



The International POPs Elimination Project

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

Country Situation Report for Egypt

Day Hospital Institute for Development and Rehabilitation

Egypt
July 2005



مؤسسة يوم المتشتفيات
Arab Hub for IPEP Project

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

Country Situation Report for Egypt

Basic Information on Egypt

The official name of the country is Arab Republic of Egypt and the capital is Cairo. Egypt is a country in north-eastern Africa, bordered by the Mediterranean Sea to the north, the Red Sea to the east, Sudan to the south, and Libya to the west. The principal geographic feature of the country is the River Nile. Egypt has a maximum length from north to south of about 1085 km (about 675 miles) and a maximum width, near the southern border, of about 1255 km (about 780 miles). It has a total area of 997,739 sq km (385,229 sq miles). The official language is Arabic, but English is widely spoken in commerce and government. The population of Egypt (1997 estimate) is 64,824,466, but now is almost 72 million. Almost 99% of the population lives within the Nile Valley and delta, which constitutes less than 4 percent of Egypt's total area. Egypt is a member of the UN, OAU, the Arab League, OPEC and Organization of the Islamic Conference.

State of Stockholm Convention Ratification

Due to the concern of Egypt with the protection of public health and the environment, Egypt forbids the use and importation of POPs pesticides since the 1970's – i.e. long before adopting the Stockholm Convention. Also, Egypt stressed banning the importation and usage of all chemicals included in the Convention in the 1990's as indicated in the environmental decree 4/1994.

Egypt signed the Stockholm Convention on 17 May 2002 and ratified it on 22 May 2003. Accordingly, Egypt proceeded to establish the National Implementation Plan (NIP) and now Egypt just finished the third stage of the NIP and began the fourth one (see NIP plan next page).

What are POPs?

Persistent Organic Pollutants (POPs) are organochlorine chemical substances that are harmful to human health and environment even with limited exposure measured by pg (picogram or 10^{-12} g). They are both man-made chemicals and unintentionally-produced chemicals. The Stockholm Convention is posed to deal with a beginning list these chemicals and was signed by over 150 countries on 22 May 2001. This Convention includes 12 chemical materials; 9 are pesticides (chlordane, endrin, aldrin, dieldrin, heptachlor, DDT, toxaphene, mirex, hexachlorobenzene), 2 are industrial chemicals (PCBs, HCB), and 2 are unintentional by-products (dioxins, furans-in addition to HCB and PCBs). They have several characteristics:

- 1- Persistent: they persist in the environment, soil, air, and products for many years with no changes.
- 2- Volatile: they move with winds from the hot areas (source) to cold areas; which are far away from their sources.
- 3- Accumulative: they accumulate in tissues of mammals including humans where they dissolved in fatty tissues and persist for long times; so that they are called bio accumulative, causing several undesired effects; as cancer, immune system damage, reproductive system disorders etc, even with a limited exposure.

National Implementation Plan (NIP), source Ministry of Environment:

Steps		Indicative Time Frame																							
		2003						2004						2005											
		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
STEP 1		[Green bar]																							
<i>Determining Co-ordinating Mechanism and Organizing Process</i>	1.1	Identification and strengthening of national institution/unit to serve as Focal Point																							
	1.2	Formation of/NPCU																							
	1.3	Identification and sensitization of main stakeholders																							
	1.4	Strengthening government commitment																							
	1.5	Determination of multi-stakeholder national co-ordinating committee (steering Committee)																							
	1.6	Identifying and assigning responsibilities amongst government departments and other stakeholders for the various aspects of POPs management																							
	1.7	Obtaining commitment of national stakeholders (for example by means of Memorandum of Understanding)																							
	1.8	Assessment of needs of Focal Point to oversee overall execution (technical, human resources, etc.)																							
	1.9	Planning workshop																							
	1.10	Drawing-up overall workplan																							
	1.11	Organize Inception workshop																							
	1.12	Additional Activities																							
	1.12.1	Review the Draft Guidelines (Arabic Version sent by UNEP)																							
	1.12.2	Review Database on Alternatives to POPs																							
1.12.3	Review of the Toolkit																								

STEP 2																		
<i>Establishing a POPs Inventory and Assessing National Infrastructure and Capacity</i>	2.1	Preparation of National Chemical Profile (or core sections thereof as they relate more specifically to POPs)																
	2.2	Constitution of task teams responsible for inventories																
	2.3	Training on inventory procedures																
	2.4	Preliminary inventory of production, distribution, use, import and export																
	2.5	Preliminary inventory of stocks and contaminated sites; assessment of opportunities for disposal of obsolete stocks																
	2.6	Preliminary inventory of releases to the environment																
	2.7	External independent review of initial national POPs inventories																
	2.8	Assessment of infrastructure capacity and institutions to manage POPs, including regulatory controls; needs and options for strengthening them																
	2.9	Assessment of enforcement capacity to ensure compliance																
	2.10	Assessment of social and economic implications of POPs use and reduction; including the need for the enhancement of local commercial infrastructure for distributing benign alternative technologies/products																
	2.11	Assessment of monitoring and R&D capacity																
	2.12	Identification of POPs related human health and environmental issues of concern; basic risk assessment as a basis for prioritisation of further action taking into account, inter alia, potential releases to the environment and size																

STEP 3																		
<i>Priority Setting and Determining Objectives</i>	3.1	Development of criteria for prioritisation, taking into account health, environmental and socio-economic impact and the availability of alternative solutions																
	3.2	Determination of national objectives in relation to priority POPs or issues (could be general and/or specific objectives)																
	3.3	Organization of national priority validation workshop																
STEP 4																		
<i>Implementation Plan, and specific Action Plans on POPs</i>	4.1	Assign mandates to task teams to develop proposals for addressing priorities																
	4.2	Identification of management options, including phasing out and risk reduction options																
	4.3	Need for introduction of technologies, including technology transfer; possibilities of developing indigenous alternatives																
	4.4	Assessment of the costs and benefits of management options																
	4.5	Defining expected results and targets																
	4.6	Development of a detailed implementation plan, including an action plan for unintentional by-product, PCBs and, where appropriate, for DDT and other POPs as generated																

