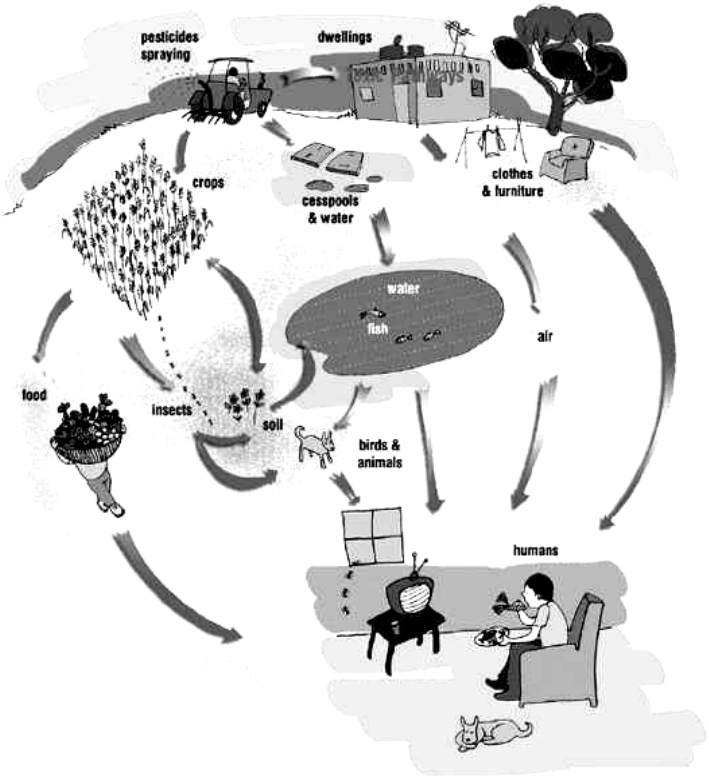
# CURRENT STATUS OF PERSISTENT ORGANIC POLLUTANTS (POPs) IN BANGLADESH

**Prepared by: Environment and Social Development Organization (ESDO), December, 2010**




ESDO

Toxics Link
for a toxics-free world

## 1. Introduction

Bangladesh is famous for its rivers and its unique climatic conditions. These factors contribute to the country's fertile soil and the economy of Bangladesh is still largely agricultural based. With the development of new technologies, as with many countries, Bangladesh has tried to adopt chemical fertilizers, pesticides etc, in an attempt to increase crop yields and reliability. This has ultimately proven detrimental for the agricultural sector of the country. Moreover, poor electricity distribution has required the use of Polychlorinated biphenyl (PCB) in electrical systems and the industrial establishment contributes to the production of various persistent chemicals as effluent (in liquid, solid and vapor form) and other by-products. Unplanned disposal of this waste poses a great danger to our natural environment, especially water quality and soil quality. Local air pollution has also been observed in some urban areas and other places as a result of exhausts coming from manufacturer industries, power plants etc.

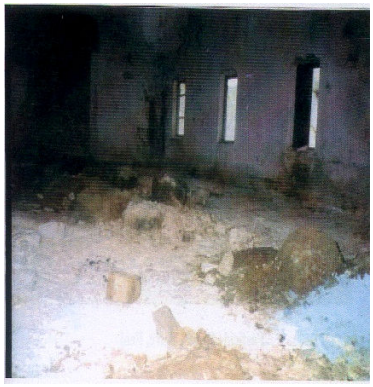
In the last decade, there have been some improvements made to these problems with restrictions imposed by the Government of Bangladesh on the manufacture, import, distribution and sale of a variety of different pollutants. To this point the Government has banned about 15 Persistent Organic Pollutants (POPs) in an attempt to minimize the damage that can be caused by such pollutants. As POPs have only recently been exposed as a hazard to environmental and public health, the general population is unaware of the basic problem. This ignorance has led to the grave position which we are now in and it is the belief of the Environmental and Social Development Organization that we need to develop solutions to the ongoing problems.

This study describes the present situation of POPs in Bangladesh, especially dichlorodiphenyltrichloroethane (DDT), PCB and Dioxin. These three are mostly used as agrochemicals and pose a great hazard to human health and environment. Though the Bangladesh government restricted the production, import, distribution and use of all these compounds, there is still significant use of these chemicals hidden behind different names and

labels. DDT is still used in disinfectant and PCB is still used widely in power sectors as a carrier. Dioxin has uses in food and plastic industry.

"Persistent Organic Pollutants (POPs)" can be described as these organic substances are:

- Persistent
- Poses toxic characteristics
- Bioaccumulation in food chain
- Prone to long range Trans-boundary atmospheric transport and deposition
- Likely to cause significant adverse human health or environmental effects near to and distant from their sources



Snaps showing the DDT, Dioxin and PCB in stored, emitted and uses respectively

## 2. Background

ESDO prepared this study paper to document the present status of POPs (DDT, PCB and Dioxin) usage in Bangladesh. All the tasks that are done for preparing this document are under a partnership agreement between *Just Environment Charitable Trust*, *Toxics Link* and *ESDO*.

Anthropogenic activities have invented and released a significant quantity of toxic and hazardous metals, organic and inorganic chemicals into the land, sea and air. Among all of those pollutants, Persistent Organic Pollutants (POPs) can be categorized as the most hazardous. In recent decades, vast numbers of POPs have been produced and used

worldwide. Many are still in production and used in everyday products, especially in agrochemicals. These chemicals have become widespread environmental pollutants.

As Bangladesh is a developing country, contamination from these pollutants has the potential to do more harm for our environment and population. Bangladesh lacks the newer technologies to limit pollution levels, so therefore prevention is required to reduce the production and usage, as well as the source, of the pollutants.

## 3. POPs in Bangladesh

Agriculture is the main occupation (about 66.5% of total labor force) of the people of Bangladesh. So the use of persistent agro-chemicals is one of the most important sources of contamination here. The use of POPs pesticides in agriculture dates back to the mid 1950s in Bangladesh, which began with the application of Endrin in modern rice cultivation in around 1955. Three metric tons of Endrin was received in 1955. Subsequently other pesticides were also received. All the pesticides registered or legally marketed in Bangladesh are imported mostly from China, India, USA, U.K., and Japan. Bangladesh does not manufacture any of the active ingredients in pesticides. However, Bangladesh Chemical Industries Corporation (BCIC) did manufacture DDT until 1992. Also, some agricultural pesticides, aerosol and mosquito coils are locally formulated out of the active ingredients imported from abroad.

At present all POPs like DDT, PCB, Dioxin, Furans, heptachlor etc have been banned, but unfortunately there are at least 5 of these substances still used in this country under different name or label. Therefore, to speak documentarily, at present there is no legal use of any POP pesticides in Bangladesh.

## 4. Bangladesh Government Initiatives and Policies

Bangladesh government has cancelled the registration of all POPs pesticides; in fact all authorizations for chlorinated hydrocarbons for pesticide use have been withdrawn. The production of DDT was discontinued in the 1991. Moreover, the government has listed fifteen pesticides as being banned, namely:

I. BHC
II. Chlordane
III. Dieldrin
IV. Dicrotophos
V. Disulfoton
VI. Endrin
VII. Ethyl Parathion
VIII. Isobenzene
IX. Methyl Parathion
X. Methyl Bromide
XI. Methoxychlor
XII. Posmet
XIII. Phospamidan
XIV. Monocrotophos
XV. Kalthane

The last POPs pesticide in use, Heptachlor, was banned in 1996. The Bangladesh Government enacted the Bangladesh Ecological Conservation Act 1995 "for conservation, improvement of environmental standards and control and mitigation of environmental pollution". The Government of the People's Republic of Bangladesh has signed the Stockholm Convention on Persistent Organic Pollutants on 23 May 2001, after actively taking part in the negotiation process leading to the final Convention. As a party and signatory nation to the Stockholm Convention, Bangladesh have taken actions on the following activities

- Generate awareness of the harmful consequences of POPs to reduce their release
- Create legal bindings for their ultimate elimination

No pesticides and insecticides are registered without reviewing the available toxicological and eco-toxicological information of the candidate pesticide. However, there is no specific legislation for controlling the production and use of hazardous industrial chemicals (UNEP, 2002).

Moreover, the Department of Environment (DoE) is always attempting to take more positive action to raise awareness in the general population about this vulnerable issue. The department has designed, published and distributed a variety of Information, Education and Communication (IEC) materials to reach the general people like, posters, leaflets, booklets, hoardings etc. They organized an environment fair on Environment Day (5$^{th}$ June) and

encouraged Non-Government Organizations (NGOs) and educational institutions to attend and raise awareness about the program on POPs and other vital environmental issues.


(Hoarding) Size- 1:3 - 10 X 30

Figure: POPs awareness raising activities: initiative of Bangladesh Government

The Department of Environment (DoE) and the Ministry of Environment (MoEF) are the lead agencies working on policy implementation and regulation the POPs National Implementation Plan. The Ministry of Agriculture (MoA), the Department of Agricultural Extension (DAE), other government divisions' related to health and environment safety and policy generation, regulation and implementation work together to legislate the POPs status in Bangladesh. Government initiatives were very limited and that was concentrated only within the Dhaka City.

## 5. ESDO Initiative on POPs Awareness

Considering the limited initiatives of government regarding the POPs issue, ESDO took the initiative to mobilize a country-wide awareness campaign and created a network namely BPEN (Bangladesh POP Elimination Network).

ESDO is focused on raising awareness about environmental anthropogenic hazards such as:

- The use of lead in decorative paints
- Mercury usage in medical and non-medical products
- Waste hazards from electronic products

ESDO has conducted initiatives for creating awareness in the general public and influencing the policy makers of government on POPs issue. A roundtable was organized with government, non-government key personnel and the media who work on POPs to make an outline of proposed activities that should be carried out to benefit the natural environment of Bangladesh.

On the 20 December, 2010 ESDO organized a stakeholder meeting with various government, non-government and media personalities to share their knowledge on POPs and find suggestions for suitable and reasonable steps for a POPs free environment in Bangladesh and the world.

ESDO has also organized stakeholder meetings in rural areas to bring awareness to those outside the capital to POPs hazards. ESDO conducted the meeting at Natore and Munshiganj with the farmers, retailers, dealers and distributors of POPs pesticides. Also present were teachers, chairman, local people, area representatives of DoAE (Department of Agricultural Extension) were also present and shared their knowledge and suggestions. A rally was also organized with the help of the students of Chor Hogla Primary School, Munshiganj.



Snaps showing our rally on POPs with school students

ESDO has a program on “Environmental Education” where there is particular emphasis provided on knowledge sharing about industrial pollutions caused by anthropogenic activities (where a particular importance is given to POPs issue). We also publish the below leaflet to raise public awareness.



Picture showing ESDO’s initiatives (leaflet and poster as IEC material)

## 6. Trend and Illegal Trade

The production of DDT was discontinued in the 1991. It is said that the stockpiles and any additional imports from this time have been consumed, although there are some reports of the illegal import and use of DDT in the northern border areas. Also the use of DDT as a dried fish preservative in Chittagong has been reported. There are indications that some DDT might have been used in public health (spraying of hospitals) until fairly recently. Mosquito spray contains DDT as raw material, so as a result there are still a huge amount of production and trade of DDT in Bangladesh.

By summing up the overall situation, the following sectors are where DDT is still being used:

- Public health (disinfectant)
- Mosquito spray (Insecticide)
- Dry fish processing (as preservative)

Dioxin is used for fruit spray and PCB is still used in power sector as a carrier. The highest percentage of illegal imports of these chemicals (DDT, PCB and Dioxin) in Bangladesh comes from the India, Nepal and China. The Bangladesh Government enforces various strict laws and bindings on import of such chemicals, but little heed is paid to these laws by smugglers and enforcement is difficult, especially with corruption.

## 7. Media reports on POPs Poisoning

In Bangladesh, POPs remain a fringe issue in the print and electronic media. In the past the only cause for reporting in the media has been for cases of acute poisoning. The long term impacts of POPs are consistently neglected in Bangladesh media. ESDO has been attempting to shift the focus of the media onto the issue, in an attempt to prevent and protect the population from POPs related health hazards.

# Indian eggs contain toxic elements

## Smuggled in unchecked and consumed widely in country; a major source of health hazard

SHAHNAJ BEGUM

Dioxin and hazardous toxic chemicals have been found in the chicken eggs in India and seventeen other countries around the globe.

