, particulate matter, toxic metals, toxic organics and carbon monoxide. The danger associated with incineration of medical wastes is the toxicity towards human beings (UNEP, 2000). The workers interviewed are not aware of the risks associated with incineration, as there is no significant smell. The incinerators also produce colourless smoke. Both factors create a false sense of security and fail to warn unsuspecting workers for contributing to the health effects they experience including skin diseases. They instead attribute the effects to handling the medical wastes.



A worker with the incinerator at Mulago Hospital explaining how he has been affected by skin disease a result of being exposed to toxics

5.2 Pesticides

Pesticides in Uganda are used to improve the health and productivity in crop and livestock sectors at both small scale and commercial levels. Many of the pesticides that have been used intensively over long periods in Uganda are organochlorines (UNSPIN, 1993), which are known for their persistence and accumulation in the environment.

Most of these pesticides are hazardous and pose a risk or danger through poisoning to those who come into contact with them through handling, application, use, storage and disposal. Their presence in the environment and use, affect the quality of water, soil, air and ultimately life itself.

Use of pesticides to control crop and animal pests has exposed farmers to short and long-term risks due to toxic substances upon their lives. Improper handling of agrochemicals without protective clothing/gears has led to acute and chronic related health problems such as cancer to the users (UNDP-GEF, 2002).

Pesticides poisoning on human and animals is the major cause of mortality. Illegal suppliers of agrochemical escalate this. Use of pesticides like DDT (banned in many countries where the agricultural market exists) has a potential negative economic impact to farmers as they will lose the organic export market niche which has been built for Ugandan agricultural products.

5.3 Aromatic Polychlorinated Compounds

A number of chlorinated and, to a lesser extent, brominated organic compounds are implicated in environmental contamination and health concerns. Polychlorinated biphenyl's (PCBs) are widely used in closed, semi closed and open systems in capacitors and transformers, hydraulic and heat exchange systems, pumps, plasticizers, surface coatings, paints, and adhesives. The health effects of PCBs include cancers, skin diseases, liver damage and mental diseases (NEMA, 2002). There seems to be low awareness about the health effects of PCBs amongst plastic and paint industries workers as *Jua kali* (small scale industry) use PCBs for welding.

5.4 Intention of using DDT to control malaria

The Government through Ministry of Health is planning to re-introduce DDT to control malaria. During the study, the Ministry of Health expressed readiness to use DDT for malaria control, while other stakeholders like NEMA, and Civil society do not feel it is appropriate to use DDT before other options are fully explored.

DDT is well known for its health effects like cancer, reproductive failure in wild life, liver damage, and central nervous system disorders among others. If DDT is introduced in Uganda, the agricultural products are likely to lose market share. For example, the European Union and major exporters have already warned about this consequence for a country that largely depends on agriculture as a main source of export earnings income. Though it has not yet been used the impacts reported in other places where it has been used include human carcinogen, reproductive failure in wildlife, liver damage, central nervous system disorders among others.

5.5 Obsolete Pesticides

Uganda like any other developing country, has stocked pesticides that can no longer be used for their intended purposes or any other purposes and therefore require disposal. The products found include extremely hazardous products. Much of this is from the Table 1 above, which are toxic, persistent, and biologically accumulative in food chain. The wide spread of these toxic chemicals is causing a wide spread concern about their impacts on human health and environment. The Government is trying to manage obsolete chemicals however, there are still quantities of outdated pesticides which are dumped by individual farmers, traders and other dealers as there are no proper guidelines and places for their proper disposal. The sound disposal technologies for obsolete pesticides are very expensive, other disposal result to more adverse effects to human and environment.

5.6 Municipal wastes

Municipalities generate both biodegradable and non biodegradable materials. There is evidence of the large quantities of plastic and toxic materials, since there is no sorting of waste at source. For example for all the waste generated from Kampala City is unsorted due to lack of proper guidelines on handling toxic and hazardous waste and implementation of the Solid Waste Ordinance (2000). This is complicated by the diversity in users of rubbish skips including markets, health centers, garages, households among others. This poses health risks to human beings, wild life and it also has a negative impact on the environment arising from pollution. Disposal of such a mixture is very complicated and costly and result to more POPs (dioxins/furans), air pollution and smell.

5.7 Manufacture of plastic related products and materials

The manufacturing and importation of plastics continues to develop in Uganda. However the waste and by-products of these processes also end up being handled in the same way as any other waste, either being land filled, burnt openly or incinerated. In Uganda thousands of tons of plastic products come to market everyday, they range from house hold/domestic use, electricity insulators, water tanks, sanitation tanks etc.

Some industries in the plastic sector manufacture and /or import polyvinylchloride (PVC) based plastics whose handling after use remains unclear due to lack of proper guidelines. However, chlorinated plastic materials are common that are non-

biodegradable and are difficult to dispose of (EarthWatch, 1992). PVC plastics are light and cheap materials but expensive in terms of their consequences and disposal technology. PVC can affect on human beings and the environment especially because it is the only widely-produced plastic that contains large amounts of chlorine. In this way, PVC acts a chlorine donor during burning, causing the formation of dioxins and furans.

6.0 RESPONSIBLE PARTIES

Generally, the persons interviewed during the study were unaware of the dangers caused by POPs. This has been due to insufficient information about POPs at all levels. Though Government has tried to regulate the importation of banned POPs into the country they still find their way to innocent users who use them unknowingly.

In addition most of industries, private sector and communities interviewed are unaware about the socio-economic impacts of POPs to their work and livelihoods, though they are exposed to them very often. From the study, the level of awareness about the effects of POPs is low due to Uganda having recently acceded to the Stockholm Convention, and hence little work has been done from inventories to assess the impact of POPs on livelihoods and the environment.

Uganda acceded to the Stockholm Convention in July 2004 and therefore very little has been done in terms of providing relevant information on POPs to its citizens. For example, information about the long-term effects of these chemicals on farming, community and the environment in Uganda is not known to the population.

The readily available information on the pesticides only provides details about its benefits and the number of pests they control, but there is little or nothing about effects (including classification of pesticide according to their effects) to human beings and environment.

After Uganda acceded to the Stockholm Convention, the Government through the NEMA has started the process of developing the National Implementation Plan (NIP). This is expected to bring all stakeholders on board especially civil society, policy makers, relevant Ministries, research and registration institutions and private sector which are vital in efforts to the elimination of POPs in Uganda. Better practices among stakeholders against POPs containing chemicals are expected to be spelt out in this plan.

7.0 ALTERNATIVE PRACTICES

As mentioned above, the main sectors in which chemicals containing POPs in Uganda are used are in agriculture, health and power production. The suggested alternatives that could be employed in Uganda under these sectors are as follows.

7.1 Agricultural sector

Uganda like many developing countries largely depends on agriculture. Farmers use agrochemicals especially pesticides, fertilizers and herbicides to increase crop production and to the growing food demand. However, the use of environmentally friendly approaches to farming has not been fully explored.

Therefore, Integrated Pest Management (IPM) and organic farming provides an alternative to pesticides that contain POPs. Moreover the market niche for organic produce is readily available globally and is growing domestically. For example markets are available for aromatic plants like garlic, onions, marigolds are repellents of mealy bugs and bean flies.

7.2 Health Sector

Different alternatives have been put forward by various stakeholders to the Ministry of Health to be used in its effort to control malaria other than use of DDT, which is being considered as the main option. Though the debate is still going on, there are indications of negative economic costs arising from failure to sell Uganda's agricultural products to the EU and other export destinations due to use of DDT on health.

However, mosquito nets are being given to expectant mothers, children and other people especially in malaria prone areas so as to reduce the death toll arising from malaria. Survey data from the Uganda Demographic and Health Survey 2000/1 suggests that only 13% of all Ugandan households have a mosquito net, which provides more opportunity to exploit it further.

Similarly preventive measures like removal of stagnant water and bushes around households have not been fully embraced by communities due to inadequate extension staff in the health sector especially for rural areas.

7.3 Power sector

Electrical transformers containing PCBs are a potential problem when it comes to their disposal. Efforts have apparently been made to introduce more modern transformers and electrical appliances without PCBs (NEMA, 2002). However, there is a need for environmentally sound disposal of the old equipment.

7.4 Disposal of wastes

Reduction, recycling and re-use are some of the practices which are being used in the management of wastes by some industries. Sorting wastes at generation points has been promoted in order to minimize toxic substance which are put in incineration, landfills and open dumping and burning. However, due to lack of proper guidelines, this alternative has not been fully exploited. The development of the NIP would provide chance to get private sector involved in the management POPs and pesticides in general. Also employment of Best Available Techniques (BATs) and Best Environmental Practices (BEPs) is highly encouraged.

8.0 RECOMMENDATIONS OF NGO

▪ **Create public awareness**

There is a need to sensitise all stakeholders about the dangers of POPs to the health and environment through primary sources (farming, pest control) or through secondary sources (industrial waste and municipal waste). This should include easy reading (translated) information education and communication materials for use by various affected people for example farmers and communities living in proximity to industries using chemicals containing POPs and others.

Inadequate knowledge on the dangers of POPs has led to limited civil society participation and action. Part of the awareness will involve mobilization of civil society and communities to participate effectively in addressing POPs related problems in Uganda which is a new field of environmental action in Uganda.

• **Promoting the use of organic pesticides, fertilizers and IPM**

There is need to promote use of organic pesticides, fertilizers and/or IPM to increase yields and eliminate the use of POPs containing and other toxic chemicals which are harmful to human beings and environment. Organic farming is not harmful to communities, the environment and provides an increasingly growing market niche for Ugandan agricultural products.

• **Support the creation of a country POPs inventory**

NGOs can play a constructive role in Uganda's POPs inventory, establishing the country's priority concerns through provision of necessary information on chemicals use and stockpiles in different areas and preparation of an initial POPs profile and the National Implementation Plan (NIP) which can assist in the development of an effective country chemicals regulatory regime.

• **Strengthen capacity, information sharing opportunities and networking among Civil Society Organizations**

There is a need to strengthen skills of civil society organizations (CSOs) to participate effectively in POPs issues through strengthening their capacity, information sharing amongst themselves as well with global civil society in countries where the Stockholm Convention has already taken root. The CSOs will engage and lobby the government for effective participation and implementation of the NIP based on informed and recent information and using the influence of the alliances like IPEN.

Ugandan CSOs in the longer term need to develop their own clean production capacity and expertise so that they can continuously be able to assist the government in charting a new course toward less to no polluting development models (also taking into consideration the Rotterdam Convention on Prior Informed Consent).

Global Civil society joint engagement of contracting parties through the Conference of the Parties and other forums needs to be an on going process as negotiations proceed.

• **Holding public debates, press conferences and media briefings**

There is need to hold press conferences and media briefings to educate the media about POPs and the related dangers they pose to humanity, environment and the

economic costs that Uganda stands to realize in continuing the use of POPs containing chemicals.

Together with occasional media briefings, there will be increased awareness among the media and the general public and hence raise the profile of the little known POPs as an environmental issue in Uganda. Public debates may be taken on related issues like:

- The need to strengthen legal framework for pollution control with specific reference to POPs.
- Analysis of the proposal to use DDT for malaria control which is currently limited to the elites and academia. More information needs to be availed to policy makers especially at local government level where action is likely to take place so that they are more aware of the implications of DDT use in their areas.
- Modalities to strengthen departmental and ministerial co-operation on POPs related issues since they cut across all sectors like health, agriculture and the power sectors.

Involvement of stakeholders in the NIP process

- There is need to involve all the stakeholders in the National Implementation Plan. This will be sustainable way of realizing the elimination of POPs in Uganda, since different interests and perspectives will be taken into account from the beginning.

Monitoring plan for POPs release

- A long term monitoring plan for POPs needs to be put in place as part of the NIP taking the baseline studies as a starting point. Monitored stockpiles should then be destroyed in an environmentally sound manner. This will involve Uganda to seek technical support from developed countries and intergovernmental agencies.

Safety of workers

- Safety measures should be stepped up for workers prone to exposure of POPs and other toxic chemicals in order to minimize health risks posed to them, for example in hospitals and industries.

- **Demonstration projects**

CSOs can be more proactive by supporting demonstration projects that reflect a contribution the elimination of POPs. The projects may include for example, promotion of organic agriculture, alternative to malaria control, and alternatives to incineration and landfilling, while clarifying the technology transfer needs of developing countries (Carter, 2002) in order to realize the objectives of the Stockholm Convention.

REFERENCES

1. EarthWatch (1992). United Nations Environment Programme (UNEP) – Chemical pollution: A global overview.
2. Morag Carter (2002). *Stockholm Convention on POPs: Making International Agreements work for local Community action and campaigns* - Paper presented at the Regional International POPs Elimination Network meeting for Africa in Arusha (Tanzania).
3. NEMA (National Environment Management Authority, 2000). State of Environment Report for Uganda (SOER). Government of Uganda Publication.
4. NEMA (National Environment Management Authority, 2000/1). State of Environment Report for Uganda (SOER). Government of Uganda Publication.
5. NEMA (National Environment Management Authority, 2002). State of Environment Report for Uganda (SOER). Government of Uganda Publication.
6. PAN (2000). Regulation of Dangerous Pesticides in Uganda. Pesticide Action Network Monitoring and Briefing No.6 (June 2000).
7. UNDP-GEF (2002). POPs resource kit
8. UNEP (March 2000). Country studies on Persistent Organic Pollutants (POPs).
9. UNSPIN (1993). Uganda National Symposium on Pesticides Information Network (UNISPIN) – Workshop report.