STEP 5																									
Endorsement of NIP by Stakeholders	5.1	Prepare an information document/report to be submitted to stakeholders for comments																							
	5.2	Lobbying high Government officials																							
	5.3	Organise workshops and circulate information to obtain commitment of stakeholders and decision-makers, including resources commitment if possible																							
	5.4	Endorsement of NIP by stakeholders																							
	5.5	Issue the final NIP																							
			Planned 												Actual 										

Laws currently regulating POPs

The national legal framework that supports the implementation of the Stockholm Convention for persistent organic pollutants is represented in ministerial decrees for POPs, strategies, programs, and projects that have been implemented to reduce the release and emission of pollutants as well as POPs. Also, law number 4/1994, concerning environmental protection, involves a whole chapter about harmful materials and wastes and putting standards for different air pollutants either stationary or mobile sources; including the unintended POPs sources.

The ministerial decrees concerning the control and elimination of POPs have had great effects in improving the environmental situation. They have also played a great role in the implementation of the Stockholm Convention for POPs, especially in prohibiting the use of chemicals present in Annex A of the convention.

Among these decrees:

- 1- 55/1996: for the Ministry of Trade and Supply that forbids usage, importing, and production of 88 harmful pesticides; including all the chemicals present in Annex A of the convention.
- 2- 60/1986: for the Ministry of Agriculture and Reclamation of Land that forbids some harmful pesticides in health and environment, as well as other decrees concerning dangerous materials and pesticides.
- 3- 258/1990: of the Ministry Of Agriculture that forbids importing of these materials.
- 4- 55/1996: of the Ministry of Inner Trade that prepared a list of chemical compounds forbidding their importation, production, and use. This list includes pesticides in Annex A and B of the convention.
- 5- Legislation of the Ministry of Industry that controls importing, producing, and currency of chemicals used in industry.
- 6- Legislation of the Ministry of Petroleum that controls importing, producing, and/or trading of chemicals used in industry.

7- Legislation of the Ministry of Health that controls importing, producing, and/or trading of medicinal and radioactive materials as well as pesticides.

According to the previous decrees, in Egypt, there is no such record of specified exemptions because of the absolute ban concerning all the chemicals under Annexes A and B of the Convention.

POPs Inventory in Egypt

Part 1: Obsolete Pesticides

The following store is in Adabia Harbor in Suez area in which containers containing lindane were discovered.



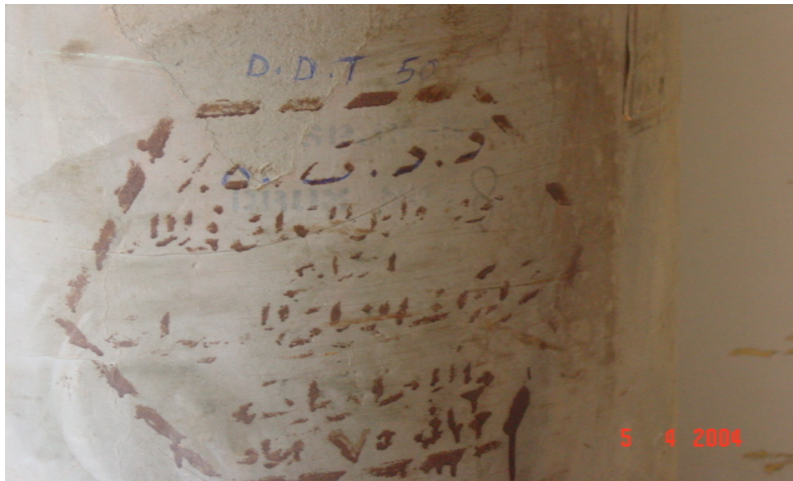
Obsolete pesticides (Lindane, 22 tonnes) contained in large containers were discovered in transit in Adabia Port.

Then, they found a store in Damietta for pesticides & DDT.



Pesticides Store in Damietta
(Health Directorate in Damietta)

Obsolete DDT stored since the 1960's in Tanta in metal barrels and also in several regional health departments.



Obsolete pesticides Risk phrases on the D.D.T barrels

Then, the government assigned a store in El-Saf away from residential areas and ground water and transferred all POPs and obsolete pesticides to it.





Picture of the store and pesticides in it.

DDT, Toxaphene, Lindane was found in the following quantities in the table below.

Chemical compound	Quantity
DDT.	2.2 ton
DDT (50%).	2.083 ton
DDT and Lindane. Very difficult to identify separately	1.187 ton
Toxaphene.	557 liter
DDT (50% capable of wetness).	214 Kg
DDT (pure).	284.6 Kg
DDT (suspended).	13 barrels (975 Kg)
DDT (50% York).	214 Kg

These figures are NIP findings but in our estimate the total amount of obsolete POPs pesticides is around 6 tons.

PCBs

According to the incoming data from Ministry Of Electricity and Power, there are no PCBs in Egypt until now, though the elementary inventory shows that there are capacitors and transformers the were manufactured during 1955 to 1977 which may contain PCBs, and their amount is reported is as follows:

Report	Amount
Large capacitors were manufactured in 1970, their capacities varying between 2.5F/275V to 300F/440V that may contain PCBs.	3666 Capacitors
Large transformers were manufactured during 1955- 1977, all of them almost contain 20490K oil which may contain PCBs.	26 Transformers

We had investigated this issue and found that the oil had been analyzed for PCBs. That oil was imported by Shell and it was PCB-free and that is the reason for negative results. However samples taken from the soil of the cable factory in Shoubra El Khema were found to be soaked with PCBs. (undocumented work done by the Japan International Cooperation Agency). So to say that there are no PCBs in Egypt is very doubtful.

Part II: Dioxins, Furans

Dioxins and furans are generated during thermal processes of organic substances and chlorine due to incomplete combustion or chemical interactions. The following industrial groups of sources have a high capacity of producing these chemical substances in the environment:

- Waste incinerators, including incinerating hazardous, medical or sewage wastes in the same place.
- Cement kiln incinerators burning hazardous wastes.
- Production of paper and pulp using elemental chlorine or chemicals generating chlorine during bleaching.

The following thermal processes in the metallurgic industry also have the potential for dioxins and furans formation:

1. Secondary copper production.
2. Iron and steel mills.
3. Secondary aluminum production.
4. Secondary zinc production.



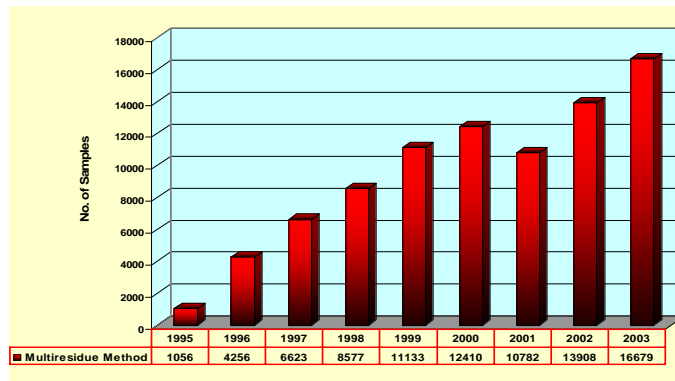
Helwan chimneys

Dioxins and furans are un-intentionally produced through the following sources:

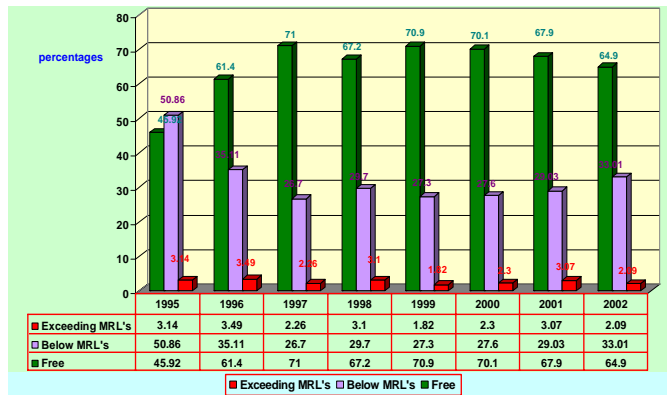
1. Waste incineration including waste landfills.
2. Thermal processes in metallurgic industry (not mentioned in part II).
3. Combustion sources in residential areas.
4. Industrial boilers and furnaces using fossil fuels.
5. Furnaces using wood and other biomass fuels.
6. Chemicals manufacture especially production of unintentional persistent organic pollutants such as chlorophenols and chloranyl.
7. Corpse incinerators.
8. Motor vehicles with gasoline combustion containing lead.
9. Textile and leather dyeing with chloranil and finishing with alkali extraction.
10. Factories for vehicle wreckage.
11. Non combustion incinerators of copper cables.
12. Waste oil refining.

Acceptable levels of POPs estimated by Ministry of Environment

- Dioxins & Furans: $1\text{ng}/\text{m}^3$.
- PCBs : less than 50ppm.
- Also the Laboratory of Residue Analysis of Pesticides & Heavy Metals in Food, Agricultural Research Center have been doing some analysis for pesticides in vegetables and fruits since 1995 till 2003 and the results were as below:



Percentages of samples free of contamination, below MRL's, 1995-2003 (Vegetables) above



Percentages of samples free of contamination, below MRL's, exceeding MRL's from 1995-2002 (Fruits)

The Central Laboratory of Residue Analysis of Pesticides & Heavy Metals in Food, Agricultural Research Center, Egypt



Pictures of the Central Laboratory of Residue Analysis of Pesticides & Heavy Metals in Food, Agricultural Research Center, Egypt



Pictures of the Central Laboratory of Residue Analysis of Pesticides & Heavy Metals in Food, Agricultural Research Center, Egypt

The Central Lab began dioxin analysis in 1999 and that lab has the authority to refuse the entrance of such chemicals into the country. This test also protects Egyptians from dioxin-contaminating imported foods. Due to cost consideration no samples are taken locally except for research purposes and according to laboratory authorities no abnormal values recorded.

Now Day Hospital Institute for Development and Rehabilitation is cooperating with the lab to do sampling for eggs and fish from the Nile in the Helwan area.

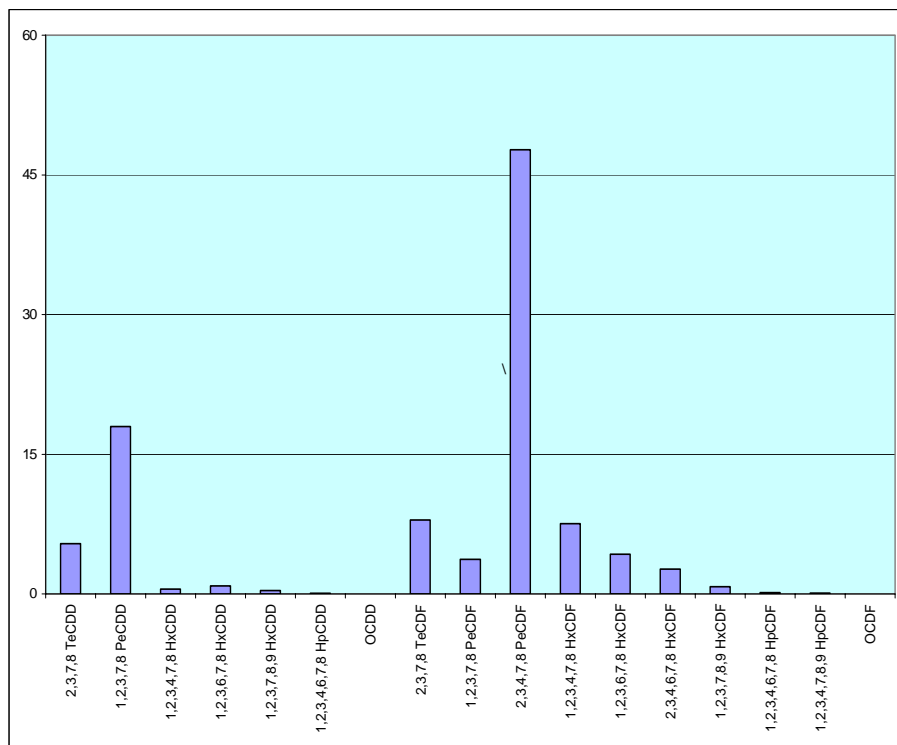
Also, Egypt has 42 stations all over the country to monitor air quality but dioxins emissions are not included.

In addition, we participated in the International Project for Egg Sampling with the IPEN network, where we took egg samples from home-bred chickens 2 kms south of the steel mill, power station, and coke factory of Helwan. The results showed that the pooled egg sample yielded one of the highest levels of dioxins, furans, and dioxin-like PCBs ever reported (125 pg/g WHO-TEQ). This level is more than 40 times higher than the limit for dioxins in eggs in the European Union. In addition, significant levels of HCB were also found (15 times higher than background.) The dioxin congener profile resembled the pattern observed for the metallurgical industry in Korea suggesting that the steel industry is a significant source of dioxins, though other combustion sources cannot be excluded.



Map shows the location of the village from which egg sample is collected

The results of egg sampling showed a very high percent content from dioxins, furans and PCBs that was declared nationally and internationally.



Graph showing a PCDD/Fs pattern in eggs from Helwan expressed in WHO-TEQs (% of congeners from whole PCDD/Fs WHO-TEQ)

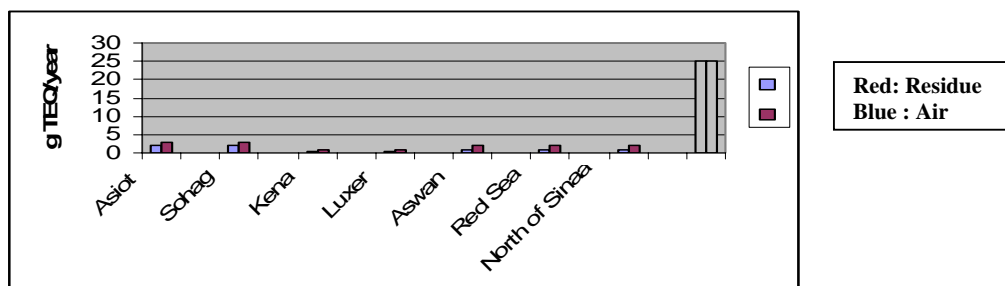
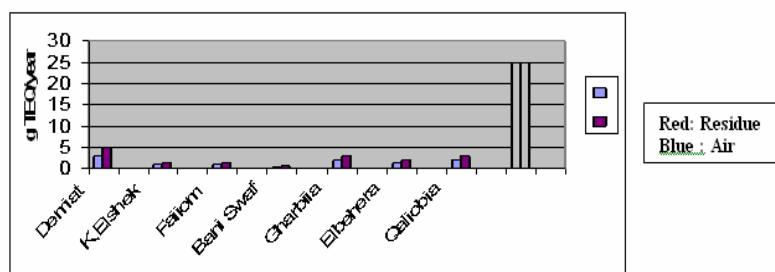
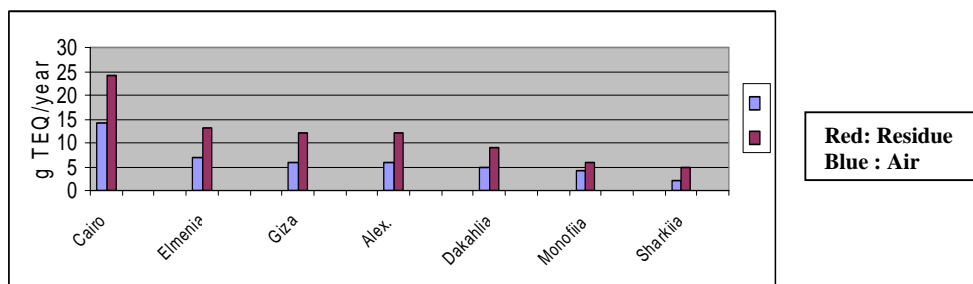
Detailed descriptions of inventories of Dioxins and Furans:

A- Waste incinerators

1- Hospital incinerators:

Number of incinerators = 130 incinerators with a capacity of 14,630 tons/year.

According to the result of the inventory, the emission of dioxins and furans in Cairo is very high as a result of healthcare waste combustion in their specific incinerators.

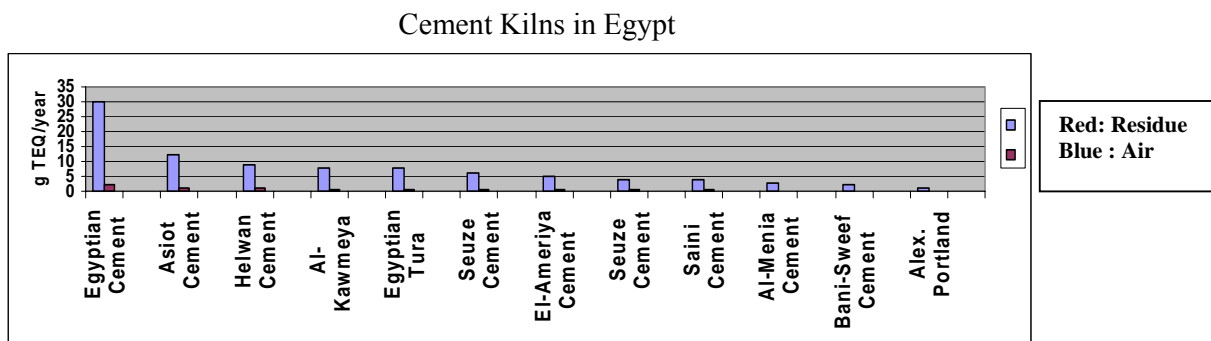


2- Municipal waste incinerators:

Nowadays there are no municipal waste incinerators.

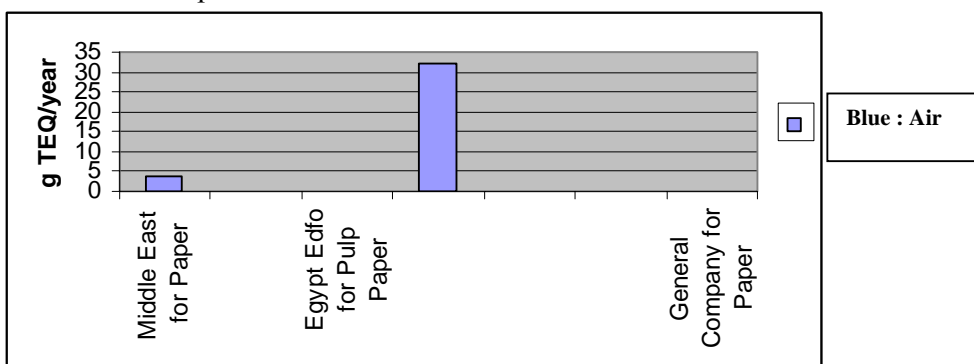
B- Cement kilns

Egypt has 15 companies that produce 35 tons of cement annually. An inventory was prepared including 85% of cement companies in Egypt, which represents 90% of the total production. Emissions of dioxins and furans are as shown in the graph.



C- Paper core production by using chlorine or chlorine-creating chemical materials for bleaching

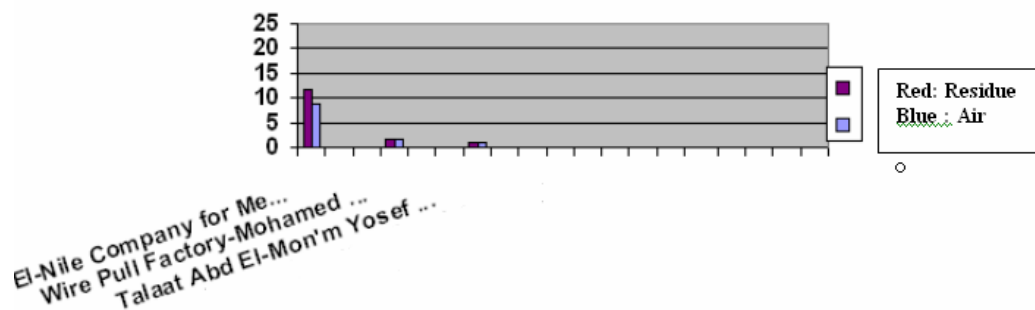
An inventory was prepared including about 60% of the paper production companies in Egypt, that use chlorine-containing raw materials in bleaching process, which represent 65% of the total production.



D- Thermal process in metal industry

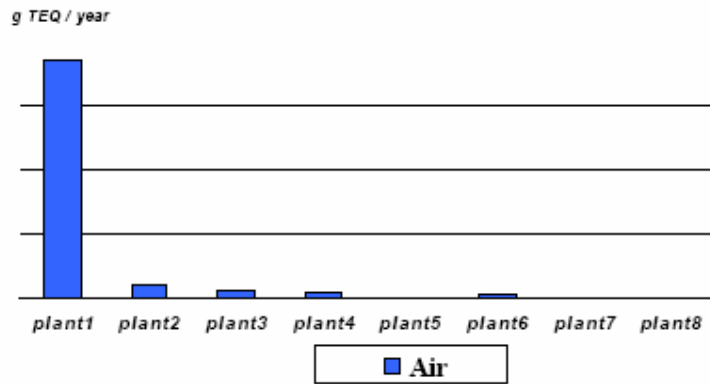
i- Copper production:

An inventory was prepared including 65% of the copper production companies that represent about 60% of the total production.



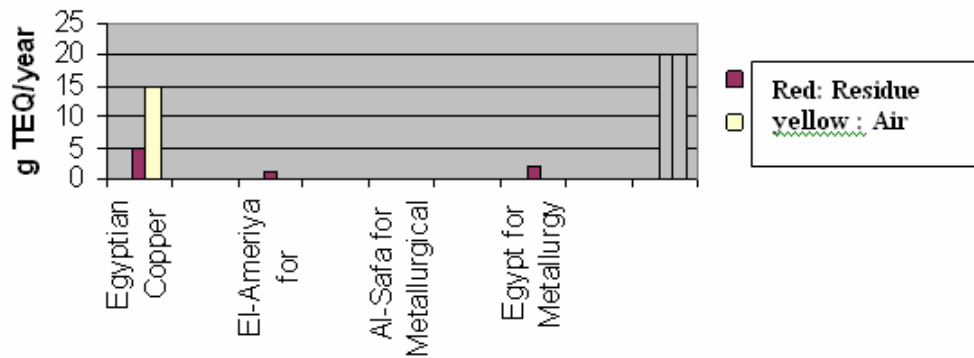
ii- Iron and steel production:

An inventory was prepared including 80% of iron and steel production factories (Egypt Company for Iron and Steel Production), that represent 90% of the total production. Plant one represents a steel mill in Helwan and it is a major source of dioxin emissions.



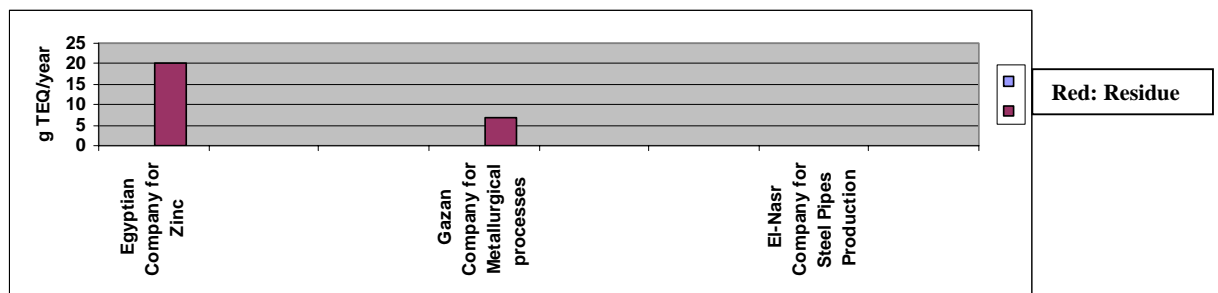
iii- Aluminum production:

An inventory was prepared including 65% of the aluminum production companies that represent 55% of the total production.



iv- Zinc production:

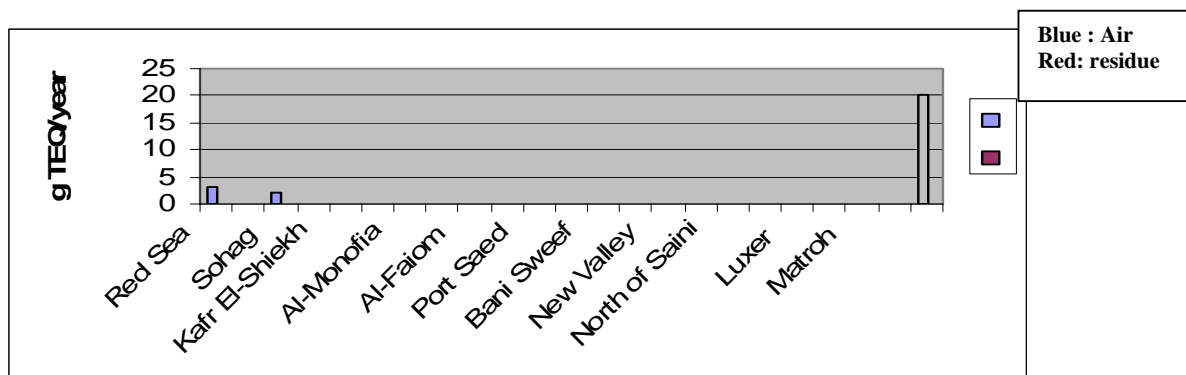
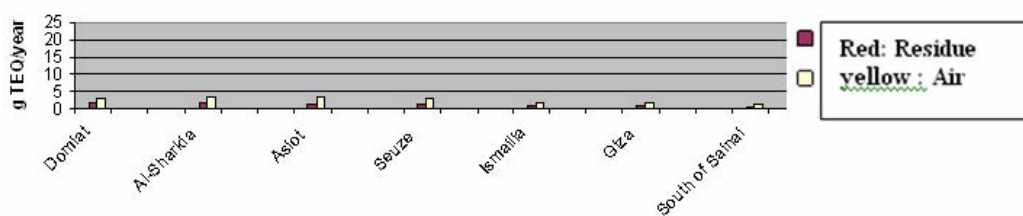
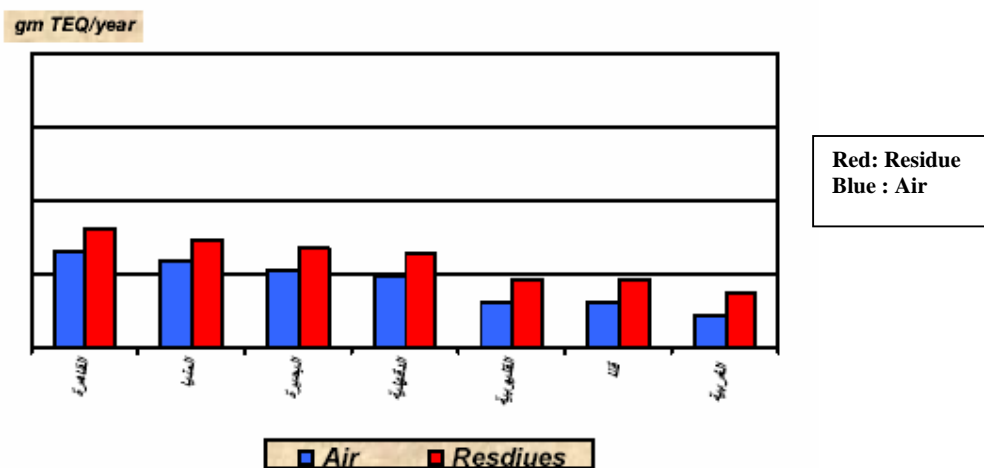
An inventory was prepared including 100% of the zinc production companies that represent 100% of the total production.



E- Open waste combustion

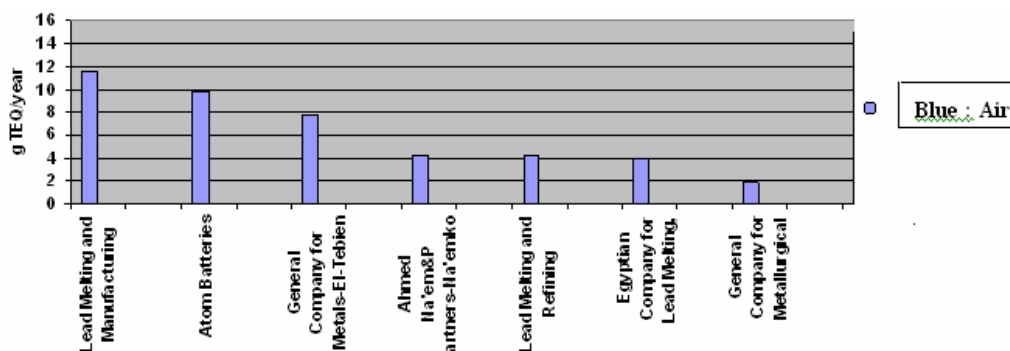
This includes burning in landfill sites and burning sources in residential areas. Municipal wastes that represent about 15 million ton/year were eliminated through collecting them in specific locations.

Fig (10) dump sites .



F- Thermal process in metal production

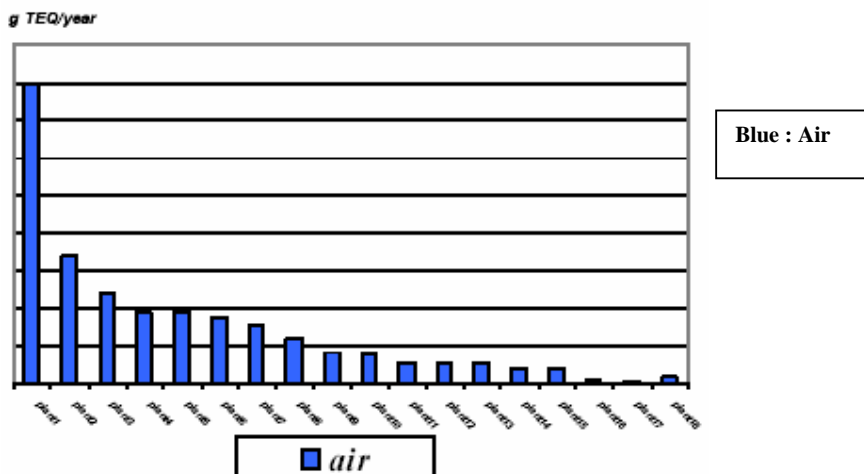
An inventory was prepared including 95% of lead-producing companies. Also an inventory was prepared including 80% of iron and steel-producing companies that represent 75% of the total production.

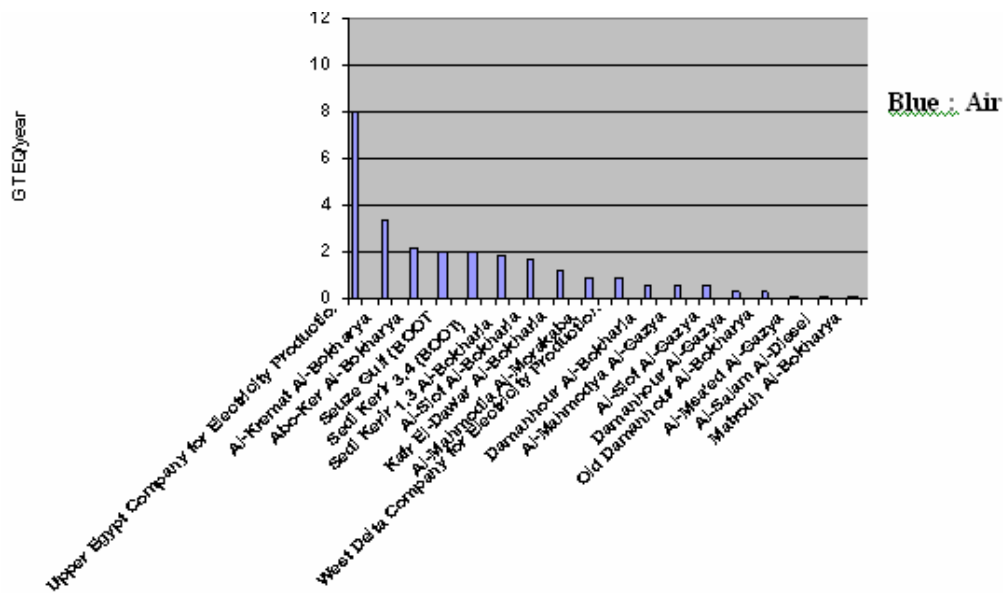


G- Fossil fuel combustion in boilers of different facilities

An inventory was prepared including all types of power generation stations in order to where they locate, and their production power and we received the demand data from Ministry Of Electricity and Power; as following:

Fig (15) stations of power generation





H- Wood-burning facilities and other types of biomass fuel

An inventory was prepared including about 60% of companies that burn wood for power generations which represent 60% of the total wood combustion and power generation companies.

I- Specific processes for chemical materials production that release unintentional persistent organic pollutants, especially chlorophenyl and chloranyl

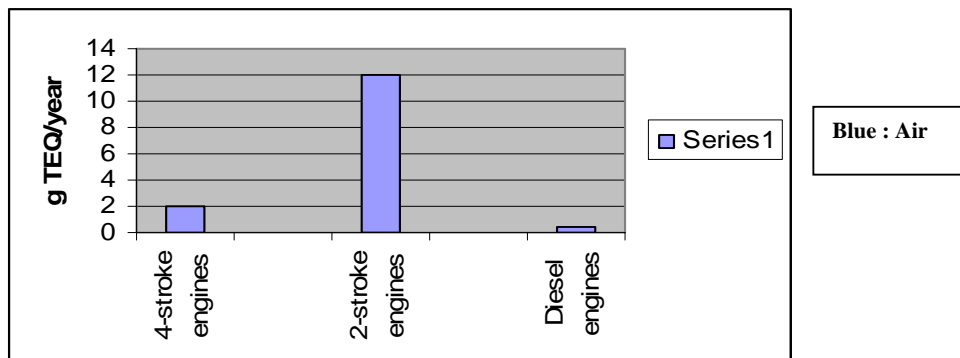
An inventory was prepared including 70% of chemical-producing companies that represent 75% of the total production. Data unavailable

J- Burning of dead bodies

It is not found in Egypt.

K- Mechanical vehicles (especially that used lead-containing gasoline)

An inventory was prepared including vehicles related to Public Transport Facility in order to number of vehicles, type of fuel used, type of vehicle either with 2-stroke engines or 4- stroke engines, as well as the amount of fuel.

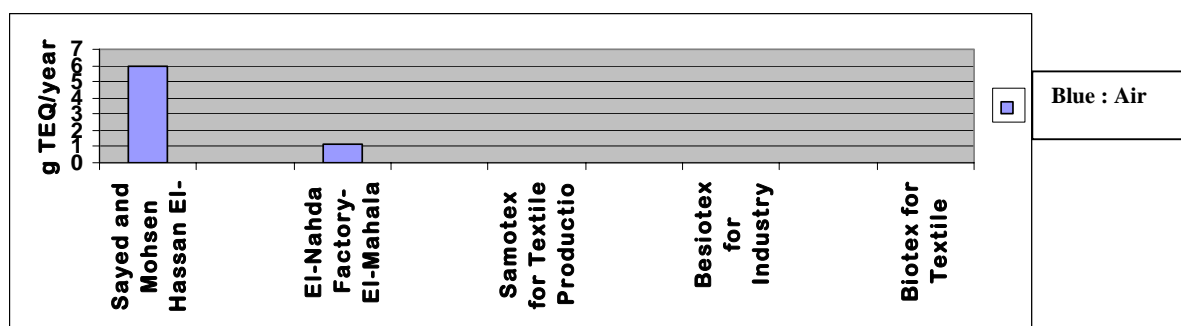


L- Destruction of animals' carcass

It is not found in Egypt.

M- Textile and leather dyeing with chloranyl

An inventory was prepared including leather tannery that use chloranyl in Egypt, and they found that this dye is not used in leather tannery. However for textile production, 45% of textile production factories were involved in this inventory which represents 65% of the total production.



N- Vehicle-cutting laboratories

They are not found in Egypt.

O- Copper cables burning without flame

They are not found in Egypt.

P- Oil waste refineries

An inventory was prepared including stations of oil waste management in order to determine their location and power production. No data available.

The inventory of atmospheric POPs emissions including unintentional products such as PCDDs/Fs is in Egypt based on the use of the standard toolkit issued by UNEP Chemicals. However, the inventory is connected with a range of uncertainties.

Roles of the Ministries in Egypt in dealing with POPs:

Ministry of Agriculture

1. Arrange monitoring programs on pesticides, toxics, persistent organic pollutants and heavy metals in both imported goods and domestic products.
2. Establishing a system for monitoring imported and exported agricultural and nutritional products and make sure that they comply with the national and international chemical safety standards.
3. Controlling using of pesticides.

Ministry Of Health and Population

1. Monitoring and developing pesticides for home use.
2. Establishing the chemical safety unit for enlisting imported chemical materials and analyze the toxicity level within them.

3. Establishing specific standards for water analysis to ensure the complete absence of POPs pesticides. Accordingly, it established several decrees and rules to deal with that; among them:
 - Decree 108/1995 of Minister of Health on periodic analysis of drinking water.
 - Decree 48 on protection of the River Nile from pollution.
4. Forbidding the use of the nine Stockholm POPs pesticides by a Ministerial decree number 55/1996.

Ministry of Environment

It is the main ministry responsible for Environmental protection in Egypt. The ministry integrates all ministerial efforts and coordinates them as well as application of the Environmental decrees.

Ministry Of Industry

Embracing the Cleaner Production direction and applying it in all industries in order to decreasing the rate of these pollutants.

Roles of Egyptian Non-governmental organizations

Nowadays, Day hospital Institute is the main participating NGO in the NIP. The following NGOs are interested in POPs and submitted project proposals to participate in the International POPs Elimination Project (IPEP) of the IPEN network to help enable Stockholm Convention implementation.

1- Day Hospital Institute (DHI) for Development and Rehabilitation:
DHIRD is the Arab regional hub of the IPEP project that plays a great role in environmental and social issues as well as participating in the National Implementation Plan. In addition it promotes and encourages other interested institutes and foundations, both in Egypt and in other Arab countries, to be active and participate in the IPEP project.

2- Egypt Sons Association for Development & Environmental Protection:
Health status of a random sample, particularly children, of the impact zone of El-Kafer El-Zaiat plant for pesticide & chemical production (formerly DDT producing).

3- Arab Office for Youth and Environment (AOYE):
On the Global Day of Action (GDA) Celebration.

4- Environmental Pioneers Association:
An association in Alexandria Governorate adopted the raising awareness project entitled “Together for protecting our children from cancerous organic pollutants”.

5- Dreamers of Tomorrow:
On the Global Day of Action (GDA) Celebration.

Day Hospital Institute for Development and Rehabilitation as a member in the National Steering committee will continue participating in the fourth stage activity to

ensure the full implementation of the Stockholm Convention. Particularly in the following priorities:

1. Uncontrolled burning processes (including; public sites and random dumpsite in Cairo, biomass burning, and rice straw).
2. Industrial activities; such as cement, steel and iron, bricks, lime industry, lead, asphalt, coke, charcoal, aluminum, glass, ceramic, zinc, chemical industry (including; chlorinated pulp and paper production, fabric industry, PVC, oil and petroleum industry) etc
3. Medical waste incinerators.
4. Setting a strategy for raising awareness of public, especially of women and children. DHIDR had conducted several workshops for raising awareness about POPs and the Stockholm Convention in Egypt.

DHIDR has done a thorough investigation of dioxin analysis labs in Egypt and helped the Egyptian Agency for Monitoring Imports and Exports to modify its dioxin labs so that they include a Dioxin level 2HR MS GC, aflatoxin calibration labs and bio-assay for dioxin detection by CALUX method. This will be available in 10-12 months time operating in Dekhila Harbor near Alexandria.

DHIDR is also communicating with authorities in cement industry and discussing with them their ideas about burning pesticides in cement kilns. A separate report will follow about that. This is highly controversial since cement kilns, due to their private ownership, could become huge sources of POPs and a convenient throw away system for all kinds of toxic waste.