The result comes from a testing report carried out by International POPs Elimination Network — IPEN.

IPEN, International POPs Elimination Network, consists of non-governmental organisations working on fulfilment of goals adopted by the Stockholm Convention on POPs (Persistent Organic Pollutants). The aim of IPEN is to campaign for a ban and elimination of toxic substances (e.g. aldrin, dieldrin, endrin, DDT, chlordan, heptachlor, hexachlorbenzen, mirex, toxaphen, PCBs and dioxins). IPEN-participating organisations are currently sampling chicken eggs in countries worldwide.

"It's a high alert for Bangladesh also, because a huge amount of eggs enters the country from India through smuggling," Dr. Hossain Shahriar Executive Director, Environment and Social Development Organisation (ESDO) told The Independent yesterday.

According to information collected from the border region of Bangladesh, more than sixty per cent



of chicken feeds and eggs come from India through smuggling. The Indian prices of these items are lower than that of Bangladesh, he added.

However, the egg prices in India (border areas) are between Rs 12 and Rs 16 per dozen. In Bangladesh it is between Tk 45 and Tk 54. As part of IPEN's worldwide action against POPs, the Environment and Social Development Organisation, Dhaka, has been conducting a study on country situation on POPs and Hot Spots. As part of the study, it has closely monitored the egg situation.

The study said that free-range chicken eggs collected near the Queen Mary's Hospital, Lucknow Medical Waste Incinerator in Uttar Pradesh, India, showed high levels of dioxins and PCBs. Dioxin levels exceeded background levels by more than 16-fold and were five and half times higher than the European Union (EU) dioxin limit for eggs. Levels of PCBs exceeded proposed regulatory limits by 4.7-fold. This study is believed to represent the first data about POPs in chicken eggs from India. The report shows the main source of dioxin and other

See Page 4 Col 4

Pictures showing the report of a daily newspaper regarding "Dioxin in Egg"

ESDO believe that the print and electronic media in this country require the vocal support of the government so they feel they can freely publish reports against the offenders. In the past, the media has demanded that strict legal action is necessary against major industrial and municipal polluters and violators of the environmental and preservation laws. However despite these occasional calls for action, there is still a distinct lack of coverage. There should be more dissemination of information through the news and electronic media. Mass public awareness of the issue is essential to reduce the usage of POPs.

## 8. Recommendation from Stakeholders

The participants of the stakeholder meetings have recommended and proposed the following activities for the elimination and impact minimization of POPs:

- **Strict legal demands such as 'polluter pays' laws** - the people of Bangladesh already bear the health and environmental costs of POPs pollution, and must not bear the economic cost of its eventual clean up and disposal. A 'polluter pays' approach is one of the most realistic approaches. By this, potential and established polluters will be more hesitant to import and distribute and even sell these products.

- **Precautionary Principle** - taking preventative action when there is reason to believe that harm is likely to be caused by human activity. Action should be taken even where there is no conclusive evidence to prove a causal relationship between the actions and their effects.
- **Elimination of all POPs sources** - POPs elimination is a two-step process
    - Source identification, followed by source elimination. Firstly the source of POPs must be properly identified and;
    - Then phased out, replaced or otherwise removed.

  This is true for POPs that are produced intentionally as well as unintentionally, such as dioxins.
- **Technological and other resource assistance** - It is critical that the global POPs treaty includes measures to discourage wealthy countries from promoting and exporting POPs-generating technologies and materials to newly industrialized nations. At the same time, measures must be included to encourage wealthy countries and aid programs to assist newly industrialized countries in developing and implementing POPs replacement technologies and materials.
- **'No to Incineration'** – as a disposal route for existing POPs stockpiles since incineration itself has been identified as a major source of dioxins and furans. While so called state of the art incinerators can greatly reduce stack emissions, they still cannot stop the formation of dioxins and other POPs which may be present in the fly ash and bottom ash that would still require further treatment and disposal. Alternative destruction and detoxification methods and technologies which do not generate POPs should be used instead.

For the conservation of the environment of our country, it is our responsibility to mitigate the effects of pollution by showing respect the government rules and regulations. We must remember that we have only one country and one planet to live in. We must follow the laws and conserve the environment to save our country. The survival of humanity will depend on how we treat the environment.

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