Implementation of the Stockholm Convention National Implementation Plan - Egypt

PROJECT NUMBER: (GEF/EGY/02/022)

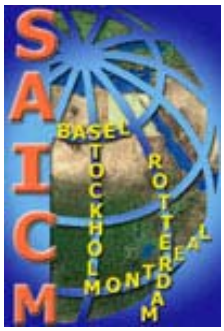
PROJECT NAME: ENABLING ACTIVITIES TO FACILITATE EARLY ACTION ON THE IMPLEMENTATION OF THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS (POPs).

July – 2005

Implementation of the Stockholm Convention

National Implementation Plan - Egypt

The Coordination, Monitoring and Technical Information Exchange Unit for the International Conventions Concerning Hazardous Substances



July - 2005

Speech of
His Excellency, Minister of State for Environmental Affairs

As we, all know Persistent Organic Pollutants (POPs) are toxic chemicals that adversely affect human health and the environment around the world. Because they can be transported by wind and water, most POPs generated in one country can affect people and wildlife far from. They persist for long periods in the environment and can accumulate and pass from one species to the next through the food chain. To address this global concern, Egypt signed the Convention on Persistent Organic Pollutants (POPs) joining forces with more than 100 other countries to support and implement a groundbreaking United Nations treaty in Stockholm, Sweden in May, 2002.

Under this treaty, known as the Stockholm Convention which entered into force on May, 2004, Egypt as will as other countries agree to reduce or eliminate the production, use and/or release of 12 key POPs. Aldrin, Chlordane, DDT, Dieldrin, Endrin, heptachlor, Hexachlorobenzene, Mirex, Toxaphene and PCBs beside Dioxins and Furans make the list of those 12 key POPs. The Convention also specifies a scientific review Process that could lead to the addition of other POPs chemicals of global concern.

Many of the POPs included in the Stockholm Convention are no long produced or used in Egypt. None of the intentionally produced pesticides, for example, are now manufactured or registered for use in our country.

However, Egyptians and Egyptian habitats like others in the world can still be at risk from POPs that have persistent in the environment, from unintentionally produced POPs that are released in Egypt, and from POPs that are released elsewhere and then transported here (by air or the Nile water, for example).

The Stockholm Convention will add an important global dimension to our efforts to protect the health of our citizens and our environment. It will ban production, limit uses and reduce or eliminate release of these POPs.

Other protocol obligations include the application of best available technology and best environment practices to limit air emissions from major stationary sources of Dioxins, Furans, Hexachlorobenzene and PCBs. For this, Egypt will consider and take initiatives to modernize, monitor and control its industrial sectors in order to reduce emissions to the acceptable levels. We will also apply other control strategies, provided they achieve equivalent emission reduction as an alternative compliance option.

Egypt is one of the pioneer states, at regional, Arab and African levels, in the field of preparation the National Implementation Plane for Stockholm Convention on POPs. Egypt has started working on the plane project beginning with July 2003 in fulfillment of the obligation of Stockholm Convention according to Article 7.

Preliminary inventories on POPs pesticides, PCBs, unintentionally produced Dioxin and Furans. Consequently, a defined clear overview of these substances (under the convention) throw their life cycle (import, export, transport, distribution and disposal) is given throw the inventories.

Moreover, through this project Egypt was able to define national priorities according to the criteria set in full coordination with all the competent authorities and ministries in addition to international consultants and the UNIDO, the activities to be carried out in this field were assessed by giving each a certain "mark" reflecting its importance on the bases of measuring the influence of the criteria on each activity. Hence the priorities were defined according to different "marks".

The experiences of different states in the development of their NIPs were referred to and the guidelines of the United Nation for Environmental Protection (UNEP) relied on throw the implementation of the NIPs project. The activities carried out all through the project were implemented under auspices from the NSC of the project including all the competent ministries and authorities NGOs, women and child associations (National Council for Woman) and the private sector.

Moreover, Egypt was keen on taking into consideration the linkage among the three competent international conventions (Stockholm, Rotterdam and Basel) as well as any further additions to the Strategic Approach on International Chemical Management.

In this way we now have one base with defined features, a financial coast and a time schedule for the management of POPs till 2020 in accordance with the principle agreed on during the earth summit of Johannesburg, which states that 2020 should be the year for reducing the hazardous impact for chemicals on health and environment.

Consequently, the NIP for POPs in Egypt has already been issued to include an introduction, three main chapters in addition to nine annexes in about 400 pages.

Minister of State for Environmental Affairs

Engineer \ Maged George Elias

Contents

List of Abbreviations and Acronyms

ARE	*Arab Republic of Egypt*
AEA	*Atomic Energy Authority*
APELL	***Awareness and Preparedness for Emergencies at Local Level***
BAT	**Best Available Technique**
BC	***Basel Convention***
BOD	**Biological Oxygen Demand**
BEP	**Best Environment Practice**
COP	**Conference of Parties**
CAIP	**Cairo Air Improvement Project**
CIDA	*Canadian International Development Agency*
CAS	**Chemical Abstract Services**
CAPL	**Central Agricultural Pesticides Laboratory**
CAPMS	*Central Agency for Public, Mobilization and Statistics*
CCC	*Cairo Central Center*
CDM	*Clean Development Mechanism*
CP	*Cleaner Production*
CSD	*Commission for Sustainable Development*
DANIDA	*Danish International Development Agency*
DO	*Developed Oxygen*
DDT	*1,1'- (2,2,2-trichloroethylidene) bis (4-chlorobenzene)*
DSS	*Decision Support System*

ECC	*Environmental Control Center*
ECO	*Environmental Compliance Office*
ER	*Executive Regulations*
EEPP	*Egyptian Environmental Policy Program*
EEAA	*Egyptian Environmental Affairs Agency*
EHSIMS	*Egyptian Hazardous Substances Information and Management System*
EMS	*Environmental Management System*
EOP	*End-of-Pipe*
EPAP	*Egyptian Pollution Abatement Project*
EPF	*Environmental Protection Fund*
ESCO	*Energy Services Companies*
EIA	*Environmental Impact Assessment*
EOS	*Egyptian Organization for Standardization and Quality Control*
EPA	*Environmental Protection Agency-US*
EQS	*Environmental Quality Sector at EEAA*
ESP	*Environmental Sector Program*
ERS	*Emergency Response Sheet*
EU	*European Union*
EIMP	*Environmental Information Monitoring Program*
FAO	*Food and Agriculture Organization of the United Nations*
FV	*Field Visit*

FEI	*Federation of Egyptian Industry*
GDP	*Gross Domestic Product*
GATT	*General Agreement on Tariffs and Trade*
GEF	*Global Environmental Facilities*
GOFI	*General Organization for Industrialization*
GIS	*Geographical Information System*
GOCIE	*General Organization for control of Imports and Exports*
HCB	*Hexa Chloro Benzene*
HS	*Hazardous Substances*
HW	*Hazardous Wastes*
HCW	*HealthCare Wastes*
IDSC	*Information and Decision Support Center*
IE/PAC	*Industry and Environment Program Activity Center*
ICA	*Industrial Control Authority*
IFCS	*Intergovernmental Forum on Chemical Safety*
IISWM	*Integrated Industrial Solid Waste Management*
ILO	*International Labor Organization*
IOMC	*Inter-Organization Program for the Sound Management of Chemicals*
IPCS	*International Program on Chemical Safety*
IPM	*International Pest Management Program*
IMC	*Industry Modernization Centre*
IRPTC	*International Register of Potentially Toxic Chemicals*

ISG	*Intersectional Group of the Intergovernmental Forum on Chemical Safety*
ISI	*Industrial Safety Institute*
ISO	*International Organization for Standardization*
JICA	*Japanese International Cooperation Agency*
MOA	*Ministry of Agriculture*
MOD	*Ministry Of Defense*
MOEE	*Ministry Of Electricity & Energy*
MOF	*Ministry Of Finance*
MOFA	*Ministry Of Foreign Affairs*
MOFT	*Ministry Of Foreign Trade*
MOHP	*Ministry of Heath and Population*
MOHUUC	*Ministry of Housing, Utilities and Urban Communities*
MOIn	*Ministry Of Interior*
MOMI	*Ministry Of Manpower and Immigration*
MOP	*Ministry Of Petroleum*
MOT	*Ministry Of Transportation*
MIWR	*Ministry Of Irrigation and Water Resources*
MSEA	*Ministry Of State for Environment Affairs*
MSDS	*Material Safety Data Sheet*
MIT	*Ministry of Industry and Technological Development*
MOI	*Ministry of the Industry*
NCPC	*National Cleaner Production Centre*

NEAP	*National Environmental Action Plan*
NREA	*New and Renewable Energy Authority*
NPC	*National Project Coordinator*
NPCU	*National Project Coordination Unit*
NGO	*Non-governmental organization*
NCPC	*National Cleaner Production Centre*
NEAP	*National Environmental Action Plan*
NREA	*New and Renewable Energy Authority*
NIOHS	*National Institute of Occupational Health and Safety*
NWQAM	*National Water Quality & Availability Management Project.*
NP	*National Profile*
NIP	*National Implementation Plan*
NWRC	*National Water Research Center*
NRC	*National Research Center*
NRI	*National Research Institute*
OEWG	*Open-Ended Working Group*
OHS	*Occupation Health and Safety*
OJT	*On Job Training*
PCB	*Poly Chlorinated Biphenyls*
PCDDs/ PCDFs	*Poly Chlorinated Dibenzo Dioxins and Dibenzo Furans*

POPs	*Persistence Organic Pollutants*
PIC	*Prior Informed Consent*
R & D	*Research and Development*
RC	*Rotterdam Convention*
SC	*Stockholm Convention*
SDC	*Swiss Agency for Development & Cooperation*
SEAM	*Support for Environmental Assessment and Management*
SFD	*Social Fund For Development*
SMEs	*Small and Medium Enterprises*
TDS	*Total Suspended Solid*
TEQ	*Toxic Equivalent*
TS	*Total Suspended*
TSP	*Total Suspended Particles*
TT	*Theoretical Training*
UNEP	*United Nations Environmental Program*
UNIDO	*United Nations Industrial Development Organization*
UNITAR	*United Nations Institute for Training and Research*
WHO	*World Health Organization*
WTO	*World Trade Organization*
WQI	*Water Quality Information*
VOC's	*Volatile Organic Carbon*

I - EXECUTIVE SUMMARY

1. Preamble:

The Stockholm Convention (SC) deals mainly with 12 POPs, sometimes referred to as "the dirty dozen", which are of major concern due to their toxicity, long term persistence and their ability to move to far off places by moving from one matrix to the other from their original places of production / use / disposal and accumulate in the fatty tissues of humans and animals. They can accumulate and are sometimes biomagnified by up to 70,000 times the background levels. Fish, predatory birds, mammals and humans are high up in the food chain and absorb the greatest concentrations levels. These POPs can (in minute amounts):

- Interfere with human's immune system
- Cause cancer, allergies, acne and other skin disorders
- Affect the IQ of children
- Cause birth defects
- Damage the central nervous system

These chemicals act as endocrine disrupters and have major impact on wild life. They can cause:

- Abnormal thyroid function in birds and fish
- Decreased fertility in birds, fish and sea mammals
- Malformation in many avian and aquatic species
- Alteration of immune system in birds and mammals

They can interfere at three levels of biodiversity via:

- The generic level
- The population species level
- Community / ecosystem level

Out of the 12 POPs, there are aromatic organo-polychlorinated compounds out of which eight are pesticides including the well known 1,1,1-trichloro-2,2-bis (4-chlorophenyl) ethane, commonly referred to as DDT, two of them are industrial chemicals including polychlorinated biphenyls referred to as PCBs and four are unintentional byproducts, called polychlorinated dibenzo-dioxins and furans, referred to as PCDDs/PCDFs and PCBs and HCBs, produced in many industrial activities, in waste incineration, open burning of waste, etc.

Following extensive Intergovernmental discussions on technical/toxicological /political/environmental/commercial/economic issues lasting over more than a decade, the international community in the name of Intergovernmental Negotiating Committee (INC) considered an internationally legally binding instrument for implementing international action on certain POPs agreed in Johannesburg (December 4-9, 2000) on the text of Stockholm Convention on Persistent Organic Pollutants draft (UNEP/POPs/INC.5/7) for adoption by the Conference of Plenipotentiaries. In May of 2001 the historic

Stockholm Convention on POPs with the objective of protecting human health and environment from POPs was adopted by all the member countries of the United Nations. In order to provide necessary assistance to developing countries, countries with economies in transition and also signatory to the Convention agreed by the GEF Council will be eligible for funding under the Global Environment Facility (GEF) enabling activities mechanism. The main focus of its assistance at the early stage is the preparation of country's National Implementation Plan (NIP). The countries' NIP for Stockholm Convention should be submitted to the Conference of Parties (COP) within two years of coming into force after convention ratification by the country no 50. The Stockholm Convention has come into force in May, 2004 when the fiftieth country (France) ratified the Convention.

Due to the great concern in protecting the human health and environment from POPs, Egypt signed the Stockholm Convention on 17/5/2002 and ratified it on 2/5/2003. The National Implementation Plan (NIP) proposal for fulfilling the requirements of the Stockholm Convention on Persistent Organic Pollutants (POPs) for Egypt was prepared within the framework of the project "Enabling Activities to facilitate early action in the implementation of the Stockholm SC on POPs" under GEF Project GEF/EGY/02/22. UNIDO has been designated by the Council of the Global Environment Facility (GEF) as one of the executing agencies with expanded opportunities and has been executing the project to help in the enabling activities leading to country's NIP.

The project (GF/EGY/02/22) was approved in October 2002; the Egyptian Environmental Affairs Agency (EEAA) of the Ministry of State for Environmental Affairs was given the National Lead Agency (NLA) role. A subcontract between UNIDO and EEAA was signed in July 2003. As a first step, a National Project Coordination Point (Dr. Tarek Eid Mohamed Mohamoud) was appointed to take care of the implementation of the project. Under him a National Project Coordinator Unit (NPCU) with full compliment of staff (9), office facilities were established at the Ministry of State for Environmental Affairs complex at Maadi, Cairo.

2. Country Baseline:

The country over decades has gone through a major economic development while the population increased from 48 million in 1986 to 60 million in 1996 and in 2005 standing around 70.5 million. While the total area is more than one million km^2, only 35,000 km^2 are habitable and most of it lies along both sides of Nile banks.

Most of the industrial activities except some mining and oil exploration are concentrated in this area. Like in any developing country, chemicals are widely used in industry, agriculture, trade and health. While agrochemicals and pharmaceuticals are well controlled under the country's strict registration scheme, quality control laws, and periodic monitoring and registration schemes, the industrial chemicals used in various outlets have no strict control measures, causing lack of information on toxicity and environmental fate. The country, through various Government decrees, is a signatory to many chemical and

environment related Global Conventions. In particular, Egypt is a major player in the region for Basel Convention on hazardous waste and also to the Rotterdam Convention on Prior Informed Consent, In addition to SC. Egypt is playing an efficient role for preparing the Strategic Approach for International Chemical Management (SAICM).

Egypt over the years, has initiated a number of laws/decrees related to air emission control, banning highly toxic and persistent pesticides, introducing strict regulations for importing /producing/using/exporting toxic and hazardous chemicals. The country possesses good quality laboratories to carry out residue analysis for crops, food, contaminated land, and chemical residues in many environment /human/animal matrices. The country faced major obstacles when it came to the unintentional POPs; Public awareness on chemical safety, data collection/assessment and management/dissemination of data, carrying out regular monitoring of toxic chemicals and interpretation of their economic/social/health impact, understanding and introduction of Best Available Technology and Best Environment Practices (BAT/BEP) in relevant industry sectors and above all land remediation and right technology adoption for disposal of toxic/hazardous wastes. Under this context, the enabling activities of GEF project on POPs gave an excellent opportunity to assess the country's capacity/capability and help in drawing out strategies/action plan for sound management of chemicals especially the industrial and unintentional POPs.

3. Implementation of the Project:

The objective of the project can be achieved through five steps as depicted under GEF guidelines. These five steps are:

- Step 1 Inception phase to establish a national coordinating mechanism
- Step 2 Establishment a national POPs inventory
- Step 3 Set of priorities and national objectives
- Step 4 Formulation of draft NIP involving all stakeholders
- Step 5 Approval of the NIP at the level of institutions and groups involved.

4. Coordination Mechanism:

Soon after the founding of NPCU, the mechanism of setting up of multidisciplinary National Steering Committee (NSC) was set in motion. Through a Ministerial decree, the NSC was formed consisting of experts and senior staff from around 7 different Ministries, and three research organizations connected directly to POPs in particular and other chemicals in general and competent authorities of the governorates. In addition, a constant dialogue with relevant NGOs and Civil Society Organizations was set up to bring in an atmosphere of open discussions, transparency, participation and partnership. NPCU, from its survey, came up with a staggering total of 361 organizations/institutions which need to be kept informed at various levels about the proposed NIP stakeholders.

After a few initial informal meetings to explain the purpose of the SC to all the participants, the first Inception Meeting was held in October 2003 at Ain El Sokhna there the meeting discussed various aspects of SC, the country's position with respect to management of chemicals in general and POPs pesticides in particular. The meeting also discussed the country's overall responsibility for complying with SC and its close links with two other conventions Viz the Basel Convention on Hazardous Waste and the Rotterdam Convention on Prior Informed Consent (PIC). The country has already prepared a National Chemical Profile based on United Nation Institute for Training and Research (UNITAR) guidelines and this document has been updated during the GEF/UNIDO project.

5. National POPs Inventory and Public Awareness:

In order to comply with the activities/outcome of the GEF/UNIDO enabling activities, task teams were appointed with terms of reference to look into next step of setting up of National Inventory on POPs and other aspects. The issue of raising public awareness was given a great importance. As part of the enabling activities and as one of the elements of NIP, a general schematic approach, as represented in figure (a) has been agreed on with the NSC and other relevant NGOs and educational authorities. Many representatives from the Ministry of Education/Information/ NGOs/media persons have given their views/opinions/comments that are reflected in the NIP.

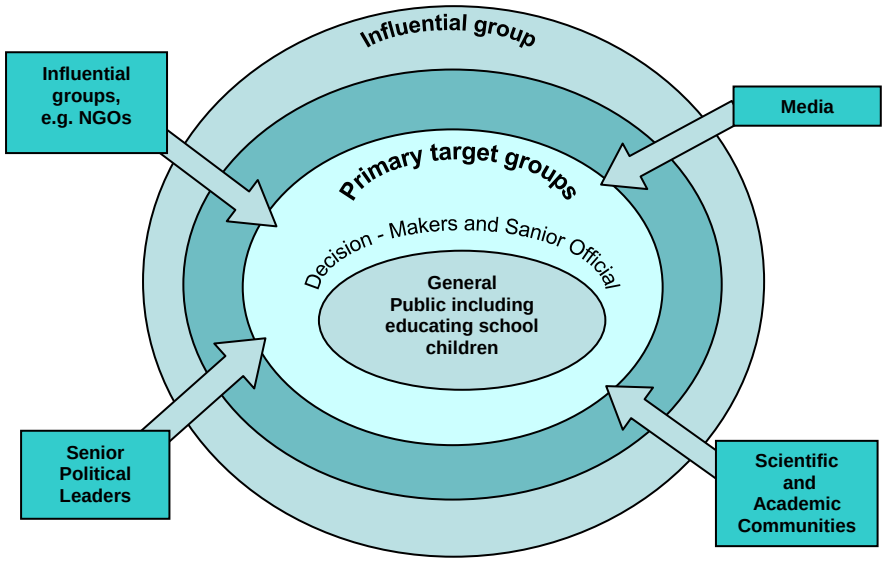


Figure (a) Public awareness schematic

6. POPs Pesticides Inventory:

The National POPs inventory revealed that the country due to the early enactment of Ministerial Decree No. 55/1996 of the Ministry of Trade and Supply and Ministerial Decree No 60/86 of the Ministry of Agriculture has stopped /banned the production/use/export of many organo-chlorine pesticides including all POPs pesticide included in Annex A of the Convention. Many

other laws and decrees from the Ministries of Environment, Man Power and Immigration, Industry, Health and Population put controls/restriction or outright ban on many hazardous and toxic chemicals. In particular the country's Law 4/1994 clearly specifies emission standards for a number of chemicals as part of the air pollution control programme. However, this Law does not cover unintentional POPs (dioxins and furans) implicated in the SC. Due to these laws enacted well in advance, Egypt was fortunate not to have accumulated large amounts of obsolete stocks of POPs pesticides. According to the POPs Pesticide Inventory, it is safe to conclude that Egypt has a total amount of not more than 10 tons mainly of pure DDT or formulated material and toxaphene. Disposal of these in an environmentally sound manner is under investigation. There are still data gaps in POPs pesticide Inventory from private sectors that handled POPs pesticides in the past and information on contaminated sites. These are mainly due to inherent hesitancy from some stakeholders to declare the quantity, if any. It is anticipated that in the case of POPs, pesticide stocks will not be insurmountable. When it comes to identification of contaminated sites, carrying out risk assessment and taking decision to guard, contain or remediate contaminated sites needs capacity building, technology selection, applying the technology and monitoring and setting up of national limitation standards for land contamination . So far, eight sites have been identified to contain pesticide POPs. In the Governorates of Kalubia and Esmailia, actual measurements of contaminants were made. Further discussions and type of assistance needed have been included in the NIP. Another aspect of POPs monitoring, considered by NIP, is the setting up of a systematic process to collect information about residues in environmental/food/human/animal matrices and regular monitoring and assessment social/health impact on society as a whole. In addition, safer alternatives (chemical or in particular biological) for vector born disease control and termite control are being looked at.

7. Inventory of PCBs:

Inventory of PCBs in the country has been carried out at different times before and during the time of this project. Extensive discussions and training were given to the staff of the Ministry of Electricity and Power, NSC, NPCU and competent authorities of the Governorates who collected information and analyzed samples from electrical transformers and condensers. Surprisingly and also confirmed by previous studies, PCBs as stipulated in SC Annex A Part II have been found in these transformers and condensers which have been manufactured and used between "1955-1977" are being looked into.

8. Inventory of Unintentional POPs:

These mainly refer to polychlorinated dibenzo-p-dioxins and dibenzofurans and various relevant congeners, hexachlorobenzene (HCB) and PCBs. This area is rather new to Egypt and over the period of the project on Enabling Activities, using UNEP training courses (national/regional/global), capacity has been built through many training courses, field visits, through understanding of the UNEP toolkit (Standardized Toolkit for Identification and Quantification of Dioxin/Furan releases) and its limitations. A modified

questionnaire in Arabic was prepared and sent to all the industry categories implicated in the SC. The NCPU has even developed software that gives default emission values by changing various parameters. All this has been a very challenging task and cooperation at various levels have been provided to collect the information. By virtue of ratification of SC, the law 4/94 automatically covers release of unintentional POPs. The survey studies revealed that the current situation of unintentional POPs listed in Annex C of the Stockholm Convention is not compatible with the obligations of the Convention. The survey covered 16 different categories and total default emissions are shown in figure (b) below:

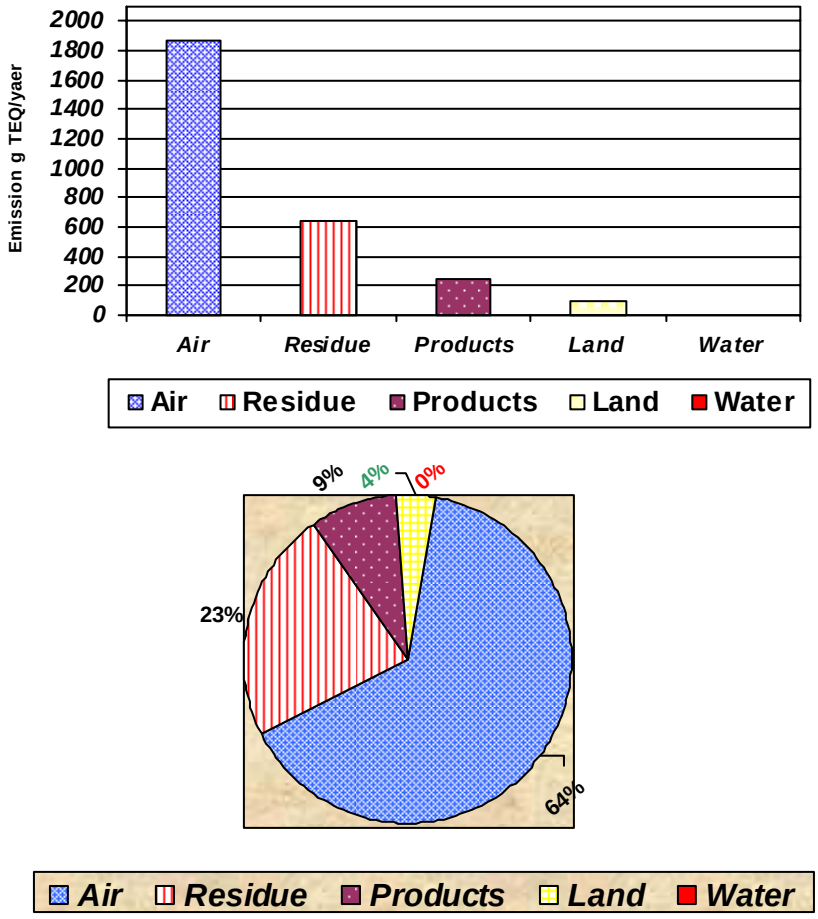


Figure (b) Default emissions

The critical categories for future action under the NIP are as follows:

- Uncontrolled burning processes:
  - o Public dumps
  - o Random dumpsite
- Composting
- Disposal of obsolete pesticides
- Industrial activities:
  - o Steel and iron industry
  - o Bricks

  - Lime Industry
  - Lead casting
  - Asphalt
  - Cement industry
- Medical waste incinerators
- Power generation
- Chemical industry

It should be noticed that for selected categories actual measurements are and feasibility studies, are carried out before the discussion can be taken. With respect to unintentional POPs, the country is very much on a learning curve and needs capacity building to assess the real baseline for these POPs in the country and take action plans as needed along with the international community.

Based on these, further detailed discussions with concerned parties took place in the regional meeting of the NIP (step four). The Action Plan/Strategies and time table, nature of assistance needed and approximate costing are given in the NIP.

Implementation of the project has given an overview of the country's baseline, its present capacity and future requirements to comply with the SC including assessment of chemicals for inclusion in the list and in periodic reporting.

9. Major Observations and Shortcomings:

During the implementation of the project many factors emerged some of which are already well known and some are new. The country is well equipped with many institutions/research laboratories, legal mechanism, data collection/management, responsible media/intercountry and intergovernmental cooperation mechanism/private women welfare and environment welfare organizations. With particular emphasis on the management of POPs and other toxic/hazardous chemicals, the project revealed many shortcomings in media awareness/capacity to handle POPs disposal, land remediation, linking environmental contamination with country’s socio/economic impacts, introduction of BAT/BEP in industries, waste handling and management. At present, the country is also totally incapable of handling the various if not all issues related to unintentional POPs. So, action plans related to capacity building in all these areas have been highlighted in the NIP to overcome country’s shortcomings on a national priority basis.

10. Strategy and Action Plan Elements of the NIP

The Government is very much committed to NIP development in consultation with all parties concerned and this NIP will be integrated within the country's overall environmental policies and sustainable development strategy.

Implementation Strategy:

Following two meetings on data assessment evaluation in addition to selection of priorities and objective setting, twenty eight criteria for country's needs were assessed according to their degree of importance and around 40 different activities have been proposed.

To implement and meet the requirements of the action plan elements, estimation of the needed budget has been made. This estimation has come to the total value of about seven milliards (L.E). This is not only to eliminate the POPs quantities found in the inventory but also to modernize the industry in order to reduce and/or eliminate their non-intentional releases. Details and analysis of this estimation can be seen in ***Annex 1***, and in the following parts of Section (3) of the NIP text:

(1) Development and capacity building proposals/priorities
(2) Timetable for plan implementation and measure of success
(3) Resource requirements

II - NATIONAL IMPLEMENTATION PLAN (NIP)

1. INTRODUCTION

1.1. Preparation of the National Implementation Plan (NIP)

The Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) was enacted on May 22, 2001. The "SC" binds its parties to the elimination of the production and use of POPs; limited use of selected substances is exempted under stringent conditions.

The Arab Republic of Egypt signed the "SC" on 17/05/2002 and ratified it on 02/05/2003.

In order to enable the developing countries to live up to their obligations towards the implementation of the Convention, the Global Environment Facility (GEF) has allocated certain funds for that purpose. GEF has designated the United Nations Industrial Development Organization (UNIDO) as the exchange agency, within a tripartite framework (GEF, UNIDO and the beneficiary country), to put this fund or financial assistance into effect. The proposed National Plan for implementing the "SC on POPs" in Egypt was prepared, within this framework indicated above, in the form of UNIDO's Project No. "GEF/EGY/02/022" that is entitled: "Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Egypt".

Dr. Tarek Eid Mohamed Mohamoud of the Egyptian Environmental Affairs Agency (EEAA) was assigned as the National Project Coordination Point. It is appropriate to indicate that EEAA is the National Competent Authority with regard to the implementation of "SC".

1.2. Project Objectives:

The primary objective of the project is to assist the Arab Republic of Egypt in implementing the Stockholm Convention in order to:

a. Prepare an acceptable National Implementation Plan for the SC on Persistent Organic Pollutants (POPs) in Egypt.
b. Identify the different parties concerned with POPs.
c. Ensure their participation in the preparation of the plan.
d. Establish the oppropiate coordinating mechanism for the plan's implementation
e. Conduct a preliminary inventory of POPs; its sources as well as its negative effect on the population and the environment Nation-Wide
f. Establish a monitoring mechanism for such pollutants, either in soil, water or air.
g. Set up priorities in implementation actions.

Carrying out these objectives should strengthen the national capacity and enhance knowledge and understanding amongst decision makers, managers, industry, and the public at large on POPs. Thus, Egypt would be prepared and enabled to meet the obligations of the Stockholm Convention on Persistent Organic Pollutants.

The project has the following outcomes:

a. *Inception phase*: this involved the establishment of coordinating mechanisms, project organisation, managerial structure, and approved work plan. The final outcome of this phase was the organisation of the Inception Workshop (IW);
b. *POPs inventory*: this involved the evaluation of the exsisting national infrastructure and capacities for the realisation of the inventory. The outcome of this phase was the development of the Initial National POPs Inventory.
c. *Setting priorities for implementation*: this outcome came as a result of the National Priority Validation Workshop.
d. *Formulation of the National Implementation Plan (NIP*): this, included the preparation of specific action plans dealing with POPs, and their evaluation by experts.
e. *Endoresment of the National Implementation Plan*: this involved the discusion and concent by all stakeholders (institutions and groups) through the Endorsement Workshop.

A number of national and international experts as well as specialists from partner institutions took part in preparing the inventory and the NIP.

The preliminary national POPs inventory was conducted and a workshop was held in order to:

a. Carry out the specific assessments including data generation and data gathering required providing the necessary background information and baseline to allow the stakeholders to understand the scope of the POPS issues and to complete the NIP.
b. Identify needs and other assistance in terms of technical expertise and other assistance to complete the NIP.
c. Identify gaps in resources capacity and knowledge which prevent the complete assessment of the status of POPs.
d. Facilitate the coordination and information with sustainable national development, chemical management, pollution control policies.

The validation and priority setting workshops was conducted for:

a. Development of the country's specific criteria for prioritizing health and environmental impacts of POPs, and the availability of alternative solutions.
b. Assessment of the available information from phase II on POPs inventory and identification of priority areas for consideration.
c. Identification of the data and other gaps in the information available which prevent full priority assessment being carried out
d. Determining the national objectives in relation to priority of POPs.

In general the project outcomes emphasize:

a. Setting a list of priorities, proposing the time duration and estimated cost for the reduction/elimination of POPs and their adverse effects on public health and the environment.

b. Raising awareness of the public at large for safe handling of chemicals in general and of POPs in particular.
c. Preliminary assessment of the stockpiles of POPs, and waste products contaminated with POPs, and the measures for its safe handling including opportunities for disposal.
d. Building capacities for reporting to the Conference of Parties (COP).

1.3. Stockholm Convention

Refer to the full text of the Convention reference.

To comply with the Convention Egypt will:

a. Develop and endeavor to carry out a plan for the implementation of its obligations under this Convention;
b. Transmit its implementation plan to the Conference of the Parties within two years of the date on which this Convention enters into force for it;
c. Review and update, as appropriate, its implementation plan on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties
d. Where appropriate, cooperate directly or through global, regional and sub-regional organizations, and consult their national stakeholders, including women's groups and groups involved in the health of children, in order to facilitate the development, implementation and updating of the implementation plan.
e. Endeavor to utilize and, where necessary, establish the means to integrate national implementation plan for Persistent Organic Pollutants in the national sustainable development strategies where appropriate.

The compliance of Egypt toward Stockholm Convention requirements is presented in ***Annex 2.***

Overview of the state of POPs in Egypt is shown in Table 1 below.

The Persistent Organic Pollutants (POPs) are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. POPs circulate globally and can cause damage wherever they travel. They have toxic properties, resist degradation, bioaccumulation and are transported, through air, water and migratory species, across international boundaries and deposited far from their place of release, where they accumulate in terrestrial and aquatic ecosystems.

Table 1: Status of POPs in Egypt

Pesticide	Situation in Egypt
DDT	Use is banned
Aldrin	Use is banned
Dieldrin	Use is banned
Chlordane	Use is banned
Endrin	Use is banned
Heptachlor	Use is banned
Hexachlorobenzene (HCB)	In use by industry and evaluation under way
Mirex	Use is banned
Toxaphene	Use is banned
Polychlorinated Biphenyls (PCBs)	Founded in number of transformers and condensers have been manufactured and used between "1955-1977"
Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDDs/PCDFs)	Measures are underway to control unintentional emissions.

Annex 3 lists some proposed alternatives for POPs use in Egypt.

2. COUNTRY BASELINE

2.1 Country Profile

2.1.1 Geography and Population

Egypt is one of the biggest countries in Africa. It enjoys a unique geographical location, being situated on the northeastern corner of the African continent. It has many features as follows:

Area

Egypt has a total area of about 1002000 Sq. kilometers, of which only 35189 Sq. kilometers, i.e.; 3.6% are populated.

Climate

The Climate of Egypt is determined by many factors, chief of which are location, terrain and overall system of atmospheric pressure and water surface. Basically Egypt lies within the dry tropical region, except for the northern parts that lie within the warm moderate region, with a climate similar to the Mediterranean region, characterized by hot dry summers, and moderate winters with little rainfall, increasing along the coastal areas.

Table 2: Some basic information about Egypt for census years 1986, 1996 and 2005

Item	Census Years		
	2005	**1996**	**1986**
Total population in (000) (excl. Egyptians abroad)	70500	59313	48254
Major cities in urban governorates (Capitals)	4	4	4
Percentage of population in major cities	18	18.6	20.2
Number of towns in Lower Egypt (towns and capitals of governorates)	110	108	90
Number of towns in Upper Egypt (towns and capitals of governorates)	80	78	70
Percentage of urban population in Lower and Upper Egypt.	23	23.2	23.1
Number of villages in Lower Egypt.	2468	2468	2467
Number of villages in Upper Egypt.	1664	1664	166.2
Percentage of urban population in Lower and Upper Egypt.	56.1	56.8	55.5
Number of towns in frontier governorates	41	37	31
Percentage of rural population in Lower and Upper Egypt.	1.3	1.4	1.2
Total area of Egypt (in 000.sq.km)	1002	1002	1002

Location

Egypt enjoys a unique geographical location. It is an Arab African country, being situated on the northeastern corner of the African continent. It is also partly an Asian country, being linked to Asia by the Sinai Peninsula, which has always played a vital role over history as a crossing point among the continents of Asia, Africa and Europe. Due to its singular geographical situation, Egypt has always been a connecting link between the world continents. Although Egypt's position was affected following the discovery of the Cape of Good Hope route, the country later regained its vital role after the digging of the Suez Canal thus representing an ideal gateway to Europe, Africa, and the rest of the world. Egypt lies between latitudes 22" and 32" and between longitudes 24" and 37" to the east of Greenwich line.

Geographical Borders

Egypt is bounded as follows:
To the north, by the Mediterranean Sea with a 995 km long coast
To the east, by the Red Sea with a 1941 km long coast
To the west, by 1105 km long borders with Libya
To the northeast, by 265 km long borders with Palestine and Israel
To the south, by 1280 km long borders with Sudan

The Nile Basin:

The River Nile, which is 6690 km long, is the second longest river in the world. It runs through the following ten countries:

- Tanzania
- Congo
- Burundi
- Rwanda
- Kenya
- Uganda
- Eritria
- Sudan
- Egypt

It may be divided into the following climatic regions:

- The Equatorial Plateau, where the weather is hot and rainy the year round
- The Sudan Valley where two seasons are distinguished: hot and rainy, and hot and dry
- The Nubian Desert and Upper Egypt (from Atbara to Cairo): hot and dry in summer; cold in winter
- Lower Egypt (from Cairo to the Mediterranean): hot and dry in summer; rainy in winter
- The Ethiopian Plateau: heavy rain in summer

- The Egyptian coasts have total length of approximately 2936 km, of which 995 km is on the Mediterranean and 1941 km is on the Red Sea.

Within Egypt:

Upper Egypt (Form Wadi Halfa to south of Cairo):
The Nile Valley, south of Aswan is a desert region where the mountainous land on both sides of the valley is 1000 meters above sea level in the east and 800 meters in the west. This area is an extension of the Sahara Desert, and is the least fertile part of the Valley .The Nile runs from Aswan to Cairo through a valley, which is from 2 to 15 km wide. It is widest at Kom Umbou, where it is 15 km wide. On both sides of the Valley, there are chains of rock hills, which are 300 meters above level.

Lower Egypt (Extended from south of Cairo to Mediterranean coast in the north):

Twenty-five km north of Cairo, the Nile forks into two main branches namely the Rosetta and Damietta branches. Between these two branches lays the Delta which is the most fertile land in the world.

The Suez Canal Zone:

This Zone extends from the Gulf of Suez to the Mediterranean Sea and its length is about 160 km

The Eastern Desert: (28% of area of Egypt.)

It extends from the Nile Valley to the Eastern Borders of Egypt at the Red Sea till Rafah and it is divided into:

a. The Northern Zone (Sinai desert):

Sinai is the veritable gateway to Egypt from the east. It is triangular in shape, and stretches for 400 km from north to south, and 200 km from east to west. It is generally hot during the summer, stormy and exposed to cold air currents during the winter.
Sinai is divided into:

(1) The Northern Part: Includes the coastal strip, which extends from Rafah to Port-Said. Water is abundant in this area due to heavy rainfalls.
(2) The Central Part: This is a steep rocky plateau 3000 feet (915 m) above sea level. Water in this part is scarce.
(3) The Southern Part: This is a steep rocky area 10000 feet (3000 m) above sea level; Water is abundant due to heavy rainfall.

b. The Southern Zone:

It extends from Southern of Cairo – Suez desert road till the boundaries of Egypt and Sudan. This is a sterile area characterized by a range of mountains 2000-meters high that stretch along the coast of the Red Sea. It is rich with minerals and quarries. Kusair, Ghurgada, Ras Gharb, Safaga, Halayeb and Shalatene are small Red Sea harbours.

The Western Desert:

This desert extends from the Nile Valley in the east to the Egypt-Libyan boundaries in the north to the southern boundaries of Egypt. It represents two-thirds of the total land area of Egypt (680000 sq km), and its average altitude is 500 meters. The Northern Zone is the northern plateau and the region of the Great Depressions. It includes Siwa Oasis, Qattara Depression, Wadi EI-Natroun and Baharia Oasis. The Southern Zone: Includes the Farafra, Kharga, Dakhla and Owaynat Oases**.**

Water Resources

Egypt depends, for its water supply on three fresh water sources namely: surface water from the River Nile, rain and stormwater and subterranean water. While the Nile remains, for Egypt, as the main source of fresh water, there are additional, limited resources consisting the following:

a. Recycling agricultural drainage water resulting from irrigating cultivated land, either used as such or mixed with fresh Nile water
b. Treated sanitary wastewater

Quantity of water available for use at present is 73 billion cubic meters per anum, broken down as follows;

1. 55.5 billion cubic meters of Nile water from the Aswan Dam reservoir, to irrigate cultivated land (old and newly reclaimed)
2. 4.8 billion cubic meters of underground water, in the Delta, Upper Egypt and Sinai, for drinking purposes
3. 11.7 billion cubic meters of recycled agricultural drainage water (both official and non official), for non-consumer purposes
4. 1.0 billion cubic meter of rainfall

Population

a. Population in Egypt is about 70.5 millions.
b. The earliest census in Egypt is dated to be in 3340 BC. In modern times, censuses began in 1800, when Egypt's population was 2.5 millions.
c. This estimate was followed by a mid-century 19th count of 4.5 millions.
d. In 1882, population in Egypt reached 6.7 millions.
e. In 1996 CAPMAS carried out the twelfth Population, Housing and Establishment Census.
f. The final results of the 1996 Census indicated that, the total population inside Egypt reached 59.3 millions against 48.3 millions in 1986.
g. According to the 1996 Census, nearly 40% of the total urban population lived in Cairo and Alexandria. Cairo, the capital, had a population of nearly 6.8 millions and nearly 3.3 millions in Alexandria.
h. The population growth rate decreased from 2.8% in the period 1976-1986 to 2.1% in the period 1986-1996.
i. The estimates of population inside Egypt on 1st of January 2001 reached 64.7 millions and on 1st of July 2003 reached 67.5 millions.
j. The estimates of annual population growth rate in 2001 reached 1.69%.

k. The crude death rate declined from 6.7 per thousand in 1995 to become 6.4 per thousand in 2002.
l. Life expectancy at birth for males increased from 62.8 years in 1991 to 67.1 years in 2001 and from 66.4 years to 71.5 years for females.
m. The reported crude birth rate declined from 27.9 per thousand in 1995 to 27.4 per thousand in 2002 (Including Egyptians abroad).
n. Population of Cairo Governorate rose to 6,800,992 in 1996, with an increase of 720,784 at a percentage of 11.9% compared to the 1986 census. In terms of population, Cairo ranks the twenty first of world cities. The labor force raised to 17,795,647 accounting for 35.4%of the total population, compared to 13,400,387 accounting for 34.4% of total population in 1986.
o. The number of people residing within the country rose to 59312914 from 48,254,238 in 1986; Egyptian expatriates abroad, on temporary immigration basis fell to 2,180,000 against 2151000 in 1986, in addition to 720000 permanent Egyptian immigrants abroad. According to United Nations' data, Egypt ranked, in terms of population, seventeenth among world countries.
p. Males accounted (30.352million) for 51.2% of the population and females (28.961 million) for 48.8%, reflecting the same percentage of the 1986 census.

2.1.2 Political and Economic Profile

Country Name:

Conventional long form: Arab Republic of Egypt
conventional short form: Egypt
local long form: Jumhuriyat Misr al-Arabiyah
local short form: Misr
former: United Arab Republic 1958 -1971, the Republic of Egypt 1953-1958, the Kingdom of Egypt 1922-1953.

Government Type:

Republic

Capital:

Cairo (Al Kahera), which is the seat of government and is the place where all diplomatic missions, have their offices.

Administrative Divisions:

26 governorates (muhafazat, singular - muhafazah); Aswan, Assiut, Red Sea, Behera, Beni Suef, Port Saied, Dakahlia, Fayoum, Gharbia, Alexandria, Ismailia, Giza, Menoufia, Menia, Cairo, Kalyoubia, New Valley, Sharkia, Suez, Damietta, North Sinai, Kafr El- Sheikh, Matrouh, Qena, South Sinai, Suhag.

Executive Branch:

Chief of State: President Muhammed Hosni Mubarak (since 14 October 1981).

The Head of Executive Government: Prime Minister Ahmed Mahmoud Nazef (since 17 Jul 2004).

Cabinet:

Cabinet appointed by the president

Elections:

President is nominated by the People's Assembly for a six-year term, the nomination must then be validated by a national, popular referendum; national referendum last held 26 September 1999 (next to be held NA October 2005); prime minister appointed by the president.

Legislative Branches:

Bicameral system consists of the People's Assembly or Majlis al-Sha'b (454 members; 444 elected by popular vote, 10 appointed by the president; members serve five-year terms) and the consultative Council or Majlis Eshura - which functions only in a consultative capacity as its name indicates (264 members; 176 elected by popular vote, 88 appointed by the president; members serve 6 year terms), one third of its members are renewed every two years.

2.1.3 Profiles of Economic Sectors:

a. Industrial and Mining Sector**:**

Data in this section reflects increasing of industries, such as production of iron ore, hydrogenated oil, natural gas, and tanned leather.
The major industries in Egypt are:

(1) Textile and Cotton industry
(2) Mining (Petrol oil, Natural gas, Phosphate, Manganese, Iron)
(3) Fertilizers industries (Phosphate & Nitrogenous fertilizers)
(4) Aluminum industry
(5) Steel and iron industries
(6) Cement industries
(7) Carpet industries

b. Agricultural Sector:

The agricultural sector plays a major role in the structure of the national economy of Egypt. Agricultural production is closely connected with the livelihood of the people. In addition, the agricultural exports represent a major part of the foreign trade of Egypt. Accordingly, the Government initiated a programme for horizontal expansion in order to increase the area under cultivation,

and rather for perpendicular expansion, which increases the yield of the cultivated areas.

The reclaimed area during the period 1952 to 2001 reached 3199 thousand feddans. The total cultivated area with winter crops, summer crops and Nile crops were 13,188 compared to 12,832 and 12,000 in 1999 and, 1995 respectively. Moreover, the production of fish increased by 60% during the period of comparison.

The use of agrochemical products decreased compared with before due to the restricted regulations and awareness of the public to the harmful impact of chemicals.

Table 3: Overview of the industrial and agricultural sectors

Sector	Number of Employees	Major Products in each Sector/Governmental
Industrial/ Manufacturing Sector	729,286	Textile, Cement, Iron & Steel, Chemicals, Wood, Food and Paper
Mining and Extraction	16,018	Petroleum, Phosphate , Coke and Natural Gas
Agricultural Sector	6,778,000	Cotton, Rice, Wheat, Sugar-Cane, Vegetables and Fruits
Total	**7523304**	

c. Chemical Production, Import and Export

The production and import of chemicals for local use are considered to be of high quantities compared to export. Tables (4) through (b) show chemical production in ton/ year.

Table 4: Chemical import and export in year 2000

Chemical Category	Import		Export	
	Quantity (ton)	Value (L.E.)	Quantity (ton)	Value (L.E)
Fertilizers	2,770,294	154,717	638,257	270,784
Petroleum products	3,600,004	3,579,987	7,461,566	589534

Table 5: Imports and exports of some chemical industries of all sectors

Product	Unit	05/04	01/00	00/99	99/98	98/97
Carbon Dioxide	1000 Ton	7	5	9	12	9
Tanned Leather	Million L.E.	980	943	868	874	898
Glue	1000 Ton	45	42	40	39	35
Tires, outer	1000	1300	1250	1037	1426	1498
Tubes, inner	1000	905	1081	1626	2172	2004
Soap	1000 Ton	112	134	216	224	224
Glycerin	Ton	1480	1493	2869	2884	2884
Detergents	1000 Ton	238	238	556	530	382
Caustic Soda	1000 Ton	80	73	44	58	68

Paper & Cartoon	1000 Ton	1852	1874	1829	547	785
Super Phosphate	1000 Ton	1035	1018	1151	1269	1373
Cigarettes	Billion Cigarette	61	65	62	59	57
Tobacco Products	Ton	605.00	609,00	565,95	582,83	549,97

Table 6: Industrial employments by major economic sectors

Type of product	**Employment**		**Output Value (1000 L.E.) / Year**	
	Public Sector 05/04	**Private Sector 04**	**Public Sector 05/04**	**Private Sector 04**
Food	81414	141810	7730745	11970706
Tobacco	13662	3779	1913210	289179
Textiles	169779	89180	3450389	5680221
Mining	4165	58370	73429	225438
Tanning and dressing of leather	4207	7695	53573	217897
Wood	4129	5848	103267	198838
Paper and paper	6557	11308	245191	119595
Publishing, printing and products	1024	21864	18793	196774
Refined coke	24751	24109	14073171	17867
Chemicals and chemical products	56814	36291	3497915	821813
Rubber and plastics	7236	19407	366477	150658
Other non-metallic products	33179	54123	3238081	362313
Basic metals	52328	16808	3859227	40428
Fabricated metal products	21203	19856	607783	1117009
Machinery and equipment	20490	24428	619324	296676
Office accounting and computing	-----	597	-----	183309

Electrical machinery and apparatus	4262	13647	234754	182994
Radio television and communication	5428	4529	404910	62485
Medical precisian and optical	5261	1101	93676	65052
Motor vehicles and trailers	11127	9459	810753	249105

Table 6: Industrial employments by major economic sectors (Continued)

Type of product	**Employment**		**Output Value (1000 L.E.) / Year**	
	Public Sector 05/04	**Private Sector 04**	**Public Sector 05/04**	**Private Sector 04**
Other transport equipment	13056	858	560036	36068
Furniture	1520	11844	6869	69815
Recycling	-----	100	-----	1190

2.1.4 Environmental Overview

Egyptian economy is growing rapidly with extensive use of chemicals in a wide spectrum of its sectors. While there is a high population density in the cities, a significant proportion of the population lives in rural areas where agrochemicals are extensively used. Toxic chemicals are also widely used in a multitude of different industrial sectors, such as textiles, tanning and metal finishing; mining and processing manufacturing found in every town and in urbanized areas throughout the country. A growing number of chemicals are also still used in homes and surrounding domestic environment.

Pharmaceutical industry which plays an important role in heath care is well controlled environmentally, either from efficacy or safety point of view. A variety of natural products is used in traditional products, e.g. coloring additives to food. The composition of such products is known, and evaluation is continuously monitored by the Ministry of Health and Population regarding health risks and control.

The Ministry of Health and Population has established a unit for chemical safety. Work has been initiated to survey exposure to chemicals, to prepare a registry of chemical products, a survey of chemical incidents, and to develop public awareness on problems of chemicals. The Ministry of Agriculture has excellent laboratory facilities for analysis of chemical contaminants and pesticide residues in food. The use of pesticides in Egypt has been dramatically reduced through advanced integrated pest management programme (IPM). Eighty types of pesticides were banned, including those containing Arsenic, Cadmium and lead.

Moreover, in 1999, a Ministerial decree was issued by the Ministry of

Industry which restricts the handling of 145 toxic substances without permission. A database on hazardous substances and toxic chemicals in industry was established. Also, the Ministry of Industry participated in preparing the work plan for a national strategy for dealing with hazardous wastes and toxic chemicals' and also participated in a workshop jointly with the World Health Organization (WHO) and other Ministries to discuss the national programme on the chemical safety.

Furthermore, a Ministerial decree was issued to ban the use of asbestos in any new industrial establishments or expansions of existing ones. The use and handling of asbestos is currently restricted and being substituted by other materials.

It should be mentioned that the infrastructure for dealing with chemicals in Egypt is now moving forward. An integrated chemical safety programme implemented in a coordinated manner among different responsible authorities does exist. Existing control measures provide complete coverage for the country through good coordination among ministries and governmental authorities.

a. Air Pollution:

Most sources of air pollution in Egypt are of anthropic origin. These are divided into two main types: stationary and mobile sources. Stationary sources of air pollution include industrial facilities, thermal power stations and some commercial and residential activities. Air pollutants also arise from open burning of garbage and agricultural residues. Mobile sources include cars, buses, trucks and motorcycles. Other pollutants include natural sources, such as sand. The main pollutants produced are sulfur dioxide, nitrogen oxides, carbon monoxide, and particulates, Volatile Organic Compounds (VOCs) and lead.

Moreover, the ambient air quality published data through EEAA projects, The Ministry of Health and Population and the National Research Center (reference) show clearly that poor air quality prevails in some urban and industrial centers of Egypt. Air pollution severely affects areas adjacent to industrial activities as well as around heavy traffic highways.

Medium and small industrial activities, such as foundries, secondary smelters, pottery workshops, the brick industry, mechanical workshops, lime crushers, charcoal producers, etc. are scattered within and close to urban areas, especially in Greater Cairo, Alexandria, Tanta and several other cities in Egypt. Often these activities are located in informal settlements, using very old technologies with few precautions for air pollution control. They use heavy oil, coal, wood, and rubber and even waste materials as fuel releasing harmful pollutants into the atmosphere.

Furthermore, Air-borne pollutants from vehicle emissions, electricity generation and industrial production frequently exceed safe health levels. Depending on their size, particulates can influence visibility as well as human respiratory functions. The fifteen million Egyptians living in Cairo

and Alexandria, for example, are exposed to levels of dust and smoke in which total suspended particulates (TSP) may exceed WHO standards.

Air-borne pollution particles may contain several toxic and carcinogenic chemicals combined with other pollutants that can cause serious lung diseases. The most serious health effect of carbon monoxide is its ability to enter the blood stream by displacing oxygen carried to the cells. Carbon monoxide-laden blood can weaken heart contractions thereby decreasing the volume of blood being pumped and significantly reducing the normal performance of an otherwise healthy person.

Lead in the air has received special attention because of its health impacts, particularly on children. Exposure to lead in childhood associates with retarded central nervous system functioning, which persists into adulthood. Attempts are being made to relocate lead smelters to more remote areas. Lead concentrations in the air from mobile sources have recently decreased considerably due to expansion in the use of Compressed Natural Gas (CNG) and the introduction of unleaded fuel. However, there are now debates on the health effects due to the new unleaded fuel additives (MTBE).

The "SMOG" episodes that Cairo experienced in the falls of 1999 and 2000 resulted from high levels of air pollutants in the atmosphere of greater Cairo. Average annual wind speed in greater Cairo is only six knots and the frequency of inversions is high, especially at night during winter. This means that Cairo weather conditions will continue to facilitate such SMOG episodes if air quality is not improved.

In rural areas health damage from air-borne pollution is primarily associated with open-air incineration and proximity to industrial establishments, in addition to the toxicity of paint fumes, adhesives and similar products also pose health risks. Significant percentages of reported cases of pneumonia disease were detected in rural areas.

On managing and controlling air pollution from existing large industrial facilities and electricity power stations, information and monitoring data shows that Shoubra EI-kheima (Kalyoubia), Helwan (Cairo), Kafr EI-Zayat (Gharbia), Ameria, Max and Abu-Qier (Alexandria), the industrial area in Suez.. .etc is huge industrial areas that emit pollutants that aggravate the problem of air pollution in Egypt. Few industries have done serious efforts to control this pollution. However, control and management programs established by different projects are now acting seriously to control emissions. Power stations are another major source responsible for emitting excessive amounts of pollution into the atmosphere. Emissions of pollutants from these power stations, are greatly reduced through the use of natural gas, and could be further reduced by greater 'use of cleaner fuel and technology. Also, inspection site visits to operating industrial activities are aiming at assurance of the compliance with regulations and standard.

Also there is an increase in source monitoring to detect rates of pollution emitted from these huge industrial establishments. There is a comprehensive

database information about existing industrial areas, locations of the industries in all Governorates, new industrial areas in the satellite cities, such as 10th Ramadan, 6th October, Sadat City, etc, in addition to electricity power stations and fuel use in various areas. An environmental information system based on a Geographical Information System GIS is acting now to follow-up the environmental compliance of the industries in these cities (reference). However, there is a need to conduct environmental auditing and some risk assessment case studies for all existing industrial establishments and power stations. This will provide policy-makers and executing authorities with enough data on the real situation of pollution discharge points, air pollution control technologies, where they exist, industrial processes and technologies that need to be upgraded, research needs and other important items.

EEAA with other concerned Ministries, mainly the Ministry of Petroleum, have made efforts to control air pollution emitted from huge industrial establishments. These effects are as follows:

(1) Institutional: an agreement has been signed between the Ministry of Petroleum and the Ministry of Electricity stipulating that power plants will use natural gas as a fuel.

(2) Economic and Financial: the proposed economic instruments for reducing and managing cement dust aim at supporting increased investments into environmentally friendly and eco-efficient technologies in the cement industry. This encompasses a number of major activities mainly imposing a differential product charge on each produced ton of cement according to the environmental performance of each cement plant, applying tradable TSP emission permits for cement firms, tax breaks for cement firms investing in mitigation measures and soft loans to obtain cleaner technologies. The main outcome of this proposal would be improving the competitiveness of Egyptian cement in international markets through implementation of cost-effective technology.

(3) International: the Global Environmental Facility (GEF) is being approached to assist in the Clean Development Mechanism (CDM), and to supply these industries with up-to date technologies to protect the atmosphere.

EEAA has an on-going program for establishing new environmentally friendly industrial cities; Egypt has five cities currently enrolled as environmentally friendly industrial zone. These five cities are: Borg AI-Arab, AI-Sadat, AI-Obour, 10^{th} of Ramadan and the 6th of October. More than 70 percent of industrial establishments in the five cities had complied with the required environmental standards, while ten percent of establishments are currently implementing pollution control projects.

Managing and controlling air pollution of existing large industrial facilities and electricity power stations is a program that aims at formulating

management schemes for sustainable development in the existing and new industrial areas of the satellite cities, developing control programs and implementing control technologies to reduce pollution emissions from their sources, adopting new and renewable sources of energy to reduce the environmental degradation, and finally strengthening the air quality management programs for industrial areas.

The major activities of this program include developing and encouraging local industries to produce and use air pollution control technologies, submitting the EIA study as a requisite for both licensing of new industries and choosing the location for power stations and industrial activities, and for developing buffer zones with use of cleaner technology. Air pollution control standards, according to the measures taken to protect air quality in the location and region, are addressed as well as encouraging the use of solar energy and wind force for generating electricity. This will result in reducing the emissions of air pollutants from thermal power stations generating electricity.

b. Water Quality:

Water quality problems in Egypt vary among various water bodies depending on: flow, pattern of use, population density, extent of industrialization, availability of sanitation systems and the social and economic conditions. Discharge of untreated, or partially treated, industrial and domestic wastewater, leaching of pesticides and residues of fertilizer and navigation are often factors that affect the quality of water.

The Ministry of Water Resources and Irrigation is mandated to control and manage all fresh water resources in Egypt including the surface and subsurface water. In addition to construction, supervision, operation, and maintenance of all the irrigation structures and drainage networks, the Ministry is also responsible for providing all other sectors with their needs of good quality fresh water in due time.

The Environment Law No. 4/1994 was issued to protect the environment in Egypt. Law No.4 refers to Law 48 of 1982 for pollution abatement on the water resources in Egypt and mandates the Ministry of Water Resources and Irrigation to implement the law in collaboration with other concerned Ministries. Law 12, 1984 is the law governing the management and operation of the irrigation and drainage systems in Egypt.

Moreover, the Ministry of Irrigation and Water Resources has prepared a National Water Policy till the year 2017 including three main policy themes:

- Optimal use of the available water resources;
- Water quality protection and pollution abatement;
- Development of new water resources in cooperation with the Nile Basin riparian countries.

Various interested or affected individuals, organizations, and government entities took parts in the policy development. Along the same line the

Government completed Land Water Master Plan for the whole country including activities related to water and land use (reference).

Furthermore, National Water Quality Monitoring Network Programs of water quality monitoring started early on both the Nile and agriculture drains. However, all these programs were not fully coordinated together to describe the overall water quality status. Additionally, irrigation canals and groundwater were not included. To remedy the situation, a jointly funded project National Water Quality and Availability Management Project (NWQAM) with Canadian International Development Agency (CIDA) is being conducted by the National Water Research Center (NWRC) of MWRI for seven years period started from 1998. The objective of the National Water Quality Monitoring component of this project is to rationalize water quality monitoring activities into a sustainable national monitoring program.

(1) Pollution of Inland Water:

Drainage water in Egypt may be polluted from three main sectors: agriculture, industry, and domestic. Contamination arises from both point and diffuse sources. Inadequate industrial and domestic wastewater treatment plants and the rapid increase of the population and industrial activities have created significant pollution problems with serious health implications.

The impact of pollution is many and diverse but the general picture is the deterioration in the ecological quality of aquatic systems. Phosphates induced eutrophication and threats to human health and well-beings from nitrates, pathogens, pesticides and other hazardous substances are well known. These pollutants also offset the planned reuse scheme by reducing the amount of drainage water available for future use in reclamation projects.

Currently the government is reusing around 5 billion cubic meters (bm^3) of agriculture drainage water and 0.5 bm^3 of treated wastewater. However, the government faces multidimensional challenges in sustaining the current reuse and promoting more drainage water reuse over the next decades. The challenge is to develop pollution control plans that are cost effective, compatible with the state of social and economic development and can provide achievable benefits.

The policy theme deals with preventive measures and long-term policies. The preventive measures are carried out through a regular assessment of the water quality status and suitability for various uses in addition to laws enforcement to protect water resources against pollution.

The Ministry of Irrigation and Water Resources (MIWR) established and operates a national program of water quality monitoring in the Nile, canals and drains and lake Nasser. The Central Laboratory carries out a substantial lab work for environmental quality management affiliated to the National Water Research Center. The monitoring program includes 300 locations for surface water and 230 locations for groundwater. On the other hand, the long

term policies to control pollution include: coverage of open conveyance system passing through urban system to closed conduits; coordination committee with other concerned Ministries were formulated to put priorities for wastewater treatment plants due to budget limitation; and the introduction of environmentally safe weed control methods (mechanical, biological and manual) and banning the use of chemical herbicides. Subsidies on fertilizers and pesticides were removed and some long lasting effect agricultural chemicals were also banned. Public awareness programs are now taking place about the importance of conserving Egypt's water resources in terms of quality and quantity.

On the other hand access to safe drinking water and sanitation expected to better protect the water resources from pollution. During the last 20 years, 220-wastewater treatment plants were established to increase the potentiality from 1 million m^3/day to 8.2 million m^3/day (25 L/day/Person to 110 L/day/person). With regard to drinking water, 1900 drinking water treatment stations were established to increase the potentiality from 5.8 million m^3/day (120 L/day/person) to 18 million m^3/day (275 L/day/person) covering 90% of the population.

(2) Pollution of Ground Water:

The main source of ground water pollution is attributed to man made activities such as discharge of industrial wastes and drainage of agrochemicals. The Research Institute for Groundwater, as a representative of the Ministry of Irrigation and Water Resources, in cooperation with the Government of the Netherlands has established a Groundwater Quality Monitoring Network where, general trends and overall picture of the groundwater quality were concluded from the results of analyzing samples from the 230 wells constituting the network. High concentrations of total dissolved solids (TDS), sulphate, and nitrate have been observed in the reclaimed areas towards the fringes of the Nile Basin. The high salinity front from those areas shows a clear trend of moving towards the central parts of the old land. The central parts of the Nile delta and valley as well as the deserts show better quality. Only few samples exceeded the WHO limits for drinking water. The main attribute of these areas is the high formation iron and manganese resulting from highly reduced environment of the confined aquifer of the Nile Basin. The Western Desert shows the least levels exceeding the quality standards. High salinity was the main quality problem for the groundwater of the Eastern Desert and Sinai.

(3) Drinking Water Contamination:

Potable Water Supply

Despite the rapid population growth in Egypt, the percentage of the population with access to municipal water supply has increased over the past two decades due to large investments in the water sector. Based on the Statistical Year Book 1992-1993, an estimated 90 percent of households in urban areas and almost 72 percent of households in rural areas have access

to piped water. In populous cities, such as Cairo, Alexandria, Port Said and Suez, 91.8 percent of households have access to piped water, whereas this is the case for 85.8 percent of urban households in Upper Egypt. Rural areas, and especially those of Upper Egypt, are the most inadequately served. Only 59.2 percent of households in rural Upper Egypt have access to piped water. The parts of the population that have no access to piped water obtain their water from public standpipes (often connected to groundwater wells), street vendors or directly from canals and the River Nile.

(4) Nile River Contamination:

- Nile River from Aswan to Cairo:

Water quality is a term used to describe the overall water quality status along River Nile, where monitoring is conducted by Nile Research Institute (NRI) and reported in the National Environmental Action Plan 2002/2017, and the survey (detection) includes nine parameters (DO, pH, TS, BOD, $N0_3$, TSP, Turbidity, feacal coliform and temperature deviation). It has been proven that about 71 percent of the sampling sites along the River Nile during winter season show good quality of water, while the remaining sites indicate a medium quality of water. On the other hand, the Water Quality Index (WQI) calculation during summer shows that only 43 percent of the sampling sites have good water quality while the rest of the sites have medium water quality. Moreover, the published results of monitoring the Nile and its branches according to the same report shows that organic pollution load, and nutrients such as ammonia, nitrate and phosphate levels, in the Nile are within permissible limits and that E-coli bacteria count is also below the limits.

- The Damietta and Rosetta Branches:

The Damietta Branch receives nutrients and organic loads, as a result of discharges from the Talkha fertilizer industry and agricultural drains especially near the Faraskour dam. The drainage at Meet AI-Kholei village also receives sewage water that population residing in this area disposes. This sewage water finally discharges in the Damietta branch, and Rosetta branch starting from downstream Delta barrage up to Kafr EI-Zayat receives high concentrations of organic contaminants and nutrients, this is a result of the discharge of partially treated wastewater from Giza through Muheet and Rahawy drains. The industrial area at Kafr EI-Zayat city discharges some toxic chemicals. It is also worth mentioning that both branches receive huge amounts of raw or partly treated sewage disposed from sanitary drainage plants located in some cities and villages near the River Nile.

The Water Quality Information (WQI) for Damietta and Rosetta branches during winter and summer seasons of the year 2000 shows that during winter, water enters the Damietta branch from the Nile with good quality and then it deteriorates downstream the branch till it becomes in the medium condition. The extremely low flow condition, which occurs during low

demand wintertime, in addition to discharging wastes from different pollution source along the branch can explain changes in WQI along the branch. The same trend of water quality index occurs in Rosetta branch where the water deteriorates in the downstream and reaches the worst condition at the site located 120 km downstream the branch. The branch at that receives pollutants from five drains (EI Rahawy, Sabel, EI-Tahreer, Zaweit EI-Bahr and Tala) as well as from industrial effluents.

c. Soil Contamination:

Vehicle emissions affect the soil of the agricultural land around traffic roads. A strip of at least 40 m parallel to the Cairo-Alexandria Agricultural Road receives air pollutants, mainly lead, carbon monoxide, nitrogen oxides and sulfur dioxide. These pollutants fall on the plants as well as passing directly into the soil. Pollutants carried by irrigation water are also a major source of soil pollution. An estimated 50 percent loss of productivity of agricultural land was recorded at Helwan and Shoubra EI-Kheima. Severe damage to plants has been reported in areas close to the industry in Kafr EI-Zayat, Edfu, Abu Za'abal and others. Toxic heavy metals accumulate in the tissues of vegetation grown adjacent to sources of air pollution, such as lead smelters and near traffic roads.

It should be mentioned that pesticides are considered the main source for soil pollution. Integrated Pest Management (IPM) in agriculture is a valuable component of a sustainable agricultural system, where the national policy is currently based on the reduction of dependence on agriculture pesticides and enhancement of agricultural best practices, combined with proved biological and alternative control technologies. A plant protection-coordinating steering committee for the recognition and evaluation of IPM components was established in the Ministry of Agriculture.

The future national development strategy for IPM will focus on the efficient use of natural enemies, new innovative approaches through molecular biology in the critical identification of pest strains, development of induced resistance plant varieties through biotechnology, the establishment of computerized IPM website and the assessment of pesticide risks and benefits.

Moreover, the term 'soil degradation' refers to weakness of the capability of soil to produce agricultural products. There are various forms of soil degradation, these are:

(1) Displacement of soil material by water and wind, which is significant in Egypt.
(2) Chemical degradation of soil resulting from loss of nutrients or organic matter, Salinization and pollution.
(3) Physical degradation of soil where the process that causes soil degradation is compaction, sealing and crusting, water logging, and subsidence of organic soils.

d. Hazardous Waste Treatment:

(1) Industrial Wastes:

Industry is the main source for hazardous wastes. Hazardous wastes are not confined to large-scale industries; small-scale industry, small workshops, garages and very small production units collectively produce large quantities of hazardous wastes. Their volume is usually difficult to monitor and quantify. Further more, transport services, hospitals, research laboratories and even household are sometimes sources of dangerous materials.

The types of hazardous wastes generated from industrial activities in Egypt are varied according to the industrial sector. The main industrial sectors are textiles, pesticides, fertilizers, petrochemicals, pharmaceuticals, paper, pulp, steel, metallurgical and food. The chemical industry is by far the main source of hazardous wastes in the developed regions in Egypt. Recent estimates have indicated that about 50% of all industrial activities is concentrated in Greater Cairo and about 40% in Alexandria. The rest is in Delta, Upper Egypt, and New Cities.

The Ministry of Industry surveyed and documented the solid wastes from industrial activities of the public sector companies and disposal methods of those wastes including the hazardous wastes. Currently, a list of industrial hazardous wastes was allredy prepared in order to issue a Ministerial Decree to regulate the handling and disposal of those hazardous wastes according to Basel Convention. Industrial wastes (including hazardous wastes) are generated from about 24,518 establishments distributed nation-wide. Types and impacts of wastes differ according to the activity, technology uses and location of each establishment.

Greater Cairo, Alexandria and Sharkia Governorates are the greatest generators of industrial wastes.

The Ministry of Foreign Trade and Industry has current and future activity plans for waste treatment. These include projects on collection and onsite separation of industrial wastes, relocation of lead smelters, tanneries and textiles from Cairo to new industrial zones, recycle, reuse, and safe landfill of industrial wastes.

Lacking the necessary treatment and disposal facilities, it has frequently been the case that hazardous industrial wastes generated by these industries are disposed in the nearby desert areas or transported to public dump sites mixed with municipal waste. Scavengers are exposed to serious health hazards when scavenging these dumpsites searching for recyclable waste products. The main obstacles impeding the implementation of most of the projects are the lack of funding and lack of trained workers in that field.

During 1999, Ministry of State for Environmental Affaires initiated a 3-year demonstration project to establish a hazardous waste landfill in the Governorate of Alexandria. The project funded by the Finish Government, focused on the construction of the landfill and its operations of large quantity of hazardous waste generated from industrial sites across the Governorate.

The completion of a draft for national hazardous waste list during 1999 was one of the most significant initiatives implemented, where all competent authorities is now following this list for better control and safer handling of such wastes.

(2) Healthcare Wastes (HCW):

Disposing HCW with other municipal wastes had created serious health and environmental problems in Egypt. EEAA initiated and supported a program for designing and production of HW incinerators in cooperation with a local agency, in 1994. Ministry of State for Environmental Affaires and Ministry of Health and Population (MOHP) collaborate to monitor hospital hazardous waste in different hospitals nation-wide. In 1998, MOHP developed in cooperation with World Health Organization (WHO) a national guideline for hospital waste management. EEAA in cooperation with the Ministry of Health and Population and Cairo University had developed a pilot facility project supported by DANIDA for an integrated environmentally sound management of health care wastes. The project has proved the safe handling of Cairo University Hospitals waste. Moreover, limits for the safe emissions from HCW incinerators were issued and reviewed within the proposed modification of the executive regulation of law 4/94.

e. Occupational Health:

The non-adherence to rules requiring the use of appropriate protective clothing during use, handling and application of chemicals has been a major cause of problems. Legislations supporting the program are:

(1) Law 453/1954 is responsible for regulating industrial and commercial activities and is executed by the Ministry of Industry.
(2) Labor Law 137/1981 and its executive regulations.
(3) Minister of Labor Decree No. 55/1983 and law 12/2003 to protect the working environment.
(4) Law 4/1994 for environmental protection and regulations of activities causing pollution and degradation of the Egyptian environment. The Egyptian Environmental Affairs Agency (EEAA) is the main actor for responsible part/for executing the aforementioned law and has the authority to monitor and implement its rules.
(5) Law 59/1960 executed by the Ministry of Health and Population gives, which limits for radioactivity of fixed sources.
(6) Law 3/1982 for the proper planning of industrial zones executed by the Ministry of Planning.

Other official efforts have been directed towards the support of public awareness campaigns including TV and Radio spots and programs, illustrative booklets, seminars, and conferences. Also, NGOs are playing a

positive role in enhancing public awareness.

Several studies have been conducted to investigate the impacts of pesticides POPs on human health and the environment in Egypt, ***Annex 4***.

f. Chemical Accidents:

EEAA is now focusing on developing risk assessment programs through the cooperation among different authorities. These programs focus on developing and improving hazard and risk assessment methods, promoting harmonization of methods and terminology among different industrial sectors. These programs will be active in high environmental exposure areas. Moreover, classification of substances of new industrial chemicals in order to improve cooperation and information exchange on national level, monitoring data and assessing methodologies will also be conducted by developing voluntary measures to address the risk management of some existing chemicals. Furthermore, developing approaches that encourage industry to develop chemicals that are more environmentally safer and establishing a network of experts at the national level that can be called upon at any time to share expertise and experience during environmental emergencies is one of the main aims of these risk assessment approaches. The Ministry of the Interior – Civil Defense Authority is the main responsible body for controlling chemical accidents in Egypt.

Industrial Accidents

No outbreak of industrial accidents involving POPs has been reported in Egypt.

Transport Accidents

Most of the national reported incidents have been associated with petroleum products, concentrated acids and chlorine tankers. It should be mentioned that EEAA with the cooperation of the Egyptian Environmental Policy Program (EEPP) has developed some guidelines for the transportation of hazardous waste including permission for hazardous waste transportation (requirements, license, means of transportation), manifest system and labeling system.

Agriculture Accidents

Several poisoning incidences in agricultural workers mixing or applying pesticides have been reported in ***Annex 4***.

g. Storage and Disposal of Obsolete Pesticides:

Obsolete pesticides constitute an immediate threat to the health of humans and livestock, particularly since they are often stored in populated areas, which may sooner or later leak into and contaminate groundwater and the environment in general. The absence of designated storage and disposal sites has contributed to indiscriminate dumping. Depending on the quantities

being generated, some of the wastes are kept on the premises. The security at such storage sites is usually low, increasing the risk of scavenging of dangerous materials by scavengers. The use of existing stocks of obsolete pesticides has been restricted. Currently, there is a supreme committee for safe disposal and effectively management of obsolete pesticides, where MOE and MOALR are the lead agencies for such committee.

2.2 Institutional, Policy and Regulatory Framework:

2.2.1 Environmental Policy, Sustainable Development Policy and General Legislative Framework:

a. Environmental Policy, Sustainable Development Policy

The challenge of Egyptian environmental policy is to achieve a balance between the needs of a developing nation while protecting its natural resources. Environmental policy is coordinated by MSEA/EEAA; it is a product of a consultative process that involves all stakeholders: the public at large, NGOs, private sector, government departments/agencies and finally legislative bodies. The strategic objective of the environmental policy in Egypt is to introduce and integrate environmental concerns relevant to protecting human health and managing natural resources into all national policies, plans, programs and projects of the national development plan. The medium-term objective is to preserve natural resources, biological diversity, and national heritage within a context of sustainable development. The short-term objective is to reduce current pollution levels, minimize health hazards and to improve the quality of life for citizens and residents in Egypt.

b. General Legislative Framework

The general framework of the Environment Law No.4/1994 reflects the interest of Egypt in improving the quality of its environment, and in implementing the principles of sustainable development nation-wide. Egypt accepts its share of responsibility for the state of the environment on Planet Earth; it actively participates in the relevant mechanisms of international co-operation. Through activities within its territory and through support for activities in other areas, Egypt is taking part in dealing with existing environmental global issues. Egypt is committed to the criteria for sustainability: (1) minimization of the demands on non-renewable resources, prudent use of renewable energy and material resources, and minimal use of the land resources, (2) minimization of negative impacts on the environment, emissions into air and water, soil contamination, waste production, and noise levels as well as minimization of all potential hazards and risks to the environment, (3) consistent protection and improvement of basic natural and human capital.

Hazardous substances, particularly pesticides, are dealt with in a major way in the national environment Law 4/1994. Emission standards and their enforcement are an integral part of air pollution programs. Applying these standards has become a nation-wide practice.

2.2.2 Roles and Responsibilities of Ministries, Agencies and Other Governmental Institutions involved in POPs Cycles (From Source to Disposal, Environmental Fates and Health Monitoring).

Table 7 below indicates the different categories of responsibilities for key government agencies.

Table 7: Areas of responsibilities in handling/dealing with POPs for different agencies

Life cycle phase / Ministry/Agency	Importation	Production	Storage	Transport	Distribution / Marketing	Use/ Handling	Disposal
Environment	✓	✓	✓	✓	☐	✓	✓
Health	✓	✓	✓	✓	✓	✓	✓
Agriculture	✓	✓	✓	✓	✓	✓	✓
Labor	☐	✓	✓	✓	☐	✓	✓
Foreign Trade	✓	☐	☐	✓	☐	☐	☐
Industry	✓	✓	✓	✓	✓	✓	✓
Finance	✓	☐	☐	☐	☐	☐	✓
Transport	☐	☐	☐	✓	☐	☐	☐
Interior/Civil Defense	✓	✓	✓	✓	✓	✓	✓
Justice	✓	✓	✓	✓	✓	✓	✓
Petroleum	✓	✓	✓	✓	✓	✓	✓
Electricity	✓	☐	✓	✓	✓	✓	✓

☐ Not Applicable ✓ Applicable

Description of Principal Ministerial Authorities and Mandates related to the Management of Chemical Substances including POPs:

a. Ministry of State for Environmental Affairs /Egyptian Environmental Affairs Agency (EEAA):

The Agency shall be the National Authority responsible for strengthening environmental relations between Egypt and other countries and regional and international organizations. The Agency shall recommend taking the necessary legal procedures to adhere to regional and international conventions related to the environment and prepare the necessary draft laws and decrees required for the implementation of such conventions.

The main objectives of the MSEA and EEAA are to:

(1) Prepare draft laws and decrees related to the fulfillment of its objects and express its opinion on proposed legislation related to the protection of the environment.
(2) Prepare studies on the state of the environment, formulate the national plan with the projects included for the protection of the environment, prepare the estimated budgets for each as well as environmental maps of urban areas and areas to be developed and lay down the criteria to be observed when planning and developing new areas as well as the criteria targeted for old areas.
(3) Lay down the criteria and conditions, which owners of projects and establishments must observe before the start of construction and during the operation of these projects.
(4) Draw up a comprehensive list of national institutions and organizations as well as of qualified individuals who could contribute in the preparation and execution of environmental protection programmes and could be made use of in preparing and implementing the projects and studies undertaken by the Agency.
(5) Conduct field follow-up of compliance with the criteria and conditions that are binding to agencies and establishments and take the procedures prescribed by law against those who violate such criteria and conditions.
(6) Lay down and follow up the rates and percentages necessary to ensure that permissible levels of pollutants are not exceeded.
(7) Gather national and international information on the environmental situation and the changes affecting it on a periodical basis in cooperation with the information centers of other agencies, publish such information and evaluate and utilize it in environmental management and planning.
(8) Lay down the principles and procedures for assessing the environmental effects of projects.
(9) Prepare an environmental contingency plan in the manner stated in article 25 of this Law and coordinate with the competent bodies in the preparation of programmes to face environmental disasters.
(10) Lay down a plan for environmental training and supervise its implementation.
(11) Participate in the preparation and implementation of the national programme for environmental monitoring and make use of the data provided thereby.
(12) Compile and publish periodic reports on the main environmental indicators.
(13) Prepare programmes for the environmental education of the public and assist in their implementation.
(14) Coordinate with other competent authorities in connection with regulating and setting safety standards for the conveyance of hazardous materials.
(15) Administer and supervise natural protectorates.
(16) Prepare the draft budgets required for the protection and promotion of the environment.
(17) Follow up the implementation of international and regional conventions related to the environment.

(18) Propose economic mechanisms to encourage different activities and procedures for the prevention of pollution.
(19) Implement pilot projects for the preservation of natural resources and the protection of the environment from pollution.
(20) Coordinate with the Ministry for International Cooperation to ensure that projects funded by donor organizations and countries are in line with environmental safety considerations.
(21) Participate in laying down a plan to protect the country from leakages of hazardous substances and wastes causing environmental pollution.
(22) Participate in the preparation of an integrated national plan for the administration of coastal areas on the Mediterranean Sea and the Red Sea in coordination with the authorities and ministries concerned.
(23) EEAA shall formulate standards and regulations regarding the protection of the ozone layer from an environmental conservation point of view.
(24) Participate with the Ministry of Education in the preparation of training programmes for the protection of the environment within the scope of the various curricula in the basic education stage.
(25) Prepare an annual report on the environmental situation to be submitted to the President of the Republic and the Cabinet, a copy of which shall be deposited at the People's Assembly.

As for hazardous substances MSEA and EEAA; set the national policy for chemical management including:

(1) Control hazardous substances at the various stages of their life cycle to be regulated by adequate legal instruments;
(2) Chemical risk communication necessitates harmonized classification and labeling of chemicals.
(3) Preparation of an inventory in Egypt.
(4) National plan for prevention of illegally imported HS.
(5) Environmentally safe and sound methods for reduction and control of chemical risks including possible development of non-toxic alternatives.

b. Ministry of Health and Population

MOHP through its directorates and centers is involved in chemical safety. The General Directorate of Occupational Health has a unit for chemical safety and keeps a register of hazardous chemicals. Occupational health department “Chemical Safety Unit” supports the safe handling of chemicals throughout the whole process (importation, transportation, storage, use and waste management.)

Mandates:

(1) To supervise chemical safety in work places and keeps record of cases of chemical intoxication those are treated in the MOHP hospitals.
(2) To evaluate these substances and cases of chemical intoxication.
(3) To recommend preventive measures to the whole process and reporting to the authorized agencies to avoid exposure of Egyptian citizens to these hazards.
(4) To provide technical supervision and assistance for poison control and management centers at 5 governorates, which serve other neighbor governorates which mange cases of chemical poisoning.
(5) To raise public awareness by different means.
(6) To carry out research and studies in cooperation with universities and research centers.
(7) To provide relevant training.
(8) To implement a toxic vigilance program (related to chemical safety with WHO)
(9) To provide immediate care for the cases of chemical intoxication through directorate of emergency medical care.

The General Directorate of Environmental Health supervises hazardous, materials and hazardous wastes generated by health establishments and license clinical waste disposal. The Directorate runs the air-monitoring network, does water analyses as appropriate and approves chemicals used for water treatment. The MOHP set standards and specifications for water used for drinking, household purposes and for recreation. The General Directorate of Food Control sets limits for food additives and food contaminants inspects and analyses imported and locally produced foods and those on the market for safety and investigate food poisoning outbreaks. The Directorate of Central Laboratories does laboratory analyses for water, food and biological fluids to help implement various legislation of the MOHP and other agencies. It does regular analyses required for the implementation of law no. 48/1982 concerning the protection of the water of the Nile River and waterways from pollution. The Research Institute of Medical Entomology carries out laboratory and field research to examine the efficacy of pesticides and provide information important for registration of pesticides used for public health and household purposes. This information is used by the Drug Policies and Planning Center, which gives approval for registration of these pesticides as well as pharmaceutical chemicals to the Central Directorate of Pharmacy, for registration, which is its responsibility. The General Organization for Health Insurance carries out Periodic medical examinations for workers exposed to hazardous chemicals.

Moreover, the MOHP regulates matters related to control of poisonous and deleterious substances, matters related to regulations of production, import, use or handling of chemical substances which may damage human health and also, matters related to regulations of household pesticides containing hazardous substances.

c. Ministry of Higher Education and Scientific Research

Several university departments and research institutes are providing technical services related to management and control of POPs and their hazards. They collaborate with concerned agencies in carrying out researches and studies dealing with POPs.

d. Ministry of Manpower and Immigration

This Ministry is responsible for the administration and enforcement of Law No.12 of 2003 and its related decrees concerning labor and industrial safety protection of industrial working environment. The Factories Inspectorate Department has a specialized wing on Occupational Safety and Health, acting to enforce this law. This legislation is aimed at protecting workers against occupational accidents and diseases. The department carries out systematic inspections of all premises covered by the factories act, i.e., factories, construction sites, and general engineering construction workers, The inspectors assess the risks of the exposure to workers from chemicals and physical hazards and also biological, physiological, mechanical and psychological hazards. Also, it regulates matters related to ensure standards and measures to prevent health impairments to workers (working environment) due to chemical substances.

e. Ministry of Agriculture and Land Reclamation:

The Ministry of Agriculture provides services to farmers in animal and crop production and, also administers the fertilizers and pesticides, to control the importation and use of fertilizers and pesticides through different departments to prevent plant diseases and pests from inside and outside the country. The Ministry of Agriculture regulates pesticides through the Supreme Committee for Pesticides. Also this department tests and controls services and administers general animal health and diseases monitoring and control. Specialized departments provide services through contact with farmers. They act to prevent the introduction of plant pests and diseases from inside and outside the country. The department of Veterinary and Taste Control Services administers the taste act, in addition to general animal health and disease monitoring and control.

Furthermore, it regulates establishment of standards for withholding registration and the usage restrictions on agricultural chemicals from an environmental conservation view. Also, it sets up regulations and standards regarding the prevention of soil contamination.

f. Ministry of Foreign Trade and Industry:

This Ministry monitors and controls the importation and exportation of goods to ensure that only registered products are imported into country. In addition, a Sub-Committee on Trade and Environment affiliated to the National Committee on enforcement of the WTO agreements, chaired by

the Ministry of Economy and Foreign Trade was established in early 1995. The Sub-Committee is in charge of following-up and feeding back the working group on trade and environment, under the WTO, and of communicating with the Egyptian authorities concerned in this respect. Furthermore, it regulates matters related to the promotion, improvement and coordination of import/export, production, distribution and consumption of chemical substances and products, etc.

Mandates:

(1) Registration of projects after review of all aspects including the chemicals used especially for chemical projects.
(2) Issuing permits for import, manufacturing, trade and marketing of chemicals.
(3) Issuing permits for importing hazardous substances for industrial firms according to registered capacity and for commercial firms serving these industries.
(4) Analysis of industrial products for ingredients and standards.
(5) Issuing standards for chemicals and chemical products.
(6) Preparing lists of imported hazardous substances.
(7) Issuing permits for chemical stores and their inspection.
(8) The Minister of Industry in consultation with the Ministers of Health and Environment defines places and methods of hazardous industrial waste disposal.
(9) Also, MOI ensures the enforcement of the Law concerning the evaluation of chemical substances and regulations of their manufacture, etc.
(10) Furthermore, MOI conduct researches related to the risk assessment of chemical substances.

g. Ministry of Housing Utilities and Urban Communities (MOHUUC)

MOHUUC issues standards and safe procedures, implemented by the inspectors of the Ministry of Manpower for industrial, commercial and other work places. Also, it regulates matters related to controlling the disposal and treatment of domestic waste water and matters related to the formulation of standards and regulations regarding the maintenance and management of the sewage system's back-end treatment plants as well as the implementation of such regulations from an environmental conservation point of view.

h. Ministry of Water Resources and Irrigation:

The Ministry of Water Resources and Irrigation MIWR is mandated to control and manage all fresh water resources in Egypt including the surface and subsurface water. In addition to construction, supervision, operation, and maintenance of all the irrigation structures and drainage networks, the Ministry is also responsible for providing all other sectors with their needs of good quality fresh water in due time. It also implements legislation to protect the Nile River and waterways from pollution with all kinds of wastes. Law 4/1994 refers to Law 48 of 1982 for pollution

abatement on the water resources in Egypt in collaboration with other concerned Ministries. Law 12, 1984 is the law governing the management and operation of the irrigation and drainage systems in Egypt. Permits may be issued for the disposal of treated liquid wastes provided certain standards are observed.

The Minister of Water Resources and Irrigation issues standards after consultation with the Minister of Health. Regular inspections of the wastes disposed of in the waterways are carried out with the assistance from the Surface Water Police and the MOHP in order to control the disposal and treatment of industrial wastewater. Furthermore, it formulates standards and regulations regarding prevention of groundwater contamination.

i. Ministry of Petroleum:

MOP implements chemical safety precautions in petroleum companies and has its own emergency plan for dealing with oil spills.

j. Civil Defense Authority:

It designs the buildings inside which hazardous substances are to be produced or stored, conforms to the engineering standards to be observed for each type of such substances, as determined by a decree issued by the Minister of Housing after consulting the EEAA according to which these buildings are subject to periodic inspections. Also, transport or the storage sites of such substances are predescribed to guarantee that no harm shall come to the environment or to the health of employees or citizens. Furthermore, it sets up emergency plan in place to confront any potential accidents which may occur during the production, storage, transportation or handling of such substances, provided the plan is reviewed and approved by the licensing authority after consulting the EEAA**.**

k. Ministry of Interior:

MOI sets and approves plans for emergency actions, trains personnel, inspects sites suspected to have a potential risk and co-operates with other agencies in case of emergency. It also regulates matters related to treatment of explosive wastes, and is responsible for issuing licenses required for the production, transportation, handling and usage of explosives substances. Moreover, MOIN issued a list of hazardous substances that are under its control.

l. Ministry of Information:

The Ministry is responsible for developing and designing media campaigns through TV and radio programmes, to enhance awareness of the layman, youth, decision makers, children and women.

m. Customs Authority and the General Organization for Control of Export and Import:

They make sure that all imported chemicals comply with specifications and that restricted chemicals are not permitted. They cooperate with agencies for which these chemicals are imported.

n. General Organization for Investment and Free Zones:

It observes safety procedures in establishments that are set under the Investment regulations. Moreover, the Organization is currently taking the necessary steps to set-up its own hazardous substances list.

2.2.3 Relevant International Commitments and Obligations

Egypt is a member of the United Nations. The country participates in the United Nations Environment Programme (UNEP), the Convention for the Protection of the Ozone Layer (Vienna Convention), the Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), the Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (Basel Convention), the Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC – Rotterdam Convention) and the Stockholm Convention on Persistent Organic Pollutants, which are international conventions and programmes with relevance to the POP issue. Egypt also participates in the UN Framework Convention on Climate Change (UN FCCC) and Kyoto Protocol.

Egypt supports an approach of coordinated/integrated implementation of the Basel, Rotterdam and Stockholm Conventions that can be presented through the following points:

a. Ratification Status

(1) Basel Convention (BC)

- Basel Convention on the control of transboundary movements of hazardous waste
- Adopted in 1989.
- Entered into force in 5 May1992.
- Signatories: 61, "Parties165 till (30/7/2005).
- Egypt signed the Convention in March, 1989 and ratified it in January, 1993.

(2) Rotterdam Convention (RC)

- Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade.
- Adopted in 1998.
- Entered into force in 24, February 2004.
- Signatories 73, Parties 97 till (30/7/2005).
- Egypt is preparing to ratify the Convention.

(3) Stockholm Convention (SC)

- Stockholm Convention of the elimination or/and removal of the Prisistent Organic Pollutants (intentional or unintential releases).
- Adopted in May, 2001.
- Entered into force in 17, May, 2004.
- Signatories 151, Parties 106 till (30/7/2005).
- Egypt signed the Convention in May, 2002 and ratified it in May, 2003.

The 3 Conventions together cover elements of "Cradle-to-Grave" Management. (Figure 1).

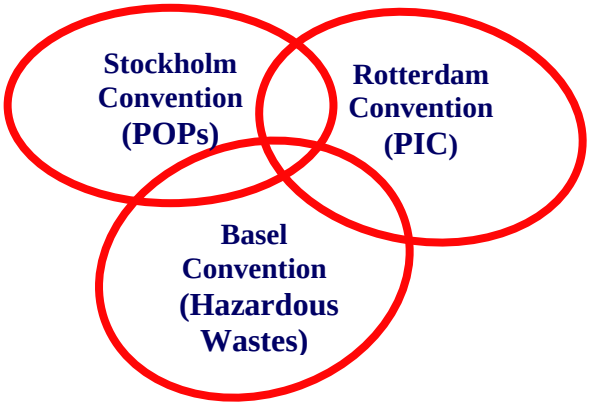


Figure: 1 Relation between the three conventions **(**Basel, Rotterdam and Stockholm**)**

b. Area of Concern

(1) Basel covers hazardous waste.
(2) Rotterdam covers 22 pesticides and certain formulations of others, plus 5 industrial chemicals.
(3) Stockholm covers 9 pesticides, and 3 industrial chemicals and by-products.
(4) Evaluating/regulating new and existing chemicals (RC and SC).
(5) Import/export controls (BC, RC, SC).
(6) Waste management (BC and SC).
(7) Hazard communication (BC, RC, SC).
(8) Alternatives (SC).
(9) Environmental releases (SC).

c. Existing Chemicals

(1) Rotterdam recommends final regulatory actions for banned or severely restricted chemicals.
(2) Stockholm eliminates certain chemicals from production and use.

d. Import/Export

(1) Basel Convention
- Implements a prior informed consent procedure.

- Strengthened by later decisions, it bans export of hazardous waste from developed to developing countries.
- Bans importation of HW through ratified "Ban Amendment", which supports the entry into force of ratifying the Decision.
- Control the transboundary movements of hazardous chemicals.

(2) Rotterdam Convention

- Establishes a compulsory Prior Informed Consent procedure
- Is based on earlier voluntary guidelines
- Uses Decision Guidance Documents
- improves capacity to prevent unwanted imports and avoid future stockpiles of obsolete pesticides

(3) Stockholm Convention

- Restricts import/export of POPs.
- Supports environmentally sound disposal.

e. Waste Management

(1) Basel Convention

- Supporting environmentally sound management: "taking all practical steps to minimize the generation of hazardous waste and strictly controlling their storage, transport, treatment, reuse, recycling, recovery and final disposal, the purpose of which is to protect human health and the environment."
- Minimizing waste generation and taking concrete steps to establish disposal facilities within our own capabilities.
- Supporting environmentally sound management (ESM) of hazardous waste.

(2) Stockholm Convention

- Developing strategies to identify POPs waste and manage them in an environmentally sound manner.
- Destroying or irreversibly transforming wastes containing POPs.
- Preventing the creation of POPs in waste.
- Supporting concepts of Best Available Techniques (BAT) and Best Environmental Practices (BEP)

f. Hazard Communication

It means communicating the information concerning hazardous substance sand waste to the secretariat, competent authorities and the public.

g. Replacement

The Stockholm Convention requires information exchange and research on POPs alternatives.

h. Technical Assistance

(1) Technical cooperation trust fund of Basel Convention.
(2) Rotterdam Convention acknowledges the need for technical assistance.
(3) "Financial mechanism" of Stockholm Convention.

i. Training and Technology Transfer for Regional Centers

(1) Basel Convention centres are available.
(2) Stockholm Convention centres as a matter for decision by future conference of the parties.
(3) The SC utilization of Basel centres.

j. Requirements to Comply with

(1) Taking into consideration the SAICM output of integrated management of hazardous substance.
(2) Defining a realistic set of priority areas of chemicals and waste management.
(3) Establishing the multi-stakeholder national coordinating team, and developing its operating procedures and organizational structure.
(4) Drafting a work plan and time framework for the regional action plan.
(5) Strengthening the legislative infrastructure by filling in existing gaps and weaknesses.
(6) Setting strategies for better coordination and collaboration.
(7) Developing the procedure and methodology of illegal traffic of hazardous substances and waste.
(8) Preparing a national strategy.
(9) Consultation with all key stakeholders and community groups on national and regional levels
(10) Developing the understanding of private sector, industry and business concerning their expected roles.

2.2.4 Description of Existing Legislation and Regulations Addressing POPs (Manufactured and Unintentionally Produced POPs)

National Legal Framework

This part of the report describes the national legal framework that supports the implementation of the Stockholm Convention on (POPs) and fulfillment of its obligations. This legal framework comprises the issued Ministerial laws related to (POPs) as well as strategies, programs and projects carried out for the purpose of reducing pollutants, including POPs and their releases.

There is also a reference to Law 4/94 concerning environmental protection, that includes a whole chapter on hazardous substances and

waste and on setting criteria for various air-polluting sources, whether stationary or mobile, including those producing POPs unintentionally.

Ministerial Decrees Related to POPs

This part of the NIP describes national ministerial decrees concerning elimination /control of POPs, that had greatly improved the state of the environmental in relation to POPs, helped to fulfill the obligations of the Stockholm Convention, and prevented the use of the substances listed under Annex (A) of the SC.

a. Decree No. 55/96 of the Ministry of Supply and Internal Trade that bans the use, import and production of 88 hazardous pesticides, which include all the substances under Annex (A) of the Convention,
b. Decree no. 60/86 of the Ministry of Agriculture and Land Reclamation, which bans the use of some pesticides harmful on health and the environment.
c. Law No. 4/1994 of Ministry of State for Environmental Affairs (MSEA) that covers the management of all kinds of chemicals: industrial, agricultural, pharmaceutical, petroleum products, explosives, radioactive materials, domestically used chemicals and hazardous waste .....etc).
d. Executive Regulation No. 338 of 1995 of MSEA that covers all the above mentioned chemicals within Law 4/ 1994.
e. Decree No. 55/1983 of Ministry of Manpower and Immigration, that regulates and controls handling and storage of all chemicals used in industry (this was later included in the Unified Labor Labor Law No. 12/2003.
f. Law No. 21/1958 of the Ministry of Industry that sets rules for regulating industry and production, handling and importing of industrial chemicals.
g. Decree No. 91/1959 of the Ministry of Industry that sets rules for regulating production, handling and importing of chemicals.
h. Decree No. 480/1971 of the Ministry of Health and Population that covers Air pollution with industrial chemicals criteria for industrial establishment.
i. Decree No. 60/1986 of the Ministry of Agriculture for pesticides that regulates and controls the using of restricted compounds.
j. Decree No. 50/1967 of the Ministry of Agriculture that covers toxic properties of pesticides and procedures for registration.
k. Decree No. 874/1996 of the Ministry of Agriculture that regulates importing, handling and use of pesticides.
l. Decree No. 413/1996 of the Ministry of Health and Population that covers hazardous chemicals & wastes to get license for handling of hazardous chemicals and wastes.
m. Decree No. 151/1999 of the Ministry of Industry that covers hazardous industrial chemicals and lists chemicals which can not be used without license.

MSEA has conducted a coordinated general review of the laws and decrees mentioned above, the conclusions of which are summarized below:

- The formulation of the existing executive regulations of Law 4 did not pay much attention to goals or the important elements to reach some defined goals through using of such legislation.

- One of the other important objectives of the legislation is the reduction of concentrations of pollutants in the air to values below tolerable limits, which should be clearly stated in the legal regulations. Moreover, the emission standards should be attainable technically and without economic hardship.

- The Law should have some degree of flexibility that must be left in the law in order to be able to deal in the best possible way with the various problems that arise (e.g. using high sulfur fuel needs arrangements in the law to ensure supplies of alternative fuels), as far as possible, for cities most affected by pollution, e.g. Cairo.

- Emission standards have been considered in the regulations of Law 4/1994 for mobile sources, stationary combustion sources and industrial establishments. Some of the articles of the executive regulations are inconsistent with definitions in the law; others are inconsistent in addressing the sources they are directed for, e.g. articles 37 and 42.

    a. In the case of mobile sources, diesel and petrol engines standards are not separately addressed. Other vehicles e.g. motorcycles have not been considered. In fact, this issue is inconsistent in the law. This makes the article 37 (executive regulations) difficult to interpret.
    b. Combustion processes are not clearly stated. Consequently, different interpretations can be made for various sources. Incineration of solid wastes is another example where article 42 (executive regulations) considered fuel burning. This article considered, in some cases, to cover emissions from hospital incinerators. However, the medical solid wastes, incineration are covered by article 28 (executive regulations), which subjectively deals with hazardous waste.

- One of the other confusing articles is article number 36 (executive regulations), concerning the industrial establishments where emission standards are given for pollutants with reference to gases. Interpretation of these standards for various industries and operations is not an easy task. Consequently, it is suggested to give detailed standards for each industrial activity and for each operation according to its size within the establishment.

- The number of emitted pollutants to be measured can be reduced where indicators can be used in some cases. For example, smoke can be used as a good indicator for emissions from boilers and firebricks industry. This can help the execution of measurements and the implementation of the standards. In addition, dioxins & furans can be estimated using the standardized Toolkit for identification and quantification of dioxins and furans releases.

- The compliance of sources in some regions coupled with bad air quality was one of the objections against the present emission standards. However, this problem not only arises because of the unclear process used to derive the standards, but it can be related to several other reasons and the air control program as a whole. Consequently, it may be seen that the process of derivation of the emission standards has been recognized through the present review.

- The relation between emissions and air quality has been considered as one of the most important issues to be dealt with. More stringent emission standards to meet the required air quality were one of the mentioned points. These debatable issues can be answered on the basis of the control program as a whole and the process used to derive the emission standards. This is an unclear matter in the current executive regulations of Law 4/1994. This process should be clearly identified. This may include process and equipment consideration, consideration of air quality standards or a combination of both. Recommended processes will be fully discussed in the final report of this review. Moreover, these standards can be derived on for national scale and/or regional scales for different geographical locations.

- Some specifications are given in the executive regulations of Law 4 / 1994 for fuel burning processes. These specifications should be further improved. Moreover, discharge points in the case of industrial establishments should be clearly specified. One of the most serious problems facing the implementation of Law 4/1994 is the fugitive emissions from various pollution sources (combustion processes, industrial work, quarrying, storage of materials, disposing industrial solid waste....etc). All of these important pollution sources in the Egyptian urban and industrial areas should be addressed in the modified regulations.

- Another important issue that has been raised during this review is the use of 'permit system'. In fact, air pollution can be regulated differently according to the nature of sources. One of the most effective ways to control air pollution from stationary sources is a "permit system". Under this system prior approval of plans, specifications and other data for new constructions or alternatives are required. Approval is then given if controls to be provided are adequate to meet the air quality and emission requirements. In

fact this system requires a prior air pollution control strategy. Permit system also requires EEAA to publish the criteria that will be used for approval and to help skilled engineering staff who can execute such work. Consequently, it seems that it is too early to give solid recommendations on this matter.

Law 4/1994 and POPs Substances

Hazardous substances, in particular pesticides, are addressed in details in Law 4/1994. Emission standards and their enforcement are integral to air pollution programs in Egypt.

Annex 5 present the different sections of the law and its executive regulations that dealt with POPs.

2.2.5 Key Approaches and Procedures for POPs Chemical and Pesticide Management Including Enforcement and Monitoring Requirements

To appropriately monitor POPs and comply with SC there is a need:

a. To establish specialized laboratories for analysis and monitoring of POPs.
b. To build capacity on POPs analysis and monitoring.
c. To prepare a program and monitoring network for POPs.
d. To disseminate the information about POPs movement in the environment.
e. To establish national emission factors for the toolkit and adapting/adopting the model used in estimating unintentionally produced POPs.
f. To establish a methodology for inventory processes of the sources releasing POPs and analytical methods for measuring levels of releases.

2.2.6 Problems Connected with the Execution of NIP

a. Regulatory

In most countries, initial and periodic inspections are conducted by the competent agency through accredited laboratories. EEAA should be capable of making required inspections in its laboratory facilities or through commissioning to other accredited facilities. The administrative procedure at EEAA for the management of air quality needs to be improved and their capabilities strengthened. Inspection is mainly conducted by EEAA at central and regional levels. However, these administrative procedures lacks coordination, a prepared program for periodic inspection, trained personnel, equipment and other capabilities. Furthermore, it seems that there is much attention given to the

occupational environment rather than the ambient air pollution emission problem. Here, it is also recommended to separate between the teams dealing with these different issues since each of them necessitates various instrumentation and different experience. Improvement of the inspection procedures in EEAA may include imposing realistic environmental records (registers) and self-monitoring in the industrial establishments for continuous inspection. Other requirements for such improvement should include establishment of inspection on central, regional and local levels with clear responsibilities, coordination between different levels of inspection, approved programs of inspection, using capable laboratories on contract, improving the capabilities through intensive training courses, equipment, finance, enforcement ...etc.

b. Technical

Procedures for source testing**.** The existing executive regulations do not specify several important issues such as:

(1) Engineering procedure
(2) Approved methods of testing the concentrations of pollutants
(3) Averaging time of pollutant concentrations in the discharge flow

These are very important items to be included in the legislation.

Many other technical problems have been recognized. These should be addressed by the executive regulations. Examples are:

(1) Fugitive emissions
(2) The old technology used in several cases which hindered the applications of the standards e.g. lime productions, some of the foundries...etc. It needs to be stated clearly that they have to be upgraded. Locations, stacks, etc should be reviewed.

Problems with measurements are due to:
(1) Process carried out without chimney to discharge flue gases
(2) Some of the stacks are very difficult to be measured
(3) Chimneys are not prepared for measurements

c. Public Awareness

One of the difficulties facing the implementation of the law is the absence of awareness about the problem, the legislation and the benefits of air pollution control program. Measurements of emissions faced severe problems when executed in the industrial establishments. Here, it should be noted that the law should be enforceable. This implies that the legislation is wanted by the public, although it may go further than might have been wished. Basically. However there must be agreement in principle between the legislators and those for whom they are legislating. Consequently, a roundtable discussion and a workshop are recommended to be held in EEAA where stakeholders will be invited to discuss the current legislation and to consult on the

necessary changes to improve the regulations. Furthermore, an intensive public education program is highly recommended to secure cooperation and voluntary compliance with regulations.

In summary, the implementation of the current executive regulations (Law 4/1994) faces several constrains. These are mainly due to:

a. Absence of the strategy, and consequently the absence of the process of standards derivation to achieve the final goal.
b. Inconsistency of the articles dealing with air emissions such as articles 28, 36, 37 and 42.
c. The current regulations missed important issues such as fugitive emissions, engineering procedures, source testing methods ...etc.
d. Lack of public awareness and consequently the cooperation to implement the emission standards.
e. Institutional and financial reasons as well as lack of capabilities to conduct the periodic inspection regularly and objectively.
f. Law 4/94 should include unintentionally produced persistent organic pollutant (Dioxins & Furans) according to Annex C part II of the Stockholm Convention on persistent organic pollutants (POPs).
g. Technical problems such as old technology used in some of the industrial processes , unprepared stacks for measurements- sometimes stacks are impossible to be prepared- and other many difficulties that face the inspection teams.

In Egypt, Law 4/1994 set air quality standards for the common air pollutants in urban areas and emission standards for several air pollution sources except for unintentionally produced dioxins & furans. The current air quality standards are mainly copied from the WHO guidelines without consideration of the nature of the problem in Egypt. Moreover, the current emission standards included in the executive regulations of Law 4/1994 are mainly selected from the emission standards of various countries around the world. In fact, the absence of air pollution control strategy makes it very difficult to set realistic emission standards. Moreover, because it was the first time to set emission standards in Egypt, the process used to develop such standards is not clear and several legislative issues are missing. Furthermore, at the time of setting these standards, data on air quality and information on emissions from pollution sources were very sparse. Consequently, the limitation of information, the absence of the control strategy and the unclear process used for standards development led to the formulation of the current standards which are facing several constraints. Difficulties facing the implementation of emission standards are subdivided into institutional, legal, administrative, public awareness, technical and financial reasons.

Legislation and administration are means of realizing the air pollution control strategy.

Therefore, legislation has to be framed so that it becomes an effective instrument for carrying out this strategy. Consequently, the principal

feature of air pollution control strategy should be decided on before the legislation and its administrative machinery is given their final shape.
The preparation of air pollution control strategy includes:

a. The setting of goals
b. The formulation of plans for attaining these goals
c. The introduction of a system of supervision

The elements to be used for reaching the goals are mainly:

a. Air quality standards
b. Emission standards
c. Permits, registration and general provisions
d. Air quality control regions
e. Controls on the use of fuel
f. Supervision

The obligation of multilateral international conventions in particular POPs convention (Unintentionally produced dioxins & furans) must be taken into consideration.

Technical Issues

Procedures for source testing. The existing executive regulations did not specify several important issues such as:

a. Engineering procedure
b. Approved methods of testing the concentrations of pollutants
c. Averaging time of pollutant concentrations in the discharge flue

2.3 Assessment of the POPs Issue in Egypt

This part addresses a review of the assessment of POPs, the unintentionally produced POPs assessment, and other information gathered against the criteria developed above.

Approach and Methodology

Detailed Inventory

a. Identification of stakeholders
b. Questionnaires
c. Physical checks
d. Sampling and screening

Inventory Method

a. Organizing survey using UNEP chemicals toolkit and inventory forms
b. Providing guidelines and coordinating the inventory by EEAA
c. Sending out inventory forms and collect information by EEAA & NPCU

d. Collecting information and available processed data from all stakeholders by EEAA & NPCU
e. Checking the available data for unclear, not complete, suspected data for clarification by EEAA, NPCU and Steering Committee
f. Organizing several field- trips to evaluate data and to discuss problems in implementing inventory with EEAA through project staff

Inventory Stakeholders

a. Steering Committee
b. Competent Ministries
c. Competent Authorities
d. Private Sector Companies
e. Governorates
f. Branches of EEAA
g. Non Governmental Organizations
h. National Research Centers and Laboratories
i. Universities

Assessment of POPs inventory

a. Presenting data on the inventory during step 2 of the project to the National Steering Committee for study and assessment in order to asses:
   (1) The results of inventory on pesticides
   (2) The results of inventory on PCBs
   (3) The results of inventory on dioxins and furans
   (4) The knowledge on stockpiles, contaminated sites, and waste containing POPs
b. Defining gaps in such data and presenting them to national experts for the assessment of their credibility.
c. All Ministries, companies, factories and other concerned authorities that have cooperated with NPCU in the preparation of inventory were addressed to guarantee data credibility.
d. Visiting some ministries, authorities, companies and factories that are considered as hotspots to make sure that the data used in inventories on dioxins and furans, PCBs and pesticides is correct.
e. Amending inaccurate results and relying on newly checked results.
f. Making a final form for inventory reports on pesticides, PCBs, dioxins and furans after amendment.

Activities Undertaken to Implement Inventory:

a. Organizing national training workshops and field visits on inventory of obsolete pesticides, PCBs, dioxin and furan as follows:
   (1) Training on 29/2/2004 by the Central Laboratory of Pesticides- Ministry of Agriculture.
   (2) Training on 2/3/2004 by the Central Laboratory of Residue Analysis of Pesticides and Heavy Metals in Food – Ministry of Agriculture.

(3) Training on 4/3/2004 by the Central Laboratory of Residue Analysis of Pesticides and Heavy Metals in Food – Ministry of Agriculture.
(4) Training on 7/03/2004 by the Central Department for Pest Control-Ministry of Agriculture.
(5) Training visit on 10/3/2004 by Egyptian Federation of Industries (chambers of leather tanning, metallurgical industries, textile industries and chemical industries).
(6) Training on 15/3/2004 by the Egyptian Iron & Steel Co. about Iron and Steel Production.
(7) Training on 20/3/2004 by the Ministry of Health and Population about health care waste management.
(8) Training on 20/3/2004 by Ministry of Health and Population about organo-chlorine insecticides and unintentional production of POPs and their impact on health and environment.
(9) Training on 8/5/2004 by Alexandria Electricity Distribution Company on taking soil samples and making PCBs analysis through international expert from "follow up program of environmental monitoring training project" which is implemented in cooperation between EEAA and Japan International Cooperation Agency (JICA).

b. Organizing international training workshops on definition of PCBs, chemical and physical properties of PCBs, handling and storage of PCBs and presenting the PCBs inventory during the period from 5 to 6 April, 2004. The training was prepared by international experts from "Envio Germany Company"
c. Sending an official request to all stakeholders and 250 to private sector companies to conduct plan and implement inventory of PCBs and dioxins and furans by NPCU and EEAA
d. Distributing the revised and updated inventory forms (based on toolkit and UNEP guidelines) by NPCU and EEAA
e. Organizing visits to some industries to obtain information by NPCU.
f. Organizing visits to potential sites and hot spots in several Governorates by NPCU as follows:
   (1) Field visits on 13/3/2004 and 17/8/2004 to El Adabia Port - Suez Governorate (Customs Authority), Ministry of Finance to prepare preliminary inventory of obsolete pesticides.
   (2) Field visit on 19/3/2004 to Alexandria Company for Electricity Distribution to check transformers and capacitors, especially those manufactured before 1978 and contain PCBs - Ministry of Electricity and Energy.
   (3) Field visits on 15/3/2004 and 15/8/2004 to the Petroleum Research Institute - Ministry of Scientific Research to prepare preliminary inventory of obsolete pesticides.
   (4) Field visits on 5/4/2004 and 4/9/2004 to Health Directorate in Gharbia Governorate (Tanta) - Ministry of Health and Population to prepare preliminary inventory of obsolete pesticides.
   (5) Field visits on 21/4/2004 and 11/9/2004 to Health Directorate in Damietta Governorate - Ministry of Health and Population to prepare preliminary inventory of obsolete pesticides.

(6) Field visits on 25/5/2004 and 24/6/2004 to Bahtim Pesticides Storehouse – Qalioubia Governorate - Ministry of Agriculture to prepare preliminary inventory of obsolete pesticides.
(7) Field visits to Alexandria Pesticides Store No. 34 on 28/6/2004, to Store No.14 on 28/7/2004 and to Store No. 46 on 3/8/2004 – (Customs Authority) to prepare inventory assessment of obsolete pesticides.
(8) Field visit on 14/7/2004 to El Kattamia Dumpsite - Cairo.
(9) Field visit on 19/7/2004 to El Waffa Welamal - Cairo to prepare inventory assessment of Dioxins and Furans.
(10) Field visit on 15/8/2004 to Shobramant - Giza to prepare inventory assessment of dioxins and furans.

g. Collecting all available information and compiling them using Excel software based on given emission factors by NPCU
h. Sending request to all EEAA branches to finalize their preliminary inventories
i. Compiling inventory data

Inventory Problems:

a. Preventing accessibility to and non – availability of data
b. Missing infrastructure for inventory such as:
   (1) Data bases
   (2) Laboratories: insufficient testing facilities
   (3) Lack of training on POPs inventory
c. Lack of communication
d. Lack of knowledgeable personnel
e. Reluctance of industries and even Competent Authorities officers to provide information
f. Use of different units of calculations, no conversion factor
g. Lack of cooperation from industries since they consider inventory would lead to some stricter environmental requirements
h. Providing very approximate data by some sectors due to the difficulty of calculating all dioxins and furans releases
i. Considering transportation sector, data were received only from the governmental sector

Inventory Outputs

a. The inventory output data indicate that most of the Competent Ministries and Agencies understand the toolkit and forms, and responded effectively to EEAA.
b. The preliminary inventory clears the fact that there are small amounts of pesticidal POPs, and there is PCBs in founded transformers and condensers which have been manufactured and used between "1955-1977" and in some of contaminated sites.
c. EEAA regional offices will continue to implement inventory of small enterprises as sources of dioxins and furans emission.
d. Cooperation and continuation of activities are necessary to verify, update and check the validity of the submitted data.

Generally, inventories are considered necessary tool for identifying, quantifying and characterizing POPs chemicals which are required for the development of management strategies. A national inventory of POPs is necessary to register a baseline quantity of these POPs. This will assist in the preparation of emergency plans, and to track progress with respect to minimization and phase-out of these chemicals. These initial inventories through the NIP project will allow Egypt to assess the extent and condition of these POPs.

The development of a national inventory requires a long-term commitment by the national government, cooperation of owners and manufacturers of POPs, a sound administrative process for collecting information on a consistent basis, a computerized database/retrieval system, and the ability to monitor the progress for the minimization and phase-out of such chemicals.

Pesticides are mostly imported as technical materials which are then formulated in the country. Pesticides used in Egypt are regulated by Agricultural Law No. 53 issued in 1966, and other Ministerial Decrees issued. Then, an Interagency Pesticides Committee, under the umbrella of the Ministry of Agriculture has been formed to be responsible for pesticides registration and licensing of their imports. Before registration, a pesticide is evaluated for efficacy for three successive years. At the time of registration it is examined for chemical and physical properties. The Central Agricultural Pesticides Laboratory (CAPL) regulates pesticides through its enforcement system and penalizes violators.

There is an "Association for Agrochemical Producers and Affiliates" in Egypt. In addition, the Egyptian Society of Pest Control and Environmental Protection (ESPCEP) which was registered in 1977 is the only NGO specifically involved with pesticides.

Approach:

a. Sending letters and forms to the Competent Authorities especially the Ministries of Agriculture, Industry, Health and Population and Foreign Trade providing information about production, distribution, use, import and export of Persistent Organic Pollutants (POPs) at national level.
b. Discussing this topic through the periodical meetings of the project National Steering Committee (NSC).
c. Sending letters and forms to producers, exporters and importers of POPs in Egypt to obtain information about production, distribution, use, import and export of chemicals in general and POPs in particular at national level.

2.3.1 Assessment of Chemical Substances According to Annex A Part I (POPs Pesticides) and Historical, Current and Planned Production, Use, Import and Export. Existing Political and Legislative Framework. Summary of Available Data From Monitoring (Environment, Consumables, Man) and Health Impacts

This activity addresses baseline data gathering and assessment of POPs pesticides, which is under the responsibility of the Ministries of Agricultural, and Health, and EEAA and other competent Ministries. Specialists with knowledge about each of these areas were included in the project teams

Objectives:

a. Reviewing and summarizing data on the production, use, import and export of the chemicals listed in Annex A of the Convention excluding PCBs, covered by the PCBs assessment.
b. Gathering information on stockpiles and wastes containing, or suspected to contain POPs pesticides.
c. Assessing the legal and institutional framework for control of the production, use, import, export and disposal of the chemicals listed in Annex A and excluding PCBs of the Convention.
d. Identifying gaps in information required to complete the assessment.
e. Defining whether the current situation meets the requirements of the Stockholm Convention and if future details are required.

Accomplishments and Results:

a. A review of the findings on the POPs pesticide assessment was carried out. The assessment was done in cooperation with the Ministry of Health and Population and its authorities, the Ministry of Agriculture and Land Reclamation and its authorities, the Custom Authority and the private sector and Inspection Unit of the EEAA.

b. A review of the information on the production, use, import and export of the POPs listed in Annex (A) of the Convention (excluding PCB) was made and it led to the following results:-

    (1) Decree No. 3209 issued in 2003 by the Ministry of Agriculture concerning restriction of the production, importing and handling of agriculture pesticides.
    (2) Decree No. 55 issued in 1996 by the Ministry of Foreign Trade concerning the production, distribution, use, imports and export of chlorinated pesticides, including POPs pesticides, were banned.
    (3) The list of pesticides (including POPs), classified under Group B "Probable Human Carcinogen" and Group C "Possible Human Carcinogen" in the USEPA and IARC/WHO classifications, are not allowed to be tested, imported, sold, formulated or used in any form (technical or formulation), according to Ministerial Decree No. 874 issued in 1996 by the Ministry of Agriculture and recommendations of the Pesticide Committee.
    (4) Decree of the Ministry of Agriculture No. 53-1966 and its amendments.
    (5) Decree of the Ministry of Agriculture No 60-1986 that bans the use of pesticides included in the chemicals under annexes A.

(6) Decree of the Ministry of Agriculture No 258-1990 that bans importation of these substances.

c. The Ministry of Agriculture provides an annual import plan for the year 2003 regarding pesticides at national level to show that pesticides usage in Egypt has dropped dramatically from about 20,000 ton to about 4.500 ton.

d. The information on stockpiles and waste containing, POPs pesticides was gathered by different ways and stored safely at El-Saff city. The National Project Coordination Unit (NPCU) checked the unclear and incomplete data, in cooperation with EEAA staff, competent Ministries and authorities and experts.

Also, during the Validation Workshop, the NPCU team visited El-Saff store with the attendance of the international consultants to check the quantity of pesticides being stored there, especially POPs pesticides, and to check the repackage of these pesticides in order to pave the way for safe disposal through information in qualified cement kilns. the visiting team also checked EL-Saff store safety and suitability for storing obsolete pesticides including POPs.

e. The NPCU organized several field-visits to evaluate the data and to discuss problems as mentioned above (Section 3).

f. The NPCU addressed the contaminated sites with obsolete pesticides during the inventory assessment, The quantities of POPs pesticides and areas of the contaminated sites are reported in the tables 8 and 9:

g. The assessment of the legal and institutional framework for control of the production, use, import, export and disposal of the chemicals listed in Annex A (excluding PCBs) of the Stockholm Convention leads to the following important points:

(1) Egypt has banned the production, import and use of these chemicals according to the above mentioned laws and decrees
(2) Identifying gaps of information required to complete the inventory assessment as a result of leak of information as:
- Risk assessment
- POPs pesticides movement from its sources to the environment.
- Monitoring
- Remediation

There are also some difficulties and problems like:

- Lack in infrastructure such as
  - Data bases
  - Difficulty of obtaining data from various sources or sites
- Lack of communication
- Reluctance of industries and even officials in competent authorities to provide data

Table 8 shows the current situation of POPs pesticides which is compatible with supplement A (Removal) – Part I of the Stockholm Convention.

Table 8: The current situation of POPs pesticides - Annex A (Removal) - part I of the Stockholm Convention

Chemical	Activity	Status	Current situation
Aldrin CAS: 309-00-2	Production	Banned	Compatible with Stockholm Convention
	Usage	Banned	
Chlordane CAS: 57-74-9	Production	Banned	
	Usage	Banned	
Dieldrin CAS: 60-57-1	Production	Banned	
	Usage	Banned	
Endrin CAS: 72-20-8	Production	Banned	
	Usage	Banned	
Heptachlor CAS: 76-44-8	Production	Banned	
	Usage	Banned	
Hexachlorobenzene CAS: 118-74-1	Production	Banned	
	Usage	Banned	
Mirex CAS: 2385-85-5	Production	Banned	
	Usage	Banned	
Toxaphene CAS: 8001-35-2	Production	Banned	
	Usage	Banned	
Polychlorinated Biphenyls (PCB) CAS: 1336-36-3	Production	Banned	
	Usage	Products used according to regulations of part II of this supplement	

Generally, it is not easy to finalize the inventory of organo-chlorinated POPs pesticides. A number of necessary data regarding production, usage, distribution and storage are not available or are difficult to obtain and retrogressive reconstruction in some cases only leads to estimates. Despite this, it was possible to gain a basic overview of stockpiles. Old unused stores remain a problem, which may be present locally and which was not carefully liquidated in the past years. It is, among other things, also a consequence of the relevant legislation existing in the Environmental Law 4/94 which did not sufficiently identify exact rules for manipulation, storage and liquidation of these substances and preparations. A relatively good situation is present in the case of agricultural applications due to the existence of a former central registry. The situation is worse in terms of access to information on applications in other different fields.

On the other hand, organochlorine pesticides are banned in Egypt, their import and export is not-existent.

Due to their historical application, all POPs pesticides are still presently detectable in abiotic and biotic environmental components, including humans, ***Annex 4***.

There is also evidence of currently existing illegal deposits (dumping sites, stocks,etc).

2.3.2 Assessment for Annex A, Part II Chemicals (PCBs)

Annex A, Part II of the Stockholm Convention sets out obligations relating to PCBs, as manufactured chemicals, with specific details of how PCBs should be addressed, in recognition of the widespread use of PCBs in long-lived electrical equipment.

This part sets out steps intended to gather enough information on the current situation with respect to PCBs so that it can design NIP provisions that deal effectively with PCBs.

The objective of the inventory of PCBs is to determine the major uses and availability of PCB's in Egypt with special focus on the PCBs used in electrical equipment. It also works as a survey study of PCB's contaminated equipment or/ suspected to be contaminated by PCB's (specially transformers and capacitors) and an assessment of opportunities for disposal of obsolete stocks that have PCB's in Egypt.

Data received from the Ministry of Electricity and Energy, indicates that no PCBs exist in Egypt so far. However, the results of the preliminary inventory show that the condensers and transformers manufactured during the period from 1955 to 1977 could contain PCBs as shown in Table 9.

Table 9: Inventory result of PCBs chemicals of Annex A Part II

Number	Type	Description
3666	Condensers	Big condensers manufactured in 1970 with a capacity of 2.5 F / 275 V and 300 F/ 400 V that contain PCBs
26	Transformers	Big transformers manufactured during the period form 1955 to 1977 that totally contain 20490 Kg. of oil that contains PCBs.

Approach:

In order to conduct a firm evaluation of the state of PCBs in Egypt, the following measures were taken:

a. Selection of both industrial and services companies that use large numbers of transformers and capacitors.
b. Identifying the companies using old transformers and capacitors, especially those manufactured before 1978.
c. Modification of inventory questionnaires developed by UNEP in order to determine the locations and quantities of contaminated equipment (transformers and capacitors manufactured during the period form 1950 to 1978 and contain PCBs).
d. Cooperation of Central laboratory of EEAA for monitoring of Hazardous Substance i.e. PCBs where the main outputs were:

(1) Identification of the contaminated sites by PCBs oil.
(2) Designing of sample procedures.
(3) Analysis of sample taking and analysis.

Objectives

Assessing and evaluating current uses of PCBs, their likely quantities, equipment types, holders, operational practices, health and safety management and end-of-life treatment of equipment and materials containing PCBs.

Accomplishments and Results

a. Obtaining a list of selected companies which have transformers, capacitors and oil suppliers containing PCBs. These companies are considered as the major companies that use PCBs containing equipment in Egypt.
b. Observation of the stored transformers and capacitors at the company's warehouse.
c. Establishing safety measures and guidelines for the decontamination of electrical equipment containing PCBs mainly those related to emptying, cleaning, handling, containment, loading, shipping, etc.
d. The results of analyzing samples from soil, transformers and capacitors proved that samples are containing PCBs.
e. Other samples from soil and capacitors from different sites are being currently analyzed.
f. The actions toward the goal of eliminating PCBs and identifying PCBs equipment and disposing of such equipment have been given priority.
g. Use of PCBs compounds and electrical instruments containing PCBs is to be completely stopped by 2025.
h. Measures of eliminating the use of PCBs compounds were recommended according to the following priorities:-
   (1) Exerting consistent efforts to define and to stop using equipment that contain more than 10% of PCBs compounds and of quantities that exceed 5 liters.
   (2) Exerting consistent efforts to define and to stop using equipment containing PCBs compounds with a concentration that exceeds 0.005% and quantities that exceed 0.05% liters.
   (3) Reduction and control of exposure to the hazards of using PCBs compounds according to the following measures:-
      - Using such compounds only in tight and sound equipment or in areas, where the hazards of releasing them to the environment can be reduced to the minimum level and treated fast.
      - Not using these compounds in areas related to the production or preparation of foods or foodstuffs.
      - Taking all the possible measures for protection from electrical faults that could lead to breaking out of fire in residential areas with schools and hospitals. In addition, instruments should be checked regularly for leakage possibilities.
   (4) Not exporting or importing instruments containing PCBs compounds except for the purpose of environmentally sound management of waste.

(5) Not allowing the reuse of liquids containing PCBs compounds that exceed a concentration of 0.005% in other instruments except for maintenance and repair purposes.
(6) Exerting efforts needed to manage liquids, containing PCBs compounds and equipment contaminated with or containing PCBs compounds in a concentration that exceeds 0.005%, in an environmentally sound way. This is to be achieved as early as possible as but not later than 2028.
(7) The state is required to present a report to the Conference of the Parties on the progress gained in the process of eliminating PCBs compounds every five years to be considered by the Conference when necessary.

The assessment of the current uses of PCBs in Egypt shows that PCBs have not been produced, used, imported or exported for a long time.

Table 10: The current situation of PCBs - Annex A (Removal) – part II of the Stockholm Convention

Chemicals	Activity	Status	Current situation
Polychlorinated biphenyls (PCBs) CAS: 1336-36-3	Production	Banned	Compatible with Stockholm Convention
	Usage	Banned	

i. The number of equipment (condensers and transformers) shown in table 9 that contain PCBs and these equipment were tracked and monitored to reduce environmental risk. Such equipments are stored safely and are isolated from food.

2.3.3 Assessment with Respect to Annex B Chemicals (DDT)

DDT (1,1,1-trichloro-2,2-bis (4-chlorophenyl) ethane

According to the Convention:

a. Establishing a DDT registry
b. Using DDT to control disease carriers in accordance with suggestions and guidelines of the World Health Organization
c. Supplying information about the usage of DDT every three years
d. Development of safe alternative chemicals and non-chemical products.

Table 11: The current situations of POPs DDT - Annex B (Limitation) – Part II of the Stockholm Convention

Chemical	**Activity**	**Status**	**Current situation**
DDT 1,1,1-trichloro-2,2-bis (4-chlorophenyl) ethane CAS: 50-29-3	Production	Banned	Compatible with Stockholm Convention
	Usage	Banned	

Egypt has banned the production, import and use of the chemicals according to the laws and decrees that mentioned in Section 2.3.1 Assessment for Chemical Substances according to Annex A Part I (POPs Pesticides)

a. Decree of the Ministry of Agriculture No 53-1966 and its amendments.
b. Decree of the Ministry of Agriculture No 60-1986 that bans the use of pesticides included in the chemical under annexes (A) and (B).
c. Decree of the Ministry of Agriculture No 258-1990 that bans importation of these substances.
d. Decree of the Ministry of Internal Trade No 55-1996 that made a list of chemicals not to be imported, produced, or used. This list includes substances referred to in Annexes (A) and (B) of the convention.

Egypt has also complied by starting to work on a preliminary inventory – as part of the National Implementation Plan – to assess present and expected quantities of chemicals under annexes (A) and (B) of the convention – Egypt is also bound to the time specified in the convention for this plan, which is two years starting from the time of putting the convention in force, and in accordance with the general guidelines concerning procedures of elimination and reduction referred to in annexes (A) and (B).

2.3.4 Assessment of Chemical Substances Emerging as Unintentional Products According to Annex C Chemicals (PCDDs/Fs, HCB and PCBs)

This supplement relates to the following persistent organic pollutants, which originate and are unintentionally released from anthropogenic sources

Table 12: Stockholm Convention, Annex C: Unintentional production

Chemicals
Polychlorinated dibenzo-p-dioxins and dibenzofuran (PCDDs/PCDFs) (CAS: 1746-01-6) and (CAS: 110-00-9)
Hexachlorobenzene (HCB) (CAS: 118-74-1)
Polychlorinated biphenyls (PCBs) (CAS: 1336-36-6)

The assessment of unintentionally produced chemicals provided the information required for elaboration and implementation of the action plan required under Article 5 of the Convention. This Article requires each Party, within two years of entry into force of the Convention, to develop an action plan to identify, characterize and address the unintentional release of POPs listed in Annex C of the Stockholm Convention.

National Preliminary Inventory of PCDDs and PCDFs:

Dioxins (polychlorinated di-benzo-p-dioxins, PCDDs) and furans (polychlorinated di-benzo-furans, PCDFs) are two of the twelve Persistent Organic Pollutants (POPs) addressed in “Stockholm Convention on Persistent Organic Pollutants”. This Convention is considered a major achievement for Egypt as it starts by immediately targeting 12 particularly toxic POPs for reduction heading towards eventual elimination.

According to the Stockholm Convention (Article 5) there are two categories of unintentional chemical by-products: polychlorinated dioxins and furans. Although, these compounds have no commercial use, dioxins and furans result from combustion and from industrial processes when producing pesticides, poly vinylchloride, and other chlorinated substances. Dioxins and furans are the most potent cancer-causing chemicals known yet.

The objective of the preliminary inventory of releases to the environment is to carry out a preliminary evaluation of current and expected releases of the chemicals in Annex C of the Convention, to give details about the relevant laws and policies related to the management of releases of these chemicals and to evaluate their effectiveness and deficiencies.

According to part II in Annex C of the "Stockholm Convention on Persistent Organic Pollutants" Polychlorinated di-benzo-p-dioxins and di-benzo furans, hexachlorobenzene and polychlorinated biphenyls are unintentionally formed and released from thermal processes involving organic matter and chlorine as a result of incomplete combustion or chemical reactions. The following industrial source categories have the potential for comparatively high formation and release of these chemicals to the environment:

a. Waste incinerators, including co-incinerators of municipal, hazardous or medical waste or of sewage sludge
b. Cement kilns incinerating hazardous waste
c. Production of pulp using elemental chlorine or chemicals generating elemental chlorine for bleaching
d. The following thermal processes in the metallurgical industry:
    (1) Secondary copper production
    (2) Sinter plants in the iron and steel industry
    (3) Secondary aluminum production
    (4) Secondary zinc production

Moreover, Part III in Annex C of The "Stockholm Convention " lists other source categories for dioxins and furans, hexachlorobenzene and polychlorinated biphenyls that may also be unintentionally formed and released from the following source categories, including:

a. Open burning of waste, including burning in landfill sites.
b. Thermal processes in the metallurgical industry not mentioned in Part II.
c. Residential combustion sources.
d. Fossil fuel-fired utility and industrial boilers.
e. Firing installations for wood and other biomass fuels.
f. Specific chemical production processes releasing unintentionally formed persistent organic pollutants, especially the production of chlorophenols and chloranil
g. Crematoria
h. Motor vehicles, particularly those burning leaded gasoline; which require addition of dichloroethylen
i. Destruction of animal carcasses.

j. Textile and leather dyeing (with chloranil) and finishing (with alkaline extraction)
k. Shredding plants for the treatment of end of life vehicles
l. Smoldering of copper cables
m. Waste oil refineries

Objectives

a. Carrying out a preliminary evaluation of current and projected releases of the chemicals listed in Annex C of the Convention.
b. Providing details on existing laws and policies related to the management of releases of these chemicals and evaluating their effectiveness and deficiencies.

Approach:

a. Arrangement for training or external input to ensure that the staff is suitably prepared to carry out the tasks.
b. Evaluation of current and expected future releases of the unintentionally produced POPs. UNEP's document "Standardized Toolkit for Identification and Quantification of dioxin and furan releases", UNEP, Geneva, 2001, provides a methodology for making inventories of dioxins and furans using activity data from a country combined with emission factors as well as allowing the use of country data.
c. Defining the number of relevant laws which control releases from different processes in the inventory. Listing any emission limit values, technology restrictions and monitoring requirements for air, land and water releases. Also, reviewing the effectiveness of any existing monitoring programmes regarding dioxin and furan emissions and the availability of qualified contractors or experts able to carry out testing and analysis.

Procedures:

The procedures adopted by the project team are as follows:

a. Identifying the sources relevant to the categories and subcategories listed in the mentioned toolkit developed by UNEP.
b. Collection of the needed information on the processes by applying the standard questionnaire provided by UNEP.
c. Collection of the industrial information required for inventory through the following:
   (1) Using the industrial database developed by the Ministry of Industry.
   (2) Conduction of the modifications of the standard questionnaire developed by UNEP in order to match with the Egyptian guidelines for each industrial sector.
   (3) Developing letter forms for each industrial sector to be sent to different industries facilities to collect more data and information.
   (4) Then estimating the emission from the identified sources by using the default emission factors as provided by the Toolkit.

Accomplishments:

a. Training by Dr. Salah Soliman, Prof. of chemistry and pesticides toxicity, Alexandria university on:
   (1) The main sources of unintentional releases of PCDDs / PCDFs, HCB and PCBs and of the remobilization of POPs to the environment.
   (2) Socioeconomic aspects associated with the replacement / elimination and management of POPs chemical waste. Using alternatives for POPs has also been addressed.

b. The evaluation of current situation of unintentionally produced POPs listed in Annex C of the Convention is not compatible with supplement C of the Stockholm Convention, and it is shown in the next table. (Table13)

Table 13: The current situation of unintentionally produced chemicals - Annex C of the Stockholm Convention

Chemicals	Status	Current situation
(PCDDs/PCDFs) Polychlorinated dibenzo-p-dioxins (CAS: 1746-01-6) and dibenzofuranes (CAS: 110-00-9) **(HCB)** Hexachlorobenzene (CAS: 118 -74-1) **(PCBs)** Polychlorinated biphenyls (CAS : 1336-36-3)	Some sources use high technology and others use low technology	Not Compatible with Stockholm Convention

c. The NPCU organized several other field-visits to evaluate the data and to discus problems as follows:-

   (1) Field visit on 1/9/2004 to Egyptian Iron and steel Company

   The NPCU paid a visit to the Egyptian Iron and Steel Company, one of the hotspots, for the purpose of checking the available data on the energy produced and the technology used according to which assessment of Dioxins and Furans releases, that result from using Toolkit during the inventory of stage (2) of the project, was made. The steps of the visit were defined as follows:

   - Visiting the sintering sector of the factory in order to study the possibility of Dioxins and Furans release during the sintering process, especially of raw materials containing organo-chlorine substances.
   - Studying environmental researches and plans related to updating the third blast furnace of the factory and the possible financial support that EEAA may offer through the Industrial Pollution Control Unit
   - Watching steps of the sintering process through a visit to the factory's raw materials sintering units to prepare such materials in a form that is convenient with entrance into blast furnaces as follows:
     (a) Mixing materials (Coke, Limestone, iron ore, dolomite) in the main courts of the factory in raw materials steering machine

(b) Dragging the mixture with cars to crushers and through the mixing unit, so that the mixture becomes homogeneous in shape and form
(c) The sieving process during which big molecules are separated from very small molecules
(d) The process of controlling levels of materials in the mixture according to specifications in the shipping ward charging sector
(e) Turning the mixture into sinter or small disorganized transparent particles in combustion furnaces
(f) The cooling process through air coolers so that the sinter is ready to enter blast furnaces through connected cables to them.
(g) The wet dust-separation method must be replaced with the dry system. This in turn will require that the wetting cyclones be replaced with electrostatic precipitators. Moreover, The dust resulting from the process will be recycled to be included in the sinter mixture.

According to this visit, NPCU presented a draft project proposal of "Strategies to Introduce BAT and BEP in the Metallurgical Industry Sector, to reduce and/or eliminate unintentional production of POPs Chemicals in Egypt in Response to the Requirements of Article 5 of the Stockholm Convention" in order to participate with the Medium Size Project under Global Environmental Facility.

(2) Field visit on 22/11/2004 to Egyptian Cement Company (ECC)

Also, in the framework of checking the available data of the Egyptian Cement Company on the energy produced and the technology used, NPCU visited the company.

In addition to the fact that, the Egyptian Cement Company explores the Egyptian experiment to incinerate of hazardous waste in cement kilns, this process was conducted through cooperation between EEAA and the private sector represented by the Egyptian Cement Company in the form of a pilot project. This experience is considered as a project that could be a suitable solution for hazardous waste disposal including POPs pesticide through complete safe combustion in cement kilns.

For this reason, NPCU visited the company and prepared a report on the objectives and results of the visit, as a way of seeking the best safe methods of disposal of POPs. However, NPCU and national experts will look carefully at this practice since cement kiln incinerating of hazardous wastes is considered by the Convention as potential source of dioxins and furans releases to the environment (source "B" cited in part II in Annex C of the Convention).

d. Reviewing and assessment of the preliminary inventory findings of the unintentionally produced chemicals (PCDDs/ PCDFs, HCB, PCBs), in accordance with the sources mentioned in Annex C of Stockholm Convention, shows the following results:

Waste incinerators, including co-incinerators of municipal, hazardous or medical waste or of sewage sludge:

- Medical waste Incinerators:

  The number of hospital incinerators in Egypt is 130 with a capacity of 14630 tons. The expected levels of dioxins and furans emissions from these incinerators were estimated using the Standardized Toolkit for identification and quantification of dioxin/furan releases. According to the Preliminary inventory and this estimation, Chart (1) shows that Cairo would have the largest expected emission of dioxins and furans, as compared with what expected for other governorates.

- Municipal or hazardous waste Incinerators:

  Presently, there are no municipal waste incinerators in Egypt.

Cement kilns firing hazardous waste:

- Cement Production:

  An inventory was made on 85% of the total number of cement companies in Egypt, which represents about 95% of the production as illustrate in Chart (2).

- Cement kilns firing hazardous waste:

  Presently, only one cement company in Egypt has cooperated with EEAA to establish the first experiment for hazardous waste destruction in the cement kilns with a rate of 5.3 ton/hour.

Production of pulp using elemental chlorine or chemicals generating elemental chlorine for bleaching:

An inventory was made on 60% of the total number of companies producing pulp in Egypt, which represents 65% of the production as shown in Chart (3).

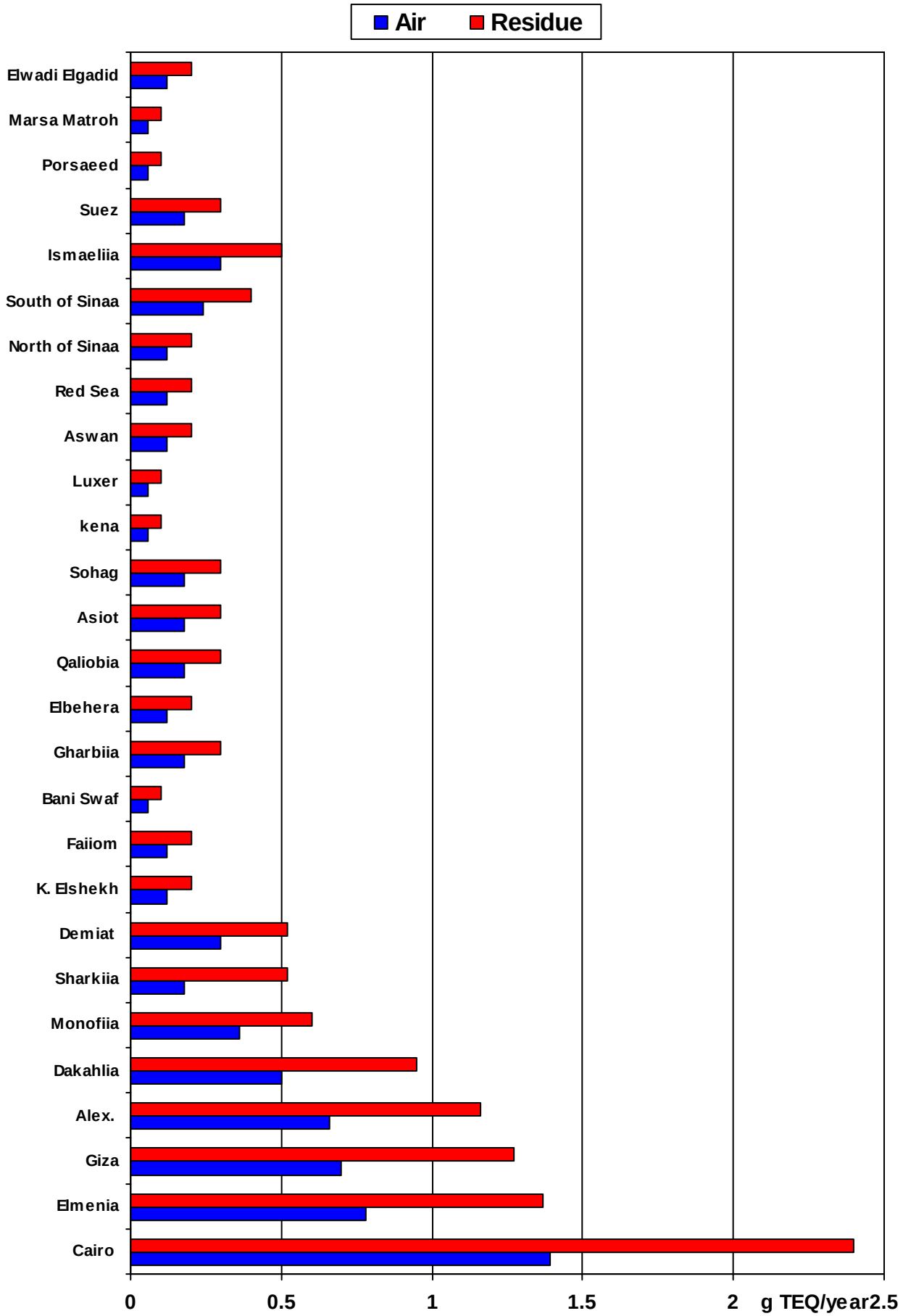


Chart (1) Hospital incinerators

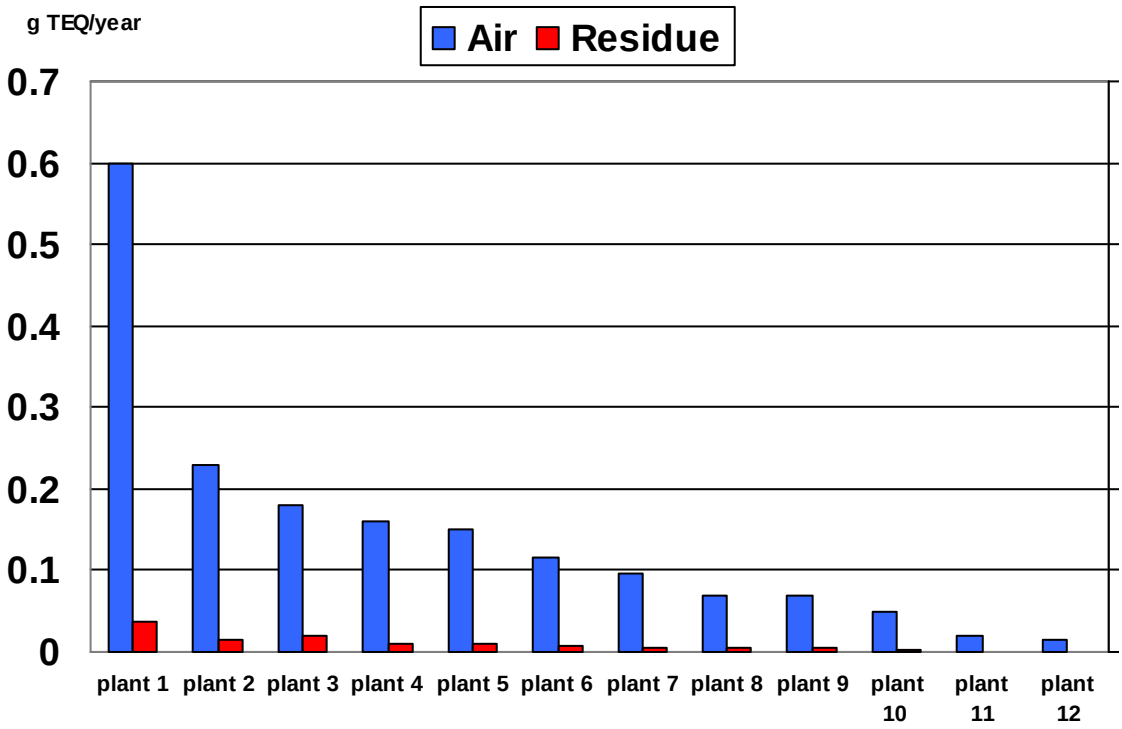


Chart (2) Cement industries

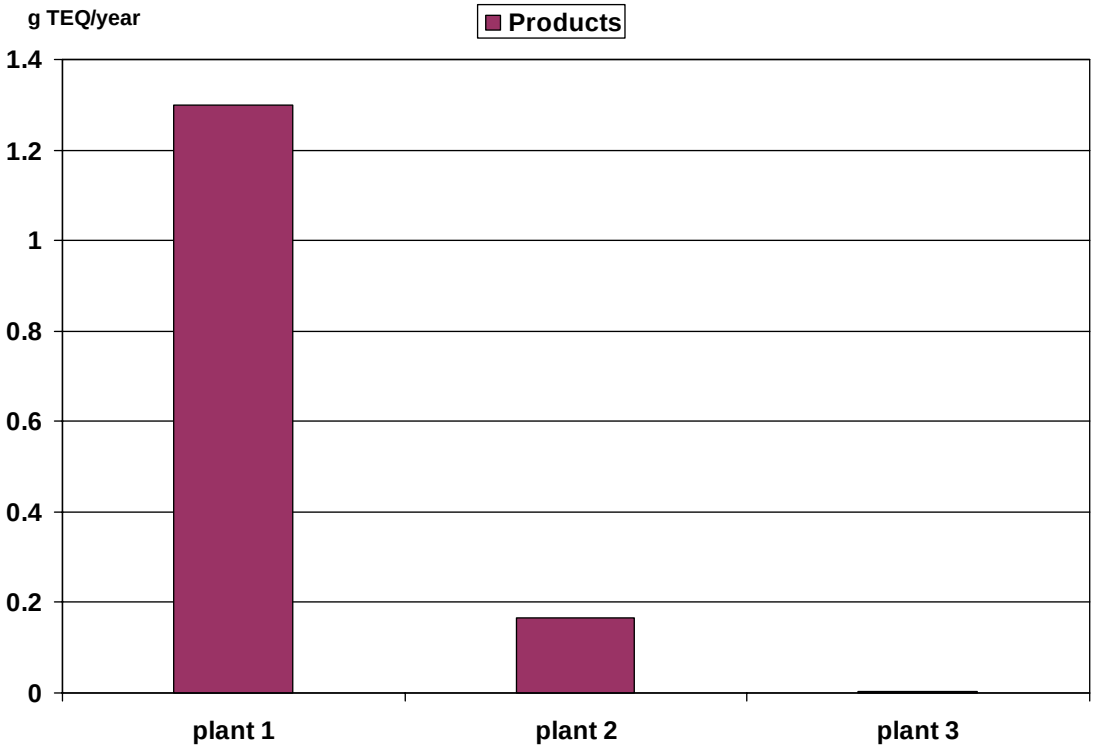


Chart (3) Pulp and paper industries

Thermal processes in metallurgical industry:

- Secondary copper production;

An inventory was made on 65% of the total number of copper companies that represents 60% of the production and results are shown in Chart (4).

- Sinter plants in the iron and steel industry;

An inventory was made on 80% of the total number of iron and steel companies, which represents 90% of the production, Releasing about 0.750g TEQ /year to the air and about 0.0075g TEQ /year in residues.

- Secondary production of Aluminum:

An inventory was made on 65% of the total number of aluminum companies, which represents 55% of the production, Releasing about 0.14g TEQ /year to the air and about 0.689 g TEQ /year in residues , as shown in Chart (5).

- Secondary zinc production:

An inventory was made on 100% of the total number of zinc companies, which represents 100% of the production, releasing about 0.055 g TEQ/year to the air, as shown in Chart (6).

Open burning of waste, including burning of landfill sites:

Municipal solid wastes are collected and dumped in special places where, an auto combustion of wastes takes place releasing dioxins and furans to the air about 1831.595462 g TEQ/year and about 621.005514 g TEQ/year in residue, and about 5.5 g TEQ/year in the air as a result of bio-mass burning. Dump sites in different governorates are shown in Chart (7).

Residential combustion sources.

About 40% of municipal waste is randomly burnt in residential areas all over the governorates of Egypt. In Greater Cairo the random burning of waste releasing about 13.965 g TEQ/year of dioxins and furans in air and about 27.930 g TEQ/year in residues. In the other remaining governorates of Egypt, the random burning of waste releasing about 1730.987 g TEQ/year and 312.455 g TEQ/year in residues.

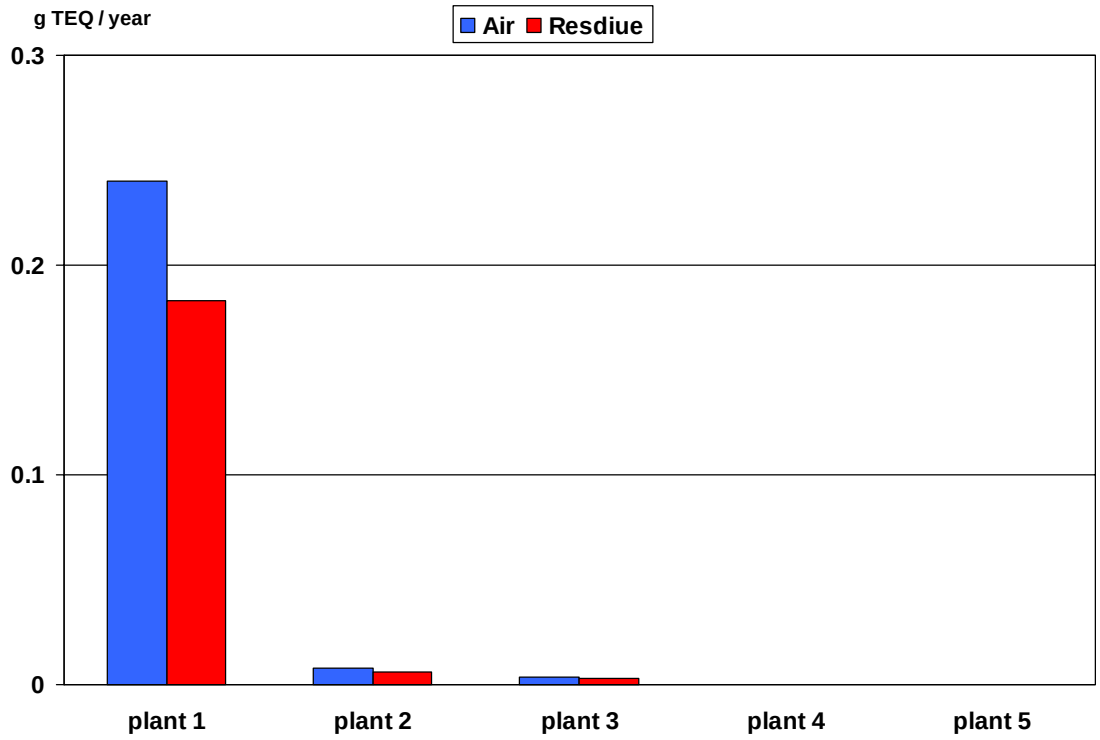


Chart (4) Copper industries

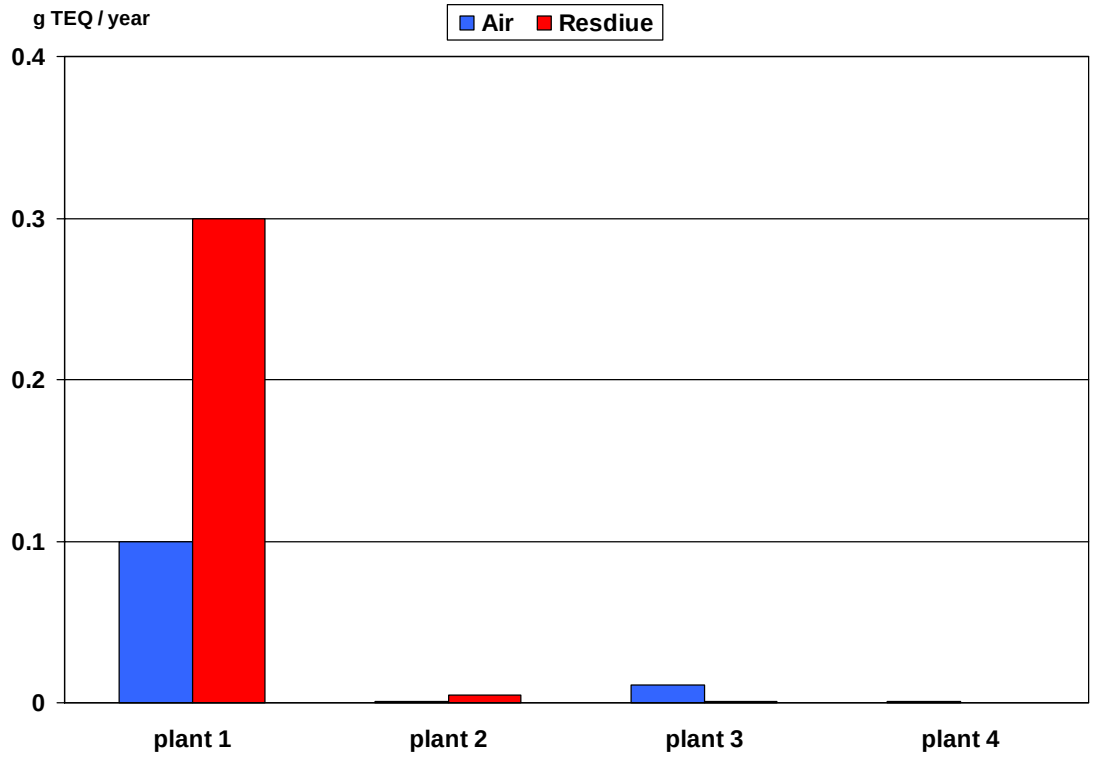


Chart (5) Aluminum industries

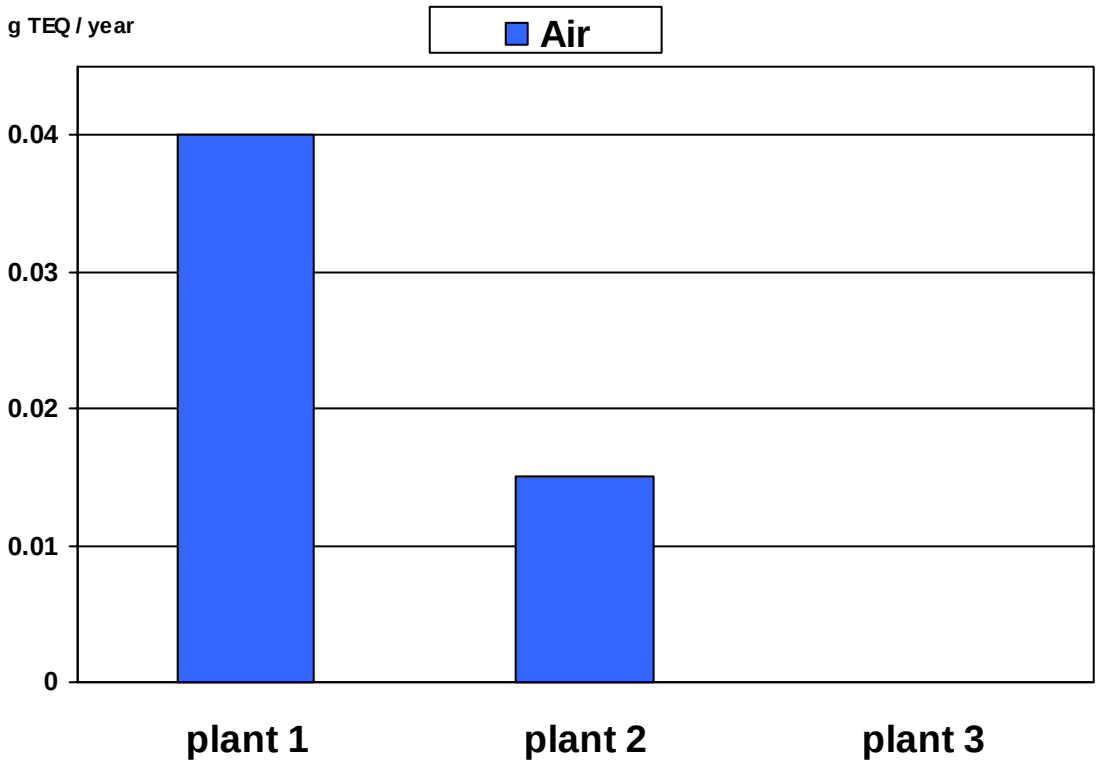


Chart (6) Zinc industries

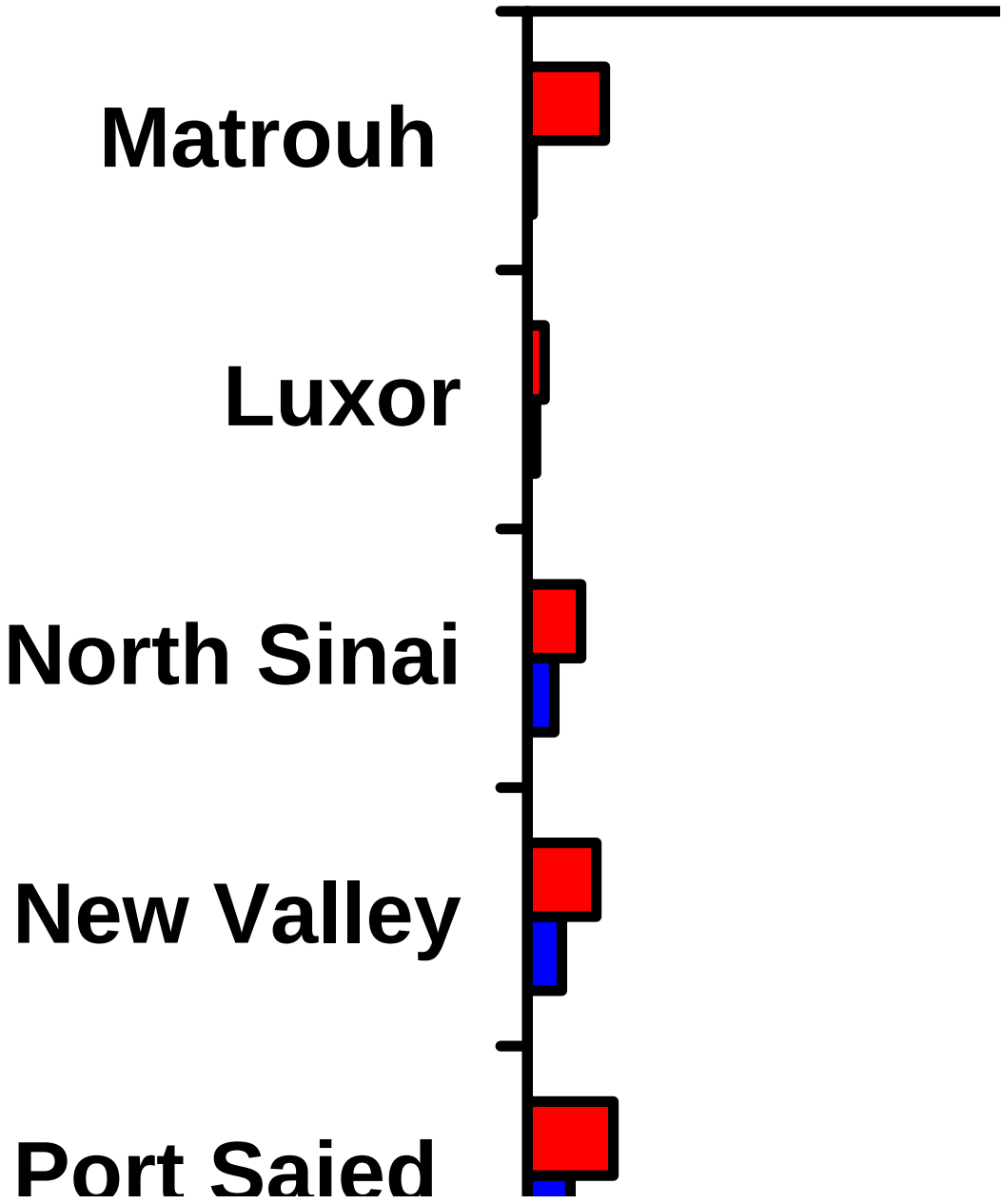


Chart (7) Dump sites for burning waste

Thermal processes in metallurgical industries, other thermal processes in some industries mentioned in the toolkit:

a. Lead industry:

An inventory was made on about 95 % of the total number of lead companies that release about 2.52432 g TEQ/year to the air, lead foundries shown in Chart (8).

b. Foundries of iron and steel:

An inventory was made on about 80 % of the foundries of iron and steel which represents about 75 % of the total production of Foundries of iron and steel that release about 0.419304 g TEQ/year to the air and 0.013 g TEQ/year into residue. Foundries of iron and steel are shown in Chart (9).

c. Composting:

An inventory was made on 95% of recycling facilities and composting production units, and it was found that they release of about 249.600 g TEQ/year the product, as shown in Chart (10).

d. Asphalt mixing.

An inventory was made on 90% of asphalt mixing plants, and it was found that they release about 0.795 g TEQ/year into air, as shown in Chart (11).

e. Ceramics manufacturing.

An inventory was made on 70% of ceramics factories which represent 75% of the production, and it was found that they release about 0.056 g TEQ/year into air, as shown in Chart (12)

f. Glass manufacturing.

An inventory was made on 50% of glass factories which represent 65% of the production, and it was found that they release about 0.099 g TEQ/year into air, as shown in Chart (13)

g. Brick manufacturing.

An inventory was made on 80% of brick factories which represent 90% of the production, and it was found that they release about 3.617 g TEQ/year into air, as shown in Chart (14)

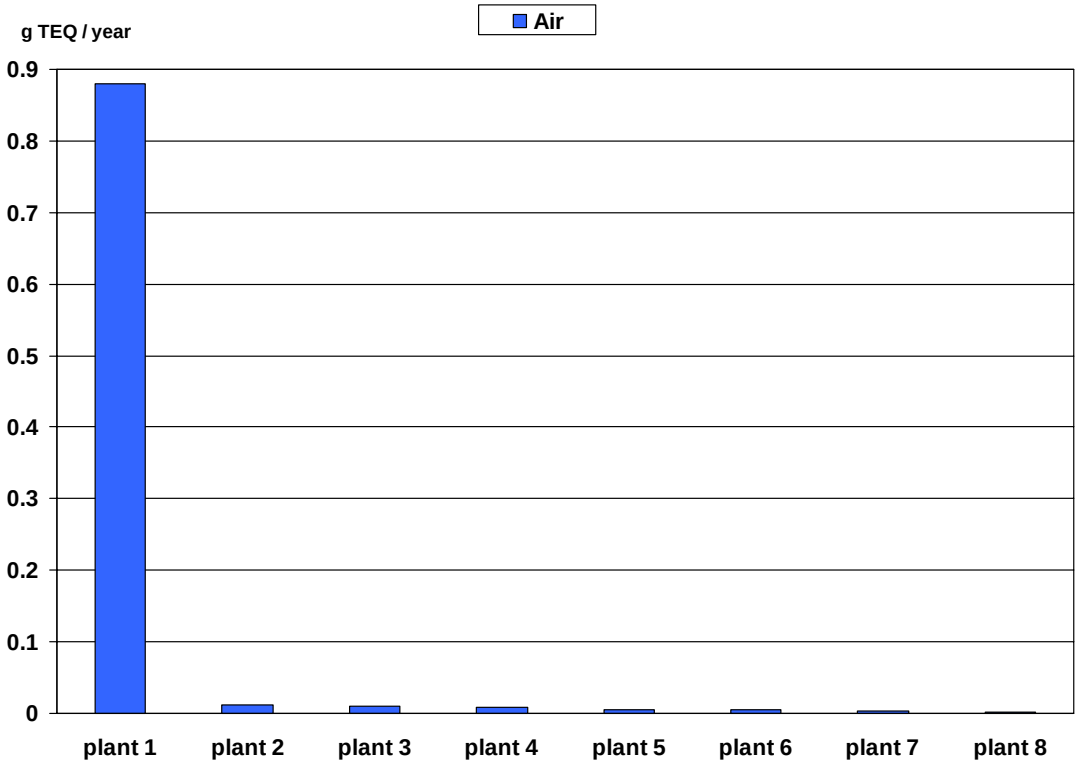


Chart (8) Lead foundries

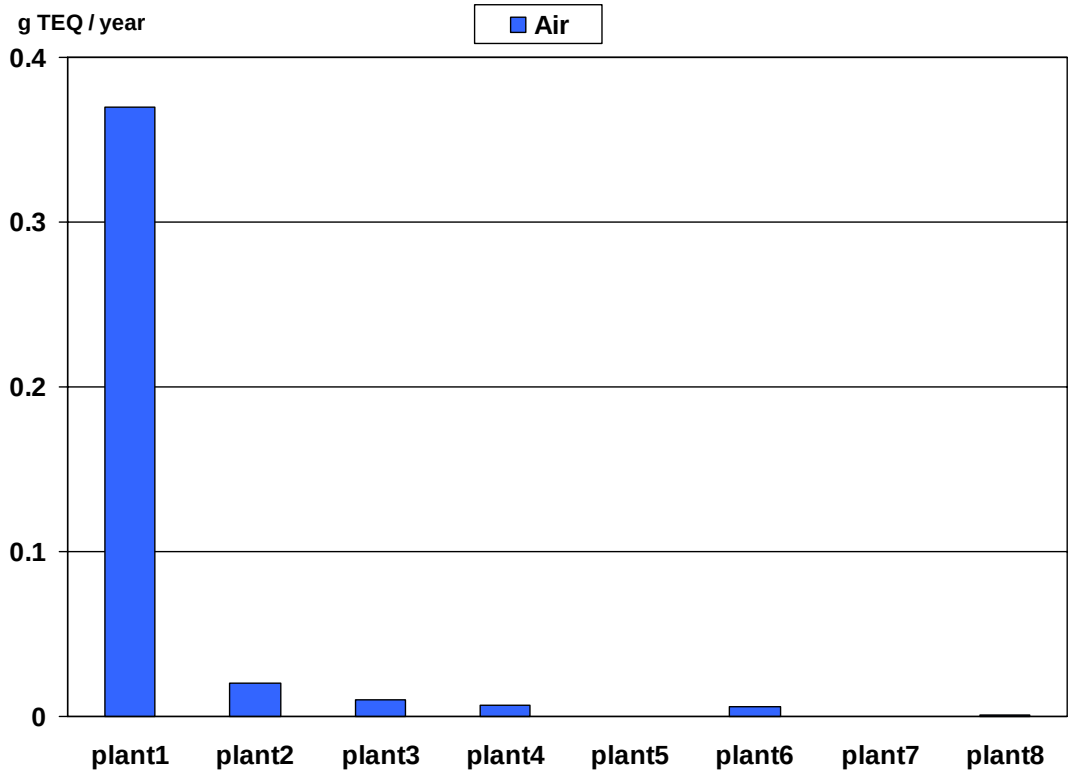


Chart (9) Foundries of iron and steel

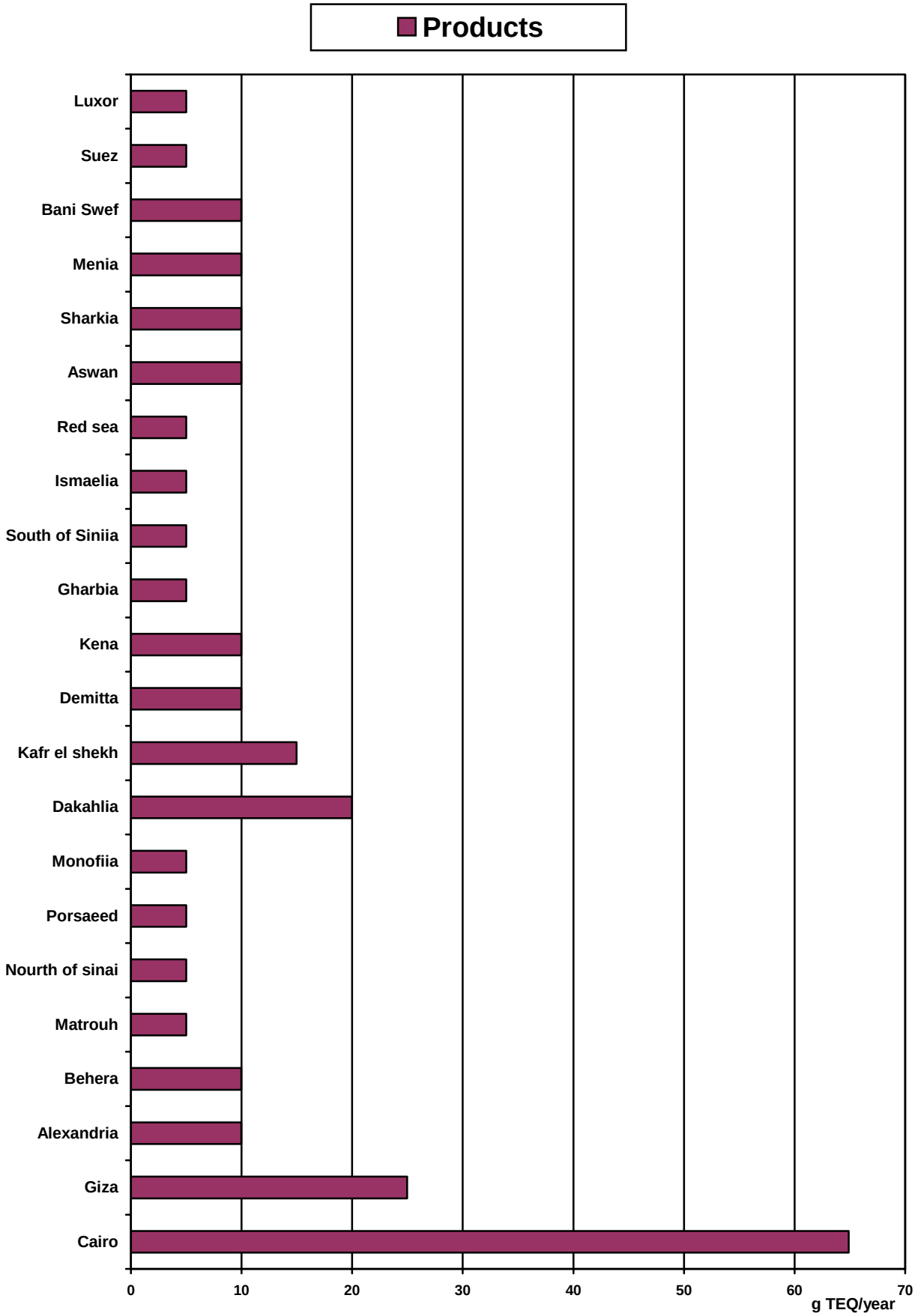


Chart (10) Composting plants

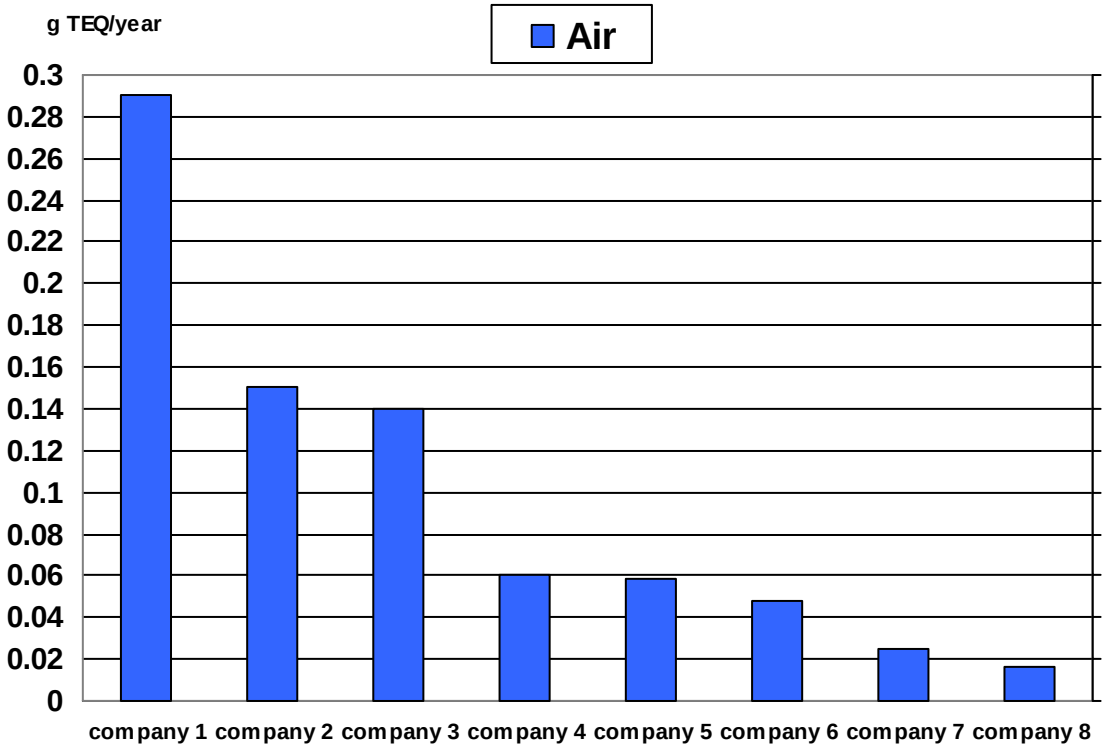


Chart (11) Asphalt mixing companies

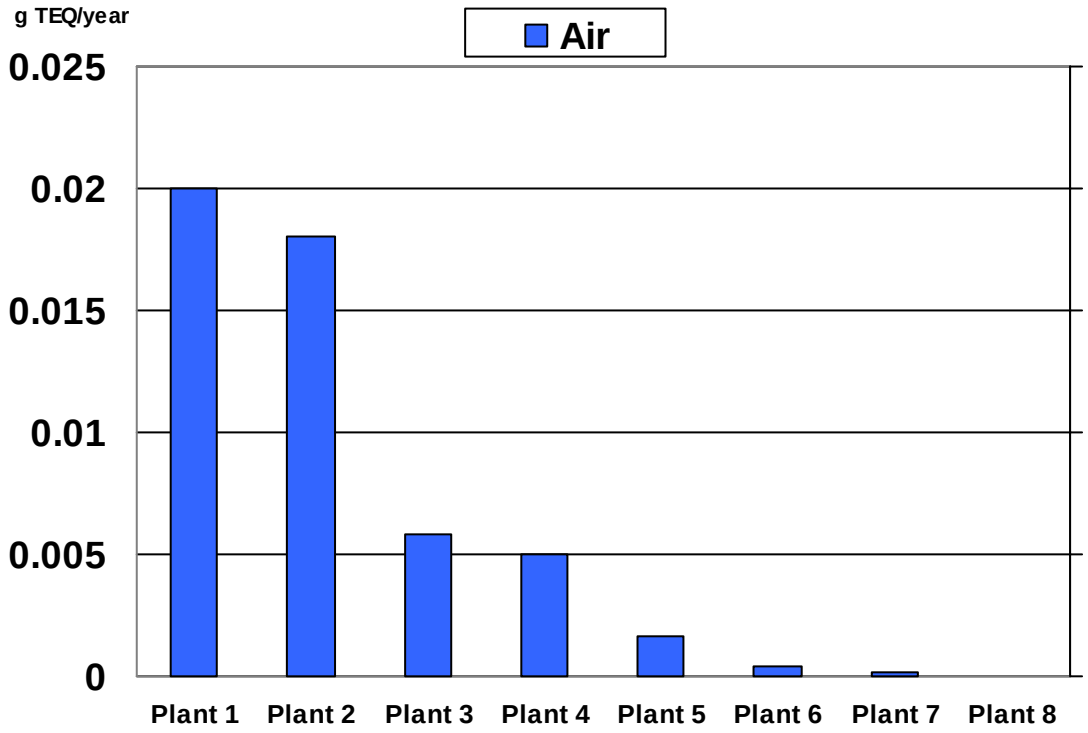


Chart (12) Ceramics factories

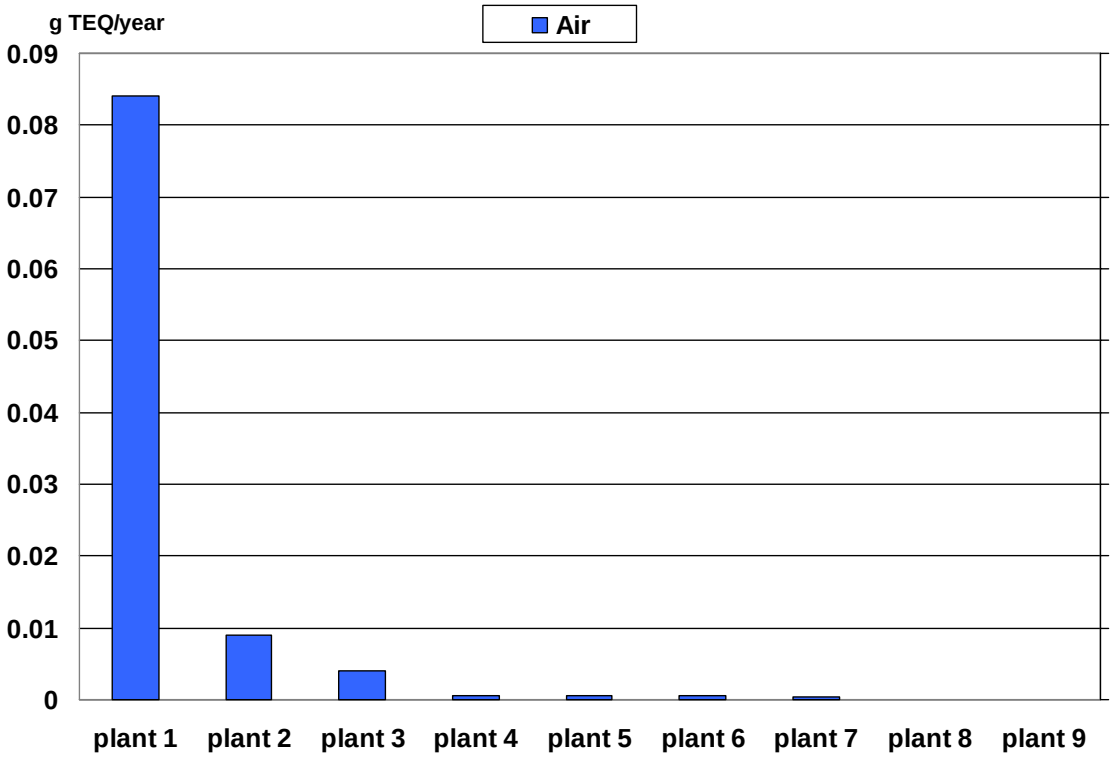


Chart (13) glass factories

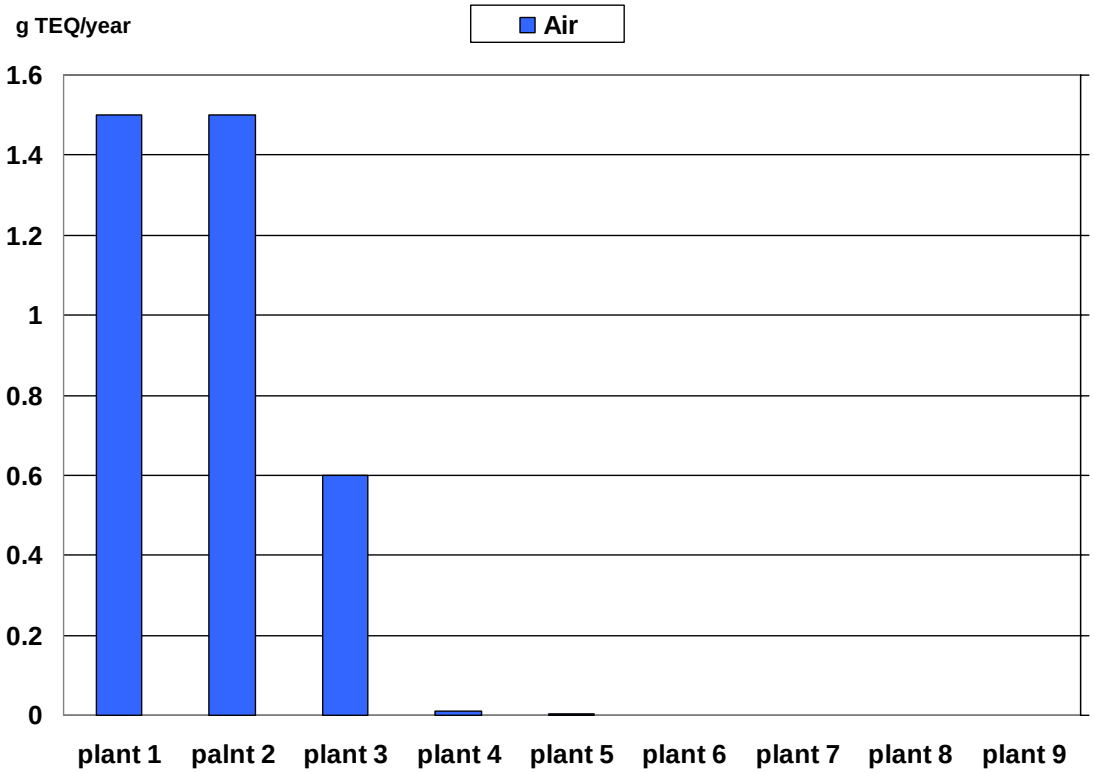


Chart (14) Brick plants

h. Coke production.

An inventory was made on 90% of coke factors which represent 95% of the production, and it was found that they release about 0.48 g TEQ/year into air, and 0.096 into water.

i. Charcoal production.

An inventory was made on 90% of charcoal factors which represent 95% of the production, and it was found that they release about 0.432 g TEQ/year into air.

j. Lime production

An inventory was made on 80% of lime factors which represent 85% of the production, and it was found that they release about 2.7 g TEQ/year into air.

Fossil fuel-fired utility and industrial boilers:

An inventory was made on stations of power generation with all of its kinds and in different places and the power produced. Required data on releases of dioxins and furans were estimated as follows: about 2.9217655 g TEQ/a to the air. This is shown in Charts (15) .The inventory included also plants which burn biomass to generate energy.

Firing installations for wood and other biomass fuels

An inventory was made on companies that burn wood to generate power, and it was found that they release about 0.003 g TEQ/a of burnt fuel to the air and about 0.0009180g TEQ/year in residues.

Specific chemical production processes releasing unintentionally formed persistent organic pollutants, especially production of chlorophenols and chloranil.

An inventory was made on 70 % of chemical companies which represents 75% of the production, releasing 0.0660672 g TEQ/a to the air and 0.0024g TEQ/year to the water and 0.002 to residue.

Crematoria

There are no crematories in Egypt.

Motor vehicles, particularly those burning leaded gasoline

An inventory was made on most vehicles of the transportation sector, on the fuel used and the type of the vehicles whether of 4-stroke engines, 2-Stroke engines & Diesel engines. It was found that they release about

1.302498190g TEQ/a to the air. Chart (16) shows a comparison between the emissions of PCDDs and PCDFs of different types of engines.

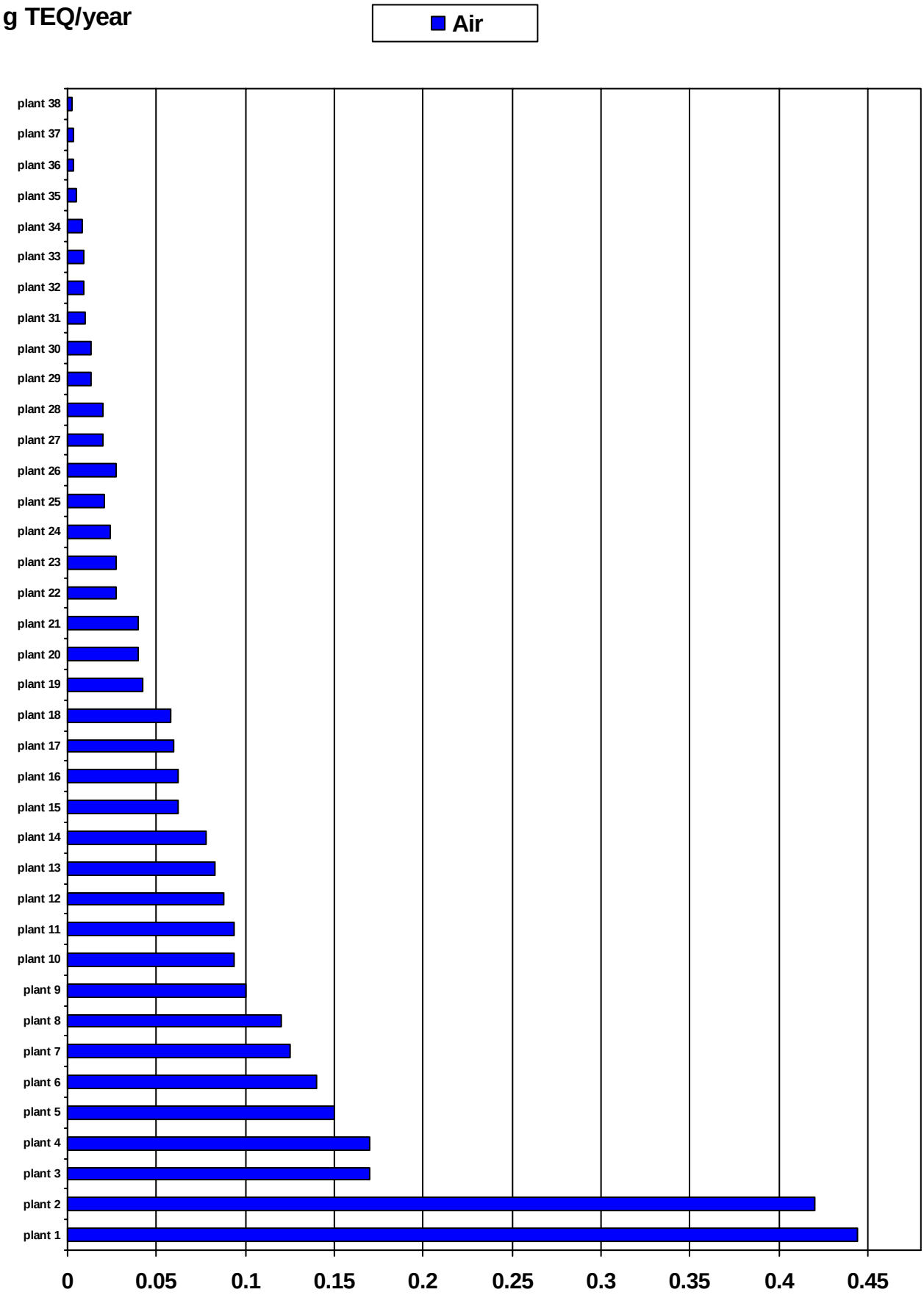


Chart (15) Stations of power generation

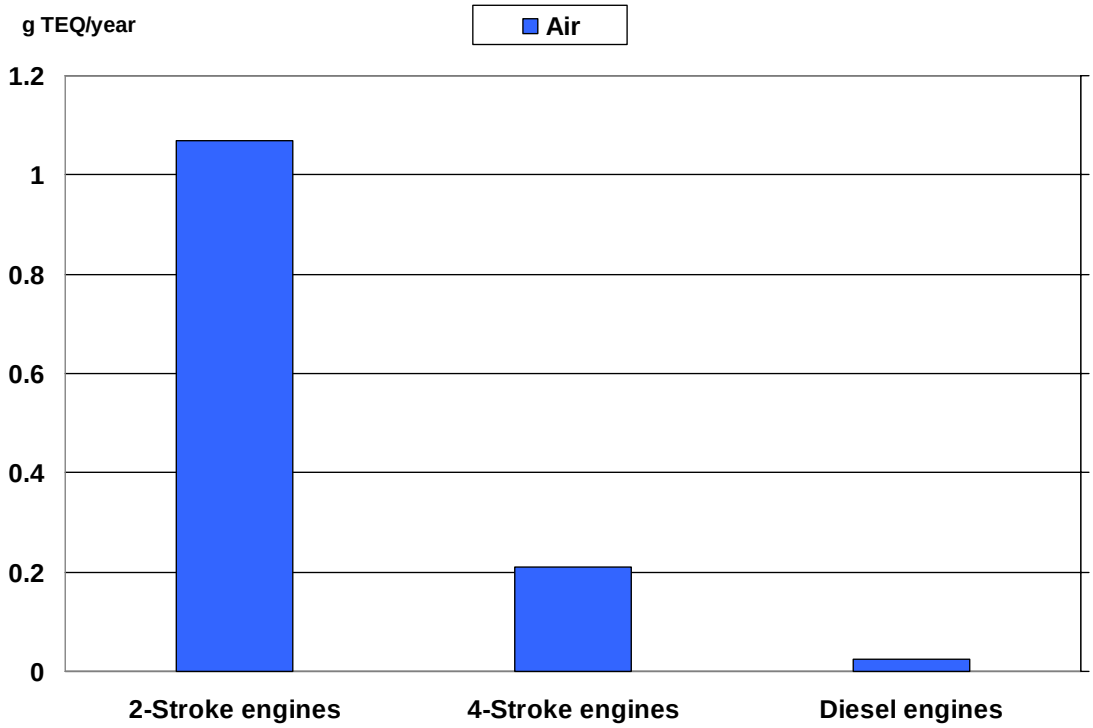


Chart (16) Comparison between different engines

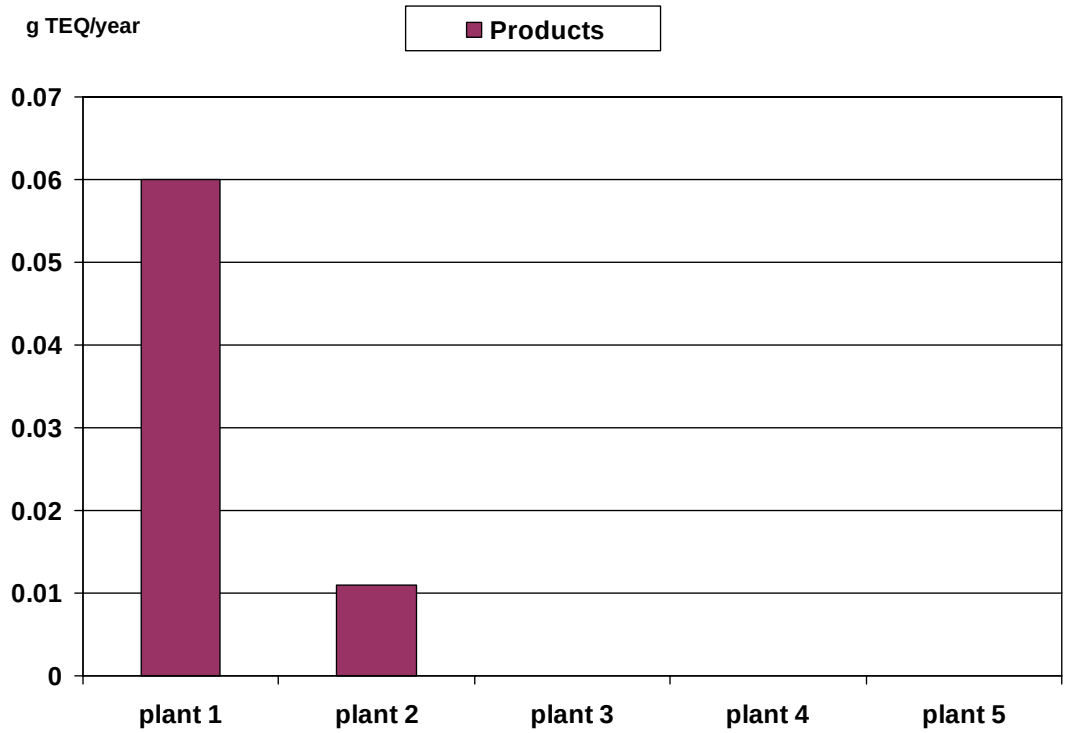


Chart (17) Textile Industries that use Chloranil dyes

Destruction of animal carcasses.

There is no such an activity in Egypt.

Textile and leather dyeing (with chloranil) and finishing (with alkaline extraction);

According to the reply form the leather dying chamber, leather-dying companies in Egypt do not use chloronil in dying. According to textile industries, 45% of textile factories which represent 65% of the production, they release about 0.0714837 g TEQ/a in the product, as shown in Chart (17).

Shredder plants for the treatment of end of life vehicles

There is no such an activity in Egypt

Smoldering of copper cables;

There is no such an activity in Egypt

Waste oil refineries

The Ministry of Petroleum informed us about all the companies that conduct oil waste treatment which release to the air about 0.088 g TEQ/year.

The inventory of unintentionally persistent organic pollutants (POPs) in Egypt depend on the theoretical results calculated by using Standard Toolkit for Identification and Quantitification of Dioxin and Furan releases prepared by UNEP chemicals , so these results is connected with a range of uncertainties.

From these results it was found that the greatest value for dioxins and furans releases into air. Comparison between emissions of dioxins and furans into different medias is shown in Chart (18).

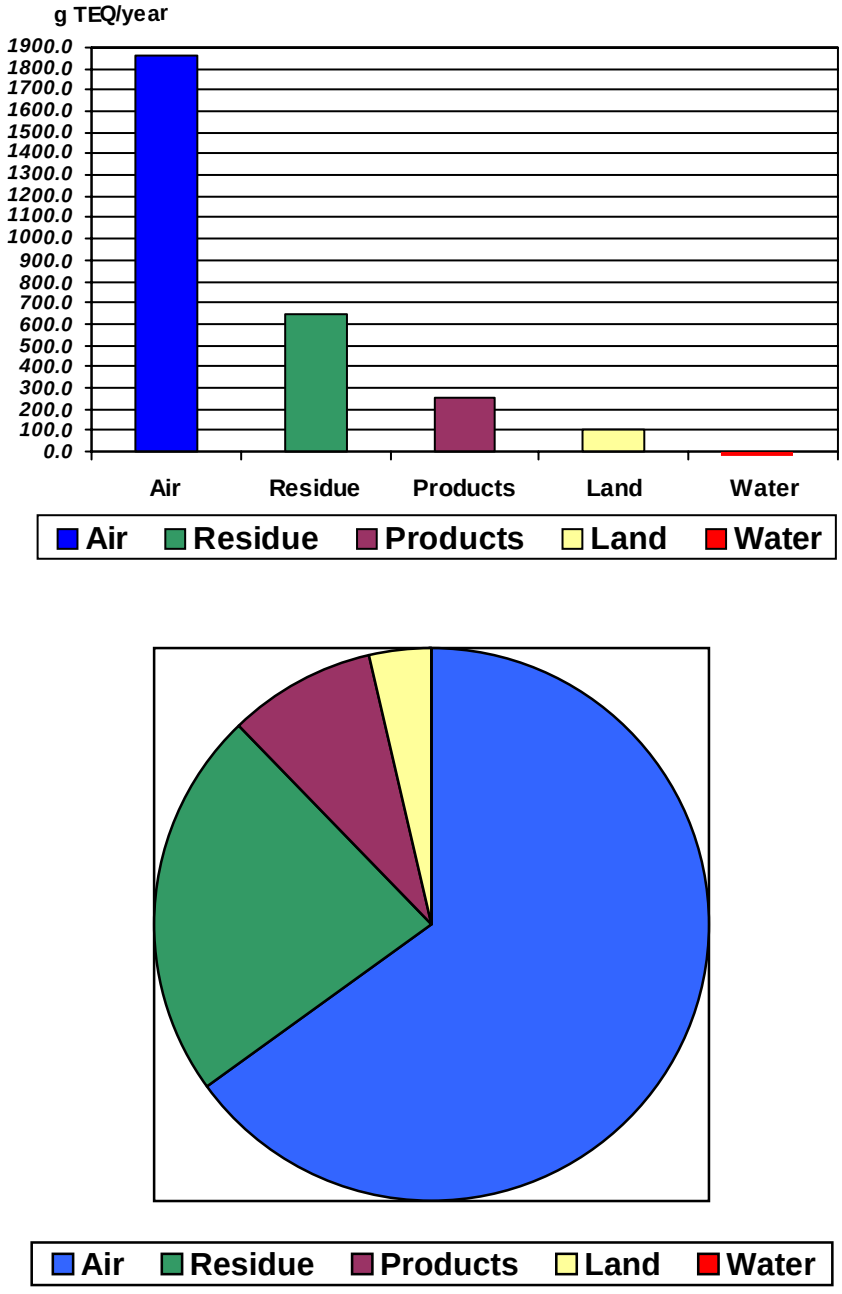


Chart (18) Comparison between emissions of dioxins and furans into different medias

2.3.5 Assessment of Data on Stockpiles, Contaminated Sites. and Waste Containing POPs

Introduction:

To establish an accurate balance of PCBs occurrences in establishments and stores at the beginning of 2003, it was supposed that it would be possible to use values resulting from the reports of PCBs occurrences, and of materials contaminated with PCBs in Egypt, as set by law. But as mentioned above, this action has not been finished in a satisfactory way, and to prepare the NIP, information provided by the Ministry of Electricity was used.

The databases of the "Egyptian Hazardous Substances Information and Management System" cannot be used to identify potential sources of environmental pollution by other inspected substances because these substances are not among those stored in the databases.

DDT occurrences are supposed to be found in many old closed dumping sites with uncontrolled regimes, and also, in small quantities, in a number of places where pesticides were destroyed by spilling or emptying into ground furrows.

If there is further interest in receiving more precise information about the occurrences of inspected substances, it would be a good idea to support the inventory by a law act to impose reporting obligation on both persons and state institutions, or by internal orders of checking institutions and of state authorities.

These are possible escapes of POPs into the environment through:

(1) Old dumping sites
(2) Non-documented/unknown black dumping sites.
(3) Small sources of contamination, especially local furnaces, run by untrained (unattainable) individuals.

Specific problems connected with the inventory of inspected substances include:

a. Inspected substances are of various origins or use, and the majority of them have long been regulated or banned in Egypt.
b. DDT is a substance that had been extensively used in Egypt, both in agricultural production, and non-agricultural areas as biocide. It is not subject to standard monitoring.
c. PCBs are substances which are found in old transformers and capacitors but these equipments are difficult to locate accurately.
d. PCDDs/Fs are quite widespread substances produced in small quantities in almost every combustion process. However, they may also be found in waste from the production of chlorinated substances.

The accessibility of data concerning substances banned in the distant past is very difficult. POPs pesticides have been restricted or banned since 1996 and were not monitored analytically.

Approach:

a. A task team responsible for preliminary inventory of obsolete pesticides stocks and contaminated sites and for assessment of opportunities for the disposal of obsolete stocks is assigned under supervision of Head of Central Dept. of Pest Control in the Ministry of Agriculture.
b. The responsibilities of the task groups were:
   (1) Collecting information on stockpiles and wastes containing, or thought to contain POPs pesticides.
   (2) Identifying and quantifying the contaminated sites throughout the country.
   (3) Identifying the Competent Authorities responsible for all the obsolete stocks to make the necessary communications for the inventory and collection process.
   (4) Carrying- out a preliminary inventory on existing stockpiles.
   (5) Identifying the conditions of storage and handling of stockpiles and stores.
   (6) Reviewing and summarizing the legal and institutional framework that covers licensing, storage, handling and disposal of pesticides, formulated products containers and residuals and comparing the legal framework to the obligations of the Stockholm Convention.
   (7) Using of experiences from on-going programs to identify and deal with obsolete stocks of pesticides.
   (8) Reviewing the necessary information concerning the potential hazardous emergency response, safe storage, safe handling and transportation, first aid, treatment, and disposal of POPs pesticides with reference to the Egyptian Hazardous Substances Information and Management System (EHSIMS) and other guidelines on pesticides.
   (9) Establishing a suitable secured storage place having the specifications and conditions that match with the national legislation, and health and safety requirements.
   (10) Setting a plan for safe handling and repacking of the obsolete pesticides in their place.
   (11) Setting a plan for safe transportation of the obsolete pesticides in coordination with the Competent Authorities e.g. Ministry of Transportation, Ministry of Interior (Traffic and Civil Defense Depts.), Ministry of Health and Population (emergency service).
   (12) Setting an assessment of opportunities for safe disposal of obsolete stocks.

Accomplishments:

a. Information on stockpiles and wastes containing, or thought to contain, POPs pesticides and on contaminated sites were obtained through the

cooperation with Competent Ministries such as Ministry of Agriculture, Ministry of Industry and Ministry of Health and Population and Customs Authority.

b. Ministries and Competent Authorities which have obsolete stocks and the places of these stocks have been identified.
c. A preliminary inventory on stockpiles has been done through field visits to the places and stores of these stockpiles. The inventory included the quantity, types of pesticides, types and conditions of the containers.
d. The task team reviewed and summarized the legal and institutional framework that covers licensing, storage, handling and disposal of pesticides, formulated product, containers and residuals and Compared the legal framework to the requirements of the Stockholm Convention.
e. The task team reviewed the necessary information concerning the potential hazardous emergency response, safe storage, safe handling and transportation, first aid, treatment, and disposal of POPs pesticides using the Egyptian Hazardous Substances Information and Management System (EHSIMS), other guidelines on pesticides.
f. A suitable secured storage place with specifications and conditions matching with the national legislation, and health and safety requirements is established and prepared to receive all the quantity of stockpiles.
g. A plan for safe handling and repacking of the obsolete pesticides in its place is established.
h. A plan for safe transportation of the stockpiles from its place to the secure storage place is established.
i. The transportation of obsolete pesticides has been taken place according to the plan.
j. Opportunities for disposal of obsolete stocks have been studied.

NPCU addressed the contaminated sites with obsolete pesticides during the inventory assessment. The list of POPs pesticides and the contaminated sites are detailed in the following table:

Table 14: Average residues of POPs detected in different areas:

Sample	Governorate	Endrin ppb	Aldrin ppb	Heptachlor ppb	DDT equivalent ppb	HCH Isomers ppb	PCBs Congener ppm
Water	Kalubia	0.80-3.36	0.03-7.88	0.06-67.00	0.20-44.00	3.00-405.0	ND
	Esmalia	1.36-4.56	2.03-6.26	0.66-7.26	0.43-19.16	0.76-46.00	ND
Ground water	Kalubia	0.87-210.0	0.80-1.30	1.03-1.97	0.27-853.00	0.27-3.27	ND
	Esmalia	0.81-3.36	0.03-25.90	44.00-4.88	6.70-1.70	0.70-405.00	ND
Sediment	Kalubia	0.50-3.53	0.83-3.03	1.63-53.67	3.23-562.00	0.50-306.00	ND
	Esmalia	0.63-16.20	0.77-137.67	26.67-46.10	0.63-317.00	1.50-304.0	ND
Soil	6th October City	ND	ND	ND	ND	ND	25
	Cairo - Shoubra	ND	ND	ND	ND	ND	22.5
	Kalubia	0.73-174.33	1.87-510.33	30.33-660.33	10.63-637.00	3.07-544.33	ND
	Esmalia	ND	ND	23.67-206.33	73.00-237.67	238.67-437.33	ND

Sample	Governorate	Endrin ppb	Aldrin ppb	Heptachlor ppb	DDT equivalent ppb	HCH Isomers ppb	PCBs Congener ppm
Drainage water	Kalubia Esmalia	2.80-833.0	193.0-25.00	22.20-33.30	2.80-25.00	13.90-30.60	ND

To establish the accurate balance of PCBs occurrences in establishments and stores at the beginning of 2003, it was supposed that it would be possible to use values resulting from the reports of PCBs occurrences, and of materials contaminated with PCBs in Egypt, as set by law. But as mentioned above, this action has not been finished in a satisfactory way, and to prepare the NIP, information provided by the Ministry of Electricity was used.

The databases of the information systems of waste chemical substances and of the pollution sources information system cannot be used to identify potential sources of environmental POPs.

DDT occurrences are supposed to be found in many old closed dumping sites with uncontrolled regimes, and also, in small amounts, in a number of places where in the past pesticides were destroyed by spilling or emptying into ground furrows.

If there is further interest in receiving more precise information about the occurrences of inspected substances, it would be a good idea to support the inventory by a law act to impose reporting obligation on both persons, and state institutions, or by internal orders of checking institutions and state authorities.

Possible escapes of POPs into the environment are:

a. Soil and water
b. Old known and unknown dumping sites
c. Local furnaces unattainable or running by trained individuals

Issuing National Guidelines for POPs Remediation

Introduction:

Remediation is the permanent and significant reduction of the volume, toxicity or mobility of hazardous substances, pollutants and contaminants as a principal element. The remediation is classified as follows:

a. Stabilization: where a contaminant remains in site but is rendered less mobile and/or less toxic by biological, chemical and/or physical processes. For most practical site remediation some combination of these outcomes is achieved (treatment trains).
b. Containment: where the contaminated matrix is contained in a way which prevents exposure of the surrounding environment.
c. Immobilisation: where contaminants are changed into less available constituents by some transportation process or by adding immobilizing agent (need of long term performance assessment).
d. Destruction: as a result of a complete biological and/or physico-chemical degradation of contaminants (e.g. at elevated temperatures by thermal treatments)
e. Removal by:

(1) Some process of phase transfer/ mobilisation and recapture (e.g. leaching and sorption)
(2) Some process of concentration and recovery / harvesting (e.g. by physical separation),
(3) A combination (e.g. via hyper-accumulator plants**)**

These guidelines are based upon the practical experienced gained by the Project team and the local consultants and government professionals that the team worked with during the development of the stages of the project.

Disposal and Remediation Technologies:

a. Thermal
b. Physical
c. chemical
d. Biodegradation or bioremediation

a. Thermal process

Advantages

- Fast treatment
- Applicable to organics
- Applicable to solid media
- Significant reduction in volume

Limitations

- Not applicable to liquid or gaseous media
- Residues that require treatment
- Efficiency controlled by contaminant
- Higher relative cost

b. Physical processes

Physical Processes: by means of a physical mechanism the phase transfer of pollutant/s is induced. Pollutants move from a solid phase to a gas/vapour phase (e.g. soil venting) or to a liquid phase (e.g. soil washing). No modification of chemical structure of contaminants occurs.

Advantages

- Fast treatment
- Treats variety of contaminants
- Applicable to all media
- Less site characterization required
- Lower relative cost

Limitations

- Often do not treat but only transfer the waste
- Residues require treatment
- Limited by site characteristics

c. Chemical processes

The chemical structure and consequently the behaviour of pollutant/s is modified by means of a chemical reaction, It produces less toxic, less mobile or better separable compounds.

Advantages

- Fast treatment
- Treats variety of contaminants
- Applicable to all media

Limitations

- Require extensive site characterization
- Limited by site characteristics
- Residues that require treatment

d. Biodegradation or Bioremediation

Metabolic activity plays a key role in bio degradation and accomplishes complete mineralization or partial degradation in both aerobic and anaerobic environments.

Advantages

- Treat wide range of organics
- Applicable to all media
- Generate little or no residues
- Offer flexibility in system design
- Cost effective compared to other technologies

Limitations

- Slow treatment time
- Requires extensive site characterization
- Limited by site characteristics

This guideline present 11 steps in the remediation process for assessing and reducing risks. These steps are:

- **Step 1** Site description. A full description of the site and the surrounding community, drawing upon a review of existing documentation, site reconnaissance, and limited sampling.

- **Step 2** Identification of contaminants of concern, during which the contaminants that will be addressed by the remediation program are identified.

- **Step 3** Initial receptor and pathway evaluation.

- **Step 4** Sampling to determine the extent and level of contamination that will have to be addressed by the remediation program.

- **Step 5** Identification of remediation objectives and standards. Remediation objectives clearly define the expected human health outcome of the remediation actions. Remediation standards are concentration levels set for the remediation activities, such as ppm or ppb of POPs (PCBs oil or Pesticides), and µg TEQ of (dioxins and furans) in the site after clean-up.

- **Step 6** Identification of exposure area and characterization of risk.

- **Step 7** Identification of viable remediation alternatives.

- **Step 8** Feasibility study. The purpose of the feasibility study is to evaluate the viable remediation alternatives and select an alternative for implementation by the decision makers in the responsible authority.

- **Step 9** A remediation plan must be prepared once remediation alternatives have been selected. The plan identifies what is to be done at the site as well as in each treatment unit in the surrounding community.
- **Step 10** Remediation.

- **Step 11** Follow-up and monitoring are required to ensure that the program achieves its objectives.

2.3.6 Summary of Future Production, Use and Releases of POPs – Requirements for Exemptions

Egypt will not produce or use any intentional POP substances.

2.3.7 Existing Programmes for Releases Monitoring and Environmental and Human Health Impacts

Annex 4 presents studies on risk assessment of POPs in Egypt.

2.3.8 Current level of information, awareness and education among target groups; existing systems to communicate such information to the various groups; mechanism for information exchange with other Parties to the Convention

a. Background

The work to disseminate POPs information coinciding with Article 10 of the Stockholm Convention on Persistent Organic Pollutants emphasizes public awareness and environmental information through awareness and educational programs. The Convention states the following:

(1) Each Party shall, within its capabilities, promote and facilitate:
   - Awareness among its policy and decision makers with regard to persistent organic pollutants;
   - Provision of all available information on persistent organic pollutants to the public, taking into account paragraph 5 of Article 9
   - Development and implementation, especially for women, children and the least educated, of educational and public awareness programmes on persistent organic pollutants, as well as on their health and environmental effects and on their alternatives
   - Public participation in addressing persistent organic pollutants and their health and environmental effects and in developing adequate responses, including opportunities for providing input at the national level regarding implementation of this Convention;
   - Training of workers, scientists, educators and technical and managerial personnel;
   - Development and exchange of educational and public awareness materials at the national and international levels
   - Development and implementation of education and training programs at the national and international levels.

(2) Each Party shall, within its capabilities, ensure that the public has access to the public information referred to in paragraph 1 and that the information is kept up-to-date.

(3) Each Party shall, within its capabilities, encourage industry and professional users to promote and facilitate the provision of the information referred to above at the national level and, as appropriate, subregional, regional and global levels.

(4) In providing information on persistent organic pollutants and their alternatives, parties may use safety data sheets, reports, mass media and other means of communication, and may establish information centers at national and regional levels.

(5) Each Party shall give sympathetic consideration to developing mechanisms, such as pollutant release and transfer registers, for the collection and dissemination of information on estimates of the annual quantities of the chemicals listed in Annex A, B or C that are released or disposed of.

On the other hand, Law 4/94 (Article 5 about EEAA responsibilities) supports these issues where it emphasizes public awareness and environmental information through awareness and educational programs as follows:

(1) Preparing programs for the environmental education of the public and assisting in their implementation.

(2) Participating with the Ministry of Education in the preparation of training programs for the protection of the environment within the scope of the various curricula in the basic educational stage.
(3) Collecting and publishing national and international information related to the environment on a periodic basis in cooperation with information centers of other agencies. They should also evaluate and utilize this updated information on environmental management and planning.
(4) Preparing and publishing periodic reports on important environmental indicators.
(5) Preparing programs for public environmental education and soliciting their cooperation in the implementation of environmental initiatives.

b. Introduction

One of the major goals of POPs enabling activities is to raise public awareness at different levels across the board in order to bring full participation of all relevant stakeholders and also the public at large, including school children. The Government is giving greater attention to this aspect as long as public awareness and understanding of POPs is vital for the National Implementation Plan.

The Audiences for Information Dissemination Diagram was designed illustrating the influence of the media, scientific and academic communities, senior political NGOs and influential group on information dissemination to the primary target groups and decision–makers. At this stage the information would be available for dissemination to the general public including educating it to school children, (Figure2).

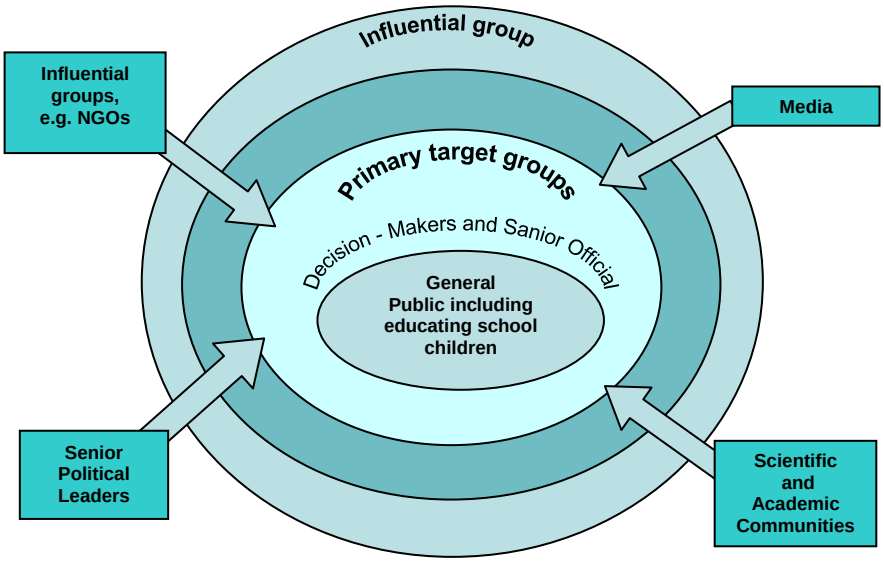


Figure 2: Public awareness schematic

The cooperation among EEAA, National Implementation Plan Project and competent authorities including NGOs in the field of public awareness resulted in the following:

(1) During Phase II, EEAA organized a number of training courses through cooperation with the Ministry of Health, and one of them included theoretical training on Health Care Risk in Waste Management in Egypt and POPs Insecticides and unintentionally produced POPs, their impact on health and the environment.

(2) Through cooperation with EEAA and National Implementation Plan project, the Ministry of Local Development and Environmental Protection Agencies announced the completion of an environment conservation program for every town and village. The governmental agencies and civil societies (NGOs) would be entrusted with the implementation of the program, which is aimed at reducing pollution from factories near residential areas land, through a database on the environmental status of each town and village.

(3) Day Hospitals Institution for Development and Remediation is one of the most important NGOs which are concerned with POPs public awareness issues. Through the cooperation with EEAA, the National Implementation Plan Project and the Awareness of POPs Effects Project agree to achieve the following objectives:

- Holding the first national social conference on awareness of POPs effects.
- Establishing of workshops, including all the geographic boundaries of the ARE for non-governmental associations on awareness of POPs effects.
- Establishing a training workshop for non-governmental associations on awareness of POPs effects.

(4) EEAA website (www.eeaa.gov.eg/egpops) is one of the tools used for promoting pubic awareness and the other important tool is the use of NGOs that are already playing an important role in Egypt on various issues related to environmental protection. As any misinformation could cause more damage than “no information”, the Government is giving emphasis to multidisciplinary teams under one umbrella to collect information, verify the validity of information especially in sensitive areas connected to, among others, agriculture, trade, tourism and public health matters. It also recognizes that Egypt lacks information on actual data coming from environmental, human and aquatic matrices, and the capacity to measure actual emissions of unintentional POPs from various categories implicated in Stockholm Convention. This is one of the major areas of Egypt’s need for capacity building so that cleaner production programs could be initiated by application of BAT / BEP in different industrial categories and the actual situation for information collection and dissemination could be clarified as it exists in Egypt.

c. Public Awareness Plan

The plan should include development and initiation of a sustainable and periodic POPs information dissemination system for the public and for government stakeholders and decision-makers, including non-governmental organizations (NGOs) and media representatives.

The public should also be informed about POPs pollution. This would support active participation as people become aware of their contribution to the pollution problem (e.g. vehicles, farm equipment and chemicals, industry). In addition, informed and aware individuals would take precautions to protect themselves and their families when they understand the health hazards they face.

The purpose of this plan is to create a sustainable system to disseminate technical and general information to the broad range of audiences. Such a system will guarantee that the information would be disseminated on a regular basis. The plan includes steps to be taken by EEAA to ensure implementation of the plan, starting with the information that should be disseminated to the public on a daily basis.

(1) Objectives of Public Awareness Plan:

- Increasing awareness of the society, its institutions and official authorities concerning the hazardous effects of pollutants on health and the environment and implementing the national plan related to Stockholm Convention.
- Surveillance on the production or importation of hazardous chemicals, including POPs.
- Awareness of the hazards of these substances including POPs and limiting their use.
- Awareness related to reduction of the use of POPs.
- Setting rates for the releases resulting from burning processes and defining them.
- Adopting a program for checking foods to protect consumers.

(2) Outputs

The overarching goal of the plan is to develop and initiate a sustainable air quality information dissemination system for multiple audiences. This system would lead to achievement of the following short-term and long-term outputs:

- **Short-term Outputs for the Public**

  (a) Better informed general public on key aspects of air quality

(b) Necessary precautions to be undertaken by the public to protect themselves and their families
(c) Active participation of the public in programs to improve air quality

- **Long-term Outputs for the Public**

(a) Better-informed society that can support officials in the mission through NGOs and individual efforts
(b) A vital role for civil society, through NGOs and other organizations, to take an active role in policy-making and governmental decisions concerning the environment

- **Short-term Outputs for Ministries and Institutions**

(a) More knowledgeable decision-makers on POPs issues
(b) Initiation of actions to mitigate POPs pollution

- **Long-term Outputs for Ministries and Institutions**

(a) Decision-makers formulate timely and appropriate POPs policies and strategy
(b) POPs management strategy and policies are adopted and implemented by each stakeholder

The public is beginning to demand information on environmental matters, especially concerning the Dioxin and Furan emissions, and the media has started to raise questions and concerns to agencies and stakeholders.

d. Information Dissemination System Components

This information should be put in an efficient system that will ensure its dissemination in a sustainable manner. The following subjects should be included in the communication system, shown in (Figure 3). These subjects are:

(1) Deciding what information should be disseminated to target groups
(2) Defining roles and responsibilities of each sector, department, or unit within the responsible authorities
(3) Agreeing on the flow of information to reach the appropriate target groups in a timely manner
(4) Developing an information release plan to communicate each type of information to target groups
(5) Proposing a framework to disseminate different types of information (including specific tasks and activities)

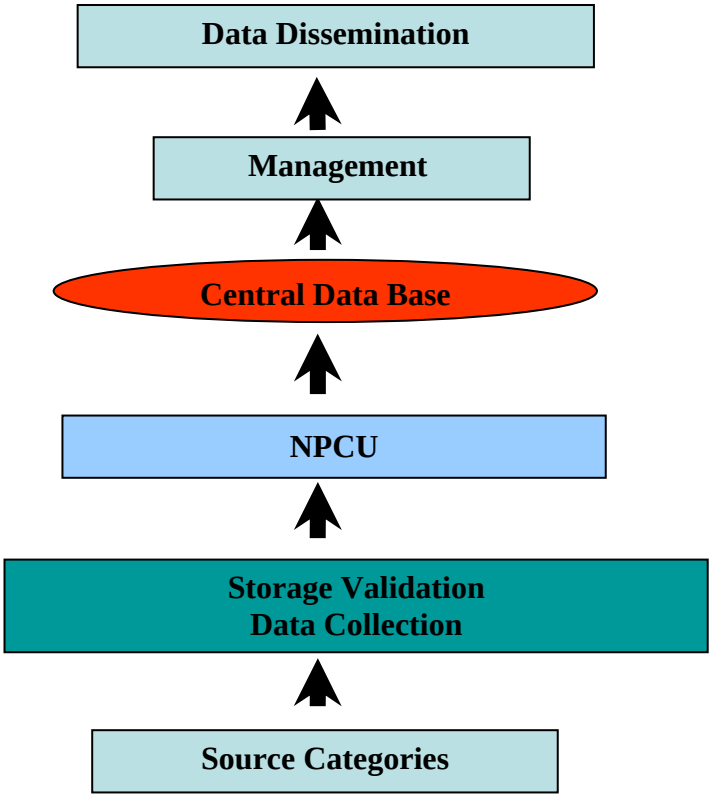


Figure 3: Schematic process of data dissemination

Finally, public awareness staff should use such success stories in the public awareness programs. In addition, they should arrange for representatives of appropriate institutions to appear on TV and radio programs or to be interviewed for newspaper and magazine articles to present information about POPs effect on human health and environment, and how to avoid their effect.

e. Information Flow

The National Project Coordination Unit (NPCU) is collecting and monitoring data through performing technical analyses, and communication with the sources of data in order to update it to be included the regional data. The role of NPCU in information flow is shown in Figure 5.

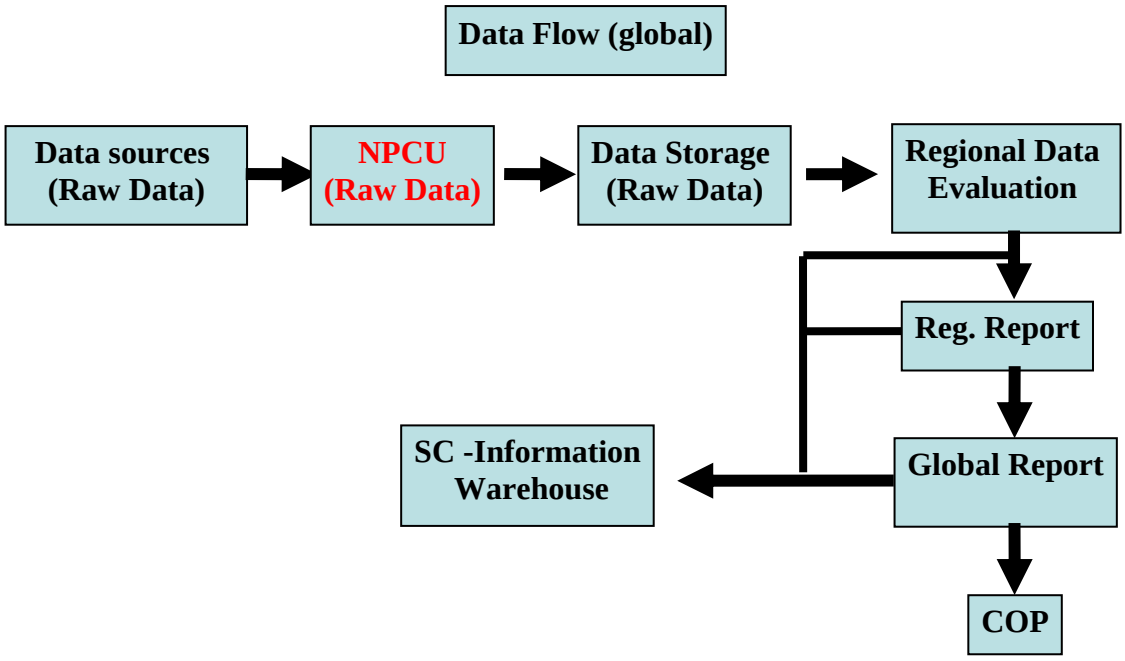


Figure 4: Role of NPCU in information flow

f. Public Awareness Workshops

The NPCU held a number of workshops aiming at raising awareness, concerning the adverse effects of POPs on health and the environment of all competent authorities at the national level. These include governmental organizations and other NGOs as well as different population groups specially woman and child organizations, and associations in addition to EEAA different branches and departments all over the governorates of the ARE

(1) Workshops

- The training workshop for women to raise awareness of health hazards impact of POPs. The workshop was held in Cairo House - EEAA during the period from 20 to 22 November, 2004 and was conducted by participants from the National Woman Council.
- The training workshop for children to raise awareness of health hazards impact of POPs. The workshop was held in Cairo House - EEAA during the period from 27 to 29 November, 2004 and was conducted by participants from National Motherhood and Childhood Council
- The training workshop for EEAA (Branches, inspection department and hazardous substances department) to raise awareness of health hazards impact of POPs. The workshop was held in the training room at EEAA during the period from 4 to 7 December, 2004.
- The training workshop on Socio-Economic Impact of POPs and Role of BAT / BEP in Reducing / Eliminating POPs from the

Environment. The workshop was held in the Sofitel Hotel during the period from 13 to 14 December, 2004

- The training workshop of BAT\BEP application in cement industry and destruction of waste in cement kiln

(2) Scientific Material

The Scientific material concerned with raising awareness of the different public categories, including woman and children, have been prepared. Such materials include;

(a) Identification of hazards of chemical substances
(b) Chemicals used for household purposes
(c) Pesticides
  - Chemicals and pesticides used for household and work place purposes
  - Preventive measures and treatment
  - Symptoms and indicators of children poisoning with pesticides and chemicals
  - Elderly people poisoning
  - First aid in case of poisoning with pesticides
  - General principles to be taken into consideration in cases of poisoning with pesticides
  - Symptoms of poisoning with pesticides
  - Guidelines for prevention of domestic poisoning cases
(d) Organic solvents
(e) Industrial detergents
(f) Pollutions which results from interior combustion
(g) General actions to be taken into consideration in cases of poisoning with chemicals
(h) Domestic advice

In this respect, Egypt is preparing a plan for the awareness and education of the public concerning the POPs. This plan is also prepared for authorities and decision makers, for women and children and it will be presented in special workshops, in which heads of competent authorities and woman and child organizations will participate. The plan also includes training of workers, employees and administrators on how to manage POPs in the way of reducing their effects on human health and environment.

In order to increase awareness at the national level for those who are dealing with hazardous substances, the system data network has been connected with the internet in which any information on hazardous substances is available; furthermore data on hazardous substances found on the database of the system can be printed.

2.3.9 Relevant Activities of Non – Governmental Stakeholders

Day Hospital Institute for Development and Rehabilitation - the International POPs Elimination Project (IPEP):

Day Hospital Institute Mission:

The institute has embarked on a mission to provide sustainable development in the field of health and environment particularly to people with disabilities and the aged, and to provide civil society medical care and safe disposable of medical waste and the aged.

The Institute is committed to provide equal opportunities for the people with disabilities and their families including all aspects of rehabilitation, assistive technology and inclusion in the society. They mission includes networking with all civil society organizations and hospitals in delivery of any services. The core principal in activities is to preserve the human dignity and right to choice.

Activities of the Day Hospital Institute for raising awareness about POPs and the Stockholm Convention:

- The First National Conference about raising awareness on POP and Stockholm Convention was held in Cairo on 15/4/2004.
- The Second National Conference on POPs the Celebration of Effective Implementation of Stockholm Convention was held in Alexandria on 17/5/2004.
- Youth Seminar, Islamic Youth Association 24/8/2004.
- Youth Seminar (2), El Safa Youth Club 14/9/2004.
- Environmental Writers Media, Shepard Hotel 7/9/2004.
- The International POPs Elimination Project (IPEP).

More details about other NGOs are presented in ***Annex 6***

Relevant Publications and Internet Pages

Internet pages concerned with the POPs issue

IPEN - http://www.ipen.org/
IPEN - Europe - http://pops.ecn.cz/
Health Care Without Harm - http://www.noharm.org/
English pages of Arnika - http://english.arnika.org/
International Workshop on Non-Combustion Technologies for the Destruction of POPs (Prague, January 16, 2003) - http://pops2003.arnika.org/
PVC - http://pvc.arnika.org/
Waste incineration - http://spalovny.arnika.org/
Waste as raw material - http://odpady.arnika.org/
Centre for Citizen Support - http://cepo.arnika.org/

Arnika association Programme on Toxic compounds and waste- http://toxic.arnika.org/
Database of incinerators and energy blocks- http://www.ecn.cz/dioxin/spal_map.html
Dioxins - http://www.ecn.cz/dioxin

2.3.10 Overview of Technical Infrastructure for POPs Assessment, Measurement, Analysis, Alternatives, Management, Research and Development – Linkage to International Programmes and Projects

An overview of the available technical infrastructure in Egypt at the national level concerning chemicals management, laboratory facilities, computer capabilities and technical training and the available education programmers, with high strengths capacity. Furthermore, these technical infrastructures can be adopted in POPs management and they are presented in ***Annex 6.***

Scientific Research Academy conducted a lot of researches and experiments to evaluate the effect of POPs on health and environment as follow:

Alternatives of POPs:

The NPCU collected data on POPs alternatives with respect to chemical name, CAS registry number, description and warning properties, safety and protection, fire and reactivity, protective equipment and controls, manufacturing and use information, monitoring and analysis methods, human and environmental exposure, etc… in addition to their usage/availability in Egypt.

Linkage to International Programmes and Projects:

Co-operation and Involvement with International organizations, bodies and agreements, participation in relevant technical assistance projects are all mentioned in ***Annex 7.***

Assessment of Enforcement Capacity to Ensure Compliance.

This step provides an overview of existing legal instruments and non-regulatory mechanisms for managing chemicals, including their implementation and enforcement. This overview also helps identifying relevant mandates, laws and decrees concerning chemical management especially of POPs.

Laws and Ministerial decrees concerning chemical managements (manufacturing, import, export, handling, storing, transportations, etc.) are presented in ***Annex 5*** and also in annexes of the executive regulations of Law 4/1994 related to hazardous substances and hazardous waste.

Moreover, chapter (4) of the National Chemical Profile includes a full detailed part concerning legal framework for chemical management on the national level.

Assessment of Social and Economic Implications use and Reduction of POPs and Including the Need for the Enhancement of Local Commercial Infrastructure for Distributing Benign Alternative Technologies/Products

POPs use and reduction have very important social and economic implications. As can be seen from the next figure, the interaction between the POPs and the surroundings including the socio-economic setting, lie in 5 main areas:

* Production
* Uses
* Emissions
* Stockpiles
* Polluted sites (hot spots)

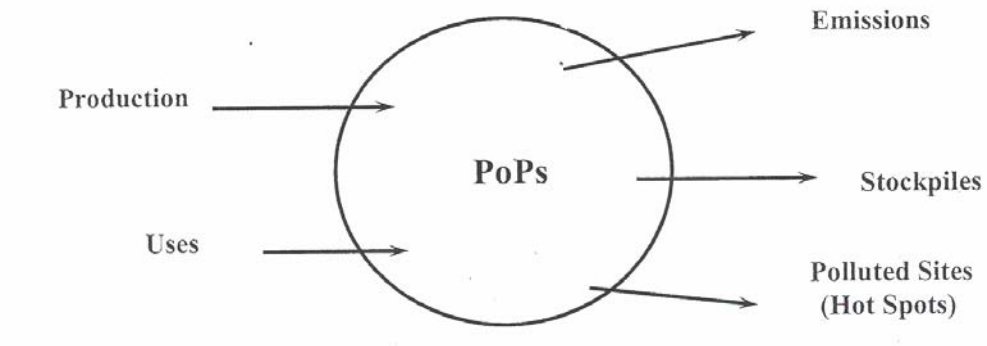


Figure 5: Social and economic implications use and reduction of pops

The other three POPs sources would have drastic negative impacts on human health as well as on the environment unless suitable mitigation measures are taken. Such measures would necessitate intensive and informed social participation (in addition to government entities) and sufficient funding to economically (cost-effectively) implement appropriate mitigation measures.

Some steps have already been started in this direction through this Project. Efforts have been made to initiate work on the much needed public awareness required to arouse sufficient social involvement. This was made by inviting media and civil society organizations to actively participate in most of the project workshops and public activities. An early result of such interactions has been the appearance of specific editorials in the national newspapers. For instance a published article on Al-Ahram daily newspaper on 17/5/2004 was about how to increase public awareness about Stockholm Convention of POPs and to highlight the convention that would enter into force on 17 Th of June 2004. More spread and focused endeavors are planned for the future to sustain the national awareness interest.

On the other hand, economic implications would require some sort of cost/benefit analyses since at least, the social cost of POPs – induced pollution

is related to environmental and public health factors that are rather difficult to quantify.

In view of the serious health and environmental impact of the POPs, the project has assigned a special task in this respect to an Egyptian expert who has also given few presentations on the matter in our previous workshops. This report will constitute a basic tool for awareness activities in addition to other factors associated with these negative impacts.

In the next project phase, priorities will be set, appropriate mitigation measures will be identified, and therefore, some sort of preliminary cost estimate may be made as a basis for assessing needed funding requirements - and understanding the extent of international community contribution.. Moreover, much more intensive public and media involvement will be induced to ensure full participation of the civic society with anticipated consequent positive social, health and environmental impacts.

Researches and Development

According to article 11 of the Stockholm Convention on Persistent Organic Pollutants (POPs), the Parties shall, within their capabilities, at the national and international levels, encourage and/or undertake appropriate research, development, monitoring and cooperation pertaining to persistent organic pollutants and, where relevant, to their alternatives and shall add new candidate Persistent Organic Pollutants under the Convention. The latter candidate are described by:

a. Sources and releases into the environment
b. Presence, levels and trends in humans and the environment
c. Environnemental transport, fate and transformation
d. Effects on human health and the environment
e. Socio-economic and cultural impacts
f. Release reduction and/or elimination
g. Harmonized methodologies for making inventories on generating sources and analytical techniques for the measurement of releases

In order to enhance the scientific researches to explore new more safe POPs alternatives, and to develop suitable methods to rehabilitate the contaminated sites with POPs for the purpose of removing or/and eliminating the harmful impact of POPs on public health and environment, the National Project Coordination Unit (NPCU) and the competent authorities conducted some of the following proposals and researches:

a. A Proposal of the project of "Using of BAT and BEP for the purpose of reduction / treatment of releases resulting from different sources (Dioxins and Furan)" has been conducted by The NPCU for the purpose of participation in the Research and Development Sector under the Ministry of State for Scientific Research.
b. A Proposal of the Project of "Strategies to Introduce BAT and BEP in the Metallurgical Industry Sector in the Arab Region to Reduce and/or

Eliminate Unintentional Production of POP Chemicals in Egypt in Response to the Requirements of Article 5 of the Stockholm Convention" was conducted by the National Project Coordination Unit for the purpose of participation in Medium Size Project under Global Environmental Facility.

c. Ecotoxicological studies for monitoring of pesticide residues in the major components of Lake Qarun were conducted by Pesticide Chemistry Department, National Research Center, throughout two successive years (July 79 – Jun 99), when water, sediment and fish samples were collected from the Lake.

   The different types of samples were subjected to pesticide residue analyses including POPs, in order to determine their concentration levels, source of pollution, and the distribution pattern of such pollutants in different compartments. The organo-chlorines such as HCB, Lindane, Heptachlor, Heptachlor epoxide, aldrin, dieldrin, endrin, DDT, as well as some of the currently used organophosphates such as Malathion, dimethoate, pirimiphos, methyl, profenofos, diazinon were detected in most of the samples analyzed.

d. The Egyptian Cement Company represents the Egyptian attempt for incineration of hazardous waste in cement kilns. This process was conducted through cooperation between EEAA and the private sector represented by the Egyptian Cement Company in the form of pilot project.

   This experience is considered as a project that could be a suitable solution for hazardous waste disposal, including POPs pesticides, through complete safe combustion in cement kilns.

   The report was prepared by the National Project Coordination Unit to show the compatibility of burning hazardous waste, including POPs, in cement kilns with the present situation in Egypt.

e. One of the major activities of the NPCU is studying the UNEP documents related to applying BAT/BEP in different industries. The NPCU selected the most relevant industries in Egypt, reviewed and translated the related documents into Arabic to facilitate their use in these industries, especially by workers in this field.

f. A list of published papers in the field of water pollution with organic pesticides, chlorinated hydrocarbons and toxic hydrocarbons of oil origin which include the POPs analysis and their related issues has been developed by the Water Pollution Research Department under National Research Center.

g. The NPCU collected data on POPs alternatives with respect to chemical name, CAS registry number, description and warning properties, safety hazards and protection, fire and reactivity, protective equipment and controls, manufacturing and use of information, monitoring and analysis

methods, human environmental exposure, etc. In addition to their availability in Egypt. However, many of the POPs alternatives are not mentioned in the UNEP POPs program.

Assessment of Data Access and Use

The aim of this part is to provide an overview of the availability of data for chemicals management and related infrastructure and to analyze how information is used for national and local-level risk reduction actions. Moreover, the chapter addresses quality, quantity, and location of data, procedures for collecting and disseminating national/local data, the availability of international literature and databases; and national information exchange systems.

Availability of Data for National Chemicals Management

Adequate Information is the basic problem tool for decision-making .The quality of the decision depends on the quality of Information, which depends on the relevancy, precision, and the speed of access. Information must be continuously reanalyzed and renewed. It becomes volatile if it is not registered, indexed and updated. While data relate to facts, information refers to a series of data analyzed and processed to provide a decision.

Being complex and multi-disciplinary in nature, the management of chemicals often requires inputs from a wide range of stakeholders. Potential contribution includes data, expertise, financial inputs and physical facilities. In order to cooperate in a coherent, cost-effective manner, it is clear that a guiding framework is needed to focus stakeholder contribution on common goals.

The development of national guidelines for the safe storage, transport and packaging of hazardous substances, as well as the development of a national labeling system in Egypt involve a collection of data sets and information that have some relevance for the study and/or monitoring and/or exploration of the environment which will lead as well to a collection of socio-economic indicators; a contact list of consultants or a list of chemicals that are used in the life cycle. It can be a set of data files, or a highly integrated information system; a standalone system, running on a personal computer or a sophisticated system, based on super-computers. It can rely on proven technology - such as database management system based on the latest hot technology (currently the www, World Wide Web). Its scale can be as wide as the globe, national, local, or it might not relate to any geographical scale.

In recognition of the importance of establishing an information and management system for the identification, registration, categorization and management of chemicals, EEAA through a national coordinated effort developed a comprehensive database for hazardous substances including chemicals. Efforts were directed towards the collection of data from different sources, which include producers, users, importers and

distributors of chemicals. Categorization and specifications of these substances will follow the international codes, This system is referred to as:

The Egyptian Hazardous Substances Information and Management System (EHSIMS) is considered one of the best practices in the field of environmental information systems.

Objective:

The objective of this project is to initiate a management system for hazardous substances in Egypt, through providing basic guidelines and information for the purpose of ensuring sound and safe handling of such substances and through disseminating such information through an information network.

The Management System

The project aims to set up a hazardous substances management system to enable EEAA to fulfill, its mandate as specified in Law 4/1994, hereafter designated as the Law, concerning the coordination of the management of hazardous substances in use in Egypt. This includes both imported and locally produced hazardous substances. The project streamlines the functioning of the competent ministries that implement the management of hazardous substances.

The management system is equally instrumental in assessing existing legislation and administrative rules and procedures concerning hazardous chemicals and proposing to amend them and draft new legislation where deficiencies exist. Another role for the EEAA in connection with hazardous substances management concerns capacity building, including education, training and awareness campaigns for different levels of managers, and users of hazardous substances.

The project ensures ways of improving interdepartmental cooperation and the exchange of information so that information on hazardous substances may be smoothly shared among governmental departments.

The Information System

The information development system component comprises the development of national guidelines for the safe storage, transport and packaging of hazardous substances, as well as the development of a national labeling system.

This system and guidelines would be based on already existing international ones, adapted to the Egyptian needs and conditions. This component would also address the permitting procedures as detailed by Law 4/1994, and article 26 of its Executive Regulation, coordinating between the concerned authorities (six line Ministries) with the purpose of developing one common format to be used for permitting issuing.

Moreover, it would provide information concerning the properties of hazardous substances and methods of handling them in case of accidents.

The Information dissemination component comprises the installation of a computerized network between EEAA and the partner authorities, composed of the six line Ministries, as well as the Customs Authority and Civil Defense Authority. The network encompasses a center placed in EEAA, and focal points in each of the partner authorities. It would support a continuous flow of information between the center and the focal points (and vice versa), thus insuring wide and easy access to it. This information would be composed of:

- The guidelines for safe handling
- Format and information concerning the permitting procedures
- Information database of hazardous substances
- The computerized tables and lists of hazardous substances and wastes

The project management is carried out through a steering committee composed of the concerned EEAA departments, as well as a working group from the partner Ministries and Agencies.

Main Achievements:

1. Database
2. Information Network
3. Hazardous Substances Lists
4. Emergency Response Sheets (ERS)
5. Internet Website
6. Sample of the Unified Permitting Form
7. Digital copies of all data about chemicals
8. System User Guide
9. Importers Database

2.3.11 Identification of Impacted Populations or Environments, Estimated Scale and Magnitude of Threats to Public Health and Environmental Quality

POPs Occurrence in the Egyptian Environment

The following represent a persisting danger:

- The release of organochlorinated compounds from landfills of different types to surface waters (floods, heavy precipitation), leakage to groundwater
- Non-liquidated old agrochemicals containing organochlorinated compounds temporarily deposited
- The re-usage of facilities previously used for feedstock storage that had been put out of operation due to non-removable contamination with

PCBs (old silo pits); the re-usage of unused stables where materials with a PCBs content stored

- The import of contaminated animals, feedstock and feed components from abroad

If all materials that contain organochlorinated substances (PCBs, chlorinated pesticides) are not safely disposed of, or their usage is not limited to defined closed systems (PCBs), then we cannot prevent future hygienically isolated serious cases of the contamination of feed, food and other animal products including freshwater fish and hunted wildlife. For the prevention of such cases there should be an inventory of all possible sources of these substances dangerous to the environment, animals and humans.

2.3.12 Details of Each Relevant System for the Assessment and Listing of New Chemicals

The next laws and decreees are considerd the relevant systems for assessment and listing of new chemicals:

a. Law No.4 / 1994 of Ministry of State for Environmental Affaires (MSEA), that make environmental protection and pollution control in Egypt, and cover All kinds of chemicals and its compounds (Industrial chemicals, Agricultural chemicals (pesticides – fertilizers), Pharmaceutical chemicals, Petroleum products, Explosive chemicals, radioactive materials, Consumer chemicals and Chemical waste ,and others).
b. Executive Regulation No.338 of 1995 of MSEA, that cover all kinds of chemicals and its compounds (Industrial chemicals, Agricultural chemicals (pesticides – fertilizers), Pharmaceutical chemicals, Explosive chemicals, radioactive materials, Petroleum products consumer chemicals and chemicals waste, and others).
c. Decree No.55 of 1983 of Ministry of Manpower and Immigration, that regulates and controls the using of all chemicals used in the Industrial field. Handling, and storage and conditions required for industrial safety and health in the work places.
d. Decree No.60 of 1986 of Ministry of Agriculture for pesticides that, regulates and controls the using of restricted compounds.
e. Law No. 21/1958 Ministry of Industry that set rules for regulating industry and production, handling and importing of industrial chemicals.
f. Decree No. 91/1959 Ministry of Industry that set rules for regulating industry and production, handling and importing of chemicals.
g. Decree No. 480/1971 of Ministry of Health and Population that cover Air pollution criteria for industrial establishment from Industrial Chemicals
h. Decree No.50/1967 of Ministry of Agriculture that cover toxic properties of pesticides and procedures for recording it.
i. Decree No. 874/1996 of Ministry of Agriculture that regulates importing, handling and using of pesticides.

j. Decree No.413/1996 of Ministry of Health and Population that cover hazardous chemicals & wastes to get license for handling of hazardous chemicals and wastes.
k. Decree No.151/1999 Ministry of Industry that cover hazardous industrial chemicals and sit a list which can not be used without license.

2.3.13 Details of any Relevant System for the Assessment and regulation of Chemicals Already in Market

Establishing the Egyptian Hazardous Substances Information and Management System (EHSIMS) which considered the best practices in the field of assessment and regulation of chemicals already in market.

The objective of this system is the initiation of a hazardous substances management system in Egypt, by providing basic guidelines and information for the purpose of ensuring sound and safe handling of such substances and by disseminating of such information through an information network. All of POPs substances are involved in the EHSIMS.

The EHSIMS has many of useful outputs, most of which are concerned with information exchange, the following are some examples of such outputs:

a. The Database.
The main database contains 3 different databases as follows:
- First Database: Contains 5400 chemical substances and compounds including all features, characteristics and information related to these substances and compounds.
- Second Database: Contains a sample on the unified permitting forms that include information and data on the establishments as well as the required data for issuing the permitting form.
- Third Database: This database is specified for the decision makers. This database can be used to prepare reports by different ministries.

b. Information Network:
This network connects between EEAA and the concerned ministries (Ministries of Agriculture, Industry, Electricity and Energy, Health and Population, Petroleum, Irrigation Scientific Research) in addition to the Customs Authority, the Civil Defense, and the regional centers for Basel Convention and the Egyptian Petroleum Company. The Network can also afford any new Ministries that might join the system in the future.

c. Internet Website:
The project website is: www.ehsims.org. This website contains every information and data about the system as well as the list of hazardous substance, the required procedures for issuing permitting forms and the responsible authority in each Ministry.

d. Importers Database:

One of the aims of the systems is to establish a database on the importers as well as to locate their warehousing places using the GIS system in order to increase awareness concerning the safe handling of Hazardous Substances.

e. Connecting the System Data Network with the Internet (Web-Base Application):

In order to increase the control and management of chemicals who are dealing with hazardous substances, Egypt has established a legal framework in the purpose of regulate importing, exporting, handling and using of chemicals, some of these laws and decrees are presented as follows:

a. Law No.4 / 1994 of Ministry of State for Environmental Affaires (MSEA), that make environmental protection and pollution control in Egypt, and cover All kinds of chemicals and its compounds (Industrial chemicals, Agricultural chemicals (pesticides – fertilizers), Pharmaceutical chemicals, Petroleum products, Explosive chemicals, radioactive materials, Consumer chemicals and Chemical waste, and others).
b. Executive Regulation No. 338 of 1995 of MSEA, that cover all kinds of chemicals and its compounds (Industrial chemicals, Agricultural chemicals (pesticides – fertilizers), Pharmaceutical chemicals, Explosive chemicals, radioactive materials, Petroleum products consumer chemicals and chemicals waste, and others).
c. Decree No.55 of 1983 of Ministry of Manpower and Immigration, that regulates and controls the using of all chemicals used in the Industrial field. Handling, and storage and conditions required for industrial safety and health in the work places.
d. Decree No. 60 of 1986 of Ministry of Agriculture for pesticides that, regulates and controls the using of restricted compounds.
e. Law No. 21/1958 Ministry of Industry that set rules for regulating industry and production, handling and importing of industrial chemicals.
f. Decree No. 91/1959 Ministry of Industry that set rules for regulating industry and production, handling and importing of chemicals.
g. Decree No. 480/1971 of Ministry of Health and Population that cover Air pollution criteria for industrial establishment from Industrial Chemicals
h. Decree No. 874/1996 of Ministry of Agriculture that regulates importing, handling and using of pesticides.
i. Decree No. 413/1996 of Ministry of Health and Population that cover hazardous chemicals & wastes to get license for handling of hazardous chemicals and wastes.

3. STRATEGY AND ACTION PLAN ELEMENTS OF THE NIP

3.1. Policy Statement

The policy behind Egypt's NIP is to identify and mitigate hazards of chemicals including POPs with the purpose of protecting the Egyptian environment and human health from the risks of these hazardous substances, whether imported or generated locally.

This protection covers all stages of production, handling, storing, and safe disposal of these substances, in addition to the substitution of hazardous materials by non/less hazardous alternatives.. This can be achieved through the adoption of cleaner production approach and the application of the risk management methodology.

Egypt which is not only a contracting party to the Stockholm Convention on but also to (1) the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, (2) the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Dangerous Chemical Substances and Pesticides in International Trade, and (3) Protocol on Persistent Organic Pollutants/Convention on Long-Range Transboundary Air Pollution. This contractual arrangement confirms Egypt's commitment to an internationally coordinated environmental and human health protection from the effects of persistent organic pollutants through implementation of the Plan.

The fulfillment of the SC commitments by Egypt is coordinated by the Ministry of State for Environmental Affairs (MSEA). MSEA will cooperate through the implementation plan with the Ministries of Agriculture, Foreign Trade and Industry, Health and Population, Transportation, Interior Affairs, Foreign Affairs, Finance, Planning, Man Power, Petroleum, Electricity and Energy, Education, Water Resource and Irrigation, Higher Education and Scientific Research, Communication and Information Technology, and Information.

3.2. Implementation Strategy

3.2.1 Overview

The Stockholm Convention on Persistent Organic Pollutants (POPs) was adopted in 2001 in response to the urgent need for global action to protect human health and the environment from POPs. Egypt has previously banned, in 1996, importation and usage of all chemicals, which are now included in the SC. Egypt signed the convention in 17 May 2002 and ratified in 2 May 2003.

Being aware of the health concerns, especially in developing countries, resulting from local exposure to persistent organic pollutants, the particular impact upon women and future generations, the Global Environment Facility (GEF) has offered to financially assist the developing countries in

the preparation of their national implementation and action plans. This is done through tripartite arrangement including GEF, the country in question and the United Nation Industrial Development Organization (UNIDO) as the executing agency.

A project proposal to prepare a NIP as stipulated in Article 7 of the Stockholm Convention was prepareped by Egypt; the proposal was submitted to GEF and was approved within the tripartite framework of GEF's financing mechanism. The Egyptian Environmental Affairs Agency (EEAA) of the Ministry of State for Environmental Affairs (MESA) was selected as the National Executing Agency with UNIDO acting as the GEF Implementing Agency/Executing Agency with expanded opportunities. This resulted in UNIDO Project No.: GEF/EGY/02/022 entitled "Enabling activities to facilitate early action in the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Egypt". The participation of all stakeholders and interested parties within Egypt in the enabling activities to prepare National Implementation Plan (NIP) is considered of paramount importance.

All available information concerning production, use, stockpiles, import and export of 12 chemical substances targeted by the Convention was gathered and evaluated within the framework of the project. The technical infrastructures for POPs evaluation, their measurements and research including monitoring the release of these substances into the ambient, their impact on the environment and human health were simultaneously initiated. The project collected information concerning the presence of POPs in the environment, food, selected veterinary commodities and exposure of Egypt's population to these substances. Ascertainment of the current level of the targeted groups´ awareness of problems concerning persistent organic pollutants and a survey of the activities carried out by non-governmental organizations in this field is an integral part of the preparatory process of the Plan.

3.2.2 Project Realization

The project has the following outcomes:

a. *Inception phase*: this involved the establishment of coordinating mechanisms, project organisation, managerial structure, and approved work plan. The final outcome of this phase was the organisation of the Inception Workshop (IW);
b. *POPs inventory*: this involved the evaluation of the exsisting national infrastructure and capacities for the realisation of the inventory. The outcome of this phase was the development of the Initial National POPs Inventory.
c. *Setting priorities for implementation*: this outcome came as a result of the National Priority Validation Workshop.
d. *Formulation of the National Implementation Plan (NIP*): this, included the preparation of specific action plans dealing with POPs, and their evaluation by experts.

e. *Endoresment of the National Implementation Plan*: this involved the discusion and concent by all stakeholders of the NIP (institutions and groups) through the Endorsement Workshop.

Implementation Principles

The basic principles during the execution of the NIP are:

a. Participation of all stakeholders and the public at large
b. Transparency in information sharing and exchange, particularly those aspects related to monitoring and reporting on implementation activities
c. Adherence to "the polluter-pays" principle
d. Integration with overall environmental management and sustainable development policies
e. Adherence to the use of new technologies and applications of international standards
f. Commitments regarding public awareness and education
g. Adherence to regional cooperation with attention to the Arab League policies

A number of national and international experts, specialists from interested institutions took part in the preparation of the inventory and the NIP.

Implementation of the GEF/EGY/02/022 Project was based on Contract No. 2003/083 signed between the United Nations Industrial Development Organization (UNIDO) and the Ministry of State for Environmental Affairs represented by Egyptian Environmental Affairs Agency.

The inception/first phase of the project was carried out during July – October 2003 and was concluded with a Planning Workshop, held in Ain El Sokhna from 12 to16 October, 2003 and an Inception Workshop, held in Cairo, on 23 October, 2003.

Strengthening of a National Institution to Serve as Focal Point for the Stockholm Convention and Assessment of its Needs

The Ministry of State for Environmental Affaires designated the Egyptian Environmental Affairs Agency (EEAA) as the focal point for the Stockholm Convention and the national executing agency for the project.

The needs of the Focal Point were mainly identified within the areas of better communication and data transfer (computer hardware - new server, computers, and notebook) and personnel strengthening,

The Stockholm Convention Focal Point operates a website (*www.eeaa.gov.eg/egpops*) which is available to all interested parties.

Identification of Main Stakeholders and Obtaining their Commitment to Cooperate within the Project Framework

With reference to the Project Document TOR, all of phase one activities, culminating into the Inception Workshop, have been fully met. The Steering Committee has been established, the Project Coordinator has been designated, International and Local Advisors have been assigned, and a core Project Team has been assembled and allocated their premises within EEAA. Roles and responsibilities amongst formal organizational components and relevant stakeholders have been identified and assigned. The Work Plan has been formulated and approved in a special Planning Workshop, as well as the consequent Inception Workshop, schedules for various activities, responsibilities and outputs have been determined.

A number of top quality relevant presentations have been made during these workshops that provided a good initial awareness and capacity building start.

The organized Inception Workshop fully met its mandates as a launching platform in which a large representation of stakeholders participated actively. The Project background, Egypt's obligations regarding the Stockholm, Convention, the Project Organization and Work Plan (WP) have been explained and gained full acceptance and support.

The two workshops further assisted in identifying experts, relevant organizations and capabilities within Egypt. All these will have a significant forward-pushing impact on the next stage where by inventories and assessments will he made.

Accordingly, activities for this project period have fully achieved their objectives and provided a strong and sound foundation for the intended future work. Representatives of the involved institutions, Ministries, authorities, universities, research institutes, non-governmental organizations and all relevant stakeholders are mentioned in ***Annex 8.***

Establishing the National Steering Committee

EEAA has decided that the National Steering Committee will be composed of the representatives of the following agencies:

a. Ministry of State for Environmental Affairs
b. Ministry of Finance
c. Ministry of Health and Population
d. Ministry of Foreign Trade and Industry
e. Ministry of Planning
f. Ministry of Agriculture and land reclamation
g. Ministry of Information
h. Ministry of Communication and Information Technology
i. National Research Center
j. Scientific Research Academy

k. Egyptian Society for Toxicology
l. Soil, Water and Environment Research Institute/Agricultural Research Center
m. National Women Council
n. National Council for Childhood and Motherhood

The Committee is headed by Dr. Moussa Ibrahim Moussa - Ministry of State for Environmental Affairs, and held its first Meeting on 3rd of September 2003. The meeting evaluated the Inception Phase, the Planning Workshop, Inception Workshop, the preparation of the National Inventory of POPs and Training and Inventory Workshop.

Activities of the Project Implementation Team

Following the signature of the contract**,** the National Project Coordinator (NPC) designated the National Project Manager. The Chief Technical Advisor and National Technical Expert were designated for technical assistance and steering the project through the five steps of the project.

The National Project Coordinator identified experts and other relevant organizations within the country that could assist in the implementation of inventories and assessments.

The National Project Coordinator (NPC), in consultation with the NSC selected the independent expert to review the inventories and assessments and was responsible for drafting the terms of reference as follows:

The NPC was responsible for the following

(1) To lead and coordinate the day-to-day management of the project and the project staff, including administration of the project, accounting for the project and the timeliness of project implementation.

(2) To lead the development of the detailed project design, in collaboration with the Committee of technical experts and in consultation with the National Steering Committee .This includes the production of a work plan, preparation of the Terms of Reference for international and national experts recruited under the project, drafting of contracts for experts, preparation of technical specifications for equipment purchased under the project, cost estimation, activity scheduling, and reporting on the forward planning of project activities and budget expenditures.

(3) To ensure his full awareness and familiarity with all financial and technical rules, regulations and procedures relevant to the project implementation, the NPC will also be responsible for ensuring that the project staff and other relevant staff of participating organizations is aware and familiar with these rules, regulations and procedures and their application.

(4) To ensure that activities stipulated in the work plan are implemented. Such activities include workshops, capacity assessments, training, environmental appraisals and inventories.

(5) To coordinate, monitor, and supervise the activities of consultants and short term experts providing input to the project, including the supervision of the implementation of the activities undertaken by consultants and experts, logistics, the review of technical progress reports, the achievement of the project outputs and objectives, and cost control.

(6) To liaise with the GEF-Implementing Agency to obtain the assistance needed during the project implementation.
(7) To liaise regularly with the National Steering Committee and the Project Team, and ensure that the decisions and recommendations of the National Steering Committee, and the opinions of the Project Team, are fully incorporated within the scope of the project implementation.

International Consultants

Responsibilities:

The International consultants should contributed to capacity building in the countries by assisting country project teams in the execution of relevant activities, by supporting the technical work and providing advice and necessary training in specified fields of expertise.

Tasks

The specific tasks for International Consultant decided on a case-by-case basis to meet project needs and include technical assistance and technical advice are in the following specified fields of expertise:

(1) Design of environmental programs and projects
(2) Environmental appraisals and audits
(3) Sound chemical management, POPs in particular
(4) Industrial pollution by POPs
(5) BAT12 and BEP13 for POPs source categories
(6) Environmentally sound management of hazardous waste containing POPs
(7) Environmentally sound POPs destruction/disposal
(8) Remediation of POPs contaminated sites
(9) Evaluation of POPs health impact
(10) Evaluation of POPs environmental impact
(11) Evaluation of POPs socio-economic impact
(12) Sampling and analyzing POPs
(13) POPs emission inventories
(14) POPs alternatives to be used for disease vector control
(15) POPs alternatives in termite control
(16) POPs alternatives in agricultural uses
(17) POPs alternatives in industrial uses

(18) Assessment of costs and cost-benefit analyses
(19) Legislation and infrastructure
(20) Enforcement and compliance

More specifically and as appropriate, the international expert had a role in:

(1) Assistance in the assessment of: national institutional capacities for POPs management; national POPs legislative, regulatory and enforcement capacities; national BAT and BEP capacities; national POPs socioeconomic/ health/environmental impacts; socio-economic implications of POPs reduction/elimination; and POPs monitoring, Research of Development capacity
(2) Provision relevant training and advice to the task teams and review documents and reports they prepare
(3) Assistance in the development and review of national POPs inventories
(4) Assistance in development of criteria for prioritizing POPs and options for POPs reduction/elimination
(5) Provision of advice on identifying: barriers to the phase out, reduction, remediation and disposal of POPs and actions to remove them; raising awareness and information exchange mechanisms; necessary capacity building activities; technology and know-how transfer needs; and estimation of investment costs
(6) Leading of the work related to identification of National Implementation plan targets, time frame and indicators
(7) Conduction of the initial cost estimate for the National Implementation Plan execution

National Technical Expert (NTE) was responsible for the following fields of expertise:

(1) Participation in sound chemicals management activities
(2) Development of legislative, regulatory and enforcement tools to ensure compliance with Stockholm Convention
(3) Analysis and control of industrial pollution and releases
(4) Best Available Techniques (BAT) and Best Environmental Practices for POPs emission source categories
(5) Monitoring of POPs releases and presence in air, water, soils and sediments
(6) Management of obsolete stocks and POPs contaminated sites
(7) Assesment of socio-economic implications of POPs reduction and elimination
(8) Sampling and analytical methods of POPs in different media
(9) Monitoring of POPs residues in the food and POPs human exposure
(10) Awareness raising and public involvement
(11) Environmentally sound disposal of POPs

More specifically and as appropriate, the National Technical Expert was responsible following specified fields of expertise:

(1) Proposing candidates for the task team performing the project activities in his/her field of expertise and prepare the respective Terms of Reference.
(2) Organizing and/or provide (with or without international technical expert assistance) training and guidance to the task team responsible for the specific task.
(3) NTE will be responsible for verifying the work of the respective task team, ensuring the validity of their technical work and results.
(4) NTE will be responsible for compiling the results of the task team work and for producing (with or without international technical expert assistance) the final document as agreed with the National Project Coordinator.
(5) NTE will closely co-operate with International Technical Expert in his/her field of expertise and provide the ITE with necessary local support.

The Project Manager was responsible for the following:

(1) Activities related to project implementation and provide assistance to National Project Coordinator
(2) Communication with project partners and handling daily tasks (such as organizing of workshops/meetings/trainings, preparation of background documents) that do not require National Project Coordinator participation
(3) Participate in each Project Team meeting as well as NCC/PB meetings, prepare the minutes of the meetings, and distribute them to each participant
(4) Maintaining the appropriate day-to-day records referring to the project implementation

The NSC was responsible for the following

(1) Facilitate co-ordination of the project activities amongst national stakeholders
(2) Provide guidance and support to the execution of the project and to the National Lead Agency and the National Project Coordinator
(3) Overseeing specific components of the NIP development
(4) Contributing to the final review of the NIP
(5) Endorse the detailed work plan and schedule for the NIP development
(6) Identify and recommend public information and awareness raising activities
(7) Review and comment on composition and work plans of sectored task teams
(8) Recommend the elaboration/updating of the national profile on chemical management and the necessary improvements to the current regulations in terms of NIP
(9) Review and comment on project reports, including the action plans and strategy documents
(10) Ensure that cross sectored issues are adequately tackled by sectored working groups

(11) Hold regular quarterly meetings and extraordinary meetings will be convened whenever the need is identified and has been confirmed by the agreed quorum. (A quorum shall be formed by 50% of the membership)

The Task Teams are responsible for the following

(1) Development of a work plan and budget (including expected outcomes, resources required and monitoring procedures) for the duration of their tasks
(2) A review of the provisions of the Stockholm Convention relevant to the chemical(s) being examined
(3) Gathering of baseline national-level information (i.e. a subject-specific situation analysis) on the production (intention or unintentional), use, presence in the environment/humans, and disposal of the chemical(s) being addressed
(4) Input of the baseline information mentioned above into the elaboration/updating process for the National Profile
(5) Consideration of relevant guidance and expertise available from UNEP, other key IOMC organizations and others, where available
(6) Developing national-level Action Plans within a systematic framework through the consideration of the relevant goals set out by the Stockholm Convention for the chemical(s), and consideration of key objectives and priority activities that can assist in reaching the goals
(7) Reporting to the NPC
(8) In support of capacity building the task teams will be composed whenever possible from existing specialized institutions/agencies

Constitution of the Other Task Teams Responsible for Inventories

(1) Identifying, selecting and recruiting task teams. The size of the task teams and methodology used for taking inventories depend on the existing information base available in the country through Coordination with international and national consultants in addition to, Ministries staff, representatives from private sector associations and Civil Society Organizations (CSOs).
(2) Under the guidance and supervision from National Steering Committee (NSC), the National Project Coordination Unit (NPCU) coordinates and manages using focused task teams and other assistance experts from outside, as appropriate, to develop background information and options for defined areas.
(3) Task teams with responsibility for defined assessments: for example, a POPs pesticide task team, a PCBs task team, byproducts task team and contaminated sites task team.
(4) The National Project Coordinator (NPC) assigned the various task teams as follows:
    - **Team (1)** for POPs pesticides, including DDT (Annex A [elimination], part I and Annex B [restriction] of the Stockholm Convention);
    - **Team (2)** for PCBs (Annex A [elimination], Part II of the Stockholm Convention);

- **Team (3)** for releases from unintentional production of PCDDs / PCDFs, HCB and PCBs (Annex C [reduction or elimination] of the Stockholm Convention).

(5) The National Project Coordinator was responsible for drafting terms of reference for the task teams as follows:

- The task teams, lead by a local technical expert with possible assistance of international expert will oversee the detailed gathering of information and consideration of issues for the development of the Stockholm Convention National Implementation Plan component that deals with their specific task. This will be accomplished through a number of key activities including:
  - The main effort for data collection, generation and assembly will be the responsibility of the task teams.
  - Development of a work plan and budget (including expected outcomes, resources required and monitoring procedures) for the duration of their tasks
  - A review of the provisions of the Stockholm Convention relevant to the chemical(s) being examined
  - Gathering of baseline national-level information (i.e. a subject-specific situation analysis) on the production (intention or unintentional), use, presence in the environment/humans, and disposal of the chemical(s) being addressed
  - Consideration of relevant guidance and expertise available from UNEP, other key IOMC (International Organization for Management of Chemicals) organizations and others, where available
  - Developing national-level action plans within a systematic framework through the consideration of the relevant goal(s) set out by the Stockholm Convention for the chemical(s), and consideration of key objectives and priority activities that can assist in reaching the goal (s)

The following are some of the activities conducted by the project team:

Training on Inventory Procedures

a. Training workshops were held through cooperation between the National Project Coordination Unit (NPCU) and concerned Ministries, authorities, national and international experts.
b. The training focused on:
   (1) POPs pesticides, including DDT (Annex A [elimination], Part I and Annex B [restriction] of the Stockholm Convention);
   (2) PCBs (Annex A [elimination], Part II of the Stockholm Convention);
   (3) Releases from unintentional production of PCDDs / PCDFs, HCB and PCBs (Annex C [reduction or elimination] of the Stockholm Convention).

c. Training workshops focused on target groups from concerned agencies and NGOs.
d. The training was conducted in three ways:
   - On the Job Training, on-site to enhance the practical skills of the trainees.
   - Theoretical Training held by the National Project Coordination Unit.
   - Field Visits, including different contaminated or/and suspected contamination sites.

Planning Workshop (from 12 to 16 October, 2003)

The planning workshop was held according to the steps of the National Implementation Plan for SC (step 1), to discuss the work plan of the project, organization structure and its main operational components (their roles, responsibilities, interrelations), work procedures in addition to helping the National Coordination Unit for identification of the expertise, authorities, participating organizations and their responsibilities to maximize the benefits from them during the initial steps of the implementation plan.

The planning workshop discussed in detail the various aspects of Stockholm Convention and the different steps leading to the preparation of the NIP. Most of the agricultural POPs have alternatives but many of them have very high acute toxicity posing dangers to people using these pesticides and also to the environment and aquatic species. The major problem is the non-availability of suitable means for disposal of obsolete stocks of pesticides including POPs and heavily contaminated soils with potentially toxic substances. While cement kilns are available; it needs further investigation with regard to their capabilities to handle hazardous wastes and conditions of the plant to use these as fuel and the monitoring facilities. In fact, there are good laboratories available with the Ministry of Agriculture both for residue analysis and for analysis of pesticide active ingredients and formulations. Both laboratories agreed to participate in the project to provide the necessary assistance to monitor POPs residues in environment and biological matrices. The Environment law 4/94 clearly specifies maximum limits for gas and fume emissions from selected industrial establishments and exposure threshold limits for various chemicals in work place which also includes some POPs. These are national limits taken from various international organizations e.g. WHO and adjusted to local conditions. The workshop further discussed the problems and barriers for introducing safer alternatives for POPs, setting up good incineration device and other non-incineration technologies.

Conclusions and Recommendations of the workshop

a. To review all documents issued by the project with the Steering Committee.

b. To invite representatives of Pesticide Production Association and the Chemical Commodities Councils to the Steering Committee meetings.
c. To ask representatives of all agencies to send a summary of the activities and capabilities of their sites
d. To add the Egyptian Society of Toxicology report about health hazardous of POPs to the project report
e. To invite representatives of all parties dealing with hazardous substances, Information Center of the Central Agency for General Mobilization and Statistics, and NGO's concerned with health issues to inception workshop.

Inception Workshop (23 October, 2003)

The Inception Workshop was held in order to:

a. Provide a solid sound foundation for prompt execution of the work plan requirements
b. Familiarize stakeholders with the background to POPs, the Stockholm Convention (SC) and where countries signatory to it stand at this point of time, and what is expected from Egypt to meet the requirements of the SC on POPs, and the reporting of the (would be) endorsed NIP for Egypt to the Conference of Parties
c. Familiarize the attendees with the project steps and the already formulated work plan, and the national regulatory framework
d. Enhance the Egyptian community awareness regarding the project, its important positive impacts, nationally and internationally, and thereby develop a true sense of endorsement and support for the serious work that will be undertaken
e. Utilize the forum as a tool for capacity building
f. Increase the stakeholders acquaintance of each other
g. Identify principal national science and technology logistics and relevant capabilities and previous work

In pursuit of meeting these objectives, top class international and national speakers participated in various workshop sessions. There was a consensus among all participants that the workshop has achieved its objectives. The participants recommended the organization of periodic meetings of similar nature to get acquainted with an intelligent follow-up with the project progress on a sustainable basis. The participants unanimously approved the project's proposed philosophy and approach.

In brief, a total systems approach was adopted for implementation through which:

a. National and International experiences and capabilities are wisely integrated to maximize project achievements by building upon all

pervious works, efforts and above all lessons learned from practical experience.

b. The project will make utmost attempt to gather around it all available capable expertise and resources that are willing to contribute.

c. Due attention will be given to institutional, awareness, capacity building and human resource development aspects to institute long-range sustainable national assets on the longer range.

d. Project credibility and public felt impacts are enhanced, EEAA will endeavor to start implementing some concurrent actions in line with some of the basic results evolving from the work plan and put them to practice whenever deemed possible and feasible through available local resources.

Conclusions and Recommendations of the Inception Workshop:

a. There should be strict control on compounds use, supply and the production of the compounds. Principal responsibilities lie with both the supplier and the end user.
b. Border control should be strengthened.
c. Regional cooperation should be enhanced.
d. Strengthening the control and capacity building (training) within Egypt, especially capacity building in customs officers and Environmental officers.
e. Full utilization of monitoring and building up the surveillance capacity required and testing facilities needed
f. Regional and international collaboration must be maximized.
g. Awareness should be raised on all levels, including: decision makers, stakeholders and the public at large.
h. A documented tracking system for the POPs should be established throughout their life cycle. This will include legal as well as illegal sources.
i. Training in overall packaging systems will be vital. It could be done using Basel Convention tools.
j. Pesticides should be appropriately packaged. For example, less poisonous products should be contained into smaller containers, whereas more toxic chemicals should be contained into larger ones.
k. Proper container management.
l. It would be highly beneficial that the NIP coordinators in the region or sub regions meet to exchange experience and information
m. The international cooperation is strongly needed to prevent illegal traffic.
n. Proper procedures and guidelines on economic viability assessment of alternatives are needed.
o. Technical and financial support is needed.
p. Databases and networks containing required information of POPs in the region have to be built-up.
q. The concept of a regional facility for disposal needs has to be assessed.

r. Guidelines and methodologies for storing packaging and disposal of obsolete stockpiles in the region need to be produced.

The planning workshop was held according to the steps of the National Implementation Plan for Stockholm Convention on Persistent Organic Pollutants (step 1), for discussing work plan of the project, organization structure and its main operational components (their roles, responsibilities, interrelations), work procedures in addition to helping the National Coordination Unit for recognizing the involved expertise, authorities, organizations and their responsibilities to maximize the benefits from them during putting the implementation plan

The Inception Workshop constituted a very special event through which the launching of the Project plan implementation is nationally announced - both on official and public levels. A large audience with a wide representation has attended and actively participated in the meeting deliberations.

In effect, the Inception Workshop has been a very viable complementary forum to the earlier specialized and more formal Planning Workshop.

Therefore, both PW and IW are considered as important milestones in initiating the core activities of the project, disseminating the purpose of the project to the public at large as part of the objectives of the project. A press release was issued and this was publicized through the media in the country.

Inventory Training and Assessment Workshops, (from 26 to 29 April, 2004):

The workshops were held according to section (2) paragraph (5) – reports of the contract No. 2003/083 of National Implementation Plan (NIP) of Stockholm Convention on Persistent Organic Pollutants (POPs) Step 2, concerning the establishment of POPs inventories training and assessing the national infrastructure and capacity of Ministries, Authorities and Agencies at national level.

The workshops were held at the training facilities of EEAA from the period 24 -25 April, 2004 and at Cairo House (EEAA) from the period 26 -29 April, 2004.

The workshops were held under the auspices of H.E the Minister of State for Environmental Affairs, who attended the opening session of each workshop in order to encourage and strengthen the addressed issues related to POPs chemicals due to their dangerous effect on human health and environment and, to follow-up the development of the National Implementation Plan project steps.

Purpose of the Inventory and Assessment Workshops

a. To carrying out the specific assessments including data generation and data gathering required to provide the necessary background information and baseline to allow the stakeholders to understand the scope of the POPS issues and to complete the NIP.
b. To identify needs and other assistance in terms of technical expertise and other assistance to complete the NIP.
c. To identify gaps in resources capacity and knowledge which prevent the complete assessment of the status of POPs.
d. To facilitate the coordination and information among different sustainable national development, chemical management, pollution control policies.

Topics Discussed:

a. Czech Republic experience in preparing and implementing National Implementation Plan
b. Stockholm Convention on Persistent Organic Pollutants (objectives, commitments and status)
c. National Implementation Plan
d. Disposal Technology Options
e. POPs alternatives
f. POPs properties
g. Inventory of obsolete pesticides
h. Step 2 approaches and results
i. Health effects of POPs
j. Capabilities of Central Lab for Pesticides Residues and Heavy Metals in Food
k. Egyptian Hazardous Substances Information and Management System (EHSIMS)
l. National Chemical Profile
m. Standardized toolkit to establish dioxin and furan inventory
n. Preliminary inventory of dioxin and furan in Egypt
o. PCBs properties, sources and inventory
p. PCBs in electrical equipment
q. PCBs disposal
r. POPs inventory (general approaches)
s. Preliminary inventory of dioxin and furan in case of solid wastes

Distributed Papers:

a. Convention text
b. Presentations of "Reduction and Elimination in use of POPs Pesticides in Developing Countries" By Dr. Azza Morsi - UNIDO Project Manager
c. Disposal Technology Options for Persistent Organic Pollutants (POPs), by Dr. Azza Morsi
d. Alternatives to SC – POPs Pesticides by Dr. Bala Sogavanam, Chief Technical Advisor (CTA) – UNIDO

e. Statements of CTA of the project, by Dr. Bala Sogavanam (CTA)
f. Enabling Activities for Elimination of POPs - Egypt (article 1- Objectives, Article 5- History of POPs by Dr. Sugavanam (CTA) as a training program for setting up of POPs inventory)
g. Enabling Activities for Reduction / Elimination of POPs – by Dr. Bala Sugavanam (CTA)
h. POPs Inventory General Approaches by Dr. Ivan Holoubek – International Consultant from Czech Republic in preparing and implementing National Implementation Plan
i. Standardized Toolkit to establish Dioxin Inventories by Dr. Ivan Holoubek
j. RECETOX-TOCOEN & Associates (Toxic Organic compound in the Environment) - human and ecological risk assessment. by Dr. Ivan Holoubek
k. Poly Chlorinated Biphenyls Properties by Dr. Ivan Holoubek.
l. Poly Chlorinated Biphenyls Sources, Inventories (Production, Import /Export and Inventory) by Dr. Ivan Holoubek
m. Poly chlorinated Biphenyls – Disposal. Dr. Ivan Holoubek
n. National Implementation Plan in Czech Republic- Action plans and Strategies – by Dr. Ivan Holoubek
o. Preliminary Estimation of Dioxin and Furan Releases from Solid Wastes by Prof. Dr. Mohamed M. El Halwagi - National Consultant
p. Stockholm Convention on POPs by Eng. Tarek El Ruby National Project Coordinator (NPC)
q. National Implementation Plan of Stockholm Convention SC - for POPs by Eng. Tarek El Ruby
r. Achievements of the Project's Second Stage Activities till now - by Eng. Tarek El Ruby- National Project Coordinator (NPC)
s. Inventory of Obsolete Pesticides by Dr. Mahmod Diab, member of the Committee of Recommendation and Pesticides Registration- Ministry of Agriculture
t. PCBs in Electrical Equipment by Dr. Kamilia Youssef Technical Consultant/ Alexandria Electricity Distribution Company
u. Health Impacts of Persistent Organic Pollutants By Dr. Seham Hussein – Under secretary Environmental Affairs – Ministry of Health and Population
v. POPs Analysis in Central Lab of Residue Analysis of Pesticides and Heavy Metals in Food by Dr. Mohamed El Sayed – Quality Assurance Manager, and Researcher- Persistent Organic Pollutants Central Lab of Residue Analysis of pesticides and Heavy Metals in Food- Agriculture Research Center
w. National Chemical Profile by Chem. Eman El Mahrouky Hazardous Substances Department –EEAA
x. Egyptian Hazardous Substances Information and Management System (EHSIMS) by Chem. Amany Salah El Din – Hazardous Substances Department – EEAA
y. Preliminary Inventory of Dioxin and Furan Releases in Egypt by chem. Hend Mostafa - Project Assistant.

Agenda

Workshops were held at the training facilities of EEAA from 24 to 25 April, 2004 and at Cairo House (EEAA) from 26 to 29 April, 2004.

Organization and Participants:

The workshops were organized by National Project Coordination Unit (NPCU), Egyptian Environmental Affairs agency (EEAA) - Ministry of State for Environmental affairs (MSEA), through the National Implementation Plan of POPs.

Participants in the First Inventories and Assessments Workshop from 24 - 25 April, 2004

a. National Steering Committee (NSC)
b. Regional Branches of EEAA
c. Competent Departments of EEAA
d. UNIDO Project Manger
e. UNIDO Chief Technical Advisor (CTA)
f. International Consultant from Czech Republic in preparing the NIP
g. National Project Coordination Unit

Participants in the second Inventories and Assessments Workshop from 26 - 29 April, 2004

a. Steering Committee of the Project
b. Regional Branches of EEAA
c. Competent Departments of EEAA
d. UNIDO Project Manger
e. International Consultant of the Project (CTA)
f. International Consultant for NIP (Czech Republic)
g. National Project Coordination Unit
h. Environmental Affairs Offices at Governorates
i. Research and Scientific Centers and Institutions
j. Representative of Women and Children
k. NGO's
l. Universities
m. Syndicates
n. Representative of New Industrial Cities
o. Business Associations

Recommendations:

a. **On Awareness:**
   (1) Raising environmental awareness of POPs through:
      - Information means (Television, Radio, Journals, etc)
      - Advertisement (products, books, notebooks, etc)
      - Ministry of Education
      - National Associations
      - Syndicates

- Clubs & Youth Associations
- Business Associations
- National Council for Woman
- National Council for Womanhood & Childhood

(2) Raising awareness of farmers of the dangers of POPs and the alternatives
(3) Raising awareness of the dangers of open burning which is prohibited by law

b. **On Alternatives for POPs and Restriction/Prohibition of their Usage:**
(1) Raising awareness of farmers of POPs alternatives which can be used.
(2) Cleaner Production, Industry Modernization.
(3) Using biological control in agriculture.
(4) Encouraging specific researches on alternatives.

c. **On Guidelines:**
(1) Issuing guidelines for safe handling of POPs.
(2) Issuing guidelines for safe disposal of laboratory residues.
(3) Issuing guidelines for transportation and disposal of obsolete pesticides.

d. **On Disposal of Chemicals :**
(1) The transportation of hazardous substances and health care wastes must be done by specialized companies.
(2) Obsolete pesticides of the private sector must be collected for safe disposal.
(3) The use of cement kilns for disposal must be revised.
(4) The burning of rice straw must be revised because resulting releases may contain dioxin and furan.
(5) The recycling of plastic residues must be followed up for the emission of dioxin and furan during this process.
(6) Fertilizers from recycling of municipal wastes must be checked against dioxin and furan.
(7) Asking Kafr El Zayatt Company about the quantity of DDT presented when the exporting of it was prohibited during 1999, for safe disposal.
(8) Asking about the quantity of Hexachlorobenzene exported during 1999 to atomic energy authority, for safe handling.
(9) Controlling of oils which contain PCBs in petroleum companies.

e. **On Training:**
(1) Training for analysts at different laboratories.
(2) Training for EEAA branches and governorate environmental departments on how to fulfill the questionnaire of inventories.
(3) Holding awareness workshop in cooperation with regional Research Centers – Scientific Research Academy.
(4) Field Visits for Participants.

f. **On Raising Capabilities:**
   (5) Raising laboratory financial capabilities, and improving its analytical instruments.
   (6) Raising capabilities of universities and research centers for making the economical and environmental studies on POPs alternatives, and cleaner production.

g. **On Health, Social, Economical and Environmental Effects:**
   (1) Raising awareness of health effect of using POPs.
   (2) Adding other chemicals which have the same health effects as POPs to the convention.
   (3) Raising awareness of social, economical and environmental implications of using POPs and their alternatives.

h. **On Women and Children:**
   (1) Pointing out the role of National Women Council and National Womanhood and Childhood Council in raising awareness of health effect of POPs.
   (2) Activating the role of the Ministry of Education for raising awareness of children of dangerous effect of using POPs.
   (3) Holding workshops for raising awareness of children of health effects of POPs.

i. **On National and Business Associations:**
   (1) Activating the role of national and business associations in raising the awareness of the dangerous effect of using POPs and their economical implications.
   (2) Exchanging information and expertise about POPs alternatives.

j. **On Inventory:**
   (1) Actual inventory must be made without depending on tool kits and using it as a guide only.
   (2) A regional map must be made for more polluted regions and industrial hot spots.

k. **On Coordination and Integration With Other Projects Dealing with Hazardous Substances Management:**
   (1) At EEAA-MSEA:
      - Cairo Air Project (CAIP).
      - EPAP (Egyptian pollution Apartment Project)
      - Cleaner production.
   (2) At the Ministry of Industry (MOI):
      Industry modernization program taking into consideration the best available techniques and best available practices.
   (3) At the Ministry of Agriculture (MOA):
      Using POPs alternatives of pesticides which have less dangerous effect.
   (4) At the Ministry of Health and Population (MOHP):
      - Using alternatives for best control.

- Using high technology incinerators for disposal of health care wastes in order to eliminate the releases of dioxin and furan.

The Validation Workshop, (from 15 to 16 /12/2004)

The Validation Workshop was held in accordance with step (3) of the National Implementation Plan Project for the Stockholm Convention on Persistent Organic Pollutants (POPs), to validate the results of POPs inventory which had been conducted during step (2) and step (3) of the National Implementation Plan (NIP) project and to determine criteria necessary for priority setting.

This step is designed to result in a preliminary assessment of the priority issues related to POPs based on the country's-specific criteria which identifies the most important issues to be discussed. The country's-specific criteria should be derived to ensure that all issues are taken into account.

In addition, initial objectives are developed to guide the development of the National Implementation Plan and the country's activities in the filed of persistent organic pollutants.

Objectives:

a. Development of the country's specific criteria for prioritizing health and environmental impacts of POPs, and the availability of alternative solutions.
b. Assessment of the available information from phase II on POPs inventory and identification of priority areas for consideration.
c. Identification of the data and other gaps in the information available which prevent full priority assessment being carried out.

Topics Discussed:

a. Assessment of the results of POPs inventory in the second step.
b. Criteria or indicators developed by the National Project Coordination Unit which would help to show whether findings from data gathering and other POPs related issues information indicate the likely existence of a significant problem, for the purpose of assessing the priority of POPs.
c. The extent to which the criteria takes into account health, environmental and socio-economic impacts, and the availability of alternatives.
d. Reviewing the findings of the assessment of POPs pesticides, PCBs and the unintentionally produced substances and of other information gathered against the criteria developed above.

e. Reviewing the findings of the legislative review carried out in phase II against the requirements of Stockholm Convention to identify those areas where changes are required, the nature of the changes needed and the timetable over which to implement the changes consistent with a party's obligations under the Convention.
f. Reviewing institutional framework to identify possible priority areas requiring strengthening and improvement.
g. Reviewing legal requirements and obligations arising from national, regional and international agreements (Basel Convention on the Control of transboundary Movements of Hazardous Waste and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, regional agreements that address POPs and national policies on chemicals management), and identifying shortcomings in institutional, legal and environmental situations relevant to them.
h. Evaluation of chemical industries in a sustainable society.
i. Methods of POPs waste disposal and remediation sites.
j. Cleaner production strategy.
k. Hazardous waste disposal using BEP / BAT – cement kilns and Incinerators (medical waste).

Papers Distributed:

a. Development of priority – Dr. Ivan Holoubek.
b. Methods of POPs waste disposal and remediation of sites - Dr. Ivan Holoubek.
c. UNIDO cleaner production programme –NEWSLETTER.
d. Enhancing chemical management for improved productivity, market access and environment – POPs – UNIDO.
e. UNIDO information document on cleaner production for chemicals management.
f. POPs in Africa Summary of proceedings, skillshare and workshop "Ratifying and implementation of the Stockholm Convention"- during July 2002, Arusha, Republic of Tanzania –by UNIDO.

Agenda:

The workshop was held from 15 to 16/12/2004**.**

Organization and Participants:

a. Organization:

The workshop was organized by the National Project Coordination Unit / The Egyptian Environmental Affairs Agency (EEAA / Ministry of State for Environmental Affairs (MSEA), through the National Implementation Plan on POPs, under the enabling activities of the Stockholm Convention, in coordination with UNIDO.

b. Participants:

(1) National Steering Committee (NSC)
(2) Involved ministries and authorities
(3) Universities and institutes
(4) Academic research centers
(5) Regional branches of EEAA
(6) Competent departments of EEAA
(7) Notional Project Coordination Unit
(8) NGOs
(9) UNIDO Chief Technical Advisor (CTA)
(10) International consultant from Czech Republic in preparation of NIP
(11) International consultant from Norway in disposal of POPs
(12) National consultants
(13) National Council for Womanhood and Childhood

Results:

a. Involving the attendees from different Ministries, authorities, organizations, universities, institutes, research centers, NGO'S, woman and child organizations and EEAA staff with POPs risks, problems and criteria for priority setting.
b. Raising awareness of the attendees concerning the country's activities in the field of persistent organic pollutants.
c. Raising awareness of the attendees concerning any problems in POPs inventory and emissions.
d. Regarding the Toolkit as a means of guidance for the purpose of defining the most polluted industries and hotspots, considering that the results of releases assessment in these toolkit are not final, and the necessity for checking the numbers resulting from calculations by analyzing them first.
e. Assessment of available information from stage (2) considering it a basis for setting priorities, not ignoring the gaps induced.
f. Assessment of social, economic, political and health impacts resulting from the use of POPs that should be taken into consideration when setting priorities.
g. Determination of the most polluted industries and hotspots taking them into account when setting priorities.
h. Developing the country's specific criteria for prioritizing health and environmental impact of POPs, as mentioned above

Recommendations:

a. To develop Toolkit for Identification and Quantification of Dioxin and Furan release developed by UNEP and amending its emission factors through guarantee analysis so as to be compatible with usage in Egypt.

b. To assess available information from stage (2) considering it a basis for setting priorities, not ignoring the gaps induced.
c. To define the best means to deal with the social impacts of the POPs in the light of the assessment made during the workshop.
d. To define national requirements (needs) for capacity-building so that Egypt could fulfill the obligations of Stockholm Convention.
e. To take the most polluted industries and hotspots into account when setting priorities.
f. To develop legislations related to the environment and the handling of hazardous chemicals and waste and treating deficiencies in these legislations.
g. To support authorities responsible for analyzing releases of dioxins and furans financially since such analyses are very costly, and the need for capacity-building of other authorities in order to enable them to do such analyses as well.
h. To apply BAT/BEP on industries that cause the release of dioxins and furans for the purpose of reducing such releases, taking the economic status of the country into account.
i. To monitor the residues of pesticides in the aquatic environment and also their impacts on health, taking this into consideration when setting priorities.
j. To activate the developed criteria as the bases of setting priorities.

Workshop on Setting the Priorities and Determining the Objectives, (from 18 to 19 December, 2004)

A Workshop on Setting the Priorities and Determining the Objectives was held in accordance with step (3) of the National Implementation Plan Project for Stockholm Convention. The priorities were arranged according to the criteria developed during the Validation Workshop, with specific attention to health and environmental impact of POPs and the availability of alternative solutions. Another goal of the workshop was to determine the national objectives in relation to priority of POPs issues, in order to guide the development of the NIP and country activities in the POPs field.

Objectives:

a. To set priorities according to the results of the POPs inventory. Taking into account the criteria which had been determined in the Validation Workshop, health and environmental impact of POPs and the availability of alternative solutions are to be highlighted.
b. To set appropriate short and long–term national objectives in relation to priority of POPs management, in compliance with the Stockholm Convention.

Topics Discussed:

a. The Country's specific criteria needed for prioritizing health and environmental impacts of POPs.
b. Reviewing institutional framework to identify possible priority areas requiring strengthening and improvement.
c. Priorities for action to meet the country's obligations under the Stockholm Convention, giving due attention to Articles No. 3, 4 and 5 of the Convention and their associated annexes.
d. Background information on the current situation, including data gaps and deficiencies, and an outline structure of possible objectives related to POPs management.
e. A series of preliminary objectives for POPs management in compliance with the Stockholm Convention. These objectives could be used in the next phase of NIP development and would be subjected to reviewing and updating as additional information become available.

Papers Distributed:

A list of the country's specific criteria which has been approved of during the validation workshop (15 - 16 December 2004), for setting priorities related to POPs.

Agenda:

The Workshop was held during the period 18 to 19 December 2004.

Organization and Participants:

a. Organization:

The workshop was organized by the National Project Coordination Unit/the Egyptian Environmental Affairs Agency (EEAA /the Ministry of State for Environmental Affairs (MSEA) in coordination with UNIDO.

b. Participants:

(1) National Steering Committee (NSC)
(2) Concerned Ministries
(3) Universities and institutes
(4) Academic research centers
(5) Regional branches and relevant departments of EEAA
(6) Notional Project Coordination Unit
(7) National Council for Women
(8) National Council for Childhood and Motherhood
(9) NGOs
(10) UNIDO Chief Technical Advisor (CTA)
(11) National consultants

(12) International consultant from Norway on disposal of POPs
(13) International consultant from Czech Republic on preparation of NIP

Results:

a. Familiarize the attendees from different involved Ministries, Authorities, Organizations, Universities, Institutes, Research Centers, NGO's, Woman and Child Organizations and EEAA staff with POPs risks, problems and priorities.
b. Raising awareness of the attendees concerning the country's activities in the field of POPs.
c. Setting a preliminary priority assessment for the country according to the results of POPs inventory, taking into account the information gathered and the country's specific criteria, as follows:
   (1) Assessment of POPs pesticides inventory.
   (2) Assessment of PCBs inventory.
   (3) Assessment of unintentionally produced POPs inventory.
d. Determination of the national objectives.
e. Setting the number of 40 national priorities related to POPs issues. Details are presented in the part related to step 3 activities of this report (section 4.4)

Recommendations:

a. Reviewing the national objectives periodically
b. Reviewing the priorities related to POPs periodically
c. The development of the NIP should take the set priorities into consideration
d. National objectives should not be regarded final, but could be amended in accordance with the considerations of specialized experts, including the National Steering Committee
e. Competent authorities should take these priorities into consideration when implementing the national work plan
f. Competent authorities should make an initial estimation of the cost for the implementation of these priorities

Workshop on Reviewing, Studying and Updating the National Implementation Plan Draft, (from 16 to18 April, 2005)

Objectives:

Make a comprehensive and accurate review for the National Implementation Plan Draft of the Stockholm Convention on Persistent Organic Pollutants (POPs) before final adoption, and sharing of all concerned authorities and Ministries in setting the plan

Topics Discussed:

a. The National Implementation Plan draft of Stockholm Convention on POPs - Egypt.

b. Steps of the National Implementation plan project.

Agenda:

The NPCU developed the agenda of the Regional Workshop on Ratification of the National Implementation Plan draft of Stockholm Convention on Persistent Organic Pollutants (POPs), held during the period from 16 to 18 April 2005.

Organization and Participants:

a. Organization:

The workshop was organized by the National Implementation Plan Project on POPs, under the enabling activities of the Stockholm Convention.

b. Participants:

(1) Ministry of Agriculture and Land Reclamation
(2) Ministry of Planning
(3) Ministry of Foreign Affairs
(4) Ministry of Information
(5) Ministry of Education
(6) Ministry of Finance
(7) Ministry of Electricity and Power
(8) Ministry of Foreign Trade and Industry
(9) The National Council for women
(10) Alexandria University
(11) The Customs Authority.
(12) The Regional center for training and information exchange for Basel Convention.
(13) The General Intelligence Agency.
(14) The Egyptian Society for Toxicology
(15) The Scientific Research Center.
(16) Hospitals Day Association.
(17) Dr. Sogavanam, chief technical advisor.

Egypt is considered a leading country among the Arab and African regions in the preparation of the National Implementation Plan (NIP) of Stockholm Convention for Persistent Organic Pollutants (POPs). According to the Stockholm Convention Article 11 related to information exchange on national, regional and international level, Egypt has invited the following countries:

(18) The Republic of Sudan
(19) Kingdom of Saudi Arabia

Results:

a. The attendees agreed on the following :

(1) The National Implementation plan draft for Stockholm Convention on POPs.
(2) The amendments referred to and discussed with competent authorities.
(3) The five – year short-term action plan and the long-term action plan until 2020.
(4) Informing the attendees about the time schedule after making the amendments of the National Implementation plan draft.
(5) Setting a date during the first week of June 2005 to hold a workshop for the adoption of the plan, to be attended by his Excellency the Minister of Environmental Affairs.

b. Including all the amendments suggested by attendees during the meeting.
c. Establishing a specific committee to accurately review the plan before final adoption.
d. The present situation of POPs was taken into consideration.
e. An executive summary of 40 pages describing all the issues related to the plan will be worked on.
f. The first week of June was proposed, during which a meeting to be attended by concerned Ministers will be held for the purpose of final adoption of the plan.

Recommendations:

a. Representatives of the Ministry of Information affirmed that the Ministry should be represented in the Project's Steering Committee and that there should be training programs to raise awareness of media people on POPs issues in a scientific way as media is an important instrument in the process of developing measures to implement the NIP for Stockholm Convention.
b. The Ministry of Information is required to set a media plan with defined activities, time limit and cost.
c. Affirming that the conducted calculations for dioxins and furans releases using the toolkit developed by UNEP must be estimated by practical analysis.
d. There should be a linking point in each ministry or institution concerned with POPs in order to achieve the best results while carrying out the work plan and non-governmental associations should be involved in this work.
e. The necessity for paying attention to environmental perceptions, especially those related to the hazards of POPs, and to involve it in modern educational curricula specially when developing secondary school curricula.
f. The necessity for raising awareness of students concerning the hazards of POPs on health and the environment through:
   (1) Holding symposiums
   (2) Working on environmental activities through Environmental and Population awareness groups in preparatory and secondary schools.

(3) Training teachers on how to work with environmental activities on:
   - Hazards of POPs on health and the environment.
   - How to dispose of wastes.
   - Encouraging the recycling of wastes and substances generated from safe processes considering general health.

g. A single time schedule should be designed according to the priorities set so that no confusion should occur. The issue of "open burning" is made a first priority as it constitutes a major problem in Egypt and of the importance of making risk assessment studies of PCBs.
h. The necessity for developing mechanisms for exchanging data using the best available techniques and the best environmental practices in the industrial sector.
i. Including items for training media people during the implementation of the action plans so that the mass media become adequately aware in order to participate in implementation of the plan.
j. The importance of training and the need for defining POPs by their trade names not by the names they are known for. The necessity for preparing emergency plans for such substances was also stressed.

3.3. Strategies and Action Plans

3.3.1 Activity: Institutional and Regulatory Strengthening Measures

a. To seek legislative support through amending laws and legislations.
b. To establish a National Center for POPs.
c. To improve the coordination between departments of the Ministry of State for Environmental Affairs and other institutions.
d. To support implementation of the Stockholm Convention, and update the National POPs Inventory by regulatory measures, which requires obligatory notification by the private sector and state institutions.
e. To harmonize the approach of the Stockholm Convention activities with the regional and the international conventions.
f. To amend Egypt legislation in accordance with the Stockholm Convention.
g. To provide a legislative resolution to the problem of treatment of fly ash from incinerators and other facilities. It includes a necessary new categorization of dumping sites.
h. To develop the necessary decrees addressing the problem of POPs disposal – with a preference for non-combustion technology, and to establish standards for POPs disposal based on the principle of POPs degradability.
i. To supplement Egypt legislation (Law No. 4/1994) with limiting values for POPs content in sewage sludge in relation to the significant environmental risks and contamination of food chains. It is also necessary to adjust the method of treatment of sewage water in industrial operations (for example in metal industries or waste incinerators).
j. To give a legislative resolution to the problem of storing of hazardous waste at dumping sites as newly-created "hot spots" for future generations.
k. To implement a limit for PCDDs/PCDFs content and to re-evaluate limits for other POPs in waste.
l. To develop legislative action that would give preference for avoiding the formation of POPs-containing waste, and for using technologies where the POPs safe destruction effectiveness is higher in comparison to other technologies.

3.3.2 Activity: Measures to Reduce or Eliminate Releases From Intentional Production and Use

a. Establish monitoring programmes for POPs based on Egypt's international commitments.
b. Collect and process information about sources and emissions of POPs, including waste issues (dumping sites and old loads), and to link them directly to activities focused on proper monitoring and evaluation.
c. Strengthen the Environmental Inspection Department in EEAA and Inspection Departments in other competent authorities.
d. Prevention of illegal use and handling of DDT.

3.3.3 Activity: Production, Import and Export, Use, Stockpiles and Wastes of Annex A POPs Pesticides (SC Annex A, Part 1 Chemicals)

a. Disposal of obsolete pesticides
b. Ensure the actual inspection of past and present dumping sites for old agrochemical stores by MOA and MSEA. For this purpose, it will be appropriate to coordinate the activities of both Ministries, and to update their databases.
c. Verification of when, how, and whether all stores of persistent chlorinated pesticides (POPs as defined by the Stockholm Convention) in Egypt (facilities, factories and privet sector) will be regulated by the Ministry of Agriculture and other responsible authorities
d. Establish monitoring programmes for POPs based on Egypt's international commitments.
e. Collect and process information about sources and emissions of POPs, including waste issues (dumping sites and old loads), and to link them directly to activities focused on proper monitoring and evaluation.
f. Strengthen the Environmental Inspection Department in EEAA and Inspection Departments in other competent authorities.

3.3.4 Activity: Production, Import and Export, Use, Identification, Labeling, Removal, Storage and Disposal of PCBs and Equipment Containing PCBs (Annex A, Part II Chemicals)

a. Disposal of PCBs
b. Checking transformers manufactured during the period 1955-1977 that totally contain almost 20,490 kg of oil of PCBs, for the purpose of disposal. Also the number of condensers, manufactured before 1970, which contain PCBs oils.
c. Disposal of equipment polluted with PCBs
d. Disposing of the 3,666 condensers and 26 transformers, that were manufactured during the period from 1955-1977
e. Completion of the PCB Inventory (contaminated areas, old loads, including the volume of contaminated soil) at the regional and local levels.
f. Resolving the issue of waste containing PCBs in a complex manner with the goal of establishing a collection system ensuring safe disposal until an acceptable method of liquidation becomes available.

3.3.5 Activity: Production, Import and Export, Use, Stockpiles and Wastes of DDT (Annex B Chemicals) if used in the country

DDT is not used, imported, exported, or produced in Egypt.

a. Disposal of the 1.187 ton of Lindane/DDT
b. Disposal of 5.975 ton of DDT
c. Remediation of the contaminated sites with DDT
d. Prevention of illegal use and handling of DDT

3.3.6 Activity: Register for Specific Exemptions and the Continuing Need for Exemptions (Article 4)

Periodical assessment and evaluation of the POPs situation may indicate the need for specific exemptions; in such case the Convention secretariat will be informed**.**

3.3.7 Action Plan: Measures to Reduce Releases From the Unintentional Production of PCDDs/PCDFs, HCB and PCBs (Article 5)

a. Prevention of burning rice straws in open fields and encouraging its recycling.
b. Prevention of uncontrolled burning of biomass (agricultural and animal wastes).
c. Prevention of uncontrolled burning processes of solid waste in random landfill, especially plastic products.
d. Applying the BAT/BEP in industry to reduce the releases of dioxins and furans from industrial sources.
e. Applying the BAT/BEP in composting factories.
f. Applying BAT/BEP in medical waste incinerators to reduce the resulting dioxin and furans releases
g. Applying BAT/BEP in power generation stations to reduce the resulting dioxin and furans releases.
h. Using natural gas in power generation stations to reduce the resulting dioxin and furans releases.
i. Applying BAT/BEP and using alternatives in chemical industries to reduce the resulting dioxin and furans releases, and replacing the substances that contain chlorine in paper industry.
j. Using un-chlorinated substances in pulp and paper production.
k. Applying BAT/BEP and using alternatives in petroleum oils waste treatment stations.
l. Using of unleaded fuel and catalysts in transportation sector.
m. Applying BAT/BEP in smoke and cigarette industry.

3.3.8 Activity: Measures to Reduce Releases From Stockpiles and Wastes (Article 6)

a. Establish monitoring programmes for POPs based on Egypt's international commitments.
b. Collect and process information about sources and emissions of POPs, including waste issues (dumping sites and old loads), and to link them directly to activities focused on proper monitoring and evaluation.
c. Strengthen the Environmental Inspection Department in EEAA and Inspection Departments in other competent authorities**.**
d. Remediation of the contamination sites**.**
e. Development of measures to reduce releases of stockpiles and wastes

3.3.9 Strategy: Identification of Stockpiles, Articles in Use and Wastes:

a. Completion of the database on hot spots, old loads, and contaminated areas.
b. Establishment of procedures for handling, disposal and liquidation of stockpiles, articles in use and wastes.
c. Support research and development of new technologies and biotechnologies focusing on the eventual liquidation of problematic waste and contaminated sites.
d. Development of measures to reduce releases of stockpiles and wastes**.**
e. Supporting the research and development of new technologies and biotechnologies focused on the eventual liquidation of problematic wastes and contaminated sites.

3.3.10 Activity: manage stockpiles and appropriate measures for handling and disposal of articles in use.

a. Establishment of procedures for handling, disposal and liquidation of stockpiles, articles in use and wastes
b. Completion of database of hotspots, old loads, and contaminated sites
c. Establishing regional centers for capacity building and technology transfer
d. Environmental sound management of wastes

3.3.11 Strategy: Identification of Contaminated Sites (Annex A, B and C Chemicals) and Remediation in an Environmentally Sound Manner

a. Conducting a thorough inventory of contaminated areas with an analysis of ecological risks and to evaluate the necessity of decontamination
b. Providing technical support to build, develop and strengthen the state's capabilities to fulfill its obligations
c. Establishing regional centers for capacity building and technology transfer
d. Initiating prevention procedures
e. Adopting an environmentally sound management system of wastes
f. Providing the necessary legislative support
g. Remediation of contaminated sites

3.3.12 Activity: Facilitating or Undertaking Information Exchange and Stakeholder Involvement.

a. Establishing registries for releasing and transporting POPs for the purpose of collecting and disseminating information on annual estimation of chemicals under the convention that are released or disposed of
b. Dissemination and elaboration of data and making access to such available information
c. Establishing a mechanism for information exchange
d. Establishing databases for the results concluded
e. Involvement of the public in combating POPs and their effects on public health and the environment and providing the opportunity for them to participate, at national level, in the implementation of the provisions of the Convention
f. Establishing of national centers for POPs
g. Exchange of educational and public awareness tools related to POPs & their alternatives at national & international levels

3.3.13 Activity: Public Awareness, Information and Education (Article 10)

The activities of the National POPs Centre, educational institutions at all levels, and volunteer, non-governmental organizations will be significant in this strategy.

a. Setting a plan for the protection of public health from potential hazards of exposure to POPs.
b. Setting a strategy for raising awareness campaigns.
c. Exchange of educational and public awareness tools (materials) related to POPs and their alternatives at national and international levels
d. Training of workers, scientists, women and youth organizations, staff and administrators on how to deal with POPs.
e. Raising awareness of decision – makers concerning POPs.
f. Making information on POPs available to the public through different channels of the Media (TV, Radio, Press and printed materials).
g. Raising awareness of the public, especially of women and children, concerning POPs and their effects on health and the environment.

3.3.14 Activity: Effectiveness Evaluation (Article 16)

a. Checking current health hazards of POPs
b. Taking sample from different sites taken
c. Checking the model used and the credibility of results
d. Measuring POPs levels in the soil and their effects
e. Using more accurate and sensitive means in analysis and effective evaluation
f. Establishing a network for monitoring, supervision, evaluation and follow up

3.3.15 Activity: Reporting

Notification measures are given in the text of the Stockholm Convention. In addition, it can be assumed that they will be further specified by the COP (Conference of the Parties) once the Stockholm Convention enters into force.

Egypt will upgrade the National POPs Inventory every year as a basis for periodical assessment and preparation of the Country Review for the COP.

Table 15: Reports required for compliance

CONVENTION OBLIGATION	DESCRIPTION OF REQUIREMENT	PERIODICITY
Article 5, subparagraph (a) Measures to reduce or eliminate releases from unintentional production	Requires each Party to develop an action plan, or, where appropriate, a regional or sub-regional action plan, and subsequently to implement it as part of its national implementation plan specified in article 7, designed to identify, characterize and address the release of the chemicals listed in Annex C of the Convention.	Within two years of the date in which the Convention enters into force for that Party
Article 5, subparagraph (a) (v): Measures to reduce or eliminate releases from unintentional production	Requires a review to be undertaken of those strategies pursuant to the development of an action plan to identify, characterize and address the release of the unintentionally produced persistent organic pollutants listed in Annex C, and of their success.	Every five years
Article 7: Implementation plans	Requires each Party to develop and endeavour to implement an implementation plan and transmit it to the Conference of the Parties, and requires each Party to review and update its plan on a periodic basis and in a manner to be specified in a decision of the Conference of the Parties.	Transmission to the Conference of the Parties within two years of the date on which the Convention enters into force for that Party.
Article 15: Reporting	Each Party shall report to the Conference of the Parties on the measures it has taken to implement the provisions of the Convention and on the effectiveness of such measures in meeting the	To be decided by the Conference of the Parties.

CONVENTION OBLIGATION	DESCRIPTION OF REQUIREMENT	PERIODICITY
	objectives of the Convention. Each Party shall provide to the Secretariat: (a) Statistical data on its total quantities of production, import and export of each of the chemicals listed in Annex A and Annex B or a reasonable estimate of such data; and (b) To the extent practicable, a list of the States from which it has imported each such substance and the States to which it has exported each such substance.	
Article 16: Effectiveness of evaluation	Requires an evaluation of effectiveness, reports and information, including the reports and monitoring information called for in paragraph 2 of article 16 (results of monitoring activities on a regional and global basis), the national reports submitted pursuant to article 15 and non-compliance information provided pursuant to the procedures to be established under article 17.	Commencing four years after the entry into force of the Convention, and periodically thereafter
Annex A, part II subparagraph (g)	Requires each Party to provide a report on progress in eliminating polychlorinated biphenyls and submit it to the Conference of the Parties pursuant to article 15.	Every five years
Annex B, part II, paragraph 4	Each Party that uses DDT is required to provide to the Secretariat information on the amount used, the conditions of such use and its relevance to that Party's disease management strategy in a format to be decided by the Conference of the Parties in consultation with the World Health Organization.	Every three years

3.3.16 Activity: Research, Development and Monitoring (article 11)

a. Establishing a methodology for Inventory processes of the source as generating POPs, and analytical methods for measuring levels of releases.
b. Encouraging researches on POPs and their alternatives.
c. Development of research programs on the measurement methods of POPs releases from transportation means.
d. Giving priority to the development of monitoring and research programmes as instruments for monitoring the efficiency of the conclusions and measures of the Convention.
e. Giving priority to monitoring programmes that support the research of substances, which probably will have to be added to the list of the POPs Protocol and Convention.
f. Emphasizing the need for research and development in the area of POPs (removal, emissions, fate, effects) within the state policy on science and technological development.

3.3.17 Activity: Technical and Financial Assistance (articles 12 and 13)

a. Assessment of the actual needs to implement the action plans and the obligation under the convention.

b. Assessment of the available resources in the different implementing institutions.

c. Estimation of the required technical and financial support to fill the gap between what is needed and what is available, namely:
   (1) In the field of training and capacity building,
   (2) In the field of international expertise,
   (3) In the field of financial assistance to acquire instrumentation, equipment supplies
   (4) In the field of national expertise

d. Establishing a mechanism for raising funds to support the different activities.

e. Encouraging qualified well trained staff for technical assistance and capacity building

To implement and meet the requirements of the action plan of the needed budget has been estimated. This estimation has come to the total value of (L.E 10,207,598,000). This is not only to eliminate the POPs quantities found in the inventory but also to modernize the industry in order to reduce and/or eliminate their non intentional releases of POPs.

Development and Capacity Building Proposals and Priorities

Defining Criteria and Setting Priorities

According to the NIP guidelines, one of the major outputs of stage (3) of the project is setting national priorities on which priority national objectives would be defined. Such national objectives would be essential for the preparation of the NIP. Setting priorities will be carried out in this report through the results of POPs inventories in stages (2) and (3).

Moreover, it is necessary that such criteria take account of health, environmental and socio-economic impact and of the availability of alternatives. So in this part, country's specific criteria have been set as a preliminary step toward prioritizing the national objectives. In addition, reviewing of the work done to establish the baseline situation has taken into account health and environmental impacts of POPs. Also, a preliminary priority assessment for Egypt has been conducted.

Approach and Methodology

a. The following points are taking into consideration as a result of studying the current situation in the light of the work accomplished in step 3 and previous stages:
   (1) Revision, assessment and checking of data included in the steps of the inventory process
   (2) The legal system
   (3) The institutional system
   (4) Research capabilities
   (5) Technical potentials
   (6) Infrastructure
   (7) Capacity –building (individuals, equipment, etc).
b. Developing a vision of the criteria
c. Estimating the weight of each criterion
d. Checking such criteria with the National Steering Committee and concerned departments at the EEAA, and agreeing on a final form
e. Arranging criteria according to the weight of each criterion
f. Adapting the criteria introduced in the workshop to be compatible with the present situation in Egypt for the purpose of complying with the Stockholm Convention and other related agreements (Basel and Rotterdam)
g. The criteria were revised in accordance with the Stockholm Convention and its objectives

Accomplishments and Results

Using the criteria for assessment of the inventory

a. Assessment of the POPs preliminary inventory results of steps 2 and 3 was presented to all the stockholders and attending members of other

concerned governmental and non-governmental authorities in the "Validation Workshop".

b. Preparing a proposal of the criteria on which priorities are to be set, taking into consideration health and social effects of the POPs.
c. Presenting the proposal of criteria to the National Steering Committee of the project for study and assessment
d. Such criteria were presented to the Validation and Assessment Workshops, for the assessment of each criterion and its amendment if required.
e. Accordingly, 28 specific criteria were established for the country:

(1) Impact on public health
(2) Impact on the environment
(3) Social and economic impacts
(4) Level of awareness
(5) Quantities
(6) Polluted areas
(7) Financial requirements
(8) Availability of infrastructure (individuals- equipments, etc.)
(9) Regional and international adverse effects.
(10) The possibility of surveillance and assessment and the availability of assessment monitors
(11) Compliance with the Stockholm convention on POPs and other relevant environmental agreements
(12) Supporting implementation in accordance with the timing agreed on
(13) Available technical potentials
(14) Technical Required needs
(15) Capacity building
(16) Co-ordination /management capabilities
(17) Supporting partnership with the relevant parties concerned
(18) The ability to transfer and develop sound, clean, sustainable economic technology
(19) Training
(20) Assessment of social and economic impacts as well as acute effects on health and the environment
(21) Assessing and monitoring the levels of pollutants in the environment
(22) Assessing and monitoring vulnerable exposed population groups such as children, women and the aged
(23) The capability of assessing risks data availability
(24) Defining alternatives and using less hazardous chemicals and processes
(25) Professional health safety and the work environment
(26) Legal framework for compliance with the Convention
(27) Work mechanisms
(28) Filling gaps in the capability of access, elaboration and application of information (such as improving the availability of information on risks and hazard, safe use of chemicals to protect final users, and improving the use of available risk assessments)

Setting Priorities

The priorities related to national objectives were set through the participation of the National Steering Committee of the project and different EEAA branches and departments together with Ministries and relevant authorities and non-governmental organizations that include woman and child associations, universities, the private sector (companies) and other relevant authorities. This cooperative work was accomplished during the "Setting Priorities and Determining Objectives Workshop" in the following steps:

a. As mentioned earlier, the assessment of the POPs preliminary inventory results of steps 2 and 3 was presented to the above competent authorities in the "Validation Workshop".
b. The correction and accuracy of these results were finally checked.
c. In the light of the current national situation and the results of the POPs inventory, most important related issues were defined and formed.
d. Relying on the 28 criteria, each issue was assessed with regard to its degree of relevance through the participation of all the stakeholders and attending members of other concerned governmental and non-governmental authorities in the "Setting Priorities and Determining Objectives Workshop".
e. Each of the issues was individually assessed according to its effect by the 28 criteria.
f. The following steps show how this process is done:
   (1) Assessing the effect of each criterion on each issue.
   (2) Giving a certain degree (from 1 to 5) to represent the extent of the criterion's effect on the issue.
   (3) Accordingly, each of the issues got 28 different degrees (1-5) to be added together.
   (4) According to the calculated degree, every issue takes a certain priority point. The more the degrees, the most important the issue is.
g. The final results of the process described above that defines the degree of priority of the issues were as follows:

1. Inventory, treatment and remediation of areas polluted with dioxins and furans. (131 Degrees)
2. Establishing of national center for POPs (102 Degrees)
3. Setting a national program on reduction of food pollution. (89 Degrees)
4. Disposal of obsolete pesticides (79 Degrees)
5. Disposal of PCBs (70 Degrees)
6. Disposal of equipment polluted with PCBs (70 Degrees)
7. Inventory and treatment of areas polluted with POPs (62 Degrees)
8. Inventory and treatment of areas polluted with PCBs (61 Degrees)
9. Establishing databases on the results concluded (59 Degrees)
10. Amending laws and legislations (43 Degrees)
11. Using of BAT/BEP (41 Degrees)
12. Setting of plan for the protection of public health from potential hazards of exposure to POPs (41 Degrees)
13. Dissemination and elaboration of data and making access to such information. available (40 Degrees)
14. Initiating prevention procedures (39 Degrees)
15. Setting a strategy for raising awareness (39 Degrees)

16. Sound environmental management of waste (39 Degree)
17. Establishing a mechanism for information exchange (37 Degrees)
18. Raising awareness of heads and decision – makers concerning POPs (37 Degrees)
19. Making information on POPs available to the public by different means. (36 Degrees)
20. Raising awareness of the public, especially of women and children, concerning POPs and their effects on health and the environment. (35 Degrees)
21. Involvement of the public in combating POPs and their effects on public health and the environment and providing the opportunity for them to participate, at national level, in the implementation of the provisions of the convention. (35 Degrees)
22. Training of workers, scientists, women organization, staff and administrators on how to deal with POPs. (35 Degrees)
23. Exchange of educational and public awareness tools (materials) related to POPs and their alternatives at national and international levels. (34 Degrees)
24. Establishing registers of releasing and transporting POPs for the purpose of collecting and disseminating information on annual estimation of chemicals under the convention that are released or disposed of. (34 Degrees)
25. Encouraging researches on POPs and their alternatives. (33 Degrees)
26. Establishing a methodology for Inventory processes of the sources generating POPs, and analytical methods for measuring levels of releases. (32 Degrees)
27. Making available more data and information on POPs, their properties, accumulation in the environment and means of controlling them. (31 Degrees)
28. Measuring POPs levels in the soil and their effects. (30 Degrees)
29. Legislative support. (30 Degrees)
30. Setting mathematical models for measurement and analysis processes. (28 Degrees)
31. Checking the results. (28 Degrees)
32. Applying quality settings for supervision and measurement. (28 Degrees)
33. Using simple means for taking samples. (27 Degrees)
34. Using more accurate and sensitive means in analysis. (27 Degrees)
35. Checking the effectiveness of the means of analysis and sample taking (26 Degrees)
36. Checking the used model and the credibility of results. (26 Degrees)
37. Making data on POPs and their transfer in the environment available. (26 Degrees)
38. Establishing monitoring, following up and supervision networks. (25 Degrees)
39. Checking current hazards of POPs on health. (25 Degrees)
40. Providing technical support to build, develop and strengthen the (25 Degrees)

state's capabilities to fulfill its obligations and establishing regional centers for capacity building and technology transfer.

The detailed list of priorities to set the national objectives are presented in ***Annex 9,*** taking into consideration that the objectives related to hotspots would be short-term national objectives, while others related to health and social adverse effects of POPs would be long-term ones. Generally speaking, national objectives related to POPs were defined as follows:

(1) Setting standards related to defining priorities concerning the POPs issues that need to be disposed of in a practical way, according to what has been agreed on in the previous Validation workshop
(2) Assessing available information from stage (2) in order to define areas of priority
(3) Defining deficiencies in the available information that hinder the full assessment of priorities
(4) Setting priorities according to the result of POPs inventory, and taking into account the criteria which had been determined in the "Validation Workshop" according to health and environmental impact of POPs and the availability of alternative solution.
(5) Assessment of institutional and legal infrastructure concerned with the management of POPs.
(6) Requirements and procedures needed for implementation
(7) Assessment of capacity-building related to compliance with the Convention.
(8) Assessment of socio-economic impacts of using /reducing POPs including their alternatives and the use of BAT/BEP.
(9) Assessment of risks, health and environmental effects of POPs.
(10) Assessment of monitoring, research and development capabilities.

3.4. Timetables for Plan Implementation and Measures of Success.

There are three types of the proposed planning timetables as follows:

a. According to the guidelines.
b. According to the national priorities.
c. According to short and long term action plans.

All the proposed planning timetables are presented in ***Annex 10.***

To implement and meet the requirements of the action plan elements and estimation of the needed budget has been made. This estimation has come to the total value of about seven milliards (L.E). This is not only to eliminate the POPs quantities found in the inventory but also to modernize the industry in order to reduce and/or eliminate their non intentional releases. Details and analysis of this estimation can be seen in ***Annex 1.***

3.5. Resource Requirements

Assessment of Institutional Framework Requirements

In most countries, initial and periodic inspections are conducted by the control agency or authorized laboratories. EEAA should at least be capable of making occasional inspection or having them made under contract. The administration machinery by EEAA at the management of air needs to be improved and their capabilities strengthened. Inspection is mainly conducted by EEAA through central and regional levels. However, this administrative machinery lacks coordination, as well as a previously prepared inspection program for periodic inspection, trained personnel, equipment and other capabilities. Furthermore, it seems that there is much attention given to the working environment rather than the air pollution emission problem. It is also recommended to separate between the teams dealing with these different issues since each of them requires various instrumentation and different experience. Improvement of the inspection machinery in EEAA may include mandatory environmental records / registers and self-monitoring in the industrial establishments for inspection. Other requirements for such improvement should include establishment of inspection on central, regional and local levels with clear responsibilities, coordination between different levels of inspection, approved programs of inspection, using capable laboratories on contract, improving the capabilities through intensive training courses, equipment, finance, enforcement, etc. The system of supervision for stationary sources should include:

a. Initial inspection to ensure compliance with standards.
b. Continuous checks on emissions by plant personnel (self-monitoring).
c. Routine periodic inspection to ensure continuous compliance with regulations (at least every 6 or 12 months).
d. Occasional inspections to investigate complaints.

The issue of source control priorities and consequently their emission standards has been raised during the present consultation. This is a very important issue. For example, giving a priority for complete combustion processes can result in energy saving and reduction of pollutant emissions. Priorities can also be given for certain areas. The regulations should be quite clear on the power of enforcement and punitive measures available to EEAA, but such action should be used sparingly and cautiously. An intensive public education program can do much to secure cooperation and voluntary compliance with regulations.

Institutional Obstacles

a. Lack of coordination among these Ministries and authorities
b. Lack of a unifying policy
c. Change in decision-makers with the absence of strong institutions may be reflected in sudden policy change.
d. Each Ministry or institution works individually, which reflects established bureaucracies that need to be changed.

e. Lack of resources.
f. The performance of the existing institutions dealing with hazardous substances and waste is not adequate.
g. Lack of capabilities for waste characterization and identification.
h. Non-availability of data, reluctance of officials in competent authorities to provide information.
i. Lack of integrated management.
j. Lack of communication among personnel.
k. Lack of trained and knowledgeable personnel.

Assessment of Capacity Building Requirements:

a. In the Field of Information Exchange:

(1) Establishment of a national center for information exchange concerning the Persistent Organic Pollutants (POPs).
(2) Establishment of a national information network concerning the POPs to enable the stakeholders to exchange the information about POPs issues.
(3) Establishment of a database to enable the public to access the information about the POPs and its environmental and health impacts.
(4) Establishment of POPs alternatives database.
(5) Establishment of database on the sources and sites contaminated with POPs.
(6) Information required concerning health effect of POPs in Egypt.
(7) Establishing registers of releasing and transforming POPs for the purpose of collecting and disseminating information in annual estimations of released or disposed chemicals under the Convention.
(8) Working out a strategy to raise public awareness, specially of woman and child organizations, concerning POPs and their health and environmental impact.
(9) Providing scientific and training scholarships in the field of POPs, seeking knowledge of up-to-date studies in this field.

b. In the field of Analysis and Monitoring:

(1) Establishment of special laboratories for analysis and monitoring of POPs.
(2) Building capacity on POPs analysis and monitoring.
(3) Preparing a program and monitoring network for POPs to disseminate the information about POPs movement in the environment.
(4) Establishment of national emission factors for unintentionally produced POPs.
(5) Establishment of a methodology for inventory processes of the sources releasing POPs and analytical methods for measuring levels of releases.
(6) Setting mathematical models for measurement and process analysis.

Assessment of Research Requirements:

Financial resources to encourage the scientific research sector and to extend and enhance research concerning POPs are expected to cover the following points:

a. Sources of POPs releases and measurement of their levels and movement in the environment.
b. POPs effects on human health and environment.
c. Socio/economic effects of POPs.
d. The suitable technological alternatives to eliminate POPs.
e. Disposal and treatment of POPs.
f. Risk assessment studies concerning POPs.

Assessment of Human Resources:

a. Building capacity to implement the procedures and measures to reduce /eliminate POPs.
b. Raising awareness of key persons and decision makers concerning POPs issues.
c. Raising awareness of the public community especially woman and child concerning POPs issues and their effects on human health and environment.
d. Exchanging educational and awareness tools concerning POPs and their alternatives at national and international levels.
e. Preparing training programs in and out side the country on POPs issues.
f. Involvement of the public in combating POPs and their effects on public health and the environment and providing them with the opportunities to participate, at national level, in the implementation of the provisions of the Convention.
g. Training of workers, women, staff and administrators on how to deal with POPs.

Again, to implement and meet the requirements of the action plan the needed budget has been estimated. This estimation has come to the total value of about seven milliards (L.E). This is not only to eliminate the POPs quantities found in the inventory but also to modernize the industry in order to reduce and/or eliminate their non intentional releases. Details and analysis of this estimation can be seen in ***Annex 1.***

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Table 16: **List of Participants**

Name	Title
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Annex 2

The National Obligations to Comply with the Stockholm Convention and Current Situation

1- Categorizing substances in accordance with the annexes of the convention.

Annex (A): Aldrin, Chlordan, Dieldrin, Endrin, Hexachlorobenzene, Heptachlor, Mirex ،Toxaphene, PCBs.
Annex (B): DDT.
Annex (C): Chlorinated Dioxins ،Chlorinated Furans ،Hexachlorobenzene.

2- Activities related to reduction of intentional releases from production and use.

According to Stockholm Convention requirements:

- ***Legal and administrative actions should be taken in order to eliminate the production, use, export and import of chemical substances listed in annex (A) of the convention and to reduce production and use of the others listed in annex (B) of the convention.***
  - ***Encouragement of the use of the best available techniques and the best environmental practices.***
- ***Any chemical substance listed in annexes (A) or (B) is not to be imported except for the following cases:***
  - ***For the purpose of sound elimination form the environment.***
  - ***For a purpose allowed to any state that is a party in the convention.***

The current situation in Egypt:

- In this respect, Egypt has banned production, import and use of chemicals of annex (A) and annex (B) included in a list of other chemicals in accordance with the following laws and resolutions:
  - The law of the Ministry of Agriculture no 53- 1966 and its amendments.
  - Agriculture Ministerial Decree no. 60- 1986- that bans using pesticides including chemical substances under annexes (A) and (B).
  - Agriculture Ministerial Decree no. 258- 1990- that bans importation of those substances too.
  - Internal Trade Ministerial Decree no. 55 - 1996 - that defines a list of chemicals not to be imported, produced or used. This list includes pesticides under annexes (A) and (B) of the convention.
- Egypt does not also import chemicals under annexes (A) and (B), not even for the purpose of sound elimination from the environment and not for any other purpose allowed.
- EEAA issued Guidelines for the safe handling of hazardous substances in general and of POPs in particular in order to inform on the safe handling of hazardous substances from different technical aspects in a simple and clear style. These guidelines were issued through a translation of the data available in international databases into Arabic, so that all those dealing with such substances through their full life-cycle could get information in a sound, direct manner.

  Such data include information on :State of the substance, its classification, degree of hazard, packing group, CAS number, safety phrases, risk phrases,

synonyms, molecular weight, melting point, boiling point, potential hazards, emergency response, transport, handling, treatment, disposal, first-aid compatibility, consistency and storage. These guidelines also provide clear and brief notes on about 300 chemical substances in addition to the substances listed under the Stockholm Convention on POPs (9 pesticides).

Such notes, contribute to the preservation of the economic value of these substances as well as public health and the environment that form a basis in the national economy system.

3- A record of specified exemptions:

According to Stockholm Convention requirements:

There should be a record of specified parties that have exceptional exemptions according to the convention. This record should include a list of the specified exemptions and another of the expiry dates for each of the specified exemptions.

The current situation in Egypt:

There is no record of specified exemptions because of the absolute ban concerning all the chemicals under annexes (A) and (B) of the convention, according to the laws decrees previously mentioned.

4- In the field of taking actions to reduce or eliminate unintentional releases from the production of the POPs:

According to Stockholm Convention requirements:

- ***Setting a work plan as a part of the national implementation plan within two years form the date of putting the convention in force. This work plan should include the convention in force including the following:***
  - ***An assessment of present and expected releases.***
  - ***An assessment of the efficacy of the laws and policies related to the management of releases.***
  - ***Development of strategies to fulfill the required obligations in addition to encouraging learning, awareness and training on such strategies.***
  - ***Presentation of those strategies and their success in fulfilling obligations in reports presented every five years according to the items of the convention.***
  - ***Preparation of an agenda for the implementation of the work plan that includes strategies and specified actions.***
  - ***Development and usage of alternative substances and products to prevent the formation and release of the chemicals under annex (C), taking into consideration the general instructions concerning actions related to the prevention and reduction of releases under annex (C) of the convention.***
  - ***Encourage of use of the best available techniques and the best environmental practices.***

The current situation in Egypt:

- *Egypt completed a preliminary inventory- as a part of the national implementation plan- to assess the present and the expected unintentional releases of POPs. Egypt is also bounded to the specified time for this plan in*

the convention (within two years from putting the convention in force), in accordance with the general instructions concerning actions related to the prevention and reduction of releases under annex (C).

- ***Egypt has also taken the following steps:***
  - *Under the supervision of EEAA, Egypt runs the project of improving the quality of air (CAIP) that aims at cleaning the air pollutants as (benzene, carbon monoxide, lead, carbon dioxide, nitrogen dioxide and sulphur dioxide). Moreover, the chemicals of POPs that are released unintentionally are now to be included among the main pollutants of the air as part of the strategy of improving the quality of air.*
  - *According to law no 4 of 1994 (articles 19,20,21), the competent administrative authority or the authority giving license makes an assessment of the impact on the environment caused by the industry requiring a license, in accordance with the designs, description and bases of EEAA in coordination with competent administrative authorities. Then, the study is presented to EEAA for opinion.*
  - *Egypt developed a Cleaner Production Strategy to establish integrated CP procedures for the Egyptian industry within an agreed national policy. In this regard, the objectives of the Strategy are:*
    a. *To define cleaner production and contrast it to other measures for achieving environmental compliance, such as end of pipe treatment*
    b. *To clarify the advantages of cleaner production to the Egyptian industry and other stakeholders*
    c. *To identify the barriers which may hinder the wide application of cleaner production in the Egyptian industry*

    Accordingly, the benefits of Cleaner Production Strategy to the Egyptian Industry are:
    a. Preventing Pollutions from the source.
    b. Saving the natural resources and energy.
    c. Increasing productivity and achieving cost effectiveness.
    d. Encouraging improvement in the production process.
    e. Opening more of the world markets for Egyptian products and increasing export opportunities.
    f. Coping with globalization movement through improved competitiveness and environmental work.

- The industrial sources of unintentionally produced POPs are now to be included among the Egyptian cleaner production strategy.
  - In the framework of reducing unintentionally produced POPs, the NPCU has prepared a plan for rising awareness. This plan includes organizing workshops for stakeholders and decision makers in both public and privet sectors to increase awareness concerning the hazardous effects of unintentionally produced POPs on health and environment, and the legal framework for these releases on both local and international levels. Another objective of this plan is to encourage the private sector to participate in this respect.

5- Actions for reduction or elimination of releases from stored substances and residuals:-

According to Stockholm Convention requirements:

- ***The state should develop some strategies suitable for defining the following:***
  - ***The store of chemicals or substances that contain.***
  - ***Chemicals listed in annex (A) or (B).***
  - ***Products and used materials and wastes that consisting or containing contaminated with any of the chemicals listed in any of the annexes (A), (B) or (C).***
- ***The state should also manage stores, as needed, in a safe way that is environmentally sound.***
- ***Suitable actions should be taken, when such products and substances turn into wastes, in the following ways:***
  - ***They are to be handled, collected, transported and stored in an environmentally sound way.***
  - ***They are to be eliminated in an environmentally sound way.***
  - ***They are not to be transported across international borders unless related guiding rules, criteria and principles are taken into consideration.***
- ***Seeking to develop suitable strategies to define the areas contaminated with the chemicals under annexes (A), (B) or (C).***

The current situation in Egypt:

- Through the committee of Recommending and Recording Pesticides, the Ministry of Agriculture, Egypt has established a safe storehouse for storing obsolete pesticides. They have been transported and stored in an environmentally sound way to be eliminated in the same way. Later a statement of the contents of POPs in these pesticides will soon be delivered.

6- Implementation plans:

According to Stockholm Convention requirements:

- ***The state is required to set a plan for implementation of obligations as stated in the convention and to present that plan to the conference of the parties within two years from the date of putting the convention in force.***
- ***Cooperation at national level is to be achieved with concerned parties including women groups and others working in the field of child health, so as to support setting and preparing the national implementation plan.***

The current situation in Egypt:

- Egypt has complied by starting on the preparation of the national implementation plan on 1/7/2003 – that lasts for two years – and thus being bounded to the time defined in the convention for the preparation of this plan. It is a fact that the convention has been put in force since 17/5/2004, making the final date for presenting this plan on 16/5/2006.

7- Listing Chemicals in Annexes (A), (B) and (C):-

According to Stockholm Convention requirements:

Suggestions are to be presented to the convention secretariat to list one or more chemicals in annexes (A), (B) or (C). The suggestion should include data about the substance, its persistence degree, its biological accumulation, the possibilility of its long – term environmental transportation and its hazardous impact. The secretariat, then, being convinced of the suggested substance, presents it to the committee of discussing POPs.

8- Information Exchange:

According to Stockholm Convention requirements:

- ***The state is required to allow information exchange on the following:***
  - ***Reducing or eliminating the production, use, releases from POPs.***
  - ***Alternatives for the POPs including information about their hazards and their socio – economic costs.***
  - ***Defining a national connecting centre to exchange such information.***
- ***The secretariat takes the role of directing information exchange about the POPs, including the information presented by the parties, international governmental organizations and non – governmental organizations.***

The current situation in Egypt:

º In this respect Egypt took the following activities***:***

1. Establishing the Egyptian Hazardous Substances Information and Management System (EHSIMS) which considered the best practices in the field of environmental information systems.

   The objective of this project is the initiation of a hazardous substances management system in Egypt, by providing basic guidelines and information for the purpose of ensuring sound and safe handling of such substances and by disseminating of such information through an information network. All of POPs substances are involved in the EHSIMS.

   The EHSIMS has many of useful outputs, most of which are concerned with information exchange, the following are some examples of such outputs:

   f. The Database.

   The main database contains 3 different databases as follows:
   - First Database: Contains 5400 chemical substances and compounds including all features, characteristics and information related to these substances and compounds.
   - Second Database: Contains a sample on the unified permitting forms that include information and data on the establishments as well as the required data for issuing the permitting form.
   - Third Database: This database is specified for the decision makers. This database can be used to prepare reports by different ministries.

   g. Information Network:

This network connects between EEAA and the concerned ministries (Ministries of Agriculture, Industry, Electricity and Energy, Health and Population, Petroleum, Irrigation Scientific Research) in addition to the Customs Authority, the Civil Defense, and the regional centers for Basel Convention and the Egyptian Petroleum Company. The Network can also afford any new Ministries that might join the system in the future.

h. Internet Website:
The project website is: www.ehsims.org. This website contains every information and data about the system as well as the list of hazardous substance, the required procedures for issuing permitting forms and the responsible authority in each Ministry.

i. Importers Database:
One of the aims of the systems is to establish a database on the importers as well as to locate their warehousing places using the GIS system in order to increase awareness concerning the safe handling of Hazardous Substances.

j. Connecting the System Data Network with the Internet (Web-Base Application):

In order to increase awareness on the national level for those who are dealing with hazardous substances, the system data network has been connected with the internet in which any information on hazardous substances is available; furthermore data on hazardous substances found on the database of the system can be printed.

2. The NPCU has completed data on POPs alternatives. In addition to the new POPs alternatives which were not mentioned in the UNEP POPs program. The NPCU introduced the data of these new alternatives to the National Steering Committee and other local consultants for revision. After that the NPCU sent the new data to UNEP POPs program. On the other hand, NPCU can obtain much information from UNEP POPs program.
3. Egypt Participated in Information Exchange Network on Capacity Building for the Sound Management of Chemicals INFOCAP. INFOCAP is an information exchange mechanism designed to enhance effective cooperation among countries and organizations which are providing and/or receiving assistance related to the sound management of chemicals.
4. INFOCAP has an overall and long-term goal to facilitate the systematic exchange and public accessibility of information and experiences which are relevant to planning, implementing, evaluating and coordinating capacity building projects for the sound management of chemicals. As such it will contribute to international, regional and national efforts to raise awareness about the need for assistance to strengthen national capacities and capabilities for the sound management of chemicals.

INFOCAP aims:

  - to develop a mechanism in which countries and organizations can provide information about relevant activities and needs (e.g. national priorities, national action plans, etc.) to potential partners;
  - to provide interested parties with up-to-date information on past, ongoing and planned capacity building projects which have been or will be implemented by countries and organizations providing assistance;
  - to provide governments and other stakeholder groups with pertinent and up-to date information about technical assistance and funding sources available from countries and organizations which provide support including information on ways, means and formal procedures to apply for such assistance;
- to ensure that guidance and training material developed and used by countries and organizations, both providers and recipients, are better known and available to all interested parties; and
- to ensure that practical lessons learned through relevant projects for the sound management of chemicals do not get 'lost' and are shared with others as a basis for more effective implementation of new projects in the future.

9- In the field of media, of education and awareness of the public:

According to Stockholm Convention requirements:

Developing programs is required to encourage the following items:

- ***Increasing awareness of leading authorities and decision makers concerning POPs.***
- ***Making information about POPs available to the public through different means.***
- ***Raising awareness especially of woman and child, on POPs and their health and environment. effects***
- ***Having the public share in the process of managing POPs with their hazardous effect on public health and the environment, and giving them the opportunity to participate in implementing the items of the convention at national level.***
- ***Training workers, chemists, women, employees and administrators on how to deal with POPs.***
- ***Exchanging educational and awareness materials of the public about the POPs and their alternatives on both international and national levels.***
- ***Giving the public the opportunity to gain information about POPs and their alternatives and establishing special information centers on both regional and national levels.***
- ***Setting a record of releasing and transporting the POPs for the purpose of collecting and publishing information about average annual quantities of the chemicals referred to in the convention that are released and are to be eliminated.***

The current situation in Egypt:

- In this respect, Egypt is preparing a plan for the awareness and education of the public concerning POPs. This plan is also prepared for authorities and decision makers, for women and children and it will be presented in special workshops, in which heads of competent authorities and woman and child

organizations will participate. Also the plan includes training of workers, employees and administrators on how to manage POPs in the way of reducing their effects on human health and environment. All details are presented in the part related **to step 3 workshop (supplement 4.15) of the Step 3 Report.**

10- In the fields of research, development and monitoring:

According to Stockholm Convention requirements:

Encouraging researches on POPs and their alternatives and also on the following:-

- ***Their sources and releases to the environment, their levels, direction and transfer.***
- ***Their effect on human health and the environment.***
- ***Their social, economic and cultural effects.***
- ***Means of reducing or eliminating their releases.***

Using a methodology for the process of encompassing the sources releasing POPs and for the analytic means of measuring the level of releases. This methodology includes:

- ***Encouraging national and international effort to support national capacities to carry out scientific researches and to encourage analyses and data exchange.***
- ***Encouraging researches aimed to reduce the effects of POPs on reproduction health and making them available to the public.***

The current situation in Egypt:

- Egypt has searched for new alternatives for POPs and has collected all data related to these alternatives, definition, properties, sources, releases to the environment, levels, direction, transportation and effect on public health and environment, data related to their social, economic and cultural effects, and the means of reducing or eliminating POPs are also collected releases. Some of the researches carried out in Egypt on monitoring the POPs in different areas, have been followed. All details of this issue are presented in the part related to **step 3 activities workshop (supplement 4.9) of the Step 3 Report**

11- In the field of technical support:

According to Stockholm Convention requirements:

States that are parties of the convention are required to co-operate in the following:

- ***Providing technical support for building, developing and strengthening the state capacities to fulfill its obligations.***
- ***Establishing regional centers for building capacities and exchanging technology.***

The current situation in Egypt:

- In the field of technical support ,Egypt took the following steps:
  1. A long term local expert in the field of POPs and the preparation of related national implementation plans and strategies (Prof. Dr. Mohammad Mokhtar El-halwagy) was appointed.

2. Local experts of experience in the field of issues related to POPs were consulted.
3. A long term international expert in the field of issues related to POPs implementation plans for Stockholm convention on POPs (Prof, Dr. Bala Sugavanam) was appointed.
4. A group of international experts in the field of preparing and implementing national implementation plans related to Stockholm on POPs was consulted.
5. The personnel working on the NIPP project and the hazardous substance department at EEAA were trained to raise their awareness concerning the following issues:
   a. Procedures for POPs analysis and monitoring that are taken in specialized laboratories in Egypt, such as the central lab for the analysis of pesticides residues and heavy metals in food, and the central lab for pesticides in the ministry of agriculture.
   b. Health care waste management.
   c. POPs effects on health and environment.
   d. POPs inventories.

- A number of training courses were held in cooperation among parties concerned with POPs, including the Custom Authority, NGOs, regional branches of EEAA, environmental offices in different governorates , the national steering committee and concerned departments at EEAA, in the following fields :
  1. A training course by Envio German Company in the field of PCBs inventory.
  2. A training course on sources of unintentionally produced POPs (dioxins & furans) prepared by Prof Dr. Salah Soliman – Professor of chemistry and pesticides toxicity of, faculty of Agriculture ,Alexandria University .
  3. A training course on health impacts of organochlorine insecticides and unintentionally produced POPs, prepared by the ministry of health sand population.
  4. A training course at the Egyptian iron and steel company, as a source of dioxins and furans releases.
  5. A training course at the Egyptian cement company on the field of hazardous waste incineration in cement kilns.
  6. A training course on health impacts of POPs and on analyzing and assessing POPs, prepared by experts from Texas University, USA.
  7. A training course on socio-economic impacts of POPs, by an expert from Norway.
  8. Presenting Czech experience in the preparation of the national implementation plan related to Stockholm convention on POPs.

12- ***In the field of resources and financial mechanisms:***

According to Stockholm Convention requirements:

- ***States are required to have new extra financial mechanisms to face extra costs of implementation actions through defining mechanisms required to provide consistent adequate financial resources, that are managed by responsible inter- national entities that monitor and assess the use of such***

resources and present regular reports to the conference on the consistency and adequacy of the funds for the connected activities of implementation this convention.

- ***The state is required to provide financial support and financial raises, within limits of potentials, for national activities working on the fulfillment of the objectives of the convention.***

The current situation in Egypt:

- Generally, in the field of resources and financial mechanisms, Egypt took the following steps.
  1. EEAA supports small industries in Egypt to develop their clean technologies and to achieve health and environment protection. This support is technical and financial and is provided by the "Environmental Protection Fund". In this respect, some activities have been conducted as follows:
     a. Municipal Agricultural Waste Recycling
        - Estimated Project Cost: L.E.324,599
        - Assistance: L.E.243,700
        - Procurement of Waste Collection and Composting Equipment

     b. Medical Waste Collection and Safe Disposal in Fayoum City
        - Estimated project Cost: L.E.542,270
        - Assistance: L.E.350,000
        - Purpose of Financial Request: Procurement of required incineration system for waste treatment and safe disposal

     c. Safe Disposal of Hospital Wastes of the National Liver Institute
        - Estimated Project Cost: L.E.1,005,600
        - Assistance: L.E.350,000
        - Purpose of Financial Assistance: Procurement of fragmentation and Steam Sterilization Unit

- In cooperation between EEAA and Ministry of Agriculture, Sum of 220,000 pounds was invested by Ministry of Agriculture for collection of obsolete pesticides, including POPs, all over Egypt. These pesticides were repacked and transferred to a dumping store for final safe disposal.

- Through Cairo Air Improvement Project of EEAA, the Egyptian government provided a sum of 5.5 million Egyptian pounds for the establishment of the centre for assessing performance and exhaust emissions of vehicles.

  This center is one of the greatest research centers in the Middle East and one of the few centers all over the world assessing performance and pollutants concentration in vehicles exhaust. The objectives of the center can be summarized in the following points:
  1. Measuring the exhaust from trucks and vans fueled with diesel or natural gas and comparing the exhaust (especially small particles) resulting in both cases.
  2. Improving accuracy of measurements related to sources of pollution in Egypt.
  3. Defining the benefits of using different means of reducing vehicles exhaust emissions.

4. Applying environmental laws in the frame work of national strategies related to vehicles exhaust emissions.
5. Providing services to public and private sectors through assessing the performance vehicles whether manufactured locally or imported, to guarantee their compliance with Egyptian and international standards.

- The Government of Egypt (GOE) developed a Lead Smelter Action Plan (LSAP) to reduce the impact of Awadallah Smelter on the environment. As part of the plan, the Cairo Air Improvement Project (CAIP) and Egyptian Environmental Policy Project (EEPP) are working with Awadallah Company (a major Lead producer in Cairo), to consolidate its operations and move them to a new, more modern plant located in the Abu Zaabal Industrial Zone.

- Canadian International Developing Agency (CIDA,) in cooperation with the Egyptian Environmental Affairs Agency (EEAA) and the Ministry of Petroleum converse 50 clay bricks factories from using mazout to natural gas.

- The Sum of 50 million pounds was invested to rehabitate public dumpsites ,where wastes were collected randomly and burnt openly ,and to turn them into dumps, where wastes could be tightly burned in controlled cells in order to prevent auto burring and degradation of wastes due to aerobic bacteria .

- Supporting the Environmental Assessment and Management Project (SEAM) which is one of the projects conducted under supervision of EEAA in the field of financial mechanism.

  The project supports environmental management in four governorates, Sohag, Kena, Damietta and Dakahlia, at the national level in an initiative stage. The project provides technical and financial support for the implementation of projects related to hazardous waste management, including wastes containing POPs.

  In addition, one of the major activities of the project is the development of Environmental Profiles for all the villages in governorates. Such profiles are prepared through specialized committees to asses the environmental situation in specified fields, including hazardous waste disposal, sewage waste water treatment in each village. In a later step, the project provides funding for preparation of the implementation of the environmental profile requirements was also prepared Governorate Environmental Action Plan (GEAP) for each governorate. This comprehensive plan is related to environmental concern of hazardous substances and wastes in every governorate.

12- Presenting reports:-

According to Stockholm Convention requirements:

- ***Periodical reports are presented, (in a form that is determined by the conference of the parties on its first meeting), to the conference of the parties on:-***
  - ***Actions taken for the implementation of convention obligations.***
  - ***The efficacy of such actions in fulfilling the objectives of the convention.***
- ***The secretariat is to be provided with the following:-***

- ***Statistic data about the total quantities of the production, imports and exports of each of the chemicals stated in Annexes (A) and (B) or about a reasonable estimation of such data.***
- ***A list of the states, to the most practical limit, from which each of the substances had been imported and other states to which each had been exported.***

13- Efficacy assessment:-

According to Stockholm Convention requirements:

- ***The conference of the parties is to make an assessment of the convention four years after starting to put it in force. This assessment is made regularly later on as decided by the conference of the parties.***
- ***The conference of the parties is to be provided with comparative monitoring data about chemicals in annexes (A), (B) and (C) and about its transfer, regionally and internationally, to the environment. These arrangements:***
  - ***Should be made regionally, wherever possible, according to financial and technical capacities using programs and mechanisms as much as possible.***
  - ***The conference of the parties is to be provided with reports on the results of monitoring activities on a regional and an international basis and within limited periods that are decided by the conference of the parties.***

The current situation in Egypt:

- ***This assessment is made on the basis of available scientific, environmental, technical and economic information including the following:***
  - National information reports about monitoring.
  - Information about non compliance of the Convention measures.

14- Non compliance

According to Stockholm Convention requirements:

The conference of the parties, as practically early as possible, takes proper actions to define whether there is a case of non compliance to of the convention measures and to deal with states that are parties and are proven not to be complying.

15- Annex (A) – Elimination:

According to Stockholm Convention requirements:

- ***Any quantities of a chemical substance, in the form of manufactured substances, that had been used earlier before starting to carry take action to participate in the, is not to be listed under the annex, unless the responsible party had already told the secretariat that a certain type of chemicals was still being used.***
- ***The secretariat is to be informed if any of the chemical substances of the annex was being produced or used in manufacturing of other products***

within a closed system of a specified location in a way that is not expected to affect humans or the environment greatly. This is not to be considered a specified exemption.

- ***Use ofPCBs compounds found in electrical instruments (Such as transformers and condensers and others that contain quantities of liquid substances) is to be stopped by 2025.***
- ***Measures of eliminating the use of PCBs compounds are taken according to the following priorities:-***
  - ***Exerting consistent efforts to define and to stop using instruments that contain more than 10% of PCBs compounds and of quantities that exceed 5 litres.***
  - ***Exerting consistent efforts to define and to stop using instruments containing PCBs compounds with a concentration that exceeds 0.005% and quantities that exceed 0.05% litres.***
- ***Reduction and control of the cases of exposure to the hazards caused by PCBs compounds according to the following measures:-***
  - ***Using such compounds only in tight and sound instruments or in areas, where hazards release to the environment can be reduced to the minimum level and treated fast.***
  - ***Not using there compounds in areas related to the production or preparation of foods or feedstuffs.***
  - ***Taking all the possible measures for protection from electrical faults that could lead to breaking out of fire in residential areas with schools and hospitals. In addition, instruments should be checked regularly for leakage possibilities.***

- ***Not exporting or importing instruments containing PCBs compounds except for the purpose of environmentally sound management of wastes.***
- ***Not allowing the reuse of liquids containing PCBs compounds that exceed a concentration of 0.005% in other instruments except for maintenance and repair purposes.***
- ***Exerting efforts needed to manage liquids, containing compounds of PCBs and equipment contaminated with these compounds or containing them it in a concentration that exceeds 0.005%, in an environmentally sound way. This is to be achieved as early as possible and before year 2028.***
- ***The state is required to present a report to the conference of the parties on the progress gained in the process of eliminating PCBs compounds every five years to be considered by the conference of the parties when necessary.***

16- Annex (B) – Restriction

According to Stockholm Convention requirements:

- ***Any quantities of a chemical substance, in the form of manufactured substances, that had had been used earlier before starting to take action to participate in the convention, is not to be listed under the annex; unless the responsible party had already told the secretariat that a certain type of chemicals was still being used.***
- ***The secretariat is to be informed if the DDT substance was being produced or used in manufacturing of other products within a closed system of a specified location.***

  This information should include the following:

- ***Information about the total production and use of this substance, or at least a probable estimation of such information.***
- ***Information about the nature of the closed system of a specified location, including the quantity of any pollutant that does not turn into the preliminary substance of the POPS in the final product.***
- ***The secretariat is to make such information available both to the conference of the parties and to the public.***
- ***The kind of production and use is to be terminated after ten years, unless the concerned party presented a new notification to the secretariat.***
- ***The kind of production or use is not to be considered of the exemplary nature.***

- ***Production and use of DDT is to be prevented except for the parties that inform the secretariat about it. Accordingly, a record of the DDT should be kept available to the public.***
- ***Each state has to keep the production and use of DDT limited to fighting disease carriers, according to the recommendations and guiding principles of the international health organization concerning DDT. This is to be applied in case the state had no available, effective safe, local alternatives of a proper cost.***
- ***In case a state that is not listed on the record of DDT needed to fight disease carriers, the secretariat is to be notified as early as possible in order to add that state to the list. Meanwhile, the international health organization is to be notified too.***
- ***Each state using DDT has to give the secretariat and the (WHO) information every three years about the quantity used, the conditions of the use in relation to the strategy of that state fighting diseases. This is to be achieved in a form decided by the conference of the parties in consultation with the (WHO).***
- ***Each state uses DDT is required to set a working plan as part of the implementation plan. The plan should include the following:-***
  - ***Working out organizing mechanisms to guarantee the reduction of the use of DDT to fighting disease carriers.***
  - ***Developing alternative products and proper means and strategies, including strategies for the management of fighting, to guarantee the consistent efficacy of such alternatives.***
  - ***Taking actions to support health care and to reduce infected cases with disease.***
- ***Every state, according to its potential, is required to support research and development of alternative, safe chemicals and other products, following methods and strategies of the states using DDT that match with the circumstances of such a state. This is to be achieved for the purpose of relieving human and economic burdens that could result from the spread of a disease. The researches should include the following:-***
  - ***Alternative or alternative – groups.***
  - ***Risk to human health and effect of alternatives on the environment.***
  - ***Good alternatives for DDT that are less hazardous to human health and are adequate for fighting diseases, in accordance with the present conditions of the concerned parties and the monitoring data available.***

In this respect Egypt has banned the production, import and use of the chemicals according to the following laws and decrees:

- ***Decree of the Ministry of Agriculture no 53-1966 and its amendments.***
- ***Decree of the Ministry of Agriculture no 60-1986 that bans the use of pesticides included in the chemical under annexes (A) and (B).***
- ***Decree of the Ministry of Agriculture no 258-1990 that bans importation of these substances.***
- ***Decree of the Ministry of Internal Trade no 55-1996 that made a list of chemicals not to be imported, produced, or used. This list includes substances referred to in annexes (A) and (B) of the convention.***

The current situation in Egypt:

- Moreover, Egypt does not import chemicals of annexes (A) and (B) not even for the purpose of sound environmental elimination or any other purpose allowed such as fighting disease carriers, as in annex (B) related to DDT.

- Egypt has also complied by starting to work on a preliminary inventory – as part of the National Implementation Plan – to assess present and expected quantities of chemicals under annexes (A) and (B) of the convention – Egypt is also bound to the time specified in the convention for this plan, which is two years starting from the time of putting the convention in force, and in accordance with the general guidelines concerning procedures of elimination and reduction referred to in annexes (A) and (B). The preliminary results of the inventory were as follows:-

Quantity	***Substance***
2.2 ton	***DDT***
2.083 ton	***DDT 50 %***
1.187 ton	***DDT Lendane***
557 Liter	***Toxaphene***
214 Kg	***DDT 50 % wet able***
284.6 Kg	***DDT pure***
975 Kg	***DDT colloidal***
214 Kg	***DDT york 50 %***

- According to the data received from the Ministry of Electricity and Power, no PCBs exist in Egypt so far. However, the results of the preliminary inventory show that the condensers and transformers manufactured during the period from 1955 to 1977 could possibly contain the PCBs in the following quantities:-

Quantity	***Type***	**Data**
3666	***Condensers***	***Big condensers manufactured in 1970 with a capacity of (2.5 F / 275 V and 300 F/ 400 V) that may contain PCBs***
26	***Transformers***	***Big transformers manufactured during the period form 1955 to 1977 that totally contain 20490 Kg. Of ail that possibly contains***

		PCBs.

17- Annex (C) – Unintentional production:

According to Stockholm Convention requirements:

- ***Items of industrial sources that have a relatively high degree of the ability to form and release chemicals under this annex to the environment are generated as a result of incomplete combustion during thermal processes the contain organic substances and chlorine.***
  - ***Waste incineration, including municipal waste, hazardous waste, medical waste, and sewage waste.***
  - ***Cement kilns firing hazardous waste.***
  - ***Production of pulp using chlorine or chemical substances that generate chlorine for bleaching.***
  - ***The following thermal processes in metal industries:-***
    - ***1- Secondary production of copper.***
    - ***2- Production of sintering plants in iron and steel industries.***
    - ***3- Secondary production of Aluminum.***
    - ***4- Secondary production of Zinc.***

- ***The sources of releasing chemicals under this annex could be the following:-***
  - ***Open burning of wastes including burning waste burial sites.***
  - ***Thermal processes in metallurgical industry not mentioned in part two.***
  - ***Burning places in residential areas.***
  - ***Burning of fossil fuel in the boilers of industrial sites.***
  - ***Wood and other biomass fuels incineration.***
  - ***Certain processes for the production of chemicals that unintentionally release persistent organic pollutants, specially the production of chlorophenyl and chloranil.***
  - ***Motor vehicles, especially those fueled with leaded gasoline.***
  - ***Destruction of animal carcasses.***
  - ***Textile during with chlorinil and dealkalination.***
  - ***Shreddering of expired vehicles.***
  - ***Oil waste filters (refineries).***
  - ***Copper cables smouldering without flame.***

- ***This annex provides general guidelines to the states that are parties concerning the elimination or reduction of the releases of the chemicals listed. This is achieved through general action for protection related to the best available techniques and the best environmental practices, such as the following:-***
  - ***Using clean technology with less waste.***
  - ***Using less hazardous substances.***
  - ***Encouraging the recycle of wastes and generated substances used in a certain process.***
  - ***Alternating substances that form the POPs or have a direct connection with the releases of the POPs from the source.***
  - ***Caring for the administration of the industry and making protective maintenance programs.***

- ***Making improvements of the waste management for the purpose of terminating open and uncontrolled burning of wastes, including waste dumps. Considering suggestions for the establishment of new sites for the elimination of wastes, more attention should be given to other alternatives, such as activities related to the reduction of generating municipal and medical waste. This also includes reuse, recycling and separation of wastes and encouraging products of less waste. Following this method, general health should be token care should be considering and the following steps are accomplished:-***
- ***Reduction of using chemicals considered as pollutants in the production to the minimum limit.***
- ***Avoiding the use of chlorine or substances releasing it for bleaching.***
- ***This annex also provides some guidelines related to the use of the best available techniques referring also to the possible costs and to precaution and prevention considerations. This is to be achieved considering the following general points:-***
- ***The nature of the concerned releases, their effect and quantities. Means could differ according to the nature of the source.***
- ***Dates for the working of the new of the already established sites.***
- ***Duration to adopt the best available technique.***
- ***Consumption of raw materials used in the process and the nature of these materials and their efficacy in consuming power.***
- ***The need to prevent the general effect of the cases of release or to reduce such effect to the minimum limit in relation to the environment and the hazards caused to it.***
- ***Prevention of accidents and reduction of their effect on the environment to the minimum limit.***
- ***The guarantee of professional health and safety in work places.***
- ***Comparative processes or industries or working methods that have practically been proven successful on the industrial level.***
- ***Technological progress and change in scientific knowledge and understanding.***

The current situation in Egypt:

- Egypt has prepared a preliminary inventory on the sources of dioxins and furans, in accordance with the sources mentioned in annex (C) of the convention. The preliminary results of the inventory – a part of the national implementation plan – were as follows:-

  Waste incineration, including municipal wastes, hazardous wastes, medical wastes and sewage sludge wastes in one place:

  - *Hospital incinerators:*
    Number of incinerators: 130 with a capacity of 14630.4 tons.
  - *Municipal waste incinerators:*
    Presently, there are no municipal waste incinerators in Egypt.
    Cement kilns incinerating hazardous waste.
  - *Cement production:*
    An inventory was made on 85% of the total number of cement companies in Egypt, which represents about 95% of the production. Cement kilns ***incinerating*** *hazardous wastes.*

*A project under study concerned with **incinerating** hazardous waste in cement kilns is an progress.*

Production of pulp using chlorine or substances generating chlorine for bleaching:

An inventory was made on 60% of the total number of companies producing pulp in Egypt, which represents 65% of the production.

The following thermal processes in metallurgical industry:

- *Secondary production of copper:*
  An inventory was made on 65% of the total number of copper companies that represents 60% of the production.
- *Sinter plants production in iron and steel industries :*
  An inventory was made on 80% of the total number of iron and steel companies, which represents 75% of the production.
- *Secondary production of aluminum:*
  An inventory was made on 65% of the total number of aluminum companies, which represents 55% of the production.
- *Secondary production of zinc:*
  An inventory was made on 100% of the total number of zinc companies, which represents 100% of the production.

Open waste burning , including burning sites and waste burial, combustion sources in residential areas:

Municipal wastes are collected and dumped in special places an auto – combustion of wastes takes place.

Thermal processes in metallurgical industries not mentioned in part two (lead industry):

An inventory was made on about 95% of the total number of lead companies.

Burring of fossil fuel in the boilers of industrial sites:

An inventory was made on stations of power generation with all of its kinds and in different places and the power produced. Required data was provided and releases of dioxins and furans were estimated.

Wood and other bio-mass fuels burning sites :

An inventory was made on companies that burn wood to generate power.

9- Certain processes for the production of chemicals unintentionally releasing the pop's ,specially when producing chlorophenyl and chloranil :

An inventory was made on 70% of chemical companies which represents 75% of the production.

10- Crematories

There are no crematories in Egypt.

11- Motor vehicles, specially those that burn leaded gasoline :

An inventory was made on vehicles of public transportation sector, on the fuel used and the type of the vehicles whether of 2-stroke and 4-stroke engines and their numbers.

12- Destruction of animal carcasses:

There is no such an activity in Egypt.

13- Textile and leather dying with chloranil and de-alkalination:

According to the reply form the leather dying chamber, leather-dying companies in Egypt do not use chloranil in dying. For textile industries, 45% of textile factories which represents 65% of the production don't use chloranil.

14- Expired vehicles shredding workshops:

There are no such workshops in Egypt.

15- Copper cables smoldering without flame:

There is no such an activity in Egypt.

16- Oil waste refiners:

The Ministry of Petroleum informed us with the companies that refining oil waste.

18- Annex (D) – in the case of listing a new chemical:
According to Stockholm Convention requirements:

- In case of suggesting to list a new chemical under any of the annexes (A),(B) or (C),the state presenting the suggestion is required to specify the following data :

- The nature of chemical substance.
- Its degree of persistence.
- Its bio- accumulation.
- The possibility of its long-term transfer to the environment.
- Properties related to effect on the environment and / or the ideal results proving that the chemical has the possibility to transfer to the environment through the air, water or immigrant spices. Also to prove the possibility for the chemical to transfer to a future environment in distant locations away from places of its release. With regard to any chemical that transfer a lot through the air , its half life-time in air should exceed two days.
- Its hazardous effects.

- The state providing the suggestion should present a statement of the worrying means, including (if possible), making comparative study of toxicity data or toxicity data related to the environment together with the discovered or expected levels for the chemicals substances, resulting or expected from long- term transfer through the environment. The state should also present a short statement that shows the needs for supervision at international level.

19- Annex (E) - Information for preparation of data related to hazards:
According to Stockholm Convention requirements:

- In the case of presenting a suggestion to include any chemical under annexes (A), (B) or (C), information concerned with the preparation of data related to hazards should be presented too. This information include the following points :
  - The sources.
  - An assessments of hazards (risks), including a consideration of toxic interactions between various chemicals.
  - Effect on the environment ,including data and information about chemical and biological properties of the chemical to be listed ,its degree of persistence, its way of transfer to the environment ,its spread in different environmental features ,its decomposition and change into other substances. Some specified quantities should be available to biological accumulations labs.
  - Monitoring data.
  - Exposure in regional areas, especially as a result of long- term transfer to the environment including information about biological abundance.
  - Assessment or estimation of data concerned with the hazards on both national and international levels, together with the intonation related to influence on the environment and categorization of hazards, wherever they exist.
  - The status of the chemical substance according to inter- national conventions.

20- Annex (F) - Information about socio- economic consider- actions:

According to Stockholm Convention requirements:

- ***In case of presenting a suggestion to include a certain chemical substance in Annexes (A), (B) or (C), information about socio- economic considerations should be presented too, as such information show the difference of capacities of circumstances among different states. This information should include a study of the following:***
  - ***Efficacy and effectiveness of actions for the producers of prevention in releasing the objectives related to reduction of hazards.***
  - ***Alternatives (products and processes)***
  - ***Positive and / or negative effect on the society as a result of carrying out the producers of prevention.***
  - ***Wastes and effects of eliminating such wastes (especially obsolete pesticides and clearance of polluted (contaminated sites).***
  - ***Availability of information of and public awareness***
  - ***Supervision and the capacity for monitoring.***
  - ***Any supervisory actions taken at national or regional level, including information about alternative and information related to management of the risks.***

The current situation in Egypt:

- Some steps have been started in this direction through the NIP project. Efforts have been made to initiate the much needed public awareness required to arouse sufficient social involvement. This was made by inviting media and civil society organizations to actively participate in most of the project workshops and public activities, especially in step 3 workshops which were on socio-economic impacts of POPs and role of BEP/BAT in reducing / eliminating POPs from the environment. Also the international consultants in this field were participated in the workshops which have been held. A more focused public awareness plan has been conducted for the future to sustain the national awareness interest.

- In view of the serious health and environmental impact of the POPs, the project has assigned a special task in this respect to Egyptian experts who have also given few presentations on the matter in our previous workshops.

- Step 3 reports constituted a basic tool for awareness activities in addition to other factors associated with these negative impacts. In addition to the priorities which have been set, taking into consideration this aspect and the measures will identify some sort of preliminary cost estimate that may be made a basis for assessing needed funding requirements. The preliminary cost estimate will show how the international community would contribute. Moreover, much more intensive public and media involvement will be induced to ensure full participation of the civic society with anticipated consequent positive social, health and environmental impacts.

Annex 3

Persistent Organic Pollutants
Alternateves

What are persistent organic pollutants (POPs)?

Persistent organic pollutants (POPs) are organic substances which demonstrate toxic effects qualities, resist degradation, bioaccumulate, and transported through different environmental media and cross state borders and are deposited far from the location of release, possess a probable significant health hazard or environmental hazards

What is toxicity?

The ability of a substance to cause damage or death to living organisms. POPs are toxic to various organisms. Some of these POPs may cause cancer, others promote its course, a number of them may also cause immunological, reproductive, developmental, and other defects.

What is persistence?

Persistence is the ability of a substance to remain in the environment for a long period of time without change. Persistent substances are resistant to chemical, photochemical, thermal and biochemical decomposition. This allows for their circulation in the environment and accumulation in soils, sediments and in living organisms.

What is bioaccumulation?

Bioaccumulation (accumulation in living organisms) is a process, during which living organisms can capture and concentrate chemical substances either directly from their surrounding environment, or indirectly from their food supply.

What is long-distance transport?

It is the substance's potential to travel to areas hundreds to thousands of kilometers away from its original source, where it was never produced or used (for example the Arctic and the Antarctic).

How can POPs enter the human body?

POPs enter the environment from various sources and in this way can lead to their leakage into food chains. As an example, we may mention the combustion of wastes, where their emission into the atmosphere can occur if the incineration plants are not equipped with the proper level of waste purification, and also when high concentrations of POPs are bound onto the surface of ash particles. If this ash is not dumped at specialised dumping sites, POPs may enter the atmosphere, water and soil and as such can enter into air, water and food chains.

The amounts of POPs which enter the human body by inhalation, food ingestion or by contact with the skin, may do not present an immediate health hazard (acute poisoning).

It is, however, important to keep in mind that the effect of POPs is of long-term and currently we are unable to predict, on the basis of the content of these substances in the human body, whether the individual will be sick, for example with cancer, or not. It is also important to realise that not only POPs act on the human health. A whole range of other factors including dietary habits, the state of the immune system of, heredity and others may also play a role.

It remains a certainty, however, that the less persistent organic pollutants are found in our body, the lower the risk of health hazards.

State bodies must ensure the issuing of legal documents, which determine the highest allowed amounts or concentrations (limits) of these pollutants in various food products, emissions, etc. It is necessary to monitor adherence to the limits in such a way that a person consuming food products from a common commercial network is not exposed, during the course of his life, to doses of POPs that could cause a health hazard.

Most international studies confirm the reality that among the primary and significant pathways of POPs entry into the environment are emissions into the atmosphere, with the transport medium being the air. It is therefore necessary to adopt such measures that will lead to the lowering of POP emissions, to the improvement of the quality of the atmosphere, gradually to the lowering of their content in food products and subsequently in the human organism. However, a number of these measures are very demanding financially.

1) Aldrin : CAS number : 309-00-2

Uses:

A pesticide applied to soils to kill termites, grasshoppers, corn rootworm, and other insect pests.

Health Impacts:

Toxic; may be fatal if inhaled, ingested or absorbed through skin. Inhalation or contact with some of these materials will irritate or burn skin and eyes. Burning POPs will produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution.

Environmental Fate:

Aldrin residues in soil and plants will volatilize from soil surfaces or be slowly transformed to dieldrin in soil. Biodegradation is expected to be slow and aldrin is not expected to leach. Aldrin was classified as moderately persistent meaning its half-life in soil ranged from 20-100 days. Aldrin residues in water will volatilize from the water surface and photooxidization is expected to be significant. Adsorption to sediments is expected and biodegradation is expected to be slow.

Alternatives:

This substance was used as insecticide. Since it was banned, several alternatives are being recommended (see the next table)

Table: Some insecticides registered and recommended for use as alternatives to POPs pesticides table

Chemical name	CAS - No
Malathion	121-75-5
Bensultap	17606-31-4
Diazinon	333-41-5
Beta-Cyfluthrin	68359-37-5
Imidaclprid	60-51-5
Deltamethrin	67375-30-8
Triazophos	24017-47-8
Lambada- Cyhalothrin	91465-08-6
Methomyl	16752-77-5
Profenos	41198-08-7
Fenitrothin	122-14-5

2) Chlordane : CAS number : 57-74-9

Used extensively to control termites and as a broad-spectrum insecticide on a range of agricultural crops.

Health Impact:

Toxic; may be fatal if inhaled, ingested or absorbed through skin. Inhalation or contact with some of these materials will irritate or burn skin and eyes. Fire will produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution.

Environmental Fate:

Chlordane has been released into the environment primarily from its application as an insecticide. If released to soil, chlordane may persist for long periods of time; under field conditions, the mean degradation rate has been observed to range from 4.05-28.33%/yr with a mean half-life of 3.3 years. Chlordane is expected to be generally immobile or only slightly mobile in soil based on field tests, chlordane is very slowly

biotransformed in the environment which is consistent with the long persistence periods observed under field conditions. If released to water, chlordane is not expected to undergo significant hydrolysis, oxidation or direct photolysis. The volatilization half-life from a river one meter deep flowing 1 m/sec with a wind velocity of 3 m/sec is estimated to be 7.3-7.9 hrs at 23 deg C while the volatilization half-lives from a representative environmental pond, river and lake are estimated to be 18-26, 3.6-5.2 and 14.4-20.6 days, respectively. However, adsorption to sediment significantly attenuates the importance of volatilization. Adsorption to sediment is expected to be a major fate process based on soil adsorption data .

Alternatives:

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

3) DDT : CAS number : 50-29-3

Perhaps the best known of the POPs, DDT was widely used during World War II to protect soldiers and civilians from malaria, typhus, and other diseases spread by insects. It continues to be applied against mosquitoes in several countries to control malaria.

Health Impact:

Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

Environmental Fate:

DDT (1,1'-bis(p-chlorophenyl)-2,2,2-trichloroethane) has been banned from general use in Egypt since 1996 .If released to the terrestrial compartment, it will adsorb very strongly to soil and be subject to evaporation and photodegradation at the surface of soils. It will not leach appreciably to groundwater or hydrolyze but may be subject to biodegradation in flooded soils or under anaerobic conditions. If released to water it will adsorb very strongly to sediments and be subject to evaporation and photooxidation near the surface. It will not hydrolyze and will not significantly biodegrade in most waters. Biodegradation may be significant in sediments. If released to the air it will be subject to direct photodegradation and reaction with photochemically produced hydroxyl radicals. Wet and dry deposition will be major removal mechanisms from the atmospheric compartment. General population exposure will occur mainly through ingestion of contaminated food, especially contaminated fish and human milk.

Alternatives:

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

4) Dieldrin : CAS number : 60-57-1

Used principally to control termites and textile pests, dieldrin has also been used to control insect-borne diseases and insects living in agricultural soils.

Health Impact:

Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

Environmental Fate:

Dieldrin has been used extensively in the past as an insecticide for corn and for termite control, although it is no longer registered for general use. Dieldrin is extremely persistent, but it is known to slowly photorearrange to photodieldrin (water half-life - 4 months). Dieldrin released to soil will persist for long periods (> 7 yr), will reach the air either through slow evaporation or adsorbtion on dust particles, will not leach, and will reach surface water with surface runoff. Once dieldrin reaches surface waters it will adsorb strongly to sediments, bioconcentrate in fish and slowly photodegrade. Biodegradation and hydrolysis are unimportant fate processes. Fate of dieldrin in the atmosphere is unknown but monitoring data have demonstrated that it can be carried long distances. Monitoring data demonstrates that dieldrin continues to be a contaminant in air, water, sediment, soil, fish, and other aquatic organisms, wildlife, foods, and humans. Human exposure appears to come mostly from food.

Alternatives:

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

5) Dioxins : CAS number : 1746-01-6

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These chemicals are produced unintentionally due to incomplete combustion, as well as during the manufacture of certain pesticides and other chemicals. In addition, certain kinds of metal recycling and pulp and paper bleaching can release dioxins. Dioxins have also been found in automobile exhaust, tobacco smoke and wood and coal smoke.

Health Impact:

Skin disorder ،Extreme exposures also lead to other effects on the skin, liver, immune system, reproduction system, senses and behavior ،long-term health effects such as cancer, coronary disease and impaired reproduction.

Environmental Fate:

2.37.8 Tetrachlorodibenzodioxin (TCDD) is currently released to the environment primarily through emissions from the incineration of municipal and chemical wastes, in exhaust from automobiles using leaded gasoline, and from the improper disposal of

certain chlorinated chemical wastes. If released to the atmosphere, vapor-phase TCDD may be degraded by reaction with hydroxyl radicals and direct photolysis. Particulate-phase TCDD may be physically removed from air by wet and dry deposition. If released to water, TCDD will predominantly be associated with sediments and suspended material. TCDD near the water's surface may experience some photodegradation. Partitioning from the water column to sediment and suspended material will occur. Volatilization from the water column may be important, but adsorption to sediment will limit the overall rate by which TCDD is removed from water. The persistence half-life of TCDD in lakes has been estimated to be in excess of 1.5 yr. Bioconcentration in aquatic organisms has been demonstrated. If released to soil, TCDD is not expected to leach. Photodegradation on terrestrial surfaces may be an important transformation process. Volatilization from soil surfaces during warm conditions may be a major removal mechanism. The persistence half-life of TCDD on soil surfaces may vary from less than 1 yr to 3 yrs, but half-lives in soil interiors may be as long as 12 years. Screening studies have shown that TCDD is generally resistant to biodegradation. The major route of exposure to the general population results from incineration processes and exhausts from leaded gasoline engines.

6) Endrin : CAS number : 72-20-8

This insecticide is sprayed on the leaves of crops such as cotton and grains , It is also used to control mice, voles and other rodents.

Health Impact:

Toxic; may be fatal if inhaled, ingested or absorbed through skin. Inhalation or contact with some of these materials will irritate or burn skin and eyes. Fire will produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution.

Environmental Fate:

Endrin has been formally used as an insecticide on cotton (its major use) and grains, and as an avicide, and rodenticide. EPA presently considers the pesticide cancelled. Endrin is very persistent, but it is known to photodegrade to delta-ketoendrin (half-life 7 days - June). Endrin released to soil will persist for long periods (up to 14 yrs or more), will reach the air either through very slow evaporation or adsorption on dust particles, will not leach to groundwater, and will reach surface water with surface runoff. Once endrin reaches surface waters it will adsorb strongly to sediments, bioconcentrate in fish, and photodegrade. Biodegradation will not be an important process. Fate of endrin in the atmosphere is unknown, but it probably will be primarily associated with particulate matter and be removed mainly by rainout and dry deposition. Monitoring data demonstrates that endrin continues to be a contaminant in air, water, sediment, soil, fish, and other aquatic organisms. Human exposure appears to come mostly from food or occupational exposure.

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

7) Furans : CAS number :110-00-9

These compounds are produced unintentionally from the same processes that release dioxins, and they are also found in commercial mixtures of PCBs.

Health Impact:

Inhalation or contact with material may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control may cause pollution.

Environmental Fate:

Furan occurs in oils obtained by the distillation of pine wood containing rosin. Furan has been identified in volatile emissions from sorb trees and is a constituent of tobacco smoke. Furan's production and use in organic synthesis for pyrrole and thiophene, formation of lacquers, and as a solvent for resins, may result in its release to the environment through various waste streams. For example, energy related processes such as oil refining, coal mining, and coal gasification release furan in the effluent, and it is released to air as a gas phase component of cigarette smoke, wood smoke and exhaust gas from diesel and gasoline engines. Furan has been detected in samples of river water, effluents, household waste headspace, ambient air, in food such as roasted filbert, mutton, chicken, beef and mother's milk, and in expired human air. If released to soil, furan should have high mobility. Volatilization of furan may be important from moist and dry soil surfaces given an estimated Henry's Law constant of 5.4X10-3 atm-cu m/mole and an experimental vapor pressure of 600 mm Hg. According to biodegradation studies conducted in aquifer slurries, biodegradation of furan in soil and water will be slow, except for sulfate-reducing conditions where biodegradation may occur more quickly. If released to water, furan would not adsorb to suspended solids and sediment. Furan would volatilize from water surfaces with estimated half-lives for a model river and model lake of 2.5 hours and 3.3 days, respectively. Experimental BCF values of 0.9-1.5 and <3.2-13 suggest that furan will not bioconcentrate in aquatic organisms. If released to the atmosphere, furan will exist as a vapor. Vapor-phase furan is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated half-life of about 9.5 hours. Particulate-phase furan may be physically removed from the air by wet deposition. The most probable route of exposure to furan by the general population and workers is inhalation.

8) Heptachlor: CAS number :76-44-8

Primarily employed to kill soil insects and termites, heptachlor has also been used more widely to kill cotton insects, grasshoppers, other crop pests, and malaria-carrying mosquitoes.

Health Impact:

When heated to decomposition, it emits highly toxic fumes.

Environmental Fate:

Release of heptachlor to soil surfaces will result in volatilization from the surface, especially in moist soils, but volatilization of heptachlor incorporated into soil will be slower. Hydrolysis in moist soils is expected to be significant. In soil, heptachlor will degrade to 1-hydroxychlordene, heptachlor epoxide and an unidentified metabolite less hydrophilic than heptachlor epoxide. Biodegradation may also be significant. Heptachlor is expected to adsorb strongly to soil and, therefore, to resist leaching to groundwater. Release of heptachlor to water will result in hydrolysis to 1-hydroxychlordene (half-life of about 1 day) and volatilization. Adsorption to sediments may occur. Biodegradation of heptachlor may occur, but is expected to be slow compared to hydrolysis. Bioconcentration of heptachlor may be significant. Direct and photosensitized photolysis may occur but are not expected to occur at a rate comparable to that of hydrolysis. In air, vapor phase heptachlor will react with photochemically generated hydroxyl radicals with an estimated half-life of 36 min. direct photolysis may also occur.

Alternatives

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

9) Hexachlorobenzene (HCB) : CAS number : 118-74-1

HCB kills fungi that affect food crops. It is also released as a byproduct during the manufacture of certain chemicals and as a result of the processes that give rise to dioxins and furans.

Health Impact:

Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

Environmental Fate:

Hexachlorobenzene's production and use as an organic synthesis reagent and its former application as a fungicide may have resulted in its release to the environment through various waste streams. Hexachlorobenzene may also be released to the environment as a waste product in the production of several chlorinated hydrocarbons and pesticides. Based upon a vapor pressure of 4.9X10-5 mm Hg at 25 deg C, hexachlorobenzene is expected to exist in both the vapor and particulate-phase in the ambient atmosphere. Vapor-phase hexachlorobenzene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an estimated atmospheric half-life of about 2.6 years. Particulate-phase hexachlorobenzene may be physically removed from the air by wet and dry deposition. Hexachlorobenzene is expected to be immobile in soils based upon log Koc values in the range of 3.6-5.5 measured in soils and sediment. Volatilization of hexachlorobenzene from dry soil surfaces is not expected based upon the vapor pressure of this compound. Volatilization from moist soil surfaces is expected based on the Henry's Law constant of 5.8X10-4 atm-cu m/mole at 25 deg C, but this process may be attenuated due to

adsorption. Hexachlorobenzene is not expected to biodegrade based on a measured half-life in soil of over 1,500 days. In water, hexachlorobenzene is expected to adsorb to sediment or particulate matter based on its measured Koc values. This compound is expected to volatilize from water surfaces given its Henry's Law constant, but adsorption may attenuate this process. Estimated volatilization half-lives for a model river and model lake are 7 and 180 hours, respectively, when neglecting adsorption. The volatilization half-life from a model pond (2 m deep) is approximately 5 years if adsorption is considered. Biodegradation is not expected in water based on aerobic and anaerobic biodegradation half-lives on the order of several years in fresh waters. Bioconcentration in aquatic organisms is very high based on BCF values in the range of 1,600 to 20,000 measured in fish. Occupational exposure may be through inhalation and dermal contact with this compound at workplaces where hexachlorobenzene is produced or used. The general population may be exposed to hexachlorobenzene via inhalation of ambient air, ingestion of food and drinking water.

Alternatives

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

10) Mirex : CAS number : 2385-85-5

This insecticide is applied mainly to combat fire ants and other types of ants and termites. It has also been used as a fire retardant in plastics, rubber, and electrical goods.

Health Impact:

Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

Environmental Fate:

For the most part mirex is resistant to biological and chemical degradation. Photolysis of mirex may occur. However, sorption is likely to be a more important fate process. Persistent compounds such as kepone, and monohydro- and dihydro- derivatives of mirex have been identified as products of extremely slow transformation of mirex. Mirex has been shown to bioconcentrate in aquatic organisms. A Koc value of 2.4X10+7 indicates mirex will strongly adsorb to organic materials in soils and sediments. Therefore mirex is expected to be immobile in soil and partition from the water column to sediments and suspended material. A Henry's Law Constant for mirex of 5.16X10-4 atm-cu m/mole at 22 deg C suggests rapid volatilization may occur from environmental waters and moist soils where absorption does not dominate. Based on this Henry's Law Constant, the volatilization half-life from a model river (22 deg C; 1 meter deep flowing 1 m/sec with a wind speed of 3 m/sec) has been

estimated to be 10.7 hr; however, this estimation neglects the potentially important effect of adsorption. The volatilization half-life from an environmental pond, which considers the effect of adsorption, can be estimated to be about 1143 years.

Alternatives

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

11) Polychlorinated Biphenyls (PCBs) : CAS number : 1336-36-3

These compounds are employed in industry as heat exchange fluids, in electric transformers and capacitors, and as additives in paint, carbonless copy paper, sealants and plastics.

Health Impact:

Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution.

Environmental Fate:

Current evidence suggests that the major source of PCB release to the environment is an environmental cycling process of PCBs previously introduced into the environment; this cycling process involves volatilization from ground surfaces (water, soil) into the atmosphere with subsequent removal from the atmosphere via wet/dry deposition and then revolatilization. PCBs are also currently released to the environment from landfills containing PCB waste materials and products, incineration of municipal refuse and sewage sludge, and improper (or illegal) disposal of PCB materials, such as waste transformer fluid, to open areas. PCBs are mixtures of different congeners of chlorobiphenyl and the relative importance of the environmental fate mechanisms generally depends on the degree of chlorination. In general, the persistence of PCBs increases with an increase in the degree of chlorination. Mono-, di- and trichlorinated biphenyls (Aroclor 1221 and 1232) biodegrade relatively rapidly, tetrachlorinated biphenyls (Aroclors 1016 and 1242) biodegrade slowly, and higher chlorinated biphenyls (Aroclors 1248, 1254, and 1260) are resistant to biodegradation. Although biodegradation of higher chlorinated congeners may occur very slowly on an environmental basis, no other degradation mechanisms have been shown to be important in natural water and soil systems; therefore, biodegradation may be the ultimate degradation process in water and soil. If released to soil, PCBs experience tight adsorption with adsorption generally increasing with the degree of chlorination of the PCB. PCBs will generally not leach significantly in aqueous soil systems; the higher chlorinated congeners will have a lower tendency to leach than the lower chlorinated congeners. In the presence of organic solvents PCBs may leach quite rapidly through soil. Vapor loss of PCBs from soil surfaces appears to be an important fate mechanism with the rate of volatilization decreasing with increasing chlorination. Although the volatilization rate may be low, the total loss by volatilization over time may be significant because of the persistence

and stability of PCBs. Enrichment of the low Cl PCBs occurs in the vapor phase relative to the original Aroclor; the residue will be enriched in the PCBs containing high Cl content. If released to water, adsorption to sediment and suspended matter will be an important fate process; PCB concentrations in sediment and suspended matter have been shown to be greater than in the associated water column. Although adsorption can immobilize PCBs (especially the higher chlorinated congeners) for relatively long periods of time, eventual resolution into the water column has been shown to occur. The PCB composition in the water will be enriched in the lower chlorinated PCBs because of their greater water solubility, and the least water soluble PCBs (highest Cl content) will remain adsorbed. In the absence of adsorption, PCBs volatilize relatively rapidly from water. However, strong PCB adsorption to sediment significantly competes with volatilization, with the higher chlorinated PCBs having longer half-lives than the lower chlorinated PCBs. Although the resulting volatilization rate may be low, the total loss by volatilization over time may be significant because of the persistence and stability of the PCBs. PCBs has been shown to bioconcentrate significantly in aquatic organisms. If released to the atmosphere, PCBs will primarily exist in the vapor-phase; the tendency to become associated with the particulate-phase will increase as the degree of chlorination of the PCB increases. The dominant atmospheric transformation process is probably the vapor-phase reaction with hydroxyl radicals which has estimated half-lives ranging from 12.9 days for monochlorobiphenyl to 1.31 years for heptachlorobiphenyl. Physical removal of PCBs from the atmosphere, which is very important environmentally, is accomplished by wet and dry deposition.

Alternatives

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

12) Toxaphene : CAS number : 8001-35-2

This insecticide, also called camphechlor, is applied to cotton, cereal grains, fruits, nuts, and vegetables. It has also been used to control ticks and mites in livestock.

Health impact:

Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

Environmental fate:

Toxaphene is a mixture of more than 175-179 components produced by chlorination of camphene. It has been used extensively as a pesticide on cotton as well as other crops. Toxaphene is very persistent. When released to soil it will persist for long periods (1 to 14 yr), is not expected to leach to groundwater or be removed significantly by runoff unless adsorbed to clay particles which are removed by runoff. Biodegradation may be enhanced by anaerobic conditions such as flooded soil. Evaporation from soils and surfaces will be a significant process for toxaphene. Toxaphene released in water will not appreciably hydrolyze photolyze, or

significantly biodegrade. It will strongly sorb to sediments and bioconcentrate in aquatic organisms. In a model, an estimated half-life of approximately 6 hr for evaporation of toxaphene from a river 1 meter deep, flowing at 1 m/sec with a wind velocity of 3 m/sec indicates evaporation will be significant. Field studies have shown it to be detoxified rapidly in shallow and very slowly in deep bodies of water. Toxaphene may undergo very slow direct photolysis in the atmosphere. However vapor phase reactions with photochemically produced hydroxyl radicals should be more important fate process (estimated half-life 4-5 days). Toxaphene can be transported long distances in the air (1200 km) probably adsorbed to particular matter. Monitoring data demonstrates that toxaphene is a contaminant in some air, water, sediment, soil, fish and other aquatic organisms, foods and birds. Human exposure appears to come mostly from food or occupational exposure.

Alternatives

This substance was used as insecticide. Since it was banned, several alternatives are being recommended as mentioned in the previous table.

Annex 4

STUDIES ON RISK ASSESSMENT OF POPS IN EGYPT

I. Studies for Human Health Risk Assessment of POPs:

– Pesticide residues in meat and effect of different treatment methods on it

This investigation dealt with the gas liquid chromatographic analysis of meat and fat samples from cows and buffalos for determination of residues of some organs chlorine pesticides as well as muscle and liver samples from treated chicken to determine the accumulation and withdrawal of chlorpyrifos (dursban) and its fate after boiling or frying. The results reveal that total HCH was 16.9, 647.36 and 4.06, 303.08 ppb for meat and fat samples of cows and buffalos respectively. For DDT, the values were 7.8, 266.5 and 8.87, 998.43 ppb; for heptachlor + heptachlor epoxide, they were 1.76, 39.8 and 0.83 and 41.88 ppb, for dieldrin + aldrin, the values were 10.16, 161.67 and 1.77, 54.4 ppb respectively. Chicken muscles contained 22.6, 149.8, 30.7, 21.7 and 0.5 ppb, while their liver contained 179,494,139.9, 56.8 and 40.9 ppm. Boiling reduced the residue of dursban from 22.6 to 0.20 ppb while frying totally eliminated the pesticide. *(Mussttafa, Abou-Bakr Refaei Mahmoud, 1992).*

– Rapid gas chromatographic screening of residues of nine organochlorine pesticides in chicken fat

A new multiresidue technique for the extraction and quantitative gas chromatographic screening of 9 insecticides (lindane, heptachlor, aldrin, heptachlor epoxide, p, p' DDE, dieldrin, endrin, p, p' DDD and p, p'DDT) as residues inchicken fat is presented. The 9 insecticides, plus dibutyl chlorendate internal standard, were fortified into half gram chicken fat and blended with 2 g C18 (octadecylsilyl derivatized silica reversed phase material).The C18/fat matrix blend was fashioned into a column by adding the blend to a 10 ml syringe barrel containing 2 g activated florisil. The insecticides were then eluted from the column with 8 ml acetonitrile and a portion (2 mul) of the acetonitrile elute was then directly analyzed by gas chromatography with electron capture detection. Unfortified blank controls were treated similarly. The resultant extracts contained the pesticide analyses (31.25 - 500 ng/g) that were free from interfering compounds when analyzed. Correlation coefficients for the 9 extracted pesticide standard curves (linear regression analysis, n = 5) ranged from 0.9957 + 0.0012 to 0.9999 + 0.0001. Average relative percentage recoveries (83 + 5.8 % to 98 + 5.2 %, n = 25 for each insecticide) interassay (6.1 + 3.2% to 15.9 + 6.7%, n = 25 for each insecticide) and intraassay (1.8% to 4.8%, n = 5 for each insecticide) variabilities were indicative of an acceptable methodology for the analysis and screening of these residues in chicken fat. *(Sulayman, Maher M, 1992)*

– Quantitative assessment of breast milk for some chlorinated hydrocarbons and their effect on infants

EI-Shaikh et al., 1990 determined the levels of some chlorinated hydrocarbons, and/or their metabolites in breast milk. The health effects of these chemicals on

infants, 6 to 12 months are also studied. A population-based sample was taken from the lactating women and their infants in a rural and an urban area. Data concerning exposure were collected by a structured interview. Milk samples were analyzed by HPLC Some growth and development parameters were assessed using Al Abbassy scale. The results have shown on differences in the socio-demographic characteristics of the two groups. Relatively high levels of p, p'-DDD, p, p'-DDT, p, p'-DDE and 0, p-DDE were detected. Data on growth and development were analyzed, taking into consideration on the confounding factors. Chlorinated hydrocarbons constitute a potential hazard leading to pollution of breast milk. Regulations concerning their use are reviewed

– Biochemical studies on organophosphorus compounds toxicology: Influence of selected pesticides on melatonin synthesis and release in the pineal gland

The results show that pineal NAT activity increased at 0100h following parathion administration. However, HIOMT activity was unaffected, whereas pineal and serum melatonin levels increased by might (2300h and 0100h). Oral administration of carbaryl into male rats at 0900h increased pineal NAT and HIOMT. Nocturnal NAT activity increased after lindane administration and augmented pineal and serum melatonin levels at 2300h. DDT seemed without effect on NAT activity, pineal and serum melatonin levels. Neither lindane nor DDT significantly affected pineal HIOMT values during day or night. Lindane alone significantly augmented the nocturnal levels of pineal NAT activity *(Atteya, Ahmad Mursi Mahmoud,1991).*

– Pesticides level in human breast milk

Ghali and Fahm, 1991 studied 40 lactating mothers through the random cross section study. Nine cases of these were positive for PCBs (kelthane), 3 cases were positive for OP (dimethoal) and 1 case was positive for both types. There was no apparent physical or mental abnormality in the examine infants. No significant association between the residence and the presence of insecticides: kelthane being more in the urban and dimethane being more in the rural areas. There was a significant difference between milk samples from lactating mothers of the first time and those lactating for more than once. Positive results for pesticides were frequent in samples from the latter type of mothers indicating excessive pollution.

– Monitoring of some pesticide residues in cow and buffalo milk

The study aimed at monitoring the amount of some pesticide residues in cow and buffalo milk, both fresh and ultra high treated (UHT), and at estimating the average daily intake of such pesticide residues through milk. 520 cow and buffalo primary milk samples were collected. Samples covered production of factories and farms, as well as milk from wholesalers and retailers. Analytical procedures and quality control for extraction and clean up were followed and determination was conducted using a gas liquid chromatography equipped with an electron capture detector with EPA standards as reference material. Estimated daily intake of pesticides detected from milk alone for Egyptian infants was higher for Heptachlor, Aldrin, Dieldrin, Chlorodane, Summation DDT and Endrin. Based on obtained results, it should be recommended that actions have to be taken to reduce such contamination. Also, food contamination monitoring should cover all staple foods and should be

periodic *(Ezz, Alaa-EI-Din Essmat, 1992).*

– **Residues of some pesticides in tissues of camels slaughtered at Cairo abattoirs**

This work aimed to detect the presense of some organochlorine in different organs and times of camels. The results showed that total and alpha-HCH were recorded in liver, kidney, fat and muscle, B-HCH was found only in the kidney. Alpha-HCH, 4,4 DDE, 4,4 DDT, dieldrin were present in fat and muscles, delta-HCH and heptachlor were detected in liver. 4,4 DDD, endrin, endosulfan 11 were reported in muscles only. Total DDT prevailed in all samples but the kidney. Total heptachlor, heptachlor epoxide were traced in liver and fat samples. Aldrin concentrated in liver and kidney only. Endrin was found in muscles only. Total endrin + endrin aldehyde was detected in kidney and muscle *(EI-Safti, Munir Muhammad Deyab, 1993).*

– **Association between water pollution with insecticides and their residues in fish**

Forty water samples were collected from Lake Maryut and Alexandria Hydrodrome. Twenty samples were collected from each locality during summer months, at the same time, other 40 samples of Tilapia galilaa fish, each weighed 100-150 g, were obtained from the same localities from which water samples were collected. After estimation of some organochlorine and organophosphorus insecticide residues in water and fish samples using gas liquid chromatography (GLC) , the results were evaluated according to water quality criteria (1968) and Joint FAO/WHO(1978). The obtained data indicated a correlation between detected insecticides residues DDT, dieldrin and dimethoate in fish and their concentration in water. The data also indicated that the level of insecticides in Alexandria Hydrodrome water and fish samples is higher than in Maryut samples. The insecticide hazards as well as public health importance were discussed. *(El-Hushi, Samya M. Mousa, M. M..1994).*

– **Organochlorine pesticide residues in Tilapia species fish and the influence of thermal treatment and freezing storgement on their levels**

Thirty fish samples of Tilapia species were collected randomly from Alexandria fish markets. The samples were screened for organochlorine pesticide (DDT, Dieldren and Lindan) in fish muscles. The mean concentrations of DDT, Dieldren and Lindan in fish muscles were 3.67 +or- 0.59, 0.17 + or- 0.03 and 0.75 + or- 0.21, respectively. No pesticide residues could be detected in positive samples after being exposed to heat treatment (roasting for 20 minutes and frying in oil for 15 minutes). However, freezing for one month at -20C had slight significant effect on pesticide residues, while freezing storage for up to two months was sufficient for destruction of such residues in tested samples. The toxicity and public health significance of organochlorine pesticide were discussed *(El-Hushi, Samya M. Samaha, I. A.,1994*).

– **A comparative study of fish cultured in sewage_fed farms of Lake Manzala and fish grown in wastewater stabilization pond system in Suez, Egypt**

When fish are raised in sewage effluents, toxic chemicals in the wastes may pose a threat to the humans who consume the fish and in addition may adversely affect the fish. This study compared the loadings of some organochlorine pesticides and heavy metals in two fish cultured in one of the fish farms of Lake Manzala, that receives large quantities of untreated sewage, with the fish grown in the wastewater

stabilization pond system of the Suez Experimental Station (SES). The residue levels of the organochlorine pesticides p,p' DDT and its metabolites represented the highest levels of organochlorines in all fish samples from either sites followed by Lindane and BHC. The proportion of p,p' DDE was the dominant compound followed by p,p' DDD and p,p' DDT in all fish samples. However, residues of organochlorine pesticides in fish from Manzala sewage-fed farm were much higher than the fish grown in fish ponds of SES. Also, the concentration levels of the heavy metals lead (Pb), copper (Cu), and zinc (Zn) and cadmium (Cd) in fish from Manzala sewage-fed farm were significantly higher than those in fish from the wastewater stabilization pond system of SES. The concentration levels of lead (Pb) and cadmium (Cd) in fish from manzala sewage-fed farm exceeded the international permissible limits. On the other hand, fish raised in the wastewater stabilization pond system of SES were chemically safe for human or other consumption. The residue and concentration levels of organochlorines and heavy metals were far below the international permissible and safe limits *(Sherif, M. M., 1994).*

– **Monitoring of pesticide residues in wheat, horse-bean, rice and egg samples collected from four markets in Great Cairo**

Random samples of four of the most common food items, i.e. wheat, horse-bean, rice and eggs, were collected from the principal local markets in Great Cairo and analyzed for monitoring organochlorine and organophosphorous pesticide re si dues. For organochlorine pesticides, data of gas' chromatography revealed that total-DDT was the most prevailing contaminant with 100% frequencies, followed by total HCH, heptachlor + its epoxide, endrin and aldrin + dieldrin. With the exception of egg samples, few violations for aldrin + dieldrin, heptachlor + its epoxide and each of aldrin + dieldrin and DDT were detected in few samples of wheat, rice and horse-bean, respectively. On the other hand, only 5 out of 12 organophosphorous pesticides were detected only in wheat and horse-bean samples, and no violations were observed *(Helali, A. R. et al., 1995).*

– **Detection and identification of some pesticide residues and heavy metals in Qaroun Lake and River Nile fish**

72 random composite different fish samples, 60 random water and 60 sediment samples were collected from Qaroun Lake, as a model of a closed lake, and River Nile, as a model of running water, to detect the presence and determine the level of pesticide residues (organochlorine and organophosphorus pesticides) and heavy metals in different seasons (winter and summer). The results indicated high levels of pesticide residues and heavy metals in summer in water and sediment samples collected from the both locations. Fish samples collected from both locations, contained lindane, aldrin, DDT and malathion as well as Zn, Mn, Fe, Cu, Pb, Cr and Cd in the permissible levels. Water samples contained pesticide residues far lower than the safe limits for drinking water, while the detected heavy metals were higher than the safe limits for drinking water *(Ebrahim, Heba Taher Muhassab, 1996).*

– **Monitoring of chlorinated hydrocarbon insecticides in some vegetables and fruits samples in local markets in Egypt**

Data indicate that vegetables and fruits samples collected from the four

governorates contained various amounts of chlorinated hydrocarbon insecticide residues, i.e. B-BHC, lindane, heptachlor, aldrin, gamma chlordane, 0, P-DDE, 0, P-DDTand P,P-DDT. Plant variety and locality proved important in this respect. As a general trend, samples of potatoes and grapes from Alexandria and Assiut localities contained more insecticide residues, while the contrary was shown with tomatoes. Fluctuated amounts of insecticide residues were recorded in figs samples. All detected amounts of insecticides are within the acceptable levels (Abdel-Dayem, Y. A. Husain, M. I., 1995).

– Organochlorine pesticides residues in water and fish from the River Nile

Residues of epsilon DDT and its metabolites, B-BHC, lindane, heptachlor, aldrin and gamma-chlordane were determined in the flesh of 100 specimens of tilapia and bayad fishes as well as water samples from the River Nile passes through extended Cairo Governorate. Samples were collected from 5 different sites. Water samples contained the least amounts of organochlorine compounds. Organochlorines levels in water samples collected near the river shore at each site were higher than that collected from the corresponding middle locations. Water samples were rarely have measurable quantities of organochlorines. In most cases, bayed contained higher levels of organochlorines than tilapia did. Organochlorines concentrations in both tilapia and bayed varied widely within a sample and between site", The highest mean values organochlorines concentrations in bayed and tilapia were 50.15 and 22.42 mug kgA-1 fresh weight respectively. Water samples and both fish species were analyzed for organochlorine residues in the present investigation pose virtually no risk to human health. The obtained results were compared with the international standards for pesticide residues in both water and fish samples *(Hasan, I. M. et al., 1996).*

– Pesticide residues in edible oils

Seven edible locally distributed oil were collected in duplicate from different places in Zagazig City, Sharqia Governorate. The samples were analyzed for detection of organochlorine pesticide by electron capture gas chromatography. The results revealed that the average concentration of alpha-HCH, gamma-HCH (lindane), total DDT, aldrin plus dieldrin and endrin in different edible oil samples were 0.0073 + or- 0.0029, 0.0211 + or- 0.0111, 0.350 + or- 0.0063, 0.0224 + or0.0103 and 0.013 + or- 0.0050 ppm. The levels of alpha-HCH in linseed oil; gamma-HCH and aldrin plus dieldrin in olive oil and linseed oil and endrin in olive oil and soya bean oil, were detected with concentration above the maximum limits for pesticide residues in refined edible oil. The total DDT in all examined oil samples (except linseed oil) was above the recommended limit *(Abou-Zahw, Mussttafa M. et al., 1995).*

– Organochlorine pesticide residues in Clarias lazera and Tilapia nilotica fish and its public health importance

40 fish samples (20 each of Clarias lazera and Tilapia nilotica) each weighing 150-200 g were collected from Zagazig markets for determinating of organochlorine

pesticides residues Lindance, Aldrin, Dieldrin, Endrin and DDT residues were detected in Clarias lazera samples with mean values 0.009 + or- 0.002, 0.026 + or- 0.004, 0.540 + or- 0.012, 0.008 + or- 0.002 and 1.506 + or- 0.013 ppm, respectively. The corresponding levels in Tilapia nilotica samples were 0.008 + or- 0.002, 0.006 + or- 0.001, 0.021 + or- 0.003, 0.006 + or- 0.001 and 0.035 + or- 0.005 ppm, respectively. Clarias lazera contained a high level of Dieldrin than other pesticide residues, while none of detectable levels of pesticides in Tilapia nilotica exceeded permissible limits. Moreover, the fish tissues which contained a high level of organochlorine pesticide residues may act as a serious health hazard for man and animal consuming such fishs *(Saleh, Essam. Hafezh, Abdel-Salam, 1995).*

– Analytical studies of trihalomethanes Carbamate and chlorinated pesticides in Nile and drinking water

The aim of this work is to study the concentration levels of trihalomethanes, chlorinated and carbamate pesticides in drinking and surface water (River Nile) during September 1994 - August 1995, from 4 water treatment plants located in Great Cairo. Chlorinated pesticides, determined in Nile water, were alpha, beta, gamma and delta BHC, heptachlor and its epoxide, aldrin, endrin, dieldrin, DDE, DDD, DDT and endosulfan I and 11. Chlorinated pesticides detected in drinking water were beta, delta BHC, aldrin, heptachlor and its epoxide, endrin, DDT, endosulfan 11 and endosulfan suI fate with concentration ranged from 3 to 80 ng/L. Carbamate pesticides determined in Nile water were aldicarb, propoxur, carbofuran, carbaryl, methomyl and methiocarb with concentration ranged from 0.083 to 19.4 mug/L. Carbamate pesticides in drinking water were carbofuran, carbaryl, aldecarb sulfoxide and methiocarb with concentration ranged from 0.53 to 2.39 mug/L *(Afifi, Fayza Abdel-Lattif,1997).*

– Organochlorine pesticide residues in milk and some milk products

5 products from each of pasteurized, sterilized and condensed milk as well as 5 samples of raw buffalo milk were collected randomly from different places in Zagazig City, Sharqia Governorate. The samples were analyzed_or detection of organochlorine pesticide residues by using' Electron Capture Gas Chromatography. The results revealed that all examined milk samples were contaminated by alpha-HCH, beta HCH gamma-HCH (Lindane), P, P'-DDT, Aldrin Dieldrin and Endrin. The residues of O.p'-DDT, P, P'-DDD and P, P'-DDE were detected in raw and pasteurized milk, but could not be detected in sterilized and condensed milk. Highest concentration of organochlorine residues was found in raw milk followed by pasteurized, sterilized and condensed milk. The levels of Aldrin plus pesticide residues in examined milk indicate its persistence in food chain and may act as a hazard on human health. Therefore, restricting the usage of organochlorine insecticides and periodical examination of milk and milk products are the main preventive measures to reduce their level in human food *(Abdel-Qader, Mahdi A. et al., 1994).*

– Pesticide residues in human breast milk

Abdel-Qader, et al. 1996 collected 16 human milk samples from lactating mothers. The samples were analyzed for detection of organochlorine and polychlorinated biphenyls (PCBs) residues using Electron Capture gas chromatography. The results

revealed that the total DDT and Beta-HCH were found in all examined human milk samples, followed by Heptachlor, Heptachlor epoxide, gamma-HCH (Lindane) and Dieldrin with an average of 93.74, 30.69, 0.65, 1.59, 1.66 and 0.43 ppb (mu g/kg) whole milk, respectively. Meanwhile, Aldrin and Polychlorinated biphenyls(Aroclor 1254 and Aroclor 1260) were not detected in all examined milk samples. Dietary intakes of organochlorine pesticide residues by infants were estimated and compared with Acceptable Daily Intakes. The results showed that estimated dietary intakes of Heptachlor epoxide in 18.75% of examined human milk samples were above acceptable daily intake recommended by FAO/WHO, while Gamma-HCH (Lindane) were below the recommended limit. Aldrin + Dieldrin and total DDT in 12.50% of examined samples was exceeded the Acceptable Daily Intakes. The obtained results indicated that organochlorine pesticide residues in mother's milk considered as a hazard for infants consuming such milk

– Organoch1orine residues in buffalo and cattle tissues in Assiut Governorate

Pesticide residues studied in 164 tissue samples (120 fat, 20 liver and 24 muscle samples) collected from Assiut Governorate during March - April 1992 by GC-ECD. Liver and muscle samples were contained negligible amounts of organochlorine pesticides contained relatively higher amounts that rarely exceeded the permissible limits. DDT derivatives (p, p-DDT, 0, p-DDD and p, p-DDE), total HCH isomers(alpha-, beta-, gamma- and delta-isomers) and hexachlorobenzene (HCB) were the most frequent pesticides, followed by aldrin and dieldrin, endrin and heptachlor and heptachlor epoxide. Only one buffalo fat sample (1.3%) exceeded endrin released by the Codex Committee on pesticide Residue (CCPR) of FAO/WHO in 1990 *(Salem, Dhaifi A. et al.,1998).*

– Chlorinated hydrocarbon pesticide residues in small ruminants and camel fat in Assiut, Egypt

A total of 80 samples (40 goats, 20 sheep and 20 camels) were collected from Assiut Governorate slaughter houses and analyzed for determination of chlorinated hydrocarbon pesticides residue levels (alpha, beta, gamma, delta-hexachlorocyclohexane (HCH) , p, p'-DDT and some analogues (p, p'-DDE, p, p'-DDD and 0, p'-DDT) , aldrin and dieldrin, heptachlor and heptachlor epoxide, endrin and hexachlorobenzene (HCB) by using GC-EDC. The main chlorinated hydrocarbon contaminants found in all analyzed samples of goat and sheep were beta-HCH, p, p'-DDE and p, p'-DDT and p, p'-DDE in camel followed by p, p'-DDD, alpha-HCH, HCB and endrin. Heptachlor and aldrin could not be detected in sheep and camel fat but recorded in few goat samples. Total HCH isomers average were 0.01 + or- 0.007, 0.006 + or- 0.007 and 0.004 + or- 0.003 ppm in goat, sheep and camel fat, respectively, while the mean values of total DDTs were 0.0116 + or- 0.008, 0.0122 + or- 0.008 and 0.0024 + or- 0.0011 ppm. The obtained results showed a decrease in the levels of the investigated pesticides. The changes were related to the prohibitions and restrictions applied on the usage of these compounds. The detected residue levels were compared with extraneous residue limits (ERL's) released by the Codex Committee on Pesticide Residue (CCPR) of FAO/WHO in 1994, health hazards were also, discussed (*Salem, Dhaifi A. et al., 1998)*

– Occurrence of organochlorine pesticides in fresh water fish in Assiut markets

Organochlorine pesticides [total DDT complex (p, p'-DDT, 0, p, p'-DDT, gamma- and delta-isomers), heptachlor and heptachlor epoxide, aldrin and dieldrin, endrin and hexachlorobenzene (HCB) were investigated in 5 species of fresh water fish (Oreochromis ni1oticus, C1arias 1azera,Labeo niloticus, Bagarus bayed and Synodontis species) collected from Assiut markets. Chlorinated residues were analyzed by gas chromatography with electron capture detector (GS-ECD) using capillary column. The analytical results revealed that all samples were contaminated with one or more of the investigated pesticides. Total DDT complex, total HCH isomers were found in all analyzed samples with the highest values, followed by endrin, HCB, dieldrin, and heptachlors. Total DDT complex averages were 1.077, 1.865, 3.911, 3.832 and 3.476 ppm, while total HCH isomers averages were 0.297, 0.16D, 0.108, 0.093 and 0.029 ppm in the investigated 5 species, respectively. The residue levels detected were compared with those of the international limits and its hazardous effects were discussed *(Salem, D. A. et al., 1995).*

– Organochlorine pesticide residues in fish from Qatari coastal waters

Very little is known about the level of organochlorine contamination in the Arabian Gulf around Qatar. 6 species of common fish in Qatar were chosen in 1987 and were analyzed for organochlorine pesticide residues. The results obtained by gas chromatography and confirmed by thin layer chromatographic techniques revealed low levels of organochlorine in fish samples. Pesticide contaminants found most frequently were Lindane *(Almazh, Munir M. Abou-Zahw, M. M., 1995).*

– Aldrin/dieldrin in different cheese types

Different cheese samples collected from different Egyptian cities were analyzed for the presence of the aldrin and dieldrin. A simple ELISA was used for the detection and quantification of aldrin and dieldrin cheese samples of different types: Semi-hard, hard and processed cheeses. The test was modified for application in this high protein system. The analysis showed that there are detectable levels of these pesticide residues in approximately 59.86% of the cheese samples tested. Of the 294 cheese samples analyzed, 104 (35.37%) exceeded the 0.15 ppm for maximum residual limit recommended by WHO. This represents a major health risk *(Mursi, M. A., 1998).*

– Pesticide residues in human milk and blood samples from lactating women, their children in Monoufia and correlation to their health status

Abdel-Hamid, 1997 made their study on 33 pairs of lactating mothers and their suckling infants in a rural area. All were subjected to a special questionnaire, full clinical examination and lab investigations for detection of organochlorine pesticide residues in sera and milk of mothers and sera of infants. Hemoglobin, liver enzyme, serum proteins and blood urea nitrogen (BUN) were also measured. The results demonstrated that the DDT group is responsible for the greatest number, of positive sera and milk samples (for mothers) and sera samples (for infants). Positive

correlation among pesticide residue level in mother's sera milk and infants sera were detected. Correlation between mothers and infants sera pesticide residue on one side and hemoglobin level and serum proteins (-ve correlation), liver enzymes and BUn (+ve correlation) indicates that consumption of contaminated food or/drinks is potentially hazardous to population in general and lactating mothers and their infants in special

– **Polyaromatic hydrocarbons, chlorinated hydrocarbons and heavy metals in biota and sediments from Omani coastal waters**

The distribution and residue levels of polyaromatic hydrocarbons (PAH) organochlorine pesticides (OC), PCBs and some heavy metals in some Omani mar1ne species were evaluated. The results indicate that the residue levels of PAH in sediments from Omani coastal waters are lower than those reported in certain other areas. 7 selected polyaromatic hydrocarbons were detected in fish samples. The mean residue levels of benzo (a) pyrene ranged between 20.9 ng/g dry weight and 26.2 ng/g dry weights. The residue levels of OC and PCBs in oyster and sediment samples revealed relatively low level of contamination. The analytical data indicate that the levels of DDTs and PCBs compounds in fish are still very low compared with the permissible limits. The concentrations of selected heavy metals were found to be generally low in sediments and oysters. The fish samples analyzed suggest that Hg levels in Omani fishes are low compared to the values reported elsewhere for samples from other regions *(Badawi, Muhammad I., 1990).*

– **Organochlorine pesticide residues in raw buffalo milk and soft cheese in middle Egypt**

300 samples of raw buffalo milk and soft cheese were collected from Giza, Beni-Swif and Fayoum governorates. The samples were analyzed for organochlorine pesticide residues. The results revealed high frequency for P, P'-DDT, p, p'-DDE and beta HCH. Chlordane and Endrin could not be detected in any of the analyzed samples. Soft cheese samples contained fewer residues than raw milk. The levels of organochlorine residues were compared with the acceptable limits of FAO/WHO (1996). 6.3% of samples exceeded these limits *(Gerges, Ayda F., 1998).*

– **Monitoring of organochlorine pesticide residues in milk products**

Fifty four random samples [27 milk samples, 12 cream samples, 11 Kareish (skim milk) cheese samples and 4 yoghurt samples] were collected from Agricultural Research Station of Kafr El-Sheikh. All collected samples were subjected to extraction and clean up procedure for multi residue detection of pesticides. The results demonstrated that p,p-DDE was the only and most frequent organochlorine residue contaminates milk and cheese samples. Storage process caused a significant decrease of p,p-DDE residues in cheese samples after 15-days storage. Pasteurization process doesn't cause any decrease in p,p-DDE residue. P,p-DDE and p,p-DDD residues were detected in higher concentration in case of cream samples compared with milk samples. P,p-DDD was the only residue that detected in yoghurt samples. None of the milk or milk product samples exceeded in Codex Alimentarius residue limits for DDT complex in milk *(El-Marssafi, Ashraf. et al., 1990).*

– Chlorinated hydrocarbon pesticide residues in some types of Egyptian cheese

Monitoring of chlorinated hydrocarbon pesticide levels in three kinds of cheese produced locally in Egypt were carried out. Samples of cheese were collected (30 samples each of Damietta, Ras and Kariesh cheese) from different markets and analyzed for pesticide contamination using gas chromatograph. The obtained results revealed that pesticide contaminants were HCH isomers including lindane, DDT complex, Aldrin, Dieldrin and Endrin. The detected residuing in Kariesh cheese (free fat) was nearly present in trace amounts, while higher levels were detected in Damietta and Ras cheese samples. Residues level which were estimated in examined cheese samples compared with the maximum residual limits estimated by FAO/WHO, alpha HCH, DDT's complex, Aldrin and Dieldrin and Endrin exceeded the permissible limits in two examined Damietta cheese samples. DDT's complex and Endrin exceeded the permissible limits in 1 and 3 samples of Ras cheese, while the detected levels did not exceed these limits in any of the examined Kariesh cheese samples *(Abdel-Hadi, H. M. Halawa, M. A. Abou-Zaid, A. M., 2000).*

– Pesticide residues in Egyptian spice and medicinal plants and their behavior during preparation

Pesticide analysis for residues of organophosphorous and o_ganochlorines was performed on 303 samples belonging to 20 different spice and medicinal plants. All the analyzed samples were collected from some sources in Egypt and several shipments. The analysis revealed that malathion was predominant in most of leaf, flower and fruit samples. The detected residue concentrations of malathion in the analyzed samples of jews mallow, dill, celery, tea, caraway, chamomile and saffron exceeded the published maximum permissible levels (MPLs). Also, the mean levels of dimethoate were higher in caraway and chamomile samples than the MPLs. On the other hand, profenofos, pirimiphos methyl, chlorpyrifos, parathion and diazinon were detected at low levels or were not detectable in some cases. With respect to organochlorin_pesticide residues such as lindane, aldrin, dieldrin, DDT, chlordane and endrin, they were detected in chamomile samples at mean levels higher than the MPLs *(Abou-Arab, A. A. K. Abou-Dunya, M. A., 1999).*

– Organochlorine pollutants level in fish from Mariut Lake, Alexandria, Egypt

The residues of twenty-five organochlorine pollutants as well as three aroclors were analyzed by capillary GLC in two Tillipia fish species and Cyprinus carpio collected from Mariut Lake, Alexandria, Egypt. The studied pollutants were DDT's isomers, hexachlorocyclohexane (HCHS) isomers as well as cyclodiene compounds, mirex, methoxychlor, toxaphene and hexachlorobenzene (HCH), aroclors 1248, 1254 and 1260 in addition to nine individual PCBs congeners. Lindane dominated the alphaisomer of HCHS. P,p'_DDE dominated other DDTs analogs in all fish samples with maximum concentration 25.0 ng/g in Cyprinus carpio. Toxaphene was detected in all fish samples with a maximum level of 29.0 ng/g in Cyprinus carpio. Aroclor

1248 dominated other aroclors in all fish samples.For PCBs 153,congener dominated other congeners. The lower chlorinated biphenyls congeners occurred at lower levels except PCB 200 which was not detected *(Abou-EI-Ela, Nadya. Abd-Allah, Aly M. A., 1997).*

– Organochlorine pesticide residues in maternal blood, cord blood and huma_ milk in mothers/infant pairs in Egypt

A total of 155 samples of maternal blood, cord blood and breast milk was collected from mothers and their neonates from major general hospitals in Cairo, EI-Menia and Aswan. The samples were analyzed for organochlorine pesticides by gas chromatography equipped with 63Ni electron capture detector. Dichlorodiphenyl ethane compounds (DDT, DDE and DDD) were the most frequently found pesticides in almost all the samples. High levels of endrin, dieldrin and heptachlor epoxide were detected in breast milk samples. All the investigated samples from Aswan showed higher levels than those from Cairo and EI-Menia. Levels of organochlorine pesticide residues were significantly higher in primiparous, elder and obese mothers. This was also observed in mothers who were engaged in farming related tasks and in those used to eat fish regularly. Estimated daily intakes (ED!) of DDT by breast-fed infants in Aswan (456.24 mug/kg body weight/day) were higher than in Cairo (130 mug/kg body weight/day) and El-Menia (115.08 mug/kg body weight/day). These EDI were 2280%, 650% and 575% of the acceptable daily intake (AD I), respectively. EDIs of gamma-hexachlorocyclohexane isomers (HCH) were below the ADI, whereas EDI of endrin, dieldrin and heptachlor epoxide exceeded their ADI. It was recommended to measure and evaluate the actual total intakes of organochlorine pesticide residues consumed in Egyptian diet. Pesticide residues in foodstuffs should be monitored in order to ensure that public health is not endangered by residue concentrations that are in excess of the official tolerance levels *(Abd-Allah, E. A. M. et al.,1998).*

– Organochlorine pesticides residues in tissues of slaughtered animals

The aim of this study was to investigate slaughtered animals for organochlorine pesticides residues. Organochlorine pesticides residues were determined using high performance thin layer chromatography (HPTLC). DDT, aldrin and dieldrin could be detected in the tissues of beef and buffalo carcasses with variable levels. Seventy-seven beef carcasses and 82 buffalo carcasses were contaminated with organochlorine pesticides. The sites of tissue accumulation in rabbits of the organochlorine DDT were studied. Twenty rabbits were dosed orally with DDT (5 mg/kg body weight per day) for ten days. Groups of five animals were killed on days I, 8,15 and 21 after DDT treatment and their tissues were examined for the presence of DDT. Such concentrations decreased to reach 0.33, 0.28 and 0.16 mg/kg in group 4, which was slaughtered on day 21 after treatment. The reduction percentage was 71.60 and 62%, respectively ***(****Gad-Allah, Muhammad Nagib Fatthi M. M.,2000).*

– Biochemical and Neurobehavioral Assessment of Neurotoxicity in Workers Occupationally Exposed to Organophosphorus Pesticides

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Abstract. Workers *(n=229)* from an Egyptian pesticide formulation plant were screened for biochemical and behavioral signs of organophosphorus induced delayed polyneuropathy (OPIDP). Tests included lymphocyte neuropathy target esterase (LNTE), serum cholinesterase (ChE), tactile sensitivity (OPTACON), block design (BD) and Santa Ana Dexterity (SAD) tests. Workers from fertilizer *(n=181)* and textile *(n=I66)* plants were also tested as controls. LN1E activity levels of pesticide formulators were significantly lower than that of workers from other plants. Tactile thresholds varied significantly among plants (highest in pesticide plant) and for levels of education (inverse relationship) after controlling for age and LNTE activity. There was no significant interaction of education and plant. Tactile threshold increased linearly with age as expected. BD and SAD scores did not vary with LNTE or among plants. The finding of reduced tactile sensitivity in pesticide formulators is consistent with OPIDP, although LNTE levels were inhibited more than 50% relative to controls in only 17% of the pesticide workers. Results suggested that tactile sensitivity testing may provide a useful method for early detection of peripheral neuropathy in workers occupationally exposed to pesticides.

– **The Organochlorine Insecticide 1,2,3,4,5,6Hexachlorocyclohexane (Lindane) but not 1,1,I-Trichloro2,2-bis(p-chlorophenyl)ethane (DDT) Augments the Nocturnal Increase in Pineal N -Acetyltransferase Activity and Pineal and Serum Melatonin Levels**

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The effect of organochlorine insecticides lindane (1,2,3,4,S,6-hexachlorocyclohexane) and DDT (1,1,1-trichloro-2,2-bis (p-chlorophenyl)ethane) were studied in terms of their effects on the rat pineal N -acetyltransferase (NAT) activity, hydroxyindole-O-methyltransferase (HIOMT) activity and pineal and serum melatonin levels during the day (2000h) and at night (2300 and 0l00h). Additionally, pineal levels of S-hydroxytryptophan (S-HTP), serotonin (S-HT), and 5-hydroxyindole acetic acid (5-HlAA) were estimated. Nocturnal NAT activity was increased after lindane administration; likewise, lindane augmented pineal and serum melatonin levels at 2300h. Conversely, DDT was without a statistically significant effect on either NAT activity or on pineal or serum melatonin levels. Neither lindane nor DDT significantly influenced pineal HIOMT values either during the day or at night. Likewise, neither insecticide consistently influenced pineal levels of either S-HTP, S-HT or S-HIAA. The results indicate that the organochlorine insecticide, lindane, modifies pineal melatonin synthesis in vivo.

– **Two Acute Human Poisoning Cases Resulting from Exposure to Diazinon Transformation Products in Egypt**

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ABSTRACT. Two spraymen working in public health occupations in Alexandria, Egypt, ex. perienced acute toxicity resulting from exposure to diazinon. Symptomatology was similar to that previously reported for exposure to parathion or other organophosphorus insecticides. Plasma and red blood cell cholinesterase activity values were determined in blood samples obtained from both individuals at various times after the incident. Cholinesterase activity showed a marked reduction up to 18 days after exposure. Blood cholinesterase activity recovered to approximately 90_o of the normal level of activity 28 days after the poisoning incident in one individual. This activity recovered to about the same level in the other individual, but after only 20 days from the poisoning date. Experimental results suggested that this acute toxicity resulted from unsuitable storage conditions of the emulsifiable concentrate formulation of diazinon. The diazinon that was applied was stored in "tin" containers made of tin-plated sheet steel. The emulsifiable concentrate (60%) was not in compliance with the World Health Organization's st.lndard spedficillions regarding the emulsion stability tests because of the presence of cryst..\ls in the ernulsiiiable concentrate. A sample of this crystalline m3terial was anO\lyzcd. C.1S chromatographic analysis combined with mass spectrometric techniques failed to identify intact diazinon in samples of th;)t material. The sample represented virtually complete COI1\ersion of diazinon into transformation products. Sulfotepp and monothiono- TEPP were two of the identified products in the sample, both of which are much more toxic than diazinon.

– **Assessment of Lead Toxicity in Traffic Controllers of Alexandria, Egypt, Road Intersections**

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ABSTRACT. Blood lead level (BPbL) was determined in forty-five traffic controllers working on Alexandria road intersections. Central nervous system dysfunction in the subjects studied was investigated by means of performance tests. Biochemical indicators related to lead exposure such as &-aminolevulinic acid dehydratase and hemoglobin in their blood were also determined. Results indicated that most of the subjects studied have a comparably high BPbL. They also showed significantly poorer performance scores than that obtained in a previous study with a group of textile workers of the same age and educational levels. The mean of the BPbL in the traffic controllers was found to be 68.28 :t 13.22 IJ.gIdl. This is a very high level compared to an acceptable level of 30.00 IJ.gIdl. All neurobehavioral symptoms demonstrated in the traffic controllers could be attributed to a high level of lead exposure.

– **Effect of Occupational Exposure to Pesticides on Levels of Serum Chol**

inesterase and Lymphocyte neurotoxic Esterase Like Activities

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ABSTRACT: Serum cholinesterase activity (ChE) and Lymphocyte neurotoxic esterase-like activity (LNTE) were measured in blood samples of male workers from a textile factory and pesticide formulation plant in Egypt. The workers in the pesticides plant risked exposure to organophosphorus ChE and LNTE inhibitors whereas the workers in the textile plant were considered free of this occupational risk. The worker's neurological status was scored on the basis of a neurological examination, a neurological history questionnaire, and some neurobehavioral tests. This study afforded the opportunity to calibrate. the ChE and LNTE activity levels to the neurological score. The effects of some covariates such as age, length of employment and smoking status on the levels of LNTE and ChE activities were evaluated. Results indicate that there were significant differences in the activity levels of these two enzymes between the two populations. Smokers averaged higher levels of NTE activity than non-smokers in both plants. ChE level tended to be higher among older workers at both plants. There was a significant trend in incidence of multiple neurological symptom with decreasing level of ChE.

– **Mutagenic and carcinogenic pesticides used in the agricultural environment of Gaza Strip**

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ABSTRACT: More than 100 metric tons of formulated pesticides (about 75 pesticides) are used annually in Gaza Strip. It was found that 19 of these pesticides, that have been used, are internationally suspended, cancelled and banned pesticides. About 1100 cases of cancer have been registered in Gaza Strip (1979-1983). The distribution of cancer types among those patients are lymphoma and hematological malignancy, breast, head and neck, gastrointestinal malignancy, reproductive system, urinary system, soft tissue tumors, brain tumors and others. Consequently, the introduction and heavy use of pesticides and other toxic substances in the Gaza Strip environment is suspected to correlate with the growing incidence of cancer and other abnormalities in the nation. Precise determination of the effects of chronic exposure is, therefore, urgently needed.

– **Studies on the Mechanism of Haloacetonitriles Toxicity: Inhibition of Rat Hepatic Glutathione S- Transferases in Vitro**

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Studies on the Mechanism of Haloacetonitriles Toxicity: Inhibition of Rat Hepatic Glutathione S-Transferase *in Vitro.* AHMED, A. E., SOLlMAN, S. A., LOH, J-P., AND HUSSEIN, G. I. (1989). *Toxicol. Appl. Pharmacol.* 100,271-279. Acetonitrile (AN) and seven of its halogenated derivatives known to be water disinfectant by-products were evaluated for their action on hepatic cytosolic glutathione S-transferase (GST) activity using l-chloro-2,4-dinitrobenzene (CDNB) as substrate. Increasing concentrations of acetonitrile, monofluoroacetonitrile (MFAN). monochloroacetonitrile (MCAN), and monobromoacetonitrile (MBAN) up to 10 mM failed to produce 50% inhibition of the activity of GST enzyme, However, dichloroacetonitrile (DCAN). trichloroacetonitrile (TCAN), dibromoacetonitrile (DBAN). And monoiodoacetonitrile (MIAN) were potent inhibitors with 150 values of 2.49, 0.34, 0.82, and 4.44 mM, respectively. At concentrations equivalent to their 150, MIAN, DCAN, and DBAN decrease both apparent *Km* and *Vmax* of the enzyme activity toward glutathione (GSH) to 20-50% of control. TCAN significantly increases both apparent *Km* and *Vmax* for GSH to 650 and 120% of control values, respectively. The inhibitory effect of haloacetonitriles (HAN) on hepatic GST activity toward CDNB was found to be of a mixed type. The inhibitory effect of DCAN, DBAN, and TCAN on the hepatic GST activity was found to be reversible and the activity was completely recovered after dialysis of the inhibited enzyme. MIAN, however, inhibited GST activity in an irreversible manner. Haloacetonitriles' induced inhibition of hepatic GST activity *in vitro* is consistent with that observed *in vivo.* The data presented in this study show that haloacetonitriles induced reversible inhibition of hepatic GST activities, and this effect may lead to decreased detoxification of other e1ectroph;lic chemicals.

– Carbaryl-induced changes in indoleamine synthesis in the pineal gland and its effects on nighttime serum melatonin concentrations

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The effects of different doses of chronically administered carbaryl on rat pineal N-acetyltransferase (NAT) activity, hydroxyindole-O-methyltransferase (HIOMT) activity and pineal and serum melatonin levels during darkness (2300 hand 0100 h) when pineal melatonin synthesis is high were studied. Additionally, pineal levels of 5-hydroxytryptophan (5-HTP), serotonin (5-HT) and 5-hydroxyindole acetic acid (5-HIAA) were estimated. Carbaryl was administered at total doses (over 6 days) of 50, 125 or 250 mg/kg by gastric gavage. Control rate received Vehicie (corn oil) only. During the study. the rats were exposed to light/dark cycles of 14:10 with lights off at 2100 h. Pineal NAT and HIOMT activities and pineal melatonin were increased at 0100 h following carbaryl administration at all three doses. Conversely,

serum melatonin was increased at 2300 h after the 250 mg/kg dose of carbaryl while all three doses of the pesticide reduced serum melatonin levels at 0100 h. Pineal 5-HTP, 5-HT and 5-HIAA levels were usually increased at 2300 h but unaffected at 0100 h. The results indicate that carbaryl has significant effects on pineal melatonin synthesis and secretion.

– **Whole- body Autoradiographic Disposition, Elimination and Placental Transport of [^{14}C]Tri-o-Cresyl Phosphate in Mice**

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Tri-o-cresyl phosphate (TOCP) is used commercially as a plasticizer and flame retardant. The disposition, metabolism, elimination and transplacental uptake of [phenyl-U.^{14}C] TOCP and/or its metabolites, in pregnant and non-pregnant mice, were examined. Pregnant (18th-day gestation) and non-pregnant, ICR mice were given an I. v. dose of [^{14}C] TOCP (557 JJ.CI kg-I; Specified activity 4.83 μ Ci μ mol-1). At various time intervals (1, 24, 48 and 72 h) the animals were processed for whole-body autoradiography (WBA). Over 72 h the nonpregnant mice excreted 55% of the ^{14}C in the urine and 9% in the feces, while excretion in the urine and feces by the pregnant mice was 50% and 9% of the total dose, respectively. The WBA and its computer assisted image analysis indicated extensive distribution of the ^{14}C label originally dosed as [^{14}C] TOCP in pregnant mice and their fetuses. The retention of radioactivity in organs such as lung, spleen, gall-bladder and liver of mother and its fetuses suggest that these are the target sites of TOCP toxicity. The distribution in non-pregnant and pregnant mice and in the fetal tissues followed a similar pattern in uptake and retention until 72 h. Brain and spinal cord had the least amount of [^{14}C] TOCP. This finding may support reports that explain the insensitivity of the mice towards organophosphate-induced delayed neurotoxicity (OPIDN) of TOCP.

GENETIC TOXICOLOGY

An Agricultural Perspective

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MUTAGENIC AND CARCINOGENIC CHEMICALS IN THE EGYPTIAN AGRICULTURAL ENVIRONMENT

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Introduction

Egypt is a semi-arid country where the roughly 2.5 million acres of arable land lie in the Nile River delta and valley. On this narrow strip, almost all of Egypt's 42 million people live and work. The Nile water is used for irrigation as well as for Industrial and domestic purposes. The river is also used for the ,disposal of agricultural waste water. Industrial wastes may also he ,flowing into the river and its tributaries.

In this densely populated and limited area, more than 30,000 metric tons of formulated pesticides (mainly insecticides) are Imported and used annually. More than 70% of these imports are used to protect Egypt's main cash crop, cotton, from attacking Insects such as leaf- and bollworms. Containment of pests is, therefore, of major importance in maintaining the health of the Egyptian economy.

To eliminate them expeditiously, aerial spraying is used to apply more than 75% of the pesticides, a method which is particularly hazardous to the inhabitants of the crowded villages lying within the spray zone. This congestion makes it particularly difficult to implement an evacuation and re-entry program. Moreover, herbicides, fungicides, fertilizers (mainly nitrates and trace elements), mulluscicides, food additives, and synthetic dyes are other sources of chemical pollution. Insecticides are also used in towns and cities to control the spread of insects hazardous to man.

Mutagnicity and Carcinogenicity of Pesticides

It is inevitable that pesticides be used to limit loss to agricultural production to an acceptable level. The urgency of this need coupled with the increasing resistance of many pests to older and better investigated pesticides has spurred interest in less well known agents. The main reason for the rapid shift from one group to another is the ability shown by the Egyptian cotton leafworm S. littoralis and other insects to develop resistance to, applied insecticides. Table 1 lists the insecticides which the Egyptian cotton leafworm developed resistance. This, situation necessitated the introduction of new insecticides which were not yet toxicologically evaluated for chronic side effects, and, in many cases, were not yet even approved for distribution in the country where they were produced.

Table 2 lists the major insecticides and the quantities _ which they were imported from 1950 to 1980. Although the list comprises about 70% of total imported insecticides, herbicides, fungicides, other pesticides are also widely used. For example" roughly 5 metric tons of the herbicide atrazine, a member of the atriazine family, are imported and applied on agricultural regions annually.

Chu et al. (1) found toxaphene to be a carcinogen which induces liver and hepatocellular tumors when fed to both male and female mice. Hooper et al. (2) also demonstrated mutagenicity in:

Table 1: Insecticides to which Egyptian cotton Leafworm Developed Resistance*

Insecticide	Year of Announced Resistance
Toxaphene	1961
DDT	1968
Lindane	1971
Carbaryl	1965
Trichlorfon	1967
Methyl parathion	1965
Surnithion	1967
Monocrotophos	1972
Methamidophos	1976
Guthion	1976

*Data from Ministry of Agriculture and our laboratory records.

Table 2: Amounts of Major Insecticides Imported and Used in Egypt (1950-1980)*

Compound	Imported Quantity** (metric tons)	Years of Consumption
Toxaphene	54,000	1955 - 1961
Endrin	10,500	1961 - 1981
DDT	13,500	1952 - 1971
Lindane	11,300	1952 - 1978
Carbaryl	21,000	1961 - 1978
Trichlorfon	6,500	1961 - 1970
Monocrotophos	8,300	1967 - 1978
Leptophos	5,500	1968 - 1975
Chlorpyriphos	9,500	1969 - 1981
Fhosfolan	4,500	1968 - 1981
Mephosfolan	6,000	1968 - 1981
Metharnidophos/Azinphos-methyl	4,500	1970 - 1979
Triazophos	3,500	1977 - 1981
Profenofos	4,000	1977 - 1981
Methornyl	3,500	1976 - 1981
Fenvalerate	4,500	1976 - 1981
Cypermethrin	2,300	1976 - 1981
Decamethrin	1,400	1976 - 1981

*Data from Ministry of Agriculture records.
**Active ingredient in each insecticide.

This insecticide. Shirasu et al. (3, 4) performed reverse mutation tests which indicated that the insecticide trichlorfon or Dipterex was a direct mutagen using S. typhimurium and E. coli WP2 hcr. Waters et al. (5) reported further that trichlorfon

shows positive mutagenicity using the Ames, E. coli, WP2, and S. cerevisiae, tests with or without metabolic activation. Waters et al. (5) and Shirasu et al. (4), using the same tests, found that the insecticide monocrotophos can induce direct mutations. The Waters group (5) also found that azinphos-methyl was mutagenic using the Ames and D3 tests, and Chu et al. (1) found evidence of carcinogenicity in: ale rats in the same compound. The Waters group (5) also found chlorpyrifos mutagenicity when tested in the E. coli polA and B. subtilis rec in vitro tests. Uchiyama et al. (6) reported that the insecticide carbaryl might be transformed into nitrosocarbaryl,. Potent mutagen, in acidic media. And Shawky et al. (7) showed that the pyrethroid insecticide fenpropathrin was mutagenic when submitted to the Ames test.

Many other mutagenic and potentially carcinogenic insecticides have been used, but in lower quantities. More than 450 metric tons of the insecticide dimethoate are imported and used annually (Record of the Ministry of Agriculture, 1975-1978). Recent data compiled by Shirasu et al. (4) indicated that this insecticide induces mutations in S. typhimurium and E. coli WP2 hcr. The same group demonstrated that the insecticide pirimiphos-methyl is also mutagenic. Introduced to the Egyptian environment as Actelic, 56 metric tons have been imported in 1978 alone, according to the Record of the Ministry of Agriculture.

More than 300 metric tons of the insecticide chlordan were imported and used in 1976 alone. Chu et al. (1) found evidence for carcinogenicity when chlordan-fed male and female mice develop liver and hepatocellular tumors. The insecticides phosmet, chlorfenvinphos, thiometon, fenitrothion, salithion, and vamidothion have been introduced in the Egyptian environment as Imidan, SD- , Ekatin, Sumithion, Salithion, and Kilval, respectively. Shirasu 1 et al. (4) recently demonstrated mutagenicity in all of these 1 chemicals in microbial test systems.

Disulfoton and acephate, known as Disyphon and Orthene, respectively, have also been recommended and used. About 5 metric tons of Orthene were imported in 1977. Waters et al. (5) and Shirasu et al. (4) have reported mutagenic activity in both these insecticides. In addition, dichlorvos or DDVP, an insecticide used both outdoors and indoors, has shown carcinogenicity in male mice and mutagenicity when tested by reverse mutation, according to Chu et al. (1) and Shirasu et al. (3).

Aldrin and dieldrin, two classic chlorinated hydrocarbon insecticides, were used heavily in the fifties and early sixties. Using male mice, Chu et al. (1) reported carcinogenicity after administration of aldrin and evidence to suggest carcinogenicity when the animals were fed dieldrin.

Waters et al (5) reported that carbofuran or Furadan was non mutagenic. Shirasu et al. (4) have, however, recently demonstrated the mutagenicity of carbofuran.

Mutagenicity and Carcinogenicity of Other Toxic Substances

Genotoxic herbicides and fungicides have also been used in Egyptian agriculture. Youssef et al. (8) reported that paraquat. a widely used herbicide, is mutagenic when submitted to the Drosophila sex-linked recessive lethal test. Triazine herbicides like atrazine and simazine among others are also used in significant levels. Waters et al. (5) reported mutagenicity in simazine using the same test as the Youssef

researchers. In addition, Wolfe et. al. (9) found nitrosamine formation products in drinking water contaminated with atrazine. Moreover, Preussmann et al. (10-12) demonstrated that triazines are potential carcinogens, the most affected structures being the kidney and central nervous system and, less frequently, the heart. Captan, Ferbam, Ziram, and Folpet are some of the fungicides of known mutagenicity, according to Waters et al. (5) and Shirasu et al. (4). Not all of these, however, are currently used in Egypt.

The molluscicide niclosamide, also known as Bayer 73 or Baylucide, is used to combat the Bilharzia snails which cluster in canals. This compound induces hepatic and kidney lymphosarcoma in B. regularis (toads) when administered daily at 10 ppm for 2-5 mos, according to EI-Mofty et al. (13).

Food additives, fertilizers, synthetic dyes, and industrial wastes are other sources of potential mutagens and carcinogens. Synthetic dyes used in textiles, a major industry, are being imported in increasing quantities. Fishbein (14) demonstrated carcinogenicity and/or mutagenicity in many dyes as well as food additives. For example, the aziridines which are used for dyeing and printing are highly reactive alkylating agents (14, 15). The monomer of one of these compounds, polyethylenimine, was found to be carcinogenic in mice after oral administration, producing liver cell and pulmonary tumors according to IARC researchers (16).
Van Duuren et a1. (17) Found other aziridines to be carcinogenic in mice, producing malignant tumors at the site of injection.

Effects of Chronic Exposure to Environmental Pollutants

Davies et al. (18) indicated that at the current rate of pesticide use, workers who formulate and apply these materials are risking both acute and chronic exposure. More than 2000 cases of cancer have been registered in one city alone, Alexandria. Table 3 presents the distribution of types of cancer among those patients. Although the incidence of cancer in the city's total population (~3 million) is less than that reported in the United States and other industrialized nations, it is, nevertheless, significant. In addition, accidental and occupational poisoning are a major concern in developing countries where safety assurance methods have not kept pace with advances in agricultural technology. The Davies researchers also mention that male sterility, neurological dysfunction, behavioral disorders, renal diseases, cancer, and other abnormalities may be related to contamination by pesticides and other environmental pollutants.

These chronic effects may result from either incidental or long-term exposure to sublethal doses of the toxicants which may act directly or be transformed metabolically into toxic forms.

Table 3: Cancer Cases Registered in Alexandria, Egypt*

Cancer Type	% Distribution	
	Male (1086 cases)	Female (918 cases)
Breast	1.7	18.9
Bladder	13.0	3.9

Cancer Type	% Distribution	
	Male (1086 cases)	Female (918 cases)
Brain Tumor	4.6	2.8
Lymphosarcoma	8.7	3.6
Stomach	2.7	0.4
Uterus	---	3.4
Other cases	69.3	67.0

*Cases were registered at the Medical Research Institute, Alexandria University (June - December, 1980).

The lipophilic nature *of* most *of* these agents (19, *20)* allows accumulation and retention in lipoproteins and body fat.

Summary and Conclusions

The introduction and heavy use of pesticides, insecticides, and other toxic substances in the Egyptian environment is suspected to correlate with the growing incidence of cancer and other abnormalities in the nation. The spread of malnutrition, lack of
Proper immunization and the existence of endemic diseases also contribute to the damaging effects of environmental pollutants. Precise determination of the effects of chronic exposure is, therefore, urgently needed.

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Discussion

Q. KADO: What is the Egyptian government's policy regarding importation of pesticides suspended or banned in the U.S.?

A. EL-SEBAE: The Egyptian Ministry of Agriculture has the regulatory authority to accept any compound registered in the producing developed countries on the basis of the efficacy screening which lasts at least 3 years. However, it is the right of the Egyptian authorities to suspend any new or old compound when there is an adverse effect to humans or non-target organisms.

Q. BYARD: Many of the carcinogenic chemicals which you have reported to be used in Egyptian agriculture-are hepatocarcinogens. Do you know the incidence of liver cancer in Egypt?

A. We do not have a complete national registry for liver cancer in Egypt that can be correlated to pesticide exposure.

II. Studies for Environmental Risk Assessment of POPs :

– Microbiological and compositional quality of dairy products in relation to some pollutants

The major frequency of insecticide polluted milk was due to lindane and beta. BHC followed by p. p.-DDT, gamma-chlordane, heptachlor and aldrin. In yoghurt, samples the highest frequency was also due to lindane. Cheese and butter were free of p.p.-DDT, while beta. BHC was highly frequent. Growth of S. lactis EMC 1106 was inhibited in presence of 3.0 ppm beta. BHC and 2.0 ppm p.p.-DDTs thermophilus and L. helveticus are very sensitive to penicillin, while S. lactis and L. bulgariculs were resistant. Fe, Zn, Cu, and Pb enhanced growth of S. lactis. Fe or Pb improved growing and acid production by bulgaricus. Sterilization of milk proved efficient in lowering the insecticides level and penicillin followed by boiling and pasteurization. Chlorinated hydrocarbons are mainly located in cream and persist in high fat dairy products *(Abou-Arab, Assem Anwar Quttb, 1991).*

– Monitoring of PCB's and organophosphorus pesticide residues in milk

Samples from packed and bulk milk were collected from Cairo, Giza and Qalyoubia. Samples were analyzed for the determination of PCB's and Organophosphorus pesticide residues. One step extraction and clean up method was conducted. GLC apparatus equipped with electron capture detector and flame ionization detector was used for the determination of both PCB's and Organophosphorus pesticide residues. Data indicate that all the bulk and packed milk samples tested were free from 5 PCB's residues (Archlor 1016, Archlor 1221, Archlor 1242, Archlor, 1248 and Archlor 1254). Results also show that no Malathion residues were detected in all samples tested. Dimethoate residues were detected in 14.29% of packed milk samples, while bulk samples were free from dimethoate (*Abdel-Fattah, Mahasen.et al., 1992).*

– Organochlorine pesticide residues in meat and edible offals

Samples were collected from 350 carcasses of slaughtered animals (175 beef, 150 buffalo and 25 mutton). Moreover, 200 samples of fresh and frozen livers were taken. With regard to chickens, skin, abdominal fat, liver, kidney and gizzard samples were collected from 50 carcasses. 100 samples of fish flesh, 50 from each of Clarias lazera and Tilapia nilotica were collected. The collected samples were examined for organochlorine residue by using thin layer chromatoplate. The incidence and the detectable level of organochlorine residues were varied dependent on the species of animals, type of tissue examined as well as the degree of accumulation of these compounds. None of examined fat samples of slaughtered animals exceeded the permissible limits of DDT, while beef muscle and fat as well as buffalo fat showed high level of lindane residue. Broiler carcasses showed no detectable level of any pesticide residues, while the detectable level in laying hen carcasses did not exceed the permissible limits of aldrin and dieldrin. There is no detectable level of organochlorine residues in frozen liver as compared with fresh ones which contained low residual levels of aldrin, dieldrin, lindane and DDT. Clarias lazera

contained higher level of dieldrin than other pesticide residues, while none of detectable levels of pesticides in Tilapia nilotica exceeded permissible limits. The sources of contamination to animals, chicken and fish with organochlorine pesticides were discussed (*Khalaf-Allah, F. A. Awadh, Huda A. Gerges, Ayda F, 1993).*

– Studies on pesticide residues in milk and some dairy products

The results obtained revealed that nearly all milk and cheese samples were contaminated with most of the investigated pesticides. DDT complex was the most frequent pesticide residue, whereas total HCH isomers were comparatively higher in all examined samples. HCH and its isomers and DDT and its isomers could be detected in all examined samples in cooking butter. HCH and its isomers could be detected in all yoghurt samples, while DDT and its analogues were detected in 19 of the 20 test samples. HCH and its isomers were detected in all samples, while DDT complex could be detected in 18 of the 20 test samples. The public health importance and hygienic significance of existing pesticide residues as well as suggested measures for improving the quality of the products and saving consumers were discussed. Ten fresh buffalo's milk samples were spiked with DDT-P, P, DDE-P, P and DDD-P, P (40 ppm of each/l00 ml milk). Further studies showed some losses in the pesticides added to the raw milk. Lab. pasteurization caused 20 -30%, while boiling caused 70-77% degradation of DDT+P, P, DDE-; P, P and DDD-P, P. The growth of number of lactic acid producing bacteria was inhibited by Lindane and Endrin, especially at high concentrations (*Abou-Zaid, Abdel-Hay Muhammad, 1994)*

– Effect of home preparative methods on pesticide residues in certain Egyptian food items

The effect of home preparative procedures, common in Egypt, on levels of organochlorine and organophosphorous pesticides contaminating market samples of wheat, horse-bean, rice and eggs were examined using gas liquid chromatography. Processing of these samples resulted in complete removal of heptachlors, total HCH's and endrin from bread, cooked rice and both foul medammes and taameya, respectively. Boiling of egg samples removed 24% of total HCH's and 89% of heptachlors. On the other hand, home cooking led to disappearance of organophosphorous residues previously detected in wheat and horse-bean samples. The dietary intakes of the pesticide residues detected in the cooked food considering the rates of consumption were also estimated. The estimated maximum daily intakes (EMDI's) calculated in bread were 27.95,14.63,2.54 and 0.73 ugjpersonjday for HCH's, DDT's, aldrin + dieldrin and endrin, respectively. However, those of boiled egg samples ranged between 0.002 ug/person/day for both heptachlors and endrin and 0.03 ug/person/day for DDT's. Percentages of the calculated EMDI's to the AID's were 47, 7.5, 3 and 1.29% for aldrin + dieldrin, endrin, heptachlors and total DDT's, respectively (*Helali, A. R. et al., 1995)*

– Evaluation of pesticide residues in dried whole milk imported into Egypt

Samples of imported dried whole milk were collected from different locations in

Egypt and analyzed for presence of organochlorine, polychlorinated biphenyls (PCBs) and organophosphorus pesticides. The concentration of individual compounds residue in dried whole milk were below the maximum residue limits (MRLs) let forth by FAO/WHO as well as the Ministry of Industry of the Egyptian Government. However, all combined concentrations of Edrin and Aldrin plus Dieldrin were above MRLs with a mean 6.6 ug/kg and 14.03 ug/kg, respectively. On the other hand, dimethoate heptachlor, endosulfan 11, present in all the analyzed samples (*Abd-Allah, El-Sayed A. M. Ahmad, N. S. Abdel-Ghany, Seham,1993)*

– Detection of insecticides residues in market-basket survey of milk, cheese and bee honey at Qalyoubia Governorate, Egypt

Data indicated detection of chlorinated insecticides in milk, Kariesh as well as local hard cheese samples. Kariesh cheese was found to contain less residues as compared with milk. This may be due to low fat content, while local hard cheese contained, in general, higher fat levels than Kariesh cheese. In general, no sample of raw milk or cheese collected from Qalyoubia markets in 1991 was free of insecticidal residues. Among the collected samples, the percent ._those contained unknown insecticides reached 64, 52 and 65% with-Law milk, Kariesh cheese and local hard cheese, respectively. It is evident that, O. P. (malathion), carbamate (carbayl and methomyl) and pyrethroids (fenpropathrin and fenvalerate) were not detected in raw milk, Kariesh and local hard cheese. On the other hand, chlorinated hydrocarbons were found in these samples but at different frequencies. Samples of bee honey were collected from different apiaries and markets, 67.5% samples were found free of insecticides and 28.75% with unknown insecticides. Fluvalinate was detected only in honey samples at 0.064 ppm, representing 22.5% of positive samples. Bee honey was found free of beta-BHC, y-BHC, y-chlordane, DDT and DDT-isomers, while contained malathione (0.14 ppm) in 1.25% of the positive samples. On the other hand, bee honey contamination with malathione and fluvalinate residues may represent daily intake of 0.0014 and 0.0006 mg/person/day, respectively (*Zaidan, Z. H. et al., 1996).*
NOTE 10 tables. 21 refs.
AVL1 0riginal (HQ)

– Elimination of DDT and Lindane insecticides residues contaminated potatoes through technological processing

The present study aimed to throw light on the effect of processing steps on the elimination of insecticide residues from contaminated potato tubers. Data indicated that the tested technological processes varied in their efficiency of p, p-DDT and gamma-HCH (Lindane)residues elimination. No insecticide residues were detected in the following processed potatoes: Soak - spray washed - thick peeled hot blanched - cooked or chips ; soak - spray washed - lye 1 peeled hot blanched - chips ; soak – spray washed lye 1 peeled - hot blanched - cooked or chips. In addition no gamma-HCH (Lindane) and negligible residue of p, p-DDT were detected in the following processed potatoes: Washed (soak or soak and spray) - lye 2 peeled I unwashed - peeled (lye 1 or lye 2) - cooked or chips ; washed (soakspray) - peeled (lye 1 or 2 or thick) - blanched (steam or hot) -

cooked or chips (*Muhammad, K. A, 1997).*

– Development of immunoassay for the detection of aldrin and dieldrin with applications in the dairy industry

This research work described the development of an Enzyme Linked Iummuno Sorbent Assay (ELISA) for the detection and quantitation of aldrin and dieldrin. The assay is simply competitive format using a polyclonal antiserum which permits the detection of the pesticides in both water and milk samples in the range 10 ngmA-1 - 5 ugmlA-l without assay enhancement. The system thus has potential applications in the measurement of aldrin/dieldrin pollution in water and in dairy samples (*Ebrahim, Azza M. A. et al. 1993).*

– Changes in concentration of pesticide residues during washing and home preparation in potatoes

Monitoring of pesticide residues in Egyptian potatoes after processing (French Fried and Chipsy) was undertaken. Experiments were carried out to determine changes in concentration due to washing, peeling and cooking processes (boiling and frying) to assess the stability of pesticide residues in potatoes and resulting products. Amount of pesticides was measured using gas chromatography. Results showed that malathion, HCB, lindane and p.p-DDD were predominant in potatoes and its products. The highest mean was detected in potatoes followed by French Fried while, the lowest" mean was recorded in Chipsy. On the other hand, potato skin samples were found to contain the highest levels of DDT and its derivatives, lindane and HCB. So, the peeling process was necessary to remove the greatest amount of pesticides in the skin. Washing with water and/or detergent solution as well as cooking (boiling and frying) helped in eliminating most amounts of pesticide residues from contaminated potatoes (*Sulayman, Kawthar M, 1999).*

– Toxicological studies on some side effects on some environmental pollutants

This work was directed to monitor the residues of some agrochemical pollutants, such as heavy metals and synthetic pesticides, to study the effect of some pollutant agents on some biological aspects of fish, and to investigate the pathological signs which might be caused by agrochemical pollutants in fresh water fish. 12 pollutants (Aldrin, dieldrin, gamma-BIIC, beta-BIIC, trans-chlordane, cischlordane, p,p-DDT, p,p-DDE, heptachlor, trans-nonachlor, malathion, and dimethoate were identified and determined in the surface water in the area of study. Trans-chlordane, cis-chlordane, beta-BHC, heptachlor, trans-nonachlor, dieldrin, and p,p-DDE were the most frequent residues and presented a serious chemical pollutants to _he surface water of the area of study. Cadmium, lead, and nickel were the most abundant trace elements at values exceeding the maximum permissible limits. Toxicity tests indicated that tetramethrin was the most, while diazinon was the least toxic compound. The histopathological effects of cadmium sulfate malathion, and tetramethrin were described in different organs and could be used as parameters for detection of adverse toxic effects to fish in polluted aquatic environment (*Hamed, Subhi Abdel-Rahim, 1997).*

Annex 5

Laws and Ministerial Decrees Concerning Chemical Managements and also Annexes of the Executive Regulations of Law 4/1994 Related to POPs

Enforcement of the Law 4

Chapter III

Administrative and Judicial Procedures

Article (61)

The judicial officers vested with the power to effect seizures referred to in Article 78 of the Environment Law are authorized, in cases of violations for which the penalty does not exceed payment of a fine or compensation, to allow the master of the ship or an officer in charge to leave the port immediately, if he so wishes, against payment of a temporary amount pending execution of the fine or compensation penalty to be later adjudged, within the limits prescribed in Part Four of the Environment Law, provided such temporary amount shall not be less than the minimum prescribed for the violation plus all costs and compensation to be determined by the competent administrative authority for the removal of the effects of the violation. These amounts shall be deposited, no later than the day after their collection, in the Environmental Protection Fund pursuant to the provisions of Article (7) of these Executive Regulations.

A financial guarantee covering the value of such amounts and acceptable to the competent administrative authority may be presented subject to the provisions of the International Convention on Civil Liability for Oil Pollution signed in Brussels in 1969.

Article (62)

The Minister in charge of Environmental Affairs shall issue a decree establishing an appeals committee having its headquarters within the working area of the ports or on the premises of a nearby administrative authority. It shall be constituted as follows:

Counselor from the State Council selected by the president of the Council	Chairman
Representative of the EEAA	Member
Representative of the Ports and Lighthouses Department	Member
Representative of the Ministry of Defence	Member
Representative of the Ministry of Petroleum	Member
Representative of the competent administrative authority within the scope of the activities of which the dispute arose	Member

The committee may solicit the advice of one or more experts in the field of water environment.

The function of this committee shall be to settle administrative disputes arising from the application of the provisions of Part Three of these Executive Regulations. The committee shall issue its decision, after hearing both parties, by a majority of votes of members present and, in case of a tie, the chairman shall have the casting vote.

Parties concerned may challenge the committee's decision before the administrative courts of the State Council.

Article (63)

The competent administrative authorities may request assistance from the ministries of defense, interior, petroleum, maritime transport, from the Suez Canal Authority or from any other competent body, in implementing the provisions of Part Three of these Executive Regulations according to the conditions laid down in the decree to be issued by the Minister for Environmental Affairs.

Part Four
Final Provisions

Article (64)

The costs of removing the effects of the violation referred to in Article 91 of the Environment Law shall be determined according to the following criteria:

(A) The proximity or distance of unloading from the shore, in particular the areas of economic or touristic importance or the nature reserves.

(B) Degree of toxicity of unloaded substances.

(C) Volume and type of pollutant, and its detrimental effect on the environment.

Article (65)

Every citizen or association concerned with environmental protection may resort to the competent administrative or judicial agencies for the purpose of applying the provisions of the Environment Law and of these Executive Regulations. The Ministry of Interior, in coordination with the EEAA, shall form a police force specialized in environmental protection within the ministry and security departments in the governorates, whose function shall be to enforce the provisions of laws and decrees related to environmental protection as well as to receive complaints and reports submitted in this connection and take legal procedures in respect thereof.

In evaluating this enforcement procedure it seems that the formulation of the existing executive regulations of Law 4 did not pay much attention to goals or the important elements to reach some defined goals through using of such legislation.

One of the other important points is that the objective of the legislation, which is the reduction of concentrations of pollutants in the air to values below tolerable limits, should be clearly stated in the legal regulations. Moreover, the emission standards should be attainable technically and without undue economic hardship. The Law should have some degree of flexibility that must be left in the law in order to be able to deal in the best possible way with the various problems that arise (e.g. using high sulfur fuel needs arrangements in the law to ensure supplies of alternative fuels), as far as possible, for cities most affected by pollution e.g. Cairo.

Emission standards have been considered in the regulations of Law 4/1994 for mobile sources, stationary combustion sources and industrial establishments. Some of the articles of the executive regulations are inconsistent with definitions in the law; others are inconsistent in addressing the sources they are directed for, e.g. articles 37 and 42.

In the case of mobile sources, diesel and petrol engines standards are not separately addressed. Other vehicles e.g. motorcycles have not been considered. In fact, this issue is inconsistent in the law. This makes the article 37 difficult to interpret.

Combustion processes are not clearly stated. Consequently, different interpretations can be made for various sources. Incineration of solid wastes is another example where article 42 considered fuel burning. This article considered, in some cases, to cover emissions from hospital incinerators. However, the medical solid wastes, incineration are covered by article 28, which subjectively deals with hazardous waste

"Annex (8) of Executive Legislation of Law 4/1994"
Maximum Limits of Air Pollutants inside the
Work Place According to Type of Industry

Threshold limits are the concentrations of airborne emission of chemical substances to which workers can be exposed day after day without adverse effects to their health and are divided into three kinds:

1- Threshold limits – mean time

   Is the average time of an ordinary working day (8 hours) to which the worker may be exposed for 5 days a week throughout the period of his employment without suffering any damage to his health?

2- Threshold limits - limits of exposure for a short period

   The limits to which the workers may be continuously exposed for a short period.

   The threshold limits for short periods, are the limits of exposure for an average period of 15 minutes and which may not be exceeded under any circumstances during the working period. The period of exposure may not exceed 15 minutes nor be repeated more than four times during the same day. The period between each short exposure and the next must be at least sixty minutes.

3- The ceiling limits which may not be exceeded even for a moment. When absorption through the skin is a factor in increasing exposure, the sign "+ skin" shall be placed before the critical threshold. With respect to dust that merely causes annoyance without having tangible harmful health effects, the threshold limits shall be 10 milligrams/cubic metre for inhalable particles.

   Concerning simple asphyxiate gases which have no significant physiological effects, the decisive factor shall be the concentration of oxygen in the atmosphere which may not be less than 18%.

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Acetaldehyde	100	180	150	270	
Acetic Acid	10	25	15	37	
Acetic Anhydride	5	20			+ SKIN
Acetone	750	1780	1000	2375	
Acetonitrile	40	70	60	105	+ SKIN
Tetrabro Acetylene	1	15	1.5	20	
Acetyl Salicylic Acid (Aspirin)		5			
Acrolein	0.1	0.25	0.3	0.8	
Acrylamide		0.3		0.6	+ SKIN
Acrylic Acid	10	30			
Acrylonitrile	2				+ SKIN
Aldrin		**0.25**		**0.75**	**+ SKIN**
Allyl Alcohol	2	5	4	10	+ SKIN
Allyl Chloride	1	3	2	6	
Aluminium Metal and Oxides	10		20		
Pyro Powders	5				
Soldering Smoke Fumes	5				
Soluble Salts	2				
Alkylates	2				
Aminopyridine	5.5	2	2	4	
Ammonia	25	18	35	27	
Ammonium Chloride (Fume)					
n-Amyl Acetate	100	530	150	800	
sec-Amyl Acetate	125	670	150	800	
Aniline and Similars	2	10	5	20	+ SKIN
Antimony and Its Compounds (Counted as antimony)		0.5			

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
ANTU (Alpha Naphtyl Thiourea)		0.3		0.9	
Arsenic and Its Soluble Compounds (Counted as Arsenic)		0.2			
Arsine Gas	0.05	0.2			
Petroleum asphalt Fumes		5		10	
Atrazine		5			
Methyl Azynphos		0.2		0.6	+ SKIN
Barium and Its Soluble Compounds (Counted as Barium)		0.5			
Benzene (Petrol)	10	30	25	75	
Benzyl Chloride	1	5			
Beryllium		0.002			
Diphenyl	0.2	1.5	0.6	4	
Bismuth Telluride	10		20		
Sodium tetra borate (Anhydrous)		1			
Sodium tetra borate (Decahydrate)		5			
Sodium tetra borate (Pentahydrate)		1			
Boron Oxide		10		20	
Boron Tribromide	1	10	3	30	
Boron Trifluoride	1	3			+ CEILING
Bromine	0.1	0.7	0.3	2	
Bromine pentafluoride	0.1	0.7	0.3	2	
Bromoform	0.5	5			

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Butadiene	1000	2200	1250	2750	
Butane	800	1100			
n-Butyl Acetate	150	710	200	150	
sec- Butyl Acetate	200	950	250	1190	
tert-Butyl Acetate	200	950	250	1190	
Butyl Acrylate	10	55			
n-Butyl Alcohol	50	150			+ SKIN
sec- Butyl Alcohol	100	305	150	450	
tert- Butyl Alcohol	100	300	150	450	
Butyl Amines	5	15			+ SKIN
Tetra Butyl Chromate Counted as Chromium Oxide(CrO_3)		0.1			+ SKIN CEILING
Butyl Lactate	5	25			
Butyl Mercaptan	0.5	1.5			
Cadmium Dusts and Salts (Counted As Cadmium)	0.05		0.2		
Cadmium Smokes	0.05				CEILING
Calcium Carbonate				20	
Calcium Hydroxide		5			
Calcium Oxide		2		10	
Carbaryl		5		10	
Carbofuran		0.1			
Carbon Black		3.5		7	
Carbon Dioxide	5000	9000	15000	27000	
Carbon Disulphide	10	30			+ SKIN
Carbon Monoxide	50	55	400	440	
Carbon Tetra Chloride	5	30	20	125	

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Carbon Tetra Bromide	0.1	1.4	0.3	4	
Chlordane		**0.5**		**2**	**+ SKIN**
Chlorinated Camphene		0.5		1	+ SKIN
Chlorinated Diphenyl Oxide		0.5		2	
Chlorine	1	3	3	9	
Chlorine Dioxide	0.1	0.3	0.3	0.9	
Chloro Acetaldehyde	1	3			CEILING
Chlorobenzene	75	350			
Chlorodiphenyl (42%)		1		2	
Chlorodiphenyl (45%)		0.5		1	
Chloroform	10	50	50	225	
Di (chloromethyl) Ether	0.001	0.005			
Chloropicrin	10	45			
Chlorpyrifos		0.2		0.6	+ SKIN
Chromium and Its Compounds (Counted on The Basis of Chromium)		0.5			
Hexavalent Chromium Compounds (Counted on The Basis of Chromium)		0.05			
Volatile Coal Tar Products Which Are Soluble In Benzene		0.2			
Cobalt and its Dust and Smokes		0.1			
Copper Smokes		0.2			
Copper Dust and Sprinkles (Counted as Copper)		1		2	
Raw Cotton Fluff		0.2		0.6	
Cresoles	5	22			+ SKIN

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Cyanide Salts, Counted as Cyanide		5			SKIN
Cyanogen	10	20			
Cyanogen Chloride	0.3	0.6			CEILING
Cyclohexane	300	1050	375	1300	
Cyclopentadiene	75	200	150	400	
Cyclopentane	600	1720	900	2580	
D.D.T		**1**		**3**	
Decaborane	0.05	0.3	0.15	0.9	SKIN
Diazinon		0.1		0.3	+ SKIN
Diazomethane	0.2	0.4			
Diborane	0.1	0.1			
Dichloro acetylene	0.1	04			CEILING
o-Dichlorobenzene	50	300			CEILING
para - Dichlorobenzene	75	450	110	675	
1, 2 - Dichloro ethylene	200	790	250	1000	
Dichloroethyl ether	5	30	10	60	+ SKIN
Dichlorvos	0.1	1	0.3	3	+ SKIN
Dichrotofos		0.25			+ SKIN
Dieldrin		**0.25**		**0.75**	**+ SKIN**
Diethanolamine	3	15			
Dimethylaniline	5	25	10	50	+ SKIN
Dinitrobenzene	0.15	1	0.5	3	+ SKIN
Dinitro- o - Cresol		0.2		0.6	+ SKIN
Dinitrotoluene		1.5		5	+ SKIN

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Dioxin	**25**	**90**	**100**	**360**	**+ SKIN**
Dipropylene Glycol Methyl Ether	100	600	150	900	+ SKIN
Diquat		0.5		1	
Disulfiram		2		5	
Endosulfan		0.1		0.3	+ SKIN
Endrin		**0.1**		**0.3**	**+ SKIN**
Epichlorohydrin	2	10	5	20	+ SKIN
Ethyl Acetate	400	1400			
Ethanol	1000	1900			
Ethanolamine	3	8	6	15	
Ethylbenzene	100	435	125	545	
Ethyl butyl ketone	50	230	75	345	
Ethyl chloride	1000	2600	1250	3250	
Ethylene diamine	10	25			
Ethylene oxide	10	20			
Ethylene dichloride	10	40	15	60	
Ethylene glycol (particles)		10		20	
Ethylene glycol (Vapour)	50	125			Ceiling
Ethyl mercaptan	0.5	1	2	3	
Ferro vanadium Dust		1		0.3	
Fibrous Glass Dust		10			
Fluorides (Counted on The Basis of Fluorine)		2.5			
Fluorine		2	2	4	CEILING
Formaldehyde	2	3			CEILING

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Formic Acid	5	9			
Gasoline	300	900	500	1500	
Heptachlor		**0.5**		**2**	**+ SKIN**
Heptane	400	1600	500	2000	
Hexachloro Cyclopentadiene	0.01	0.1	0.03	0.3	
Hexachloro-Naphthalene		0.20		0.60	+ SKIN
n- Hexane	50	180	1000	3600	
Hexane Isomers	500	1800	1000	3600	
Hydrogen Bromide	3	10			
Hydrogen Cyanide	10	10			CEILING
Hydrogen Fluoride	3	2.5	6	5	
Hydrogen Sulphide	10	14	14	21	
Iodine	0.1	1			CEILING
Iron Oxide Smokes	3	5		10	
Iron Pentacarbonyl	0.1	0.8	0.2	0.16	
Isobutyl Alcohol	50	150	75	225	
Isopropyl Alcohol	400	980	500	1225	
Lead Dust and Smokes ,Non Organic (as Lead)		0.15		0.45	
Lead Arsenate		0.15		045	
Lead Chromate		0.05			
Lindane		**0.5**		**0.5**	**+ SKIN**
Liquified Petroleum Gases	1000	1800	1250	2250	
Magnesium Oxides Smokes		10			
Malathion		10			+ SKIN
Manganese Dusts and Compounds (as Manganese)		5			CEILING

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Manganese Smokes		1		3	
Mangenese Tetra Oxide		1			
Mercury (as Mercury)					+ SKIN
Alkyl Compounds		0.01		0.03	
Smokes Of All Other Compounds Except Alkyl		0.05			
Aryl Compounds and Inorganic Compounds		0.1			
Methomyl		2.5			+ SKIN
Methoxychlor		10			
Methyl Alcohol	200	260	250	310	+ SKIN
Methyl Bromide	5	20	15	60	
Methyl Butyl Ketone	5	20			
Methyl Chloride	50	105	100	205	
Methyl Chloroform	350	1900	450	2450	
Diphenylmethane Diisocyanate (MDI)	0.02	0.2			CEILING
Methylene Chloride	100	360	500	1700	
Methyl Ethyl Ketone	200	590	300	885	
Methyl Hydrazine	0.02	0.35			+ SKIN
Methyl Isocyanate	0.02	0.05			+ SKIN
Methyl Mercaptan	0.5	1			
Methyl Parathion		0.2		0.6	+ SKIN
Mevinphos	0.01	0.1	0.03	0.3	+ SKIN
Monocrotophos					
Naphthalene	10	50	15	75	
Nickel Carbonyl (as Nickel)	0.05	0.53			
Nickel Metal		1			
Soluble Compounds (as Nickel)		0.1		0.3	

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Nicotine		0.5		1.5	+ SKIN
Nitric Acid	2	5	4	10	
Nitric Oxide	25	30	35	45	
Para Nitroaniline		3			+ SKIN
Nitrobenzene	1	5	2	10	+ SKIN
Nitro Chlorobenzene		1		2	+ SKIN
Nitrogen Dioxide	3	6	5	10	
Nitrogen Trifluoride	10	30	15	45	
Nitroglycerin	0.02	0.2	0.05	0.5	+ SKIN
Nitrotoluene	2	11			+ SKIN
Octachloronaphthalene		0.1		0.3	+ SKIN
Mineral Oil Sprinkles		5		10	
Osmium Tetraoxide (as Osmium)	0.0002	0.002	0.0006	0.006	
Oxalic Acid		1		2	
Oxygen Difluoride	0.05	0.1	0.15	0.3	
Ozone	0.1	0.2	0.3	0.6	
Paraffin Wax Vapours		2		6	
Paraquat (Size of Inhalable Particles)		0.1			
Parathion		0.1		0.3	+ SKIN
Pentachloronaphthalene		0.5		2	
Pentachlorophenol		0.5		1.5	+ SKIN
Ethylene Dichloride	50	325			
Phenol	5	19	10	38	+ SKIN
Phenothiazine		5		10	+ SKIN
Para-Phenylene Diamine		0.1			+ SKIN

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Phenylhydrazine	5	20	1	45	+ SKIN
Phenyl Mercaptan	0.5	2			
Phosgene	0.1	0.4			
Phosphine	0.3	0.4	1	1	
Phosphoric Acid		1		3	
Yellow Phosphorus		0.1		0.3	
Picric Acid		0.1		0.3	+ SKIN
Platinum Metal		1			
Soluble Platinum Salts (as Platinum)		0.002			
Potassium Hydroxide		2			CEILING
Propionic Acid	10	30	15	45	
Propyl Alcohol	200	500	250	625	+ SKIN
Pyrethrum		5		10	
Pyridine	5	15	10	30	
Rotenone		5		10	
Selenium Salts (as Selenium)		0.2			
Selenium Hexafluoride	0.05	0.2			
Silicon				20	
Silicon Carbide				20	
Silver Metal		0.1			
Soluble Silver Salts		0.01			
Sodium Azide	0.1	0.3			CEILING
Sodium Bisulfite		5			
Sodium Fluoroacetate		0.05		0.15	+ SKIN
Sodium Hydroxide		2			CEILING

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Sodium Metabisulfite		5			
Stibine	0.1	0.5	0.3	1.5	
Protein Decomposing Enzymes (100% Pure Crystalline Enzyme)		0.00006			CEILING
Sulphur Dioxide	2	5	5	10	
Sulphuric Acid		1			
Sulphur Hexafluoride	1000	6000	1250	7500	
Sulphur Monochloride	1	6	3	18	
Sulphur Pentafluoride	0.025	0.25	0.075	0.75	
2,4,5 – Trichlorophenoxy- Acetic Acid		10		20	
TEPP (Tetra ethyl pyrophosphate)	0.004	0.05	0.01	0.02	+ SKIN
1,1,2,2, Tetrachloroethane	5	35	10	70	+ SKIN
Tetra Ethyl Lead (as Lead)		0.1		0.3	+ SKIN
Tetryl		1.5		3	+ SKIN
Soluble Thallium salts (as Thallium)		0.1			+ SKIN
Thiram		5		10	
Tin & Its Inorganic Compounds (Except Tin Tetra Oxide Counted as Tin)		2		4	
Tin Organic Compounds (as Tin)		0.1		0.2	+ SKIN
Titanium Dioxide				20	
Toluene	100	375	150	560	+ SKIN
Toluene Di-isocyanate	0.02	0.14			CEILING
o-Toluidine	2	9			+ SKIN
Trichloroacetic Acid	1	5			

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
1,2,4, Trichlorobenzene	5	40			
Trichloroethylene	50	270	150	805	
Trichloronaphthalene		5		10	
2,4,6 – Trinitrotoluene		0.5		3	+ SKIN
Trimethylbenzene	25	125	35	170	
Triorthocresyl Phosphate		0.1		0.3	
Natural Uranium & Its soluble & insoluble Compounds (Counted as Uranium)		0.2		0.6	
Inhalable Vanadium Dusts & Smokes (Counted as Vanadium PentaOxide)		0.5			
Vinyl Chloride	5	10			
Warfarin		0.1		0.3	
Soldering Smokes		5			
Solid Timber Dusts		1			
Soft Timber Dusts		5		10	
Xylene	100	435	150	655	+ SKIN
Zinc Chloride Smokes		1		2	
Zinc Oxide Smokes		5		10	
Zirconium Compounds (Counted as Zirconium)		5		10	

"Annex (10) of Executive Regulations of Law 4/1994"
Non-Degradable Polluting Substances Which Industrial Establishments are Prohibited from Discharging into the Marine Environment

Non-degradable substances are those found in the environment for a long period depending basically on the quantities discharged into the marine environment, since some of them disintegrate after long periods ranging between a number of months and several years, according to the composition of these substances and their concentration in the environment.

Non-Organic Substances:

Examples:

MERCURY and its compounds
LEAD and its compounds
CADMIUM and its compounds
COBALT - VANADIUM - NICKEL - SELENIUM - ZINC and its compounds

Organic Substances:

Examples:

- Organophosphorus Pesticides
- Dimethoate
- Malathion

Very Small Quantities Which Disintegrate Within Some Months:

- Organochlorine Pesticides
- Aldrin, Dieldrin, DDT
- Chloridane, Endrin

Non-Degradable With Traces Continuing For Several Years:

- Polychlorinated Biphenyls (PCBs)
- Aroclor 1254
- 2,3,6-Tri chlorobiphenyl

These substances are not completely degradable and are considered highly toxic in very low concentrations:

- Polynuclear Aromatic Hydrocarbons (PAH)
- Benzo (a) Pyrene
- Naphthalene

Degradable, With Very Small Quantity Decomposed Over Years
Solid Substances:

Examples:
Plastic - Fishing Nets - Ropes - Containers.

Lists of all laws, regulations and decrees and/or other legal instruments associated with chemical management and control including POPs

Legal Instrument (Type, Reference, Year)	***Responsible Ministries or Bodies***	***Chemical Use Categories Covered***	***Objectives of Legislation***
Law No. 21/1958	MOI	Industrial Chemicals	Rules regulating industry and production, handling and importing of chemicals.
Decree No. 138/1958	MOI	Industrial Chemicals	Regulates importing, handling and using of industrial chemicals.
Decree No. 91/1959	MOI	Industrial Chemicals	Rules regulating industry and production, handling and importing of chemicals.
Law No. 113/1962	MOHP	Pharmaceutical Chemicals	Regulates importing, manufacturing, and trade of pharmaceutical chemicals.
Agriculture Law No. 53/1966	MOA	Agricultural Chemicals	Rules regulate production, import, use of pesticides and fertilizers.
Decree No. 50/1967	MOA	Pesticides	Toxic properties of pesticides and procedures for recording.
Decree No. 480/1971	MOHP	Industrial Chemicals	Air pollution criteria for industrial establishment
Labor Law No. 12/2003	MOMI	Industrial Chemicals	Labor and industrial safety protection of industrial Environment
Decree No.55 of 1983	MOMI	All chemicals used in the Industrial field	Regulate and control use, handling, and storage of chemicals and conditions

Legal Instrument (Type, Reference, Year)	*Responsible Ministries or Bodies*	*Chemical Use Categories Covered*	*Objectives of Legislation*
			required for industrial safety and health in the work places
Decree No. 590/1984	MOA	Fertilizers	Rules regulate production, import, and use of fertilizers.
Decree No. 60 of 1986	MOA	Pesticides	Regulates & controls the using of restricted compounds
Decree No. 278/1988	MOA	Veterinary Insecticides	Regulates importing of veterinary insecticides.
Decree No. 977/1989	MOI	Industrial Chemicals	Prohibition of foreign in manufacturing of aerosols.
Decree No.258 of 1990	MOA	Fertilizers	Regulates and controls the importation of fertilizers
Decree No.116 of 1991	MOMI	All chemicals used in the Industrial field	Strengthening the facilities with training for directors and workers
Law No.4 of 1994	MSEA (EEAA)	All kinds of chemicals and its compounds (Industrial chemicals, Agricultural chemicals (pesticides –fertilizers), Pharmaceutical chemicals, Petroleum products, Explosive chemicals, radioactive materials, Consumer chemicals and Chemical waste, and others).	Environmental Protection and Pollution Control in Egypt
Executive Regulation No. 338	MSEA (EEAA)	All kinds of chemicals and its compounds	Executive Regulations for Law No.4/1994

Legal Instrument (Type, Reference, Year)	*Responsible Ministries or Bodies*	*Chemical Use Categories Covered*	*Objectives of Legislation*
of 1995		(Industrial chemicals, Agricultural chemicals (pesticides – fertilizers), Pharmaceutical chemicals, Explosive chemicals, radioactive materials, Petroleum products consumer chemicals and chemicals waste, and others).	
Decree No. 499 of 1995	MOI	Poisonous and non poisonous substances in industry	Control of handling the poisonous & non-poisonous substances in industry
Decree No. 108/1995	MIWR	Potable Water	A list of limits of pollutants and standards for Potable Water
Decree No. 874/1996	MOA	Pesticides	Regulates importing, handling and using of pesticides.
Decree No. 82/1996	MOHP	Hazardous Chemicals (for Health)	A list of hazardous chemicals for Ministry of Health
Decree No. 348/1996	MOHP	Banned Insecticides	A list of insecticides not allowed to be imported, produced or used
Decree No. 413/1996	MOHP	Hazardous Chemicals & Wastes	How to get license for handling of hazardous chemicals and wastes.
Decree No. 55/1996	MOT	Banned Chemicals	A list of chemicals not allowed be importing, producing or using.
Decree No. 673/1999	MOP	Petroleum Hazardous Chemicals	A list of hazardous chemicals for Ministry of Petroleum

Legal Instrument (Type, Reference, Year)	***Responsible Ministries or Bodies***	***Chemical Use Categories Covered***	***Objectives of Legislation***
Decree No. 7/1999	MOI	Hazardous Industrial Chemicals	A list of hazardous chemicals for Ministry of Industry which can not be used without license
Decree No. 44/2000	MOHP	Liquid waste	Limits for physical and chemical containments in liquid waste

Abbreviations:

EEAA : Egyptian Environmental Affairs Agency

MOA : Ministry of Agriculture

MOHP : Ministry of Heath and Population

MOI : Ministry Of Industry

MOMI : Ministry Of Manpower and Immigration

MOT : Ministry of Transportation

MSEA : Ministry of State for Environmental Affairs

Annex 6

Technical Infrastructure and Inter-Ministerial Commissions and Coordinating Mechanisms

Technical Infrastructure

Overview of Governmental Scientific Research Institutions and Laboratories Infrastructure Concerning Environmental Monitoring in Egypt.

The aim of this chapter is to provide an overview of the available technical infrastructure in Egypt at the national level concerning chemicals management, laboratory facilities, computer capabilities and technical training and the available education programmers, with high strengths capacity. Furthermore, these technical infrastructures can be applied to POPs management actions are identified in this chapter.

First: Ministry of State for Higher Education and Scientific Research related institutes:

1. Academy of Scientific Research and Technology

Address : 101 Kasr EI-Aini Str., Cairo
Tel : +202 7921286- 7921287
Fax : +202 7921270

Main Responsibilities

- Promoting of science and technology.
- Strengthening linkages between S&T bodies.

Types of Activities

Sectorial Research Projects - Technology Development - Local and Regional Development - Fostering the Infrastructure of Scientific and Technological Research - Scientific and Technological Services Popularizing of Science and Technology - International Cooperation in Science and Technology

Major Functions

- To support scientific research directed towards solving problems of national interest or priority,
- To encourage the application of modern technology in areas included in the national programs of economic and social development,
- To formulate policies that ensure strong linkages at the national level between scientific and technological organizations, within the framework of the principal trends of the scientific and technological research which serve the national development plans,
- To coordinate the major research projects affecting the national economic and social plans,
- To participate in the study of the scientific and technological aspects of the major development projects and when necessary, recommend the establishment of new research institutes,

- To encourage basic research as a means of training and developing human research resources, and to support research units working in modern fields of science.
- To disseminate information concerning the potentialities of international modern technologies,
- To participate in the development of science curricula,
- To organize scientific' publishing and the popularization of science,
- To increase excellency through different venues of motivation,
- To support scientific societies and encourage and participate, in convening scientific conferences, and
- To develop international relations in the fields of science and techno1ogy

2. National Research Center

Address : Tahrir Street - Dokki - Cairo
Tel : +202 3371828/3371211
Fax : +202 3370931 - 3601877

The NRC consists of the following 13-research division including 62 departments:

a. Pharmaceutical Industries:
Pharmaceuticals, Therapeutically Chemistry, Natural and Microbial Products.
b. Chemical Industries:
Paper and Cellulose, Training. Materials and Protein Chemistry, Polymers and Pigments, Chemistry of Pesticides, Glass, Refractories, Building Materials and Ceramics.
c. Textile Industries:
Dyeing, Printing and Textile Auxiliaries, Spinning and Weaving, Pretreatment and Finishing of Cellulosic Fibers, Protein and Synthetic Fibers.
d. Food Industries and Nutrition:
Food Technology and Dairing, Fats and oils, Food Science and Nutrition.
e. Genetic Engineering and Biotechnology:
Cellular Biology, Human Genetics, Molecular Biology, Plant Cell and
Tissue Culture, Microbial Biotechnology, Microbial Genetics.
f. Engineering:
Mechanical Engineering, Solar Energy, Chemical Engineering and Pilot Plant, Information and Systems.
g. Applied Organic Chemistry:
Organic Chemistry, Biochemistry, Chemistry of Flavoring Agents Related Substances.
h. Applied Inorganic Chemistry:
Physical Chemistry, Inorganic Chemistry.
i. Medical Sciences:
Basic Medical Sciences, Pharmacology, Child Health, Community Medicine, Hormones, Clinical Medical Sciences.
j. Environmental Sciences:
Water Pollution, Air Pollution, Occupational Health and Industrial Medicine.
k. Physics:

Solid State, Spectroscopy, Microwave, Theoretical Physics, Electron Microscopy and Thin Films, Advanced Materials.

l. Basic Sciences:

Microbial Chemistry, Cytology and Genetics, Earth Sciences, Photochemistry, Plant Systematic and Egyptian Flora.

m. Agriculture and Biology;

Botany, Pest and Plant Protection, Soil and water Use, Animal Production, Animal and Poultry Nutrition, Parasites and Animal Diseases, Agricultural Economy, Plant Diseases, Agricultural Microbiology, Fields Crops, Horticulture.

3. Mubarak City for Scientific Research & Technological Applications

- Address: New Borg AI Arab, Alexandria
- Tel: +203 4341367,4341368,4322251
- Fax: +203 4341365
- Starting Date: 1/7/1997

Objectives.

- Development of modern technologies.
- Establishment of technology development units.
- Training on modern technologies.
- Cooperation with national and international organizations in the field of technology transfer.

Institutions

- Genetic Engineering and Biotechnology Research Institute.
- Informatics Research Institute.

Technology Centers

- Center for Development of Scientific and Technological Abilities.
- Center for Development of Small Industries.
- Center for Development of Engineering Industries.
- Center for Development of Pharmaceutical and Fermentation Industries.

4. national Institute for Oceanography and Fisheries

Address: 101 Kasr EI Einy St. Cairo
Tel: +202 3556785
Fax: +202 3551381

Main Responsibility

- Conservation of the marine environment and its living and non living resources and its preservation and development as an environment suitable for marine living organisms
- Development of aquaculture.

Major Fields

Biological - Environmental - Genetic Engineering.
Facilities
Laboratories - Measurement instruments - Water Station

5. Egyptian Petroleum Research Institute

Address: Ahmed Ramez Street - 8th Sector. Nasr , City - Cairo
Tel: +202 2747847 - 2747917
Fax: +202 2747433

Main Responsibility

- Technical and Applied studies and research in the different petroleum fields.
- Consultancy for the petroleum sector.
- Analysis and services for petroleum sector.
- Production of specialized chemicals for drilling & refining.

Type of Activities

Research and Development - Engineering Design - Technoeconomical Studies - Consultancy" -Training - Tests - Analyses and Small Scale Production.

Major Fields

Exploration - Production - Refining - Petrochemicals - Pollution Fighting Quality Assurance - Energy Conservation.

Facilities

Statistics Unit - Library - Specialized Centers in the fields of services for petroleum tanks, production, asphalt and other materials preparation Measuring Instruments.

Main Specializations

Oil production, petrochemical, oil analysis and evaluation.

6. National Institute for standards

Address: Tersa St. - Haram - Giza
Tel: +202 3867451
Fax: +202 3867451

Main Responsibility:

The institute is the official reference of the National standards for physical measurement equipment.

Types of Activities

Research - Technological Development - Consultancy_ - Training Tests and Measurements - Quality Assurance.

7. Name of the institution :(8) National Authority for remote sensing & space science*(NARSS).*

Address: 23 Joussef Street, Prostito, EI-Nozha EI-Gedida- Cairo.
Tel: +202 2964387/2964386.
Fax: +202 2964385

Main Responsibility

- Aerial photography and using satellite imagery.
- Conducting studies for surveying and management of natural resources.
- Training of specialists.
- Proposing pertinent laws.

Types of Activities:

Research - Technology Development - Consultancies - Training - Tests, Laboratory Analyses and Measurements - Information systems.

8. Central Metallurgical Research & Development Institute *(CMRDI)*

Address: P.O.Box 87 - Helwan
Tel.: 5010640/1/2/3 - 5010094/5
Fax : 5010639

Major Fields:

Ore evaluation - Ore dressing - Hydrometallurgy - Pyrometellurgy - Electrometallurgy - Iron making - Steel making & Ferroalloys - Industrial wastes '. Melting & Casting- Heat treatment - Steel alloy - Non-Ferrous alloys - Corrosion. Metal protection and coating- metal forming- Powder metallurgy- Welding technology- Non-destructive testing - Consumable materials in welding.

9. Name of the institution: (10) The Technical & Technological Consulting, Studies & Research fund.

Address: 101 Kasr EI Aini St. - Cairo
Tel: 5941282 - 5941283
Fax: 5941280

Main Responsibility, and Approach

To solve problems and provide technological services for clients on contractual basis. It is a self-funded multifaceted technical, financial and managerial system that undertakes diagnosis and formulation of client problems and needs in terms of

clearly-defined projects; recruits and organizes the necessary manpower and facilities from its own core staff, as well as from the national pool of science and technology expertise (further, resort can be. made to specialized foreign skills whenever needed to fill specific gaps) and closely controls progress of work toward completion and fulfillment of desired ends.

10.The Egyptian Universities:

There are 20 state and private universities in Egypt. Most of these universities have departments of environmental sciences, chemistry, and industrial chemistry with reasonable number of staff, technical support individuals. If facilitates and equipment are available, these human power can take part of responsibility to implement the action plans and they can help in capacity building of others.

Second: Ministry Of Agricultural and Land Reclamation

1. The Central Laboratory of Residue Analysis of Pesticides *and Heavy Metals in Food.*

The Laboratory got its Accreditation Certificate from the Finnish branch (FINAS) of the European Accreditation Center of Laboratories (EAL) on basis of ISO 17025.

Address: 7 Nabil El- Said St, Dokki, Giza EGYPT.
Telephone : (+202) 7601395 – (+ 202) 7611355
Fax: (+202) 7611216 – (+ 202) 7611106.
Email: qcap@intouch.com

- **The Laboratory Activities:**

1- Analysis of Chemical and biological contaminants:
   - Pesticide Residues (89 pesticides)
   - Heavy Metals; mercury, Cadmium, Copper, Lead & Tin
   - Alfatoxins
   - Dioxins and PCBs
   - 16 microbes hazardous to the human health
   - Nitrates

2- Analyzing Samples from shipments of agricultural products prior to export and issuing Accredited Certificates with Results.
3- Analyzing samples from certain imported food & agriculture products in order to prevent food not complying with the standers of contaminants to enter the country for consumption.
4- Monitoring status of chemical and biological contamination in food and agriculture production the local markets through the national Monitoring Program in the laboratory.
5- Collaboration with the different research institutes in the national sectors i.e. Environment, Irrigation, Health, Universities, Agricultural Research Projects, Organic Agriculture, and International Inspection Offices, Export and Import companies, Farmers and Consumers.
6- Implementation & participating in Training Programs on Analysis and sampling methods nationally and internationally where a training center is established in the lab. To hold those programs.

7- Risk assessment on pesticides in residues is studied in the laboratory under authorization of the Ministerial decree no. 663 for years 1998.
8- Development of the methods of analysis of the laboratory and renovating new methods for new contaminants.
9- Training programs for colleagues from Arab countries in the Region on the sampling and analysis methods adopted in the laboratory.
10- Training of the Inspectors from plant Quarantine on the methods of the sampling.
11- Expanding the scope and the number of chemical and biological contaminants analyzed in the Laboratory and adding new methods to be proposed for accreditation.

2. Name of the institution: (2) Horticulture Research Institute HRI.

Address: 9 EI Gamaa St., Orman – Giza
Tel: +202 5720617
Fax: +202 5721628

Main Responsibility

Horticulture and field production improvement

Types of Activities

Research - Training - Laboratories Experiments and Extension Service Laboratory Analysis.

3. Plant Protection Research Institute.

Address: 7, Elseid Club Street, Dokki, Cairo
Tel: +202 3372193, +2023486163
Fax: +202716176 - +202 716175

Types of activities

- Studies and research on agricultural pests and their control.
- Cotton, field, horticulture, vegetables, medical and aromatic plants, pests and acarine.
- Useful insects as bees, silkworms, parasites and harmful animals and insects.
- Survey and classification of pests and spray technology.

4. Field Crop Research Institute.

Address: 9 EI Gamaa St. Giza - Cairo
Tel: +202 5726127
Fax: +202 5738425

Types of Activities:

Research - Consultations- Training - Analyses.

5. Soil, Water and Environmental Research Institute.

Address: 9 Gamaa St. 12619, Giza, Egypt
Tel: +202 5720608 - 5725549
Fax: +202 5720608

Main Responsibility:

The SWRI is responsible for basic and applied research projects, aimed at the conservation and improvement of Egypt's soil and resources.

Types of Activities
Research- Service Activities and Technology - Design and Training.

Major Fields

Environment - Irrigation and Drainage- Plant Nutrition and Soil Fertility. Documentation and Information - Remote Sensing.

6. Agriculture Extension and Rural Development Research Institute.

Address: 8 EI Gamaa St., Giza
Tel:+202 5716301 / +202 5716302
Fax: +202 5716303

Main Responsibility

To develop the Agricultural Extension Services, Considered to be the cornerstone for promoting agricultural productivity.

Types of Activities

Research - Training - Publications.

7. Agriculture Engineering Research Institute.

Address: Nadi EI-Seid St. Dokki - Giza
Tel: +202 3487212
Fax: +202 716867

Main responstlity

To assist in increasing agricultural production by introducing appropriate, mechanization technologies to end users with special focus on small and medium sized farms.

Types of Activities

Research, Technological development - Technoeconomical studies-Consultation - Training - Analyses and Measurements.

8. Central Agriculture Pesticides Laboratory

Address: Nadi EI-Seid St. Dokki - Giza
Tel: +202 3602209 - +202 3373860
Fax: +202 3602209

Main Responsibility

Analyzing and evaluating imported and local pesticides.

Types of Activities

Research - Technoeconomic studies - Consultations - Training, Analysis and Measurements.

Major Fields

- Pesticide residue analysis and environmental pollution.
- Pesticide formulation.
- Mammalian toxicology.
- Insecticide bioassay.
- Photo toxicity of insecticides.
- Pest rearing.
- Resistance to insecticides in agricultural pests.

9. Central Laboratory for Design and statistical Analyses Research – CLDSAR.

Address: 9 EI Gamaa St. Giza - Cairo - Egypt
Tel: +202 5729469

Main responsibility:

The main objective of CLDSAR is to increase the efficiency of agricultural experimental design and statistical analysis at the ARC to insure valid information.

Types of Activities

Research – Technoeconomic studies – Consultations for the ARC- training.

10.Central Laboratory for Agriculture Expert System

Address: EI Thawra St. Dokki - Giza
Tel: 3611477
Fax: 2604727

Main Responsibility

The CLAES is helping farmers to optimize the use of resources and' maximize the production of food.

Types of Activities
Search - Technological development - Technoeconomical studies consultations – Training.

11.Central Administration for Expert and Research stations

Address: 9 EI Gamaa St. Giza - Cairo
Tel: +202 5721207
Fax: +202 5721.207

Main Responsibility

- Conducting research programs for field crops and horticulture.
- Growing seeds of selected varieties.
- Helping farmers to solve technical problems.

Types of Activities

Research - Technological Development - Consultation - Training a Laboratory Analyses.

12.Central Laboratory for Alkaline and Saline Soils

Address: Bakkus - 21616 Alexandria
Tel: 5704441 - 5704443

Main Responsibility:

Conducting scientific and applied research on saline and alkaline affected soil.

Types of Activities

Research - Consultations - Training - Analysis and Measurements.

13.Desert research center

Address: 1 Mathaf EI-Mataria St.
Tel: 2435449 - 2435519 - 2430759

Fax: 2457858

Main Responsibility

- Investigating desert potential for agricultural development
- Carrying out studies on behalf of governmental institutions, societies and small landholders.
- Preparing postgraduate research assistants and scholars for higher degree study in the field of scientific research

Third: Ministry Irrigation and Water Resources

Name of the institution: (1) The National Center for Water Research

Address : Fom Terat EI Ismaileya - Shoubra EI Kheima
: 13411, P.O.Box 74
Tel : +202 2213532 - 2227351 - 2227350
Fax : +202 2208219

Main Responsibility

Ensuring and developing water resources and protecting them from pollution.

Types of Activities

Research - Technology Development - Engineering Design Technoeconomic studies - Training - Tests, Laboratory Analyses and Measurements - Quality Assurance.

Major Fields

- Irrigation and subsoil water.
- Renewable energy.
- Protection of water conduits.

Fourth: Ministry of Health & Population

1. National Organization for Drug Control & Research

Address : 6 Abu Hazem Street - EI- Haram
Tel : +202 5850005 - 3496077
Fax : 5855582 - 3379445

Main Responsibility

Assurance of drug effectiveness & expiration dates in Egypt.

Types of Activities

Research - Technology development - Studies - Consultancy - Training Quality assurance.

2. Nutrition Institute

Address : 16 El Kasr El Einy Street
Tel : +202 3643522 - 3646413
Fax : +202 3647476

Main Responsibility

Raising the health levels through correct nutrition schemes

Types of Activities

Research - Studies - training - laboratory - analyses & measurements nutrition.

3. Research Institute of Medical Entomology

Address : 1 El Mathaf EIZe,rai St. - Dokki
Tel : +202 3355570

Main Responsibility

Study insects transmitting diseases, and means of combating.

Types of Activities

Research - Consultancies - Training - Tests and Laboratory Analyses.

4. Field and Applied Research Institute

Address : 10th of Ramadan Street - Qalyub - Qalubia
Tel : +2013 - 2156433

Main Responsibility:

Field & applied research in the field of health

Type of Activities
Research - Technological Development - Studies - Training - Laboratory: Analyses & Measurements - Quality Assurance - Technology Transfer - Biostatistics.

5. Cairo Demographic Center

Address: 78 Street 4- EI Hadaba EI Alia - EI Mokkatam
Tel: 5060950 - 5060485
Fax: 5062797

Main Responsibility

- Applying scientific methods in the field of population studies.
- CDC award academic degrees (Ph.D./M.S/Diplomas)

Type of Activities.

Research -Consultancy - Training – Education

6. Environmental Monitoring and Occupational Health and Safety (E.M.OH. S)

Address: 1 Tayar Fekry Street -Embaba
Telefax:+202 3119694
Main Responsibility:-

Nile Water Monitoring- Waste Water Analysis- Industrial Waste Water Analysis- Air Pollution Monitoring- Residual Pesticides- Environmental Researche Studies

Types of Activities:

Monitoring - Research – Training- Field and Applied Research in the Environmental Issues

Fifth: Ministry of Foreign Trade and Industry:

1. Name of Institution: (1) Industrial Designs Development Center

Address: 203 EI Ahram St.- EI Taawon - Giza
Tel: +202 3865530 - 3866542 *I* 550
Fax: +202 3867466

Main Responsibility:

Designing and manufacturing of products and production equipment, and establishing production management and quality control systems.

Types of Activities

Engineering Design - Consultancies - Training.

2. Egyptian Fertilizer Development Center

Address: Egypt - Dakahlia - Mansura – Talkha - SEMADCO (EFDC) P.O Box 35619
Tel.: (+2050) 521950 - 526810
Fax: (+2050) 525695
Telex: SEMADCO 92609

Main Responsibility:

- Supporting Studies for the new production of different formulas of NPK fertilizers through the pilot plant.
- Anticaking - Slow Release Urea. .
- Developing Solid NPK, NP Fertilizers, Liquid NPK, Fertilizers APP.

3. Plastic Industry Development Center

Address: Infront of 25 Zaki Attallah street, EI Saa Victoria - Alexandria.
Tel: +203/5705356
Fax: +203/5715516

Main responsibility:
Developing the plastic industry

Type of Activities

Tests- training - plastics' application in agriculture.

4. Tebbin Institute for Metallurgical studies

Address : Tebbin, Helwan, P.O.Box 109
Tel : +202 5010171 - 5010172 - 5010176
Fax : +202 5010170

Main Responsibility.

Preparing specialists from engineers and university graduates in the fields of Metallurgical Coke, Chemicals, and Heat Industries.

Types of Activities

Educational - Research - Development -Engineering - Technoeconomic Studies- Consultancies - Laboratory Tests & Measurements - Training.

5. The Egyptian Geological survey and Mining Authority.

Address : 3 Salah Salem st., - Abbaseya - Cairo.
Telephone : +202 839652 - 4829662
Telefax : +202 4820128

Main Responsibility

- Geological mapping of Egypt.
- Evaluation of mineral resources and suggesting their best use.
- Providing technical expertise to various sectors and major projects.

Types of Activities

Research - Techno economic Studies - Consultancies - Training - Tests, Laboratory Analysis and Measurements.

6. Admistration of Chemistry

Address: 12 Ramsis St., Cairo - 11522
Telephone: +202 5743433 - 5743214
Telefax: +202 5740750

Main Responsibility

A supervising authority on the Egyptian market, especially industrial and food products, ensuring compliance with Egyptian standards, determining the appropriate custom duties and combating industrial and -commercial fraud.

Types of Activities

Research - Technology Development - Training - Testing, Laboratory. Analysis and Measurements - Quality Assurance.

7. Egyptian Organization for Standardization & Quality control

Address: 2 Latin America St., Garden City, and Cairo
Tel: 3549720
Fax: 3557841

Main Responsibility

Establishing standards, quality assurance & control for the different products.

Types of Activities

Research- Technoeconomic Studies- Consultancies- Training - Tests, Laboratory Analyses and Measurements- Quality Assurance

Seventh: Ministry Of Manpower

The National Institute of Occupational Safety and Health

Address: 156 El Hegaz St. - El Nozha - Heliopolise
Tel: +202 2424355 - 2452630 - 2443995
Fax: +202 2424355

Main Responsibility

- Conducting research and studies.
- Offering technical and field consultancy services.

- Preparation of training courses.

Types of Activities

Research - Carrying out advisory services for industry in the field of occupational safety and health - Training - Analyses and measurements.

Other Ministries

A- ministry of Electricity and Energy

1. Egyptian Atomic Energy Authority.
2. Nuclear Material Authority.
3. Egyptian Renewable Energy Development Organization (EREDO).
4. Electricity Authority of Egypt – High Voltage Research Center.

B- Ministry of Housing, Utilities and new Communities

1. Housing, Building and planning research center.
2. National Organization for Potable Water and Sewage.
3. Organization for Research & Reconstruction Studies.

C-Ministry of Transport, Transportation and Civil Aviation

1. National Institute of transport.
2. Research& Consultancies Center for the Marine Transportation Sector.
3. The National Authority for Roads and Bridges.
4. The Meteorological Authority.

Overview of Government Information Systems / Computer Capabilities

- Information & Decision Support Center (IDSC) (www.idsc.gov.eg)
- Information Center of all Miniseries (Industry, Agriculture, Irrigation & Water Resources, Health & Population, Manpower & Emigration, Transportation, Foreign Trade, Interior, Petroleum and Electricity & Energy…etc.
- Central Agency for Public Mobilization and Statistics (CAPMAS)
- The Egyptian Electronic Government (http: // www.egypt.gov.eg)

Inter-Ministerial Commissions and Coordinating Mechanisms

Inter-Ministerial Commissions and Coordinating Mechanisms

The aim of this chapter is to describe and provide the existing mechanisms, which facilitate coordination and cooperation amongst ministries, agencies and other relevant governmental and non-governmental bodies in particular, areas responsible of chemicals management. Thus, it is very important to identify such commissions and mechanisms that are related to chemicals management (or other fields) that are relevant to, or have potential to be built upon for, POPs management. Furthermore, relevant entities that can serve as, long-term commissions, coordinating mechanisms or points of contact on POPs management issues including multistakeholder chemicals-related committee are also mentioned.

Table 7.A provides an overview of any relevant mechanisms for coordinating activities among relevant institutions, chemicals-related focal points and / or other national-level inter-agency supervisory or coordination bodies. Table

7-A: Overview of Inter-Ministerial Commissions and Coordinating Mechanism

Name of Mechanism	***Responsabilités***	***Secrétariat***	***Members***	***Legislative Mandate/ Objective***
1-Country Protective Committee against leakage of hazardous substances and wastes causing environmental pollution	Protection of the country against leakage of hazardous substances and wastes	Hazardous Substances Department Egyptian Environmental Affairs Agency (EEAA)-(MSEA)	Egyptian Environmental Affairs Agency (EEAA), Ministry of Health and Population Ministry of Industry, National Security Agency, Ministry of Interior, Civil Defense, Ministry of Agriculture, Ministry of Petroleum, Ministry of Electricity and Customs Authority	Laying down a plan to secure the country against any leakage of hazardous substances and wastes causing environmental pollution

2-Hazardous Substances and Wastes Committee	Handling of hazardous substances and wastes in MOH	Ministry of Health and Population	Ministry of Health and Population Egyptian Environmental Affairs Agency (EEAA), Ministry of Agriculture and Ministry of Forign Trade and Industry	Agreeing on exporting, producing or handling hazardous substances and wastes in the Ministry of Health Population
3- Hazardous Substances and Wastes committee responsible for international conventions (Basel, PIC , POPs) management	Management of hazardous substances and waste, and following –up the obligations and requirements of international conventions Secretariats	Egyptian Environmental Affairs Agency (EEAA)-(MSEA)	Egyptian Environmental Affair Agency (EEAA), Ministry of Health and Population Ministry of Foreign Trade and Industry, National Security Agency, Ministry of Interior, Civil Defense, Ministry of Agriculture, Ministry of Petroleum, Ministry of Electricity and Customs Authority	Main scope is to coordinate between governmental organizations and ministries in field of chemicals management. Furthermore, following –up obligations required by international conventions secretariat.
4- Hazardous substances and wastes supreme committee	Setting up mandates and exchanging of experiences	Arab league	Representatives of Ministries of Environment in Arab Countries	The main scope of the committee is exchange information's and experiences among Arab Countries. Also, it setup strategies and mandates related to environmental issues across regional level.

5-Committee for the safe disposal of Obsolete stock pesticides	Set-up procedures for safe disposal of obsolete pesticides and identifies alternative solutions rather than landfilling	Coordination between Ministry of State for Environmental Affairs and Ministry of Agriculture	Egyptian Environmental Affairs Agency (EEAA), Ministry of Health Population Ministry of Foreign Tradeand Industry, National Security Agency, Ministry of Interior, Civil Defense, Ministry of Agriculture, Ministry of Petroleum, Ministry of Electricity and Customs Authority	The main scope is to identify methods required for safe disposal of obsolete stock pesticides in cement kilns (for non- organo- chlorine pesticides)
6-Committee for assessment, evaluation and integration of petrochemical sector in El Amria zone – Alexandria	Evaluation of environmental hazards associated with chemicals usage (risk assessment)	Egyptian Environmental Affair Agency (EEAA)-(MSEA)	Egyptian Environmental Affairs Agency (EEAA), with cooperation with petrochemical facilities in El Amria industrial zone-Alexandria Governorate	Main scope is to conduct risk assessment for El Amria zone in relation to chemicals and production
7-Committee for occupational health and safety (Inter-Ministerial committee on indoor Air Pollutants)	Setting –up requirements for occupational health and safety for workers	Ministry of Manpower (MOMI)	Egyptian Environmental Affair Agency (EEAA) In coordination with Ministry of Manpower and Ministry of Health and Population	Main scope is to setup guidelines and limits for chemicals management and indoor air pollution regarding industrial process, health and safety for workers and, exchanging information on effects on human health and activities by international organizations.

8-Committee for Standardization & Quality Control	Setting- up required standard for industrial facilities	The Egyptian Organization for standardization and Quality Control (EOS)-(MOI)	Egyptian Environmental Affair Agency (EEAA) In coordination with Egyptian Organization for Standardization & Quality control – Ministry of Foreign Trade and Industry	Main scope is to set-up limits and standards for industrial facilities for products specifications, industrial operation, raw material concentrations…etc
9-Committee for preparation of hazardous substances lists	Setting –up lists for hazardous substances used in industrial facilities in Investment and free zones	General Organization for Investment and Free Zones	Environmental Affair Agency (EEAA) In coordination with Egyptian General Organization for Investment and Free Zones	Main scope is to conduct hazardous substances lists for industrial facilities in investment and free zones in Egypt
10- Inter-Ministerial Committee or IFCS (Inter-Governmental Forum for Chemical Safety)	Exchanging Information Regarding Matters related To IFCS among Relevant Ministries and Agencies, as Well as Promoting Communication/ Coordination Among them if Necessary.	Ministry of State for Environmental affairs (MSEA)	Egyptian Environmental Affairs Agency (EEAA), Ministry of Health, Ministry of Foreign Trade and Industry Civil Defense, Ministry of Agriculture,	Main objective is to bringup organizations and ministries in charge of matters related to chemical safety of chemical substances. Moreover, exchange information, communication/ coordination

11- Inter-Ministerial Committee for Stockholm Convention on Persistent Organic Pollutants (NIP Project steering committee)	Developing Egyptian National Implementation Plan based on the POPs Convention and promoting communication/ coordination among relevant Ministries and Agencies to review the progress and to promote an effective implementation of the Convention.	Ministry of States for Environment	Egyptian Environmental Affair Agency (EEAA), Ministry of Health and Population, Ministry of Foreign Trade and Industry National Security Agency, Civil Defense, Ministry of Agriculture, Ministry of Petroleum, Ministry of Electricity and Customs Authority	Main objective is to conduct the mandates and ensure fulfillment of the obligation of Stockholm Convention especially article (7) of the Convention especially for National Implementation Plan (NIP) .
12-Inter-Ministerial Committee on Strategic Approach for International Chemical Management (SAICM)	Set-up an international strategy by recognizing recent issues regarding chemical substances require in order to promote various measures regarding management of chemical substances effectively and efficiently.	Ministry of States for Environment	Egyptian Environmental Affairs Agency (EEAA), Ministry of Health, Ministry of Industry, National Security Agency, Civil Defense, Ministry of Agriculture, Ministry of Petroleum, Ministry of Electricity and Customs Authority	Main objective is to coordinate and conducts information system among Ministries and related Authorities for setting-up international strategy for chemicals management

A list of Relevant Non- Governmental Organizations

Following is a list of relevant NGO's working in the field of Environment.

1. Alexandria

Nervana Association for Community Development

Address: 2 Mohammed Massoud St., - PO 641 Alexandria 21131 Alexandria

Tel: 03-4255001

Fax: 03-4255002

El Horia Society for Social Development and Environment

Address: 11 Soliman Yosry St. Kom El Dika - El Atareen Alexandria

Tel: 03-3930070/03-3930079/03-4956957 03-3930079

Fax: 03-3930079

Friends of the Environment Association

Address: 22 Ahmed Bek Gharbou St., Zizenia, Alexandria

Tel: 03-5845759

Fax: 03-5845759

Egyptian Back to Nature

Address: 50 Edfo St., Kamp Shizar, Alexandria

Tel: 035912269/ 03-5909851

Fax: 03-5912269

Environment Protection Association

Address: Employees Residence by Absy Railway Station, Absy Alexandria

Tel: 03-5061357/03-5061242

Arab Society for Biotechnology

Address: Faculty of Agriculture - El Shatby - Alexandria

Tel: 03-5921960/ 03-5921862

Fax: 03-5922780

Environment Promoters Association

Address: Block 4 Building 2 - Masaken El Haramein - El Montazah

Tel: 03-3235234 / 0105130918

Fax: 03-3235234

Young Women Christian Association

Address: 19 Dr Abdel Hamid Badawi St. El Azarita

Tel: 03-4863669 / 03-486805

Fax: 03-4873214

Omar Ibn El Khatab Association for Community Development and Environment Protection

Address: 76 Teraet EI Montazah St., Rami, Bakous Mail 21616

Tel: 03-5023771

Fax: 03-5023771

Scientific Association for Food Industries

Address: Faculty of Agriculture - Aflaton St., - El Shatby - 21545

Tel: 03-5909364

Fax: 03-5922780

Alexandria Businessmen Association - Environmental Committee

Address: 52 El Horeia St.
Alexandria

Tel: 03- 4848978 03-4848979

Fax: 03- 4872411 03—4872206

2. Assuit

Community Development Association Sahel Selim

Address: 33 July St. Sahil Salim, Assiut

Tel: 088-630434

Fax: 088-630434

Community Development Association – Mosha

Address: sCommercial Unit – Mosha - Assiut

Tel: 088-540519

Fax: 088-540519

Christian Youth Association

Address: Assiut Address: Salah El Din El Ayoubi St., East District Assiut

Tel: 088-313118 / 088- 323218 / 088-303018

Fax: 088-311050

Young Women Christian Association YWCA

Address: El Mawaleh Square, El Nile Buildings - No.1,Assiut

Tel: *088-322934 / 088-309472 / 088-330632*

Fax: *088-322934*

Environment Protection Association

Address: Gole Gamal St. Governorate Building, East District, Assiut

Tel: 088-323508/088-411534

Fax: 088-331384/088-323699

Local and Regional Scientific Society for Integrated Development (LARCSID)

Address:	Rural Social Section- Faculty of Agriculture West District Assiut
Tel:	088-347298/088-411541
Fax:	088-347298

Muslim Youth Association - Manfalout

Address:	El Gomhoria St., El Kalaa Square - Assiut
Tel:	088- 700483
Fax:	088- 700483

3. Aswan

Egyptian women association

Address:	Micheal al Saraf st.- AbbasFraid , Aswan
Tel:	097-312465
Fax:	097-312465

Egyptian Association for Community Development - Aswan

Address:	82 Abtal El Tahrir st., Misr Insurance Building, Aswan
Tel:	097-318100/ 097-301525
Fax:	097-301525

Community Development Association – Draw

Address:	Safia Zaghloul St., opposite the New National Bank - Naga El Sheikh – Aswan.
Tel:	097-732989
Fax:	097-732989

Community Development Association - El Hakroub

Address:	58 Badawy St., El Simad St. - El Hakroub- Aswan
Tel:	097-252461
Fax:	097-252461

Muslim Youth Association – Aswan

Address:	Korneish El Nil St.- Kasr El Hagar -Aswan
Tel:	097-302255
Fax:	097-302255

Community Development Association - Selim Gouda District

Address:	Selim Gouda District - El Hagz Bahary - Edfou - Aswan
Tel:	097-688292 *I* 097-688256
Fax:	097-688292 *I* 097-688256

4. Bani Sweif

Muslim Women Youth Association at Beba

Address:	Mooled El Naby Square - Beba - Bani Sweif
Tel:	082-400691/ 082-403825
Fax:	082-401490

Community Development Association - El Zarabi

Address:	El Zaraby - Bani Sweif 62755
Tel:	0101674609
Fax:	082-332980

Regional Enterprises Development Center

Address:	19 Port Said St., - El Horia Tower Bani Sweif
Tel:	0101006570/ 082-343131
Fax:	082-329135

Community Development Association - Bani Sweif

Address:	El Shaikh Metwaly El Sharawy St., Bani Sweif
Tel:	082-323653
Fax:	082-323653

5. Beheira

Community Development & Environment Conservation Association

Address:	Port Said St. Talat Harb - Kafr El Dawar - Beheira
Tel:	045-233424/045-213939
Fax:	045-233424

Community Development Association - Sidi Shehata

Address:	Sour,EI Sherka St. Sidi Shehata - Beheira
Tel:	045-213789
Fax:	045-213789

Future Youth Association

Address:	El Nashar St., in front of 10 St., - El Helal Square - Damanhour - El Beheira- Beheira
Tel:	045-314833/0124618064
Fax:	045-323272

El Beheira Women Association for Sustainable Development

Address:	Diwan Magles El Mohamadia - Beheira
Tel:	0123924040
Fax:	0123924040

6. Cairo

Bent El Nil Association

Address:	44 Ashour Sokar St. Helwan Gezeret Dar El Salam – Helwan-Cairo
Tel:	0101281435
Fax:	0105060776

El Mahaba Orthodox Coptic Association

Address:	22 Hamdy St.- El Zaher - El Waily Cairo
Tel:	5882464
Fax:	5882464

Social Services Assciation - AI Azhar Agriculture

Address:	Agriculture Faculty - AI Azhar University - Nasr City - Cairo.
Tel:	4024132 / 2634002
Fax:	4015481

Friends of the Environment & Development Association (FEDA)

Address:	88 Qasr El Aini St. - Cairo
Tel:	7957637 - 7953346
Fax:	7957637

El- Gharbia Society for Development

Address:	Economic Buildings - Block 72 - Opposite El Rahma Mosque – Helwan-Cairo
Tel:	5559090 / 7953680
Fax:	7953680/ 0123374651

Cairo SPCA

Address:	1 Abo Wafia - AI Shorabia -Cairo
Tel:	2352098
Fax:	2310062

Local Society Development Association - El Walda Village

Address:	29 Mahmoud Mustafa St., - El Walda Village – Helwan - Cairo
Tel:	3707805 - 3722461
Fax:	3707805 - 3722461

Albelqeiny.Association for Society Development

Address:	51 Bin el Sayareg St., Bab El Shearia Cairo
Tel:	5888200 – 5884040
Fax:	5888200 – 5884040

Rotary Club Heliopolise East

Address:	17 El Hassan.St. - El Mosheer Ahmed Ismail St.Heliopolis - El Nozha- Cairo
Tel:	2670905 - 4535606
Fax:	2588100

The Egyptian Society of Solid State science and Applications

Address:	33 Abd El Khaleq Tharwat St. - Abdeen - Cairo
Tel:	3925997
Fax:	3925997

Egyptian Society for Toxicology, Env. Legislation

Address:	Pharmacology Section Faculty of Medicine El Azhar Univ. - Nasr City – Cairo
Tel:	4034052/ 2981453/ 2981511
Fax:	4020184/ 2981453

Zahret El Madaln Charity Association

Address:	17 El Aziz Bellah St.- El Zaitoon- Cairo
Tel:	4518603/ 0122921617
Fax:	4551835 / 4547862

Association of Protecting the Environment - El Mokatam.

Address:	5 Hakim Attallah Street - Mansheyat Naser El Zabalin District-cairo
Tel:	5102723
Fax:	5100149

Development & Environment Conservation Association

Address: 7 El Daer El Bahari - Helwan El Balad - Cairo

Tel: 5540680 / 0127365391

Fax: 5540680 / 0127365391

Association Business Inst. Management for Protecting the Env

Address: 86 Mohieldin Abu El Ezz Street Mohandessin - Giza

Tel: 3367016

Fax: 3367017

Egyptian Solar Energy Society

Address: 3 Borg el Mohandessin -- 28th Floor - Flat no.3 –Maadi - Cairo

Tel: 5266038

Fax: 3041651

Forum of Dialogue and Partnership for Development - FDPD

Address: 31 Lebanon S.t., Mohandessin - Giza

Tel: 3450252

Fax: 3021573

18.Maadi Environmental Rangers

Address: 2 Orabi St. - Maadi -Cairo

Tel: 3595706 - 5194358

Fax: 5194358

CARITAS - EGYPT

Address: 1 AI Shahid Mahmoud Sedky - Shubra - Cairo

Tel: 4310201 - 4310208

Fax: 4310213

The Egyptian Association for Medical and Env. Legislation

Address: 13 El Mamalik Street – Roxy – Heliopolis – Cairo

Tel: 2585999 - 2569427

Fax: 2588100

The Egyptian Society of Occupational and Environmental medicine

Address: Faculty of Medicine - Ain Shams University - El Abasseia - Ciro

Tel: 4837888/ 6853276

Fax: 4837888

Tree lovers Association

Address: PO 592 Maadi - Cairo

Tel: 5195240 - 3592078 - 3806868

Fax: 5163756 - 3588210

National Institute for Oceanography & Fisheries

Address: 101 El Kasr El Aini St.,- Scientific Research Academy – Seas science Institute

Tel: 7921342/ 7921340

Fax: 7921341

Association of Protecting the Environment

Address: 5 Hakim Atala St., - Mansheyet Naser - El Mokatam - cairo

Tel: 5102723

Fax: 3553896

Egypt Environmental Engineering Society EEES

Address: Faculty of Engineering - Cairo University - Giza

Tel: 5722145

Fax: 5722145

Promoting Nirko City Association

Address: 40 El Mazraa st. - New Nirko City -Cairo

Tel: 3537000 - 3536000

Fax: 5251399

General Association for Internal Immigration and Development

Address: 26 Street 6, El Maadi - Cairo

Tel: 3782729

Fax: 3782659

The Egyptian Association for Developing local Societies

Address: El Hadaba El Wosta - El Mokatam - cairo

Tel: 5083942 (Association) / 7950616 - 7945138 (Head of the Association)

Egyptian Psychopathological Society

Address: Faculty of Agriculture – Psychopathological Department Cairo university - Giza

Tel: 5724107/ 5724966

Fax: 5717355

The Egyptian Botanical Society

Address: Faculty of Science - Cairo University - The Plant Department - Giza

Tel: 5676648/ 5715885

Fax: 5715885

Habi Center for Environmental Rights

Address: El Zawia El Hamra Buildings-Entrance 1- Block 174 El Zawia El Hamra - cairo

Tel: 4232743

Fax: 4232743

Arab Office for Youth &. Environment

Address: 3 Zahraa El Maadi - Emarat Misr lel Taamir Cairo

Tel: 5161519 - 5161245

Fax: 5162961 - 5167431

Egyptian Association for Comprehensive Development

Address: 7 El Saraya St" - Manial El Roda - First Floor - Flat no. 4 - Cairo

Tel: 3652135

Fax: 3652135

Environmental Research and Studies Institute

Address: Cairo University - Giza

Tel: 5728532 - 5728623 - 5687696

Fax: 5736601 - 5727009

nstitute of Cultural Affairs

Address: 79 St., no. 48 - Maadi el Sarayat - first floor - Cairo

Tel: 7530059 / 0101014820

Fax: 7530059

EQI - Environment Quality Institution

Address: 18 El Mansoor Mohamed St., - Zamalek –Giza

Tel: 7351924 - 7358628 - 7353797

Fax: 7355489

CID - Community and Institutional Development

Address:	11 El Gabalaya St., - 3rd floor - 9th flat – Zamalek – Cairo
Tel:	7380832 – 7380752
Fax:	7352660

Eco Con Serve

Address:	10 El Kamel Mohammed St" Zamalek - Cairo
Tel:	7359078
Fax:	7365397

Environics

Address:	Address: 6 El Dokki St., - 12th floor - Cairo
Tel:	3360599 - 7495685 – 7495696
Fax:	7492472 – 3360599

EDS

Address:	5 Ahmed Basha St., Sixth floor, - Garden City – Cairo
Tel:	7957558
Fax:	7947278

Developing the Society Association

Address:	28 Kornish El Nile Buildings - Rod El Farag - Flat no. 1 Cairo
Tel:	4580276
Fax:	4580276

Friends of Nature Association

Address:	Faculty of Agriculture - El Azhar University - Nasr City - Cairo
Tel:	6358979 - 6377741 - 0101555326
Fax:	4010711

Qena Association for Development and Social Services

Address:	53 Tereet el Khashab St., - El Maasara – Helwan - Cairo
Tel:	3729490 - 3726913 - 3718628
Fax:	3729490 - 3726913 - 3718628

Developing the Society Association – Helwan

Address:	3 Haider Street – Helwan - Cairo
Tel:	5575520 - 5010170 - 5257744
Fax:	5540232

EL Saied Association for Development

Address:	65 El Kebisy Street, El Zaher - Cairo
Tel:	5898364 - 5889634
Fax:	5889635

Coptic Evangelic Organization for Social Services – CEOSS

Address:	Block 1331 - Ahmed Zaki St., - El Nozha El Gedida – Cairo
Tel:	2975901 - 2942270
Fax:	2959141 - 2975878

Central Association for Nomads and Faith for Development and Environment Protection

Address:	59 Tanta St., - El Agouza – Giza
Tel:	3466419 - 3464503
Fax:	3026717

Environment and Development Book Association

Address:	Emarat Maarouf - No. B. - Floor No. 11 - El Ahram Foundation - Cairo
Tel:	7957558
Fax:	7947278

Egyptian Forum for Environment and Sustainable Development

Address:	16 Hassan El Emama St., - First Zone - Nasr City - Cairo
Tel:	0122156090
Fax:	2603880

Khodra Association ,for Environment Protection and Development

Address:	El Fagala - Cairo
Tel:	5900411 - 5900892
Fax:	5928560

African Association for Studying the Nile Basin

Address:	El Tahrir St" National Research Institute – Dokki -Giza
Tel:	3371499 - 3371433 - 3669950
Fax:	3370937

Egyptian Association for Industries Medicine

Address:	Faculty *of* Medicine - Ain Shams University-Abbasia- Cairo
Tel:	7361199

Fax: 841088

Misr El Mahrousa Center for Environment Protection

Address: 9 Abd el Aziz Khalil St., .. District 2 - Floor 4 - Cairo

Tel: 2481662

Fax: 2494635

Move Forward Association

Address: 25 El Sadd El Aly St., .. Finni Square – Dokki - Giza

Tel: 3381084 – 3381085

Fax: 3381084 – 3381085

International Rotary Association

Address: 21 Hassan Sabry St" - First Floor – Zamalek – Cairo

Tel: 3418602 – 3404347

Fax: 3411582

Environment Protection Association - Sharkeia

Address: PO 262 Maadi 11728 - Cairo

Tel: 5197009

Fax: 5196949

Urban Development Association for Islamic Cairo

Address: 36 El Moaz le Din Allah - El Ghoreya - Cairo

Tel: 3758807 - 3754733

Fax: 3751187 - 3751374

Tree Friends Association

Address: 130 Misr and Sudan St" - Hadayek El Kobba – Cairo

Tel: 2843368

Fax: 2843368

EL Safwa El Akhyar Central Association

Address: 61 El Eallam Buildings - El Agouza - Cairo

Tel: 3059078 - 3026717

Fax: 3059078 - 3026717

Egyptian Association for Social and Technological Researches for Society Development

Address: 1 - Egyptian Cultural Club - Ozaris St" - Garden City - Cairo

Tel: 3575300 - 2613390

Fax: 3557565

7. EL-Fayoum

The Social Organization for Environment Protection in Fayoum
SOEP

Address: El Hawatem Buildings - Building No. 1 - Entrance A - El Fayoum

Tel: 084-341774

Fax: 084-341774

8. EL-Minia

Street Food Vendors Organization

Address: El Matahen Tower, Misr Aswan Agricultural Road. 4 Hoda Shaarawy St., EI-Minia

Tel: 086-344360

Fax: 086-344360

Local Community Development Association - Matay el Balad

Address: Dayer El Nahia St., Matay El Balad – EL-Minia

Tel: 086-921233

Fax: 086-921233

Local Community Development Association - Haridi Village

Address: Haridi Village - El Sawi - El-Minia

Tel: 086-984353 / 086-550905

Fax: 086-984353 / 086-550905

The Coptic Evangelic Organization for Social Services - CEOSS

Address: Ard Soltan - El Nasr St.,- El Minia

Tel: 086-347792 / 086-343295

Fax: 086-347793/086-366373

9. Gharbia

Egyptian Association for Services & Environment Conservation

Address: Shoubra El Namla - Tanta – Gharbia

Tel: 040-3101114

Fax: 040-3101114

El Hamad Charity Association

Address: 1 El Geish St.- Tanta - Gharbia

Tel: 040-3341644

Fax: 040-3341644

Community Development Association at Damanhour El Wahsh

Address: Damanhour El Wahsh - Zefta - Gharbia

Tel: 040-638135

Fax: 040-638135

10. Ismailia

Environment and Development Association

Address: El Enshaa we El Taamir Buildings - Building no. 6 - Flat no. 1 – Ismailia

Tel: 064-370878 / 064-344585

Fax: 064-344585

The Association for Renewable Energy and Environment Protection of Ismailia

Address: El Shaikh Zayed - Commercial St.,- Ismailia

Tel: 064-335955/ 064-321071/ 064-321075/ 064-321076

Fax: 064-321080

11. Kafr ELsheikh

Social Care Association – Biala

Address: BOa - El Yarmook St., El Mahata District - Kafr El Sheikh

Tel: 047-605032

Fax: 047-605032

Social Services Association – Bila

Address: El Thawra St., In front of the Culture House - Kafr El Sheikh

Tel: 047-608014

Fax: 047-608014

12. Luxor

Local Community Development Association

Address: El Zanaqta St. The Airport District - El Zanaqta – Luxor

Tel: 095-321090 (Head of the Association)

Fax: 095-321090 (Head of the Association)

Association of Social Rehabilitation of Disabled – Luxor

Address: East district – Luxor

Tel: 095-365766

Fax: 095-365766

Noor El Islam Association – Luxor

Address: East Railways - East District - Luxor

Tel: 095-371905

Fax: 095-365766

13. Matrouh

Local Community Development Association

Address: El Wehda El Sahraweia Building - El Dabaa - Matrouh

Tel: 046-4670857/0101736509

Fax: 046-4670857

14. Menoufia

Local Community Development Association - Quesna

Address: Ahmed Maher St. Quesna - Menoufia

Tel: 048-574002

Fax: 048-574002

Local Society and Development Community – Talia

Address: Talia - Ashmoun - Menoufia

Tel: 048-450472 / 048-450055

Fax: 048-450472 / 048-450055

Community Development Association - Sentrees

Address: Sentrees - Ashmoun - Menoufia

Tel: 048-407230

Fax: 048-407230

Social Services Association - Sers El Laian

Address: Port Said St" El Bahr Road - Sers El Laian - Menoufia

Tel: 048-350428

Fax: 048-350428

Community Development Association – Srohite

Address: Srohite Village - Monouf - The Agricultural Road -Menoufia

Tel: 048-354681

Fax: 048-354681

Community Development Association - Fisha El Kobra

Address: Menouf - Fisha El Kobra - Menoufia

Tel: 048-433018

Fax: 048-433018

Environment Service & Conservation Association

Address: Abo Aamir District- El Hay El Qebly - Shebin El Kom - Menoufia

Tel: 048-238460

Fax: 048-238460

15. New Valley

Egyptian Youth Association for Environment & Development

Address: Gamal Abdel Naser St. - Youth Center of El Kharga City -New Valley

Tel: 092-921650

Fax: 092-921711

Environment Service Association

Address: El Sabt & El Hessa - El Nabawy El Mohandess St., - Behind El Kharga Sports Club - El Kharga- New Valley

Environment Service Association - Abdallah Adam District

Address: Felestine St., - Abdallah Adam District - El Kharga- New Valley

Tel: 092-927692

Fax: 092-927692

16. Qalioubia

Prophet Family Association for Development - Qaliub

Address: El Wehda El Zeraaia St. Bahari El Seca El Hadid – Qalioub – Qalioubia

Tel: 2157064 / 2155381.

Fax: 2157064 / 2155381.

Environment Protection Association - El Khanka City

Address: Sodone St. from El Gomhoria St., – Qalioubia

Tel: 4695065 / 4690950 / 4683410

Fax: 4696546

Community Development and Environment Services – El Abadla.

Address: El Abadla Village - Toukh – Qalioubia

Tel: 451885

Fax: 451885

17. Qena

Community Capacity Development & Environment Protection Association

Address: 5 El Salam St. Houd 10 - Qena

Tel: 096-331350/ 096-335810

Fax: 096-331350/ 096-335810

Community Development Association - Sharabela

Address: El Sharabela - Abu Deiab - West - Dishna - Qena

Tel: 096-333153/ 012365398

Fax: 096-333153/ 012365398

Family and Environment Development Association - FEDA

Address: El Qua El Amla Street, Construction and Housing Buildings - Qena

Tel: 096-210415 / 096-213106

Fax: 096-210415

Social Care Charity Association - Armant El Wabourat

Address: El Berka Street, Dr. Ismail Mohammed Selim Building - Armant el Wabo,urat - Qena

Tel: 095-624670

Fax: 095-624670

18. Red Sea & North Sinai

Social Development Association at Ras Ghareb

Address: AI Ezaah St. El Wehdi El Sahrawia Building - Ras Ghareb – Red Sea

Tel: 065-626361

Fax: 065-626361

Omar Ibn El Khatab Association for Developing Society

Address: Military Affairs District - Safaga - Red Sea

Tel: 065-252645

Fax: 065-252645

Quseir Environment Protection Society

Address: Toshky Buildings - Building No. 2 - 2nd Floor - Flat 4 - El Quseir - Red Sea

Tel: 065-330924 / 0123440005

Fax: 065-332495

Red Sea Diving Association

Address: Sheraton Road - In front of Marriott Hotel - Hurghada - Red Sea

Tel: 065-444802

Fax: 065-444801

Local Community Development Association - Abo Tawila

Address: Abo Tawila - El Shaikh Zewaid – North Sinai

Tel: 068-502364

Fax: 068-502364

Youth Population, Resources and Environment Association

Address: El Arish - Mogamaa El Masaleh - 3rd Floor – North Sinai

Tel: 068-354519/068-320921

Fax: 068-320774

Islamic Charity Association-Bir El Abd

Address: El Tameir District, Building No 18 - Entrance A - Bir El Abd – North Sinai

Tel: 068-540407/068-540770

Fax: 068540771

8.Women Association for Local Community Development – North Sinai

Address: General Governorate Building - North Sinai

Tel: 068-320569 / 068-320568 / 068-358418

Fax: 068-320800

Local Society Development Association-Abou Sakal

Address: Prince Badre St. sub.26th July St., Abou Sakal - El Arish – North Sinai

Tel: 324634

Fax: 324634

Environment Protection and Development Association - Bir El Abd

Address: El Tamer District - Building No. 18 - Entrance A - In front of the Industrial Technical Institute – North Sinai

Tel: 068-540852

Fax: 068-541448

Hurghada Environmental Protection & Conservation Association - HEPCA

Address: Hosni Hamad St., - 144 Hurghada - Red Sea

Tel: 065-446674

Fax: 065-445035

National Association for Environment Protection

Address: El Arish - Mogamaa El Masaleh - 26th July Street - 3rd Floor – North Sinai

Tel: 068-354519/068-320921

Fax: 068-321774

19. Sharkia

Environment Protection Association - El Basaisa

Address: El Basaisa El Tebeia - El Zakazik -Sharkia

Tel: 055 - 2672651

Fax: 02 - 7975904

Society Development Association - El Basaisa

Address: El Basaisa El Tebeia - El Zakazik -Sharkia

Tel: 055-2672651 / 055-2672883

Fax: 055-2672651 / 055-2672883

Comprehensive Rural Technological Center for Training and Production

Address: El Basaisa El Tebeia - El Zakazik -Sharkia

Tel: 055-2672651 / 055-2672883

Fax: 055-2672651 / 055-2672883

20. Sohag

Sohag Environmental Protection and Development Association

Address: Faculty of Science - Sohag

Tel: 093-601949 .

Fax: 093-601159

Muslim Youth Association - El Manshaah

Address: Seif El Nasr St. - El-Nanshaah - Sohag

Tel: 093-400501

Fax: - - -

Community Development Association - Gerga

Address: Abo Asem El Basri St. El Abadeia – Gerga - Sohag

Tel: 093-674886

Fax: 093-674886

Social Services Association - El Ghaiathia

Address: El Gergawia El Sharki St., - Sohag

Tel: 093-333543

Fax: 093-333543

21. South Sinai

Basata Village - Neweiba - South Sinai

Address: Basata Village - Neweiba - South Sinai

Tel: 069-500430

Fax: 069-500430

Kenooz Sinai Association for Economic Development

Address: Ras Sedr - El Basaisa El Gedida - South Sinai

22. Suez

El Shabat El Moslemat Society

Address: Port Tawfic Road - El Suez Center for Languages and Computers - Suez

Tel: 062 - 340618 / 062 - 226169

Fax: 062 - 340618

Annex 7

Linkage to International Programmes and Projects

Co-operation and Involvement with International Organizations, Bodies and Agreements

The linkages with international organizations, especially those concerned with chemicals management, has benefited the country in many ways such as:

- Receiving international support through UN agencies, such as UNEP/IRPTC, FAO, UNITAR, as well as from other countries to address issues relating to chemicals;
- Receiving international information/literature from other countries relating to chemicals management, including measures or actions taken with respect to specific chemicals, such as PIC chemicals
- Receiving information on legislation and technologies used to reduce risks at the local level, through documents from US-EPA, and other countries.

Table 1: Membership in International Organizations, Programs and Bodies

International Organization/ Body/ Activity	***International Organization Office in Egypt***
Intergovernmental Forum on Chemical Safety (IFCS)	Name : Intergovernmental Forum on Chemical Safety - EGYPT Add. : 30 Misr- Helwan St., El-Maddi, Cairo, Egypt Tel. : 5256452 Fax : 202 – 5256790 E mail: hzwaste@eeaa.gov.eg
UNEP – IRPTC National correspondent IE PAC - cleaner production center	Name :United Nations Environmental Program Add. : 28 Adly St. – Cairo – Egypt Tel. : 3929733 – 3905996 – 3934046 Fax : 202 – 3950119 E mail: unep-allo@link.net Web site: www.unep.org Operating since : 1991

FAO	Name : Food & Agriculture Organization Add. : Agrarian Reform Bldg.– 11 Eslah Zerai Dokki Egypt Tel. : 3375182 Fax : 202 – 3378563 E mail: fao-egy@fao.org Web site: www.fao.org Operating since : 1945
WHO	Name :World Health Organization Rep. office Add. :Magles El-Shaab St. – MOHP – Egypt Tel. : 7953708 Fax : 202 – 7953756 E mail: wregypt@link.net Web site: www.who.scl.eg Operating since : 1989
	Name :World Health Organization Eastern Mediterranean office Add. :Abd El-Razek El-Sanhoury St. – Nasr City – Egypt Tel. : 6702535 Fax : 202 – 6702492 E mail: wregypt@intouch.com Web site: www..emro.who.eg Operating since : 1948
UNIDO	Name : United Nations Industrial Development Add. :5 Latin America St. c/o Ministry of Industry – Egypt Tel. : 7921184 Fax : 202 – 7921199 E mail: mgarzelli@unido.org Web site: www.unido.org Operating since : 1997
ILO	Name : International Labour Organization Add. :9 Taha Hussien St. – Zamalek – Egypt Tel. : 3412358 Fax : 202 – 3410889 E mail: bodossian@ilo.org Web site: www.ilo.org Operating since : 1996
WB	Name : World Bank Add. :1191 Corniche El Nil St. World Trade Center – Cairo Tel. : 5741670 Fax : 202 – 5741676 E mail: Web site: www.worldbank.org Operating since: 1992

Egypt has several international programmes regarding chemical management, some of these international programmes are:

1-Food and Agriculture Organization (FAO) and United Nations Environment Programme (UNEP)

2- Safety in the Use of Asbestos

3- Safety in the Use of Chemicals at Work

4-Prevention of Major Industrial Accidents

5-Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, and Related Protocol

6-Stockholm Convention on Persistent Organic Pollutants (POPs)

7-Intergovernmental Forum On Chemical Safety (IFCS)

8-The Awareness and Preparedness for Emergencies at the Local Level (APELL)

9- The Cleaner Production Program

10-The Ozone Action program

11-International Action on Mercury and its Compounds

Table 2: Participation in International Agreements / Procedures Related to Environmental Protection and Chemicals Management

International Agreements and Conventions
Register of International Conventions and Agreements in the filed
Of the Environment to which Egypt is a signatory

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
Air and Noise Pollution	1. Convention concerning the protection of workers against occupational hazards in the working environment due to air pollution, noise and vibration.	4 May 1988 (R)
Biodiversity	2. Convention on wetlands of international importance especially as waterfowl habitat (RAMSAR)	9 September 1988 (R) 9 September 1988 (E)
	3. Convention on the preservation of Flora and Fauna in their natural State	21 February 1935 (R) 14 January 1936 (E)
	4. International convention for the regulation of whaling	18 September 1981 (E)
	5. Agreement for the establishment of a general fisheries council for the Mediterranean	19 February 1951 (R)
	6. International plant protection convention	22 July 1953 (R)
	7. African Convention on the conservation of nature and natural resources	16 March 1972 (R)
	8. Protocol to amend the convention on wetlands of international importance especially as waterfowl habitat	9 September 1988 (R)

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
	9. Convention on international trade in endangered species of wild Flora and Fauna (CITES). 10. Convention on the conservation of migratory species of wild animals (Bonn) 11. Convention on Biological Diversity 12. Agreement on the establishment of Near East plant protection organization 13. Protocol concerning specially protected areas and biological diversity in the Mediterranean 14. Protocol concerning Mediterranean specially protected areas	4 January 1978 (R) 4 April 1978 (E) 11 February 1982 (R) 1 November 1983 (E) 2 June 1994 (R) 13 April 1995 (R) 20 August 1990 (E) 10 June 1995 (S) 8 July 1983 (R)
Climate Change	15. United Nations framework convention on Climate Change 16. Kyoto Protocol	5 December 1994 (R) 15 March 1999 (S)
Cultural Heritage	17. Convention concerning the protection of the world cultural and natural heritage	7 February 1974 (R)
Desertification	18. United Nations convention to combat desertification in those countries experiencing serious drought and/or desertification, particularly in Africa	7 July 1995 (R)
Law of the Sea	19. United Nations convention on the law of the Sea 20. Agreement relating to the implementation of Part XI of the United Nations convention on the	26 August 1983 (R) 22 March 1995 (S)

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
	law of the sea of 10 December 1982	
	21. Agreement on the implementation of the provisions of the United Nations convention on the law of the sea of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks	5 December 1985 (S)
	22. United Nations convention on conditions for registration of ships	9 January 1992 (R)
Marine Oil Pollution	23. International convention on the prevention of pollution of the sea by oil	22 July 1963 (E)
	24. International convention relating to intervention on the high seas in cases of oil pollution casualties	3 February 1989 (R) 4 May 1989 (E)
	25. Protocol concerning cooperation in combating pollution of the Mediterranean sea by oil and other substances in cases of emergency	24 August 1978 (R) 23 September 1978 (E)
Marine Pollution	26. Protocol relating to intervention on the high seas in cases of Marine pollution by substances other than oil	3 February 1989 (R) 4 May 1989 (E)
	27. Convention on the prevention of marine pollution by dumping of wastes and other matter	30 July 1992 (R)
	28. 1996 protocol relating to the convention on the prevention of Marine pollution by dumping of wastes and other matter, 1972	1996 (S)
	29. Protocol of 1978 relating to the international convention for the prevention of pollution from ships, 1973	7 November 1986 (E)

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
	30. Convention on the protection of the Mediterranean sea against pollution (Barcelona)	24 August 1978 (R) 23 September 1978 (E) 10 June 1995 (S)
	31. Amendment to the convention for the protection of the Mediterranean sea against pollution	24 August 1978 (R) 23 September 1978 (E)
	32. Protocol for the prevention of pollution of the Mediterranean sea by dumping from ships and aircraft	10 June 1995 (S)
	33. Amendment to the protocol for the prevention of pollution of the Mediterranean sea by dumping from ships and aircraft	18 May 1983 (E) 17 June 1983 (E)
	34. Protocol of the protection of the Mediterranean sea against pollution from land-based sources	7 March 1996 (S)
	35. Amendment to the protocol for the protection of the Mediterranean sea against pollution from land-based sources	23 March 1986 (E)
	36. Regional convention for the conservation of the Red Sea and Gulf of Aden environment (Jeddah)	

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
Nuclear Energy and Hazardous Substances and Waste	37. Convention on early notification of a nuclear accident	6 July 1988 (R) 6 August 1988 (E)
	38. Convention concerning prevention and control of occupational hazards caused by carcinogenic substances and agents	25 March 1982 (R)
	39. Convention on the prohibition of the development, production and stock-piling of bacteriological (Biological) and toxin weapons, and on their destruction	10 April 1972 (S)
	40. Protocol on the prevention of pollution of the Mediterranean sea by Transboundary movements of hazardous wastes and their disposal	1 October 1996 (S)
	41. Basel convention on the control of Transboundary movements of hazardous wastes and their disposal	8 January 1993 (R)
	42. Amendment on the Basel convention on the control of Transboundary movements of hazardous wastes and their disposal	22 September 1995 (S)
	43. Bamako convention on the ban of the import into Africa and the control of transboundary movement and management of hazardous wastes within Africa	30 January 1991 (S)
	44. Convention on assistance in the case of a nuclear accident or radiological emergency	17 October 1988 (R) 17 November 1988 (E)
	45. Joint protocol relating to the application of the Vienna convention (on civil liability for	10 August 1989 (R) 27 April 1992 (E)

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
	nuclear damage) and the Paris convention on (Third-party liability in the field of nuclear energy)	20 September 1994 (S) 18 March 1964 (R)
	46. Convention on nuclear safety	5 November 1965 (R) 12 November 1977 (E)
	47. Convention concerning the protection of workers against Ionizing radiation	10 January 1964 (R)
	48. Vienna convention on civil liability for oil pollution damage	3 November 1989 (R) 4 May 1989 (E)
	49. Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water	21 April 1995 (R)
	50. International convention on civil liability for oil pollution damage	
	51. Protocol of 1992 to amend the international convention on civil liability for oil pollution damage, 1969	20 August 1990 (E)
	52. Protocol concerning regional cooperation in combating pollution by oil and other harmful substances in cases of emergency	14 March 1991 (R) 14 July 1996 (E) 14 March 1991 (R) 14 July 1996 (E)
	53. International convention on oil pollution preparedness, response and cooperation	26 January 1993 (R)
	54. International convention on salvage	6 July 1967 (R) 21 April 1969 (E)

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
	55. Treaty establishing the African economic community	1 April 1982 (R) 1 April 1982 (E)
	56. Agreement for the establishment of a commission for controlling the desert Locust in the Near East	10 October 1967 (R)
	57. Convention on prohibition of military or any other hostile use of environmental modification techniques	09/00/1995 (R)
	58. Treaty on principles governing the activities of states in the exploration and use of outer space including the Moon and other celestial bodies	8 November 1994 (S) 9 May 1988 (R)
	59. International tropical timber agreement	2 August 1988 (R)
	60. International tropical timber agreement, 1994	13 January 1993 (R)
	61. Vienna Convention on the protection of the Ozone Layer	28 June 1994 (R)
	62. Montreal protocol on substances that deplete the Ozone Layer	17/5/2002 (S)
	63. (London) Amendment to the Montreal protocol on substances that deplete the Ozone Layer	13/1/2003 (R) 17/5/2004 (E)
	64. (Copenhagen) Amendment to the Montreal protocol on substances that deplete the Ozone	24/2/2004 (E)

Category	Name of Convention/Agreement	Date of Ratification (R) / entry into force (E) / Signature (S)
	Layer 65. Stockholm Convention for Persistent Organic Pollutants. 66. Rotterdam Convention On The Prior Informed Consent.	

Participation in Relevant Technical Assistance Projects

Table: Participation in Relevant Technical Assistance Projects

Name of project	*International/ Bilateral Donor Agency Involved*	*National Contract Point*	*Relevant Activities*
EHSIMS	SDC	EEAA	The objective of this project is to initiate a management system for Hazardous Substances in Egypt, through providing basic guidelines and information for the purpose of ensuring safe handling of such substances and through disseminating such information through an information network.
(SEAM II)	DFID	EEAA	SEAM aims at Environmental Management amelioration and protection in an integrated fashion in the Governorates of Dakahleya, Sohag, Qena and Damietta. Its main outputs are represented in fully functional environmental management and planning systems in Sohag and Dakahleya (these systems to be replicated in Qeana and Damietta by EEAA), poverty alleviation in the four Governorate, and enhanced communication participation and awareness.
Regional Laboratories Network The Project for Supply of Equipment for Regional Laboratories Network (Japanese Grant Aid) 1st phase, 2nd phase,	JICA	EEAA	The project aims at equipping the EEAA RBOs in the Governorate with different needed supplies and equipment's.

3rd phase			
Environmental Monitoring and Training Project	JICA	EEAA	The project aims at equipping the Environmental Central Lab in Cairo and the Laboratories Network of the EEAA RBOs in other Governorates with different needed supplies and equipment's. Further more, it provides training programmes to the laboratories staff on using these equipments for the target of tracing the compliance of various entities with the ratios and standards of the law.
(ESPS)	DANIDA	EEAA	ESPS immediate objectives basically are to enable EEAA to carry out its functions at the local level and effectively service-decentralized institutions involved in environmental management. Besides, it supports developing environmental management capacity in Aswan and Beni Suef governorates. In addition, ESPS aims at assisting the Egyptian industry to improve compliance with the environmental law. It also supports NGOs and Community Development Associations to be more participating and involved in the quality of life issues.
(EIMP)	DANIDA	EEAA	EIMP affords data and information about sources of pollution and their environmental impact on air and water quality, through establishing environmental monitoring network for air ambient and coastal water.
(EEPP II)	USAID	EEAA	EEPP supports policy, institutional, & regulatory reforms to reduce generation of air pollution and to manage natural resources for

			environmental sustainability. Policy reforms will be supported to overcome selected crosscutting economic, financial, and institutional constraints to improved environmental management.
(CAIP)	USAID	EEAA	The basic aim is the preparation and implementation of a plan of decreasing the emissions of the led smelters in Greater Cairo, plus transferring the public buses to operate with natural gas. Also it aims at monitoring the air quality in Cairo city to trace the project results.
(EEIS)	CIDA	EEAA	EEIS assists GOE decision-makers in the formulation and timely implementation of appropriate policies, legislation, programs and projects affecting water and land resources in Egypt. Major activities are: to increase the capacity and capability of EEAA to make sound decisions regarding environmental protection and management through implementation of an environmental information system; to increase and enhance the availability and accessibility of environmental data and information to EEAA from national government organizations, institutes and academic institutions; and to establish a sustainable linkage between EEAA and other organizations involved with the environment (Ministries, Departments, Institutes, other international donor-funded projects, non-governmental organizations, and

			academic centers).
(EEIF)	CIDA	EEAA	EEIF promotes the management and conservation of Egypt's natural resources, particularly soil and water, by the Egyptian private and voluntary sector. This is mainly achieved through strengthening the capacity of small and medium enterprises (SMEs) to improve environmental efficiency of their production process, enhancing the capacity of the NGOs and CADs to deliver local environmental initiatives, and supporting private sector in "green" business.
(NEAP)	UNDP	EEAA	Updating the National Environmental Action Plan is the milestone. Also, NEAP supports the process of preparing the Egyptian Environmental Sector programme that EEAA carries out in close coordination with the concerned ministries, governorates, NGOs, local authorities and related donors activities and projects. The main activities are Problem definition, goal articulation, developing alternatives, evaluation of options, and recommendation of future actions.
(EPAP)	WB + European Bank for Investment + GO Finland	EEAA	EPAP provides technical and financial assistance to different industries reaching the aim of their compliance with the environmental laws. EPAP has a technical and financial component, institutional component, and awareness one.
Environmental Protection Fund for	KFW	EEAA	The project mainly aims at financing the needed investments to implement Public Sector

Public Sector Industries			industries in the field of industrial waste treatment.
Hazardous Waste Management Project in Alexandria	FINNIDA	EEAA	A pilot project to build a nucleus for the hazardous industrial waste, starting from the factories, through transportation, collection, temporary storage and disposal, ending with burring, treating and withdrawal.
Conservation of Wetlands Project	GEF	EEAA	It mainly seeks the conservation of the wetlands, biodiversity and ecological systems of the Mediterranean shores
Lake Manzala Engineered Wetlands	GEF	EEAA	The project encourages the sustainable development through raising the environmental and economic opportunities locally and internationally. Its main output is establishing and operating a pilot station able to treat 25-50 thousand m3/day from Bahr El-Baquar drainage water before being discharged in Lake Manzala.
Sitting Safe Landfill for Solid Waste Study	EU	EEAA	The project main output is the preparation of a study of management and treatment of the industrial hazardous waste in Greater Cairo.
Egyptian – Italian Environmental Cooperation 1) Siwa Environmental Amelioration Project	Italian Government	EEAA	Development of sustainable agriculture through environmentally friendly practices, firm establishment of a self-sustaining micro-credit mechanism managed by a local NGO in the Oasis, declaration of Siwa Oasis Protected Area, and development of the Siwa region as a leading eco-tourism, cultural heritage-handicraft site in the Western Desert are all the milestones of Siwa component.

2) Wady El-Rayan Protected Area			The project aims mainly at ensuring the sustainability of Wady El-Rayan Protected Area management unit and promoting WRPA as leading site for environmental education and communication on biodiversity and sustainable development issues.
3) Gabal Elba Protected Area			The main output of the project would be a detailed management plan for Gabal Elba protected area ready for implementation
4) Fayoum Oasis Project			The project specific objective is to add value to natural and cultural resources through a cooperation strategy between EEAA and Supreme Council of Antiquities, concluding with the creation of "cultural district" in the Fayoum region.
5) Solid Waste Management Project in El-Minya Governorate			The project specific aim is to guarantee the essential framework, as well as clear engineering, administrative, and investment guidance for the execution of the field actions necessary to raise up to an adequate level of service the SWM practices in El-Minya Governorate.

6) Decision Support System for Water Resources Planning			DSS specific objectives are to refine and disseminate the methodology developed for the integration of environmental and socioeconomic aspects in the analysis of water resources scenarios and development measures, and to contribute to the capacity building of high level and technical staff of National Water Resources Center and of the end-users (EEAA and Ministry of Water Resources and Irrigation)
7) Cultural Heritage Conservation in Sakkara Area Project (Phase I)			
Integrated Industrial Waste Management	EU	EEAA	
Oil Spill Combating Centers (Sharm El-Sheikh and Neweiba)	EU	EEAA	The main objective of the project is to establish a center for prompt-response in the emergency cases, and to set procedures and mechanisms for oil spill combating in Gulf of Aqaba.
Gulf of Aqaba Protectorates Development Program	EU	EEAA	Protection and development of the natural resources and ecological system of the Gulf of Aqaba as an essential base for supporting touristic development in South Sinai is the main target of the project. Additionally, it aims at building the EEAA capacity in the Nature Protection Sector.
St. Katherine National Park	EU	EEAA	Natural, religious and historical heritage protection in St. Katherine National Park and conservation of the ecological systems and

			natural resources of the area is the project immediate goal. Furthermore, it aims at the urban planning and the rational management of the natural resources of the protectorate.
Building National Capacity in the field of Climate Change (Phase II)	GEF	EEAA	This initiative is a continuation of the previous GEF-assisted Capacity Building Project aimed at institutionalizing climate change issues on the national level. This second phase focuses on assessing technology needs for adaptation measures for coastal zones, agriculture, and water resources. Other activities include studying impacts on coral reefs and human health, and assessing technology needs to alleviate negative effects.
Technology Cooperation Agreement Pilot Project (TCAPP)	UNCSP (U.S. Countries Studies Programme)	EEAA	The TCAPP is charactered to develop consensus among key Egyptian organizations on a set of high priority, climate friendly, and technology issues aimed at successful commercialization. Results are expected to produce candidate technology transfer areas for consideration under the guidance of the National Climate Change Committee. Market development plans for selected technologies are currently underway.
Fuel Cell Bus Demonstration Project	GEF + UNDP	EEAA	The overall objective is reducing the Green House Gases (GHG) emissions and other pollutants. The demonstration in Cairo features eight fuel cell buses with associated hydrogen production and supply facilities. With a focus on technology transfer, Egypt hopes to expand

			the success of this demonstration in its transportation fleet.
Natural Gas Motorcycles	Industry Canada	EEAA	The project aims at reducing the emission of GHG by converting two stroke engines used in motorcycles to compressed natural gas (CNG). The project is implemented in three phases: identification of capabilities and barriers, demonstration of the technology, and a hand-over and transition to the local market.
(CDM)	World Bank + Embassy of Switzerland in Cairo	EEAA	The study aims at identifying institutional national prerequisites for CDM, preparing a pipeline of projects for implementation under the CDM, and studying the international market for GHG emissions reductions for CDM projects. The scope of this study concentrates on the potential sectors for CDM projects in Egypt, including energy, industry, transportation, waste management and agriculture.
National Implementation Plan Project of POPs convention (NIP)	GEF with the technical Cooperation of the UNIDO	EEAA	The objective of the project is to develop and formulate a National Implementation Plan (NIP) and thereby strengthen national capacity and enhance knowledge and understanding amongst decision makers, managers, the industry, agriculture and the public at large on POPs. By achieving this objective Egypt will be prepared and able to meet its obligations under the Stockholm Convention on POPs according to Article (7) of the convention.

Annex 8

The List of Governmental and Non-Governmental Stakeholders

Ministries, Authorities and Agencies that Cooperate in NIP

Authorities	No.
Cooperating Ministries	15 ministries
Partner Authorities	17 competent authorities
Private Sectors Companies	250 companies
EEAA Regional Branches	6 branches
Non Governmental Organizations	***20 NGOs***
Governorates	26 governorates
Researches Centres and Laboratories	***9 research centres and laboratories***
Universities	***3 universities***

A. The Cooperating Ministries are:

1. Ministry of Agriculture
2. Ministry of Health and Population
3. Ministry of Foreign Affairs
4. Ministry of Finance
5. Ministry of Planning
6. Ministry of Investment
7. Ministry of Interior Affairs
8. Ministry of Foreign Trade and industry
9. Ministry of Petroleum
10. Ministry of Transportation
11. Ministry of Electricity & Energy
12. Ministry of Education
13. Ministry of Irrigation and Water resources
14. Ministry of Higher Education & Scientific Search
15. Ministry of Information
16. Ministry of Communication and Information technology

B. Partner Authorities:

1. Chamber of Metallurgical Industries - Egyptian Federation Industries
2. Chamber of Chemical Industries- Egyptian Federation Industries
3. Chamber of Textile Industries- Egyptian Federation Industries
4. Chamber of Petroleum & Mining industries- Egyptian
5. Chamber of Leather Tanning - Egyptian Federation Industries
6. National Council for Women
7. Arab league
8. Western Desert Company of Natural gases
9. Egyptian Organization for Standardization & quality control
10. Egyptian General Organization for Petroleum
11. Egyptian General Organization for Roads & Bridges
12. Custom Authority
13. Egyptian General Organization for Monitoring Import & Export
14. General Agency for Veterinary Services
15. Organization of Industrial Conversation
16. Holding Company for Chemical Industries
17. General Organization for Industrialization (GOFI)

C. Private Sector Companies:

Category	No.
Iron & steel companies	30
Paper companies	28
Chemicals companies	20
Leather tanning	20

Glass factories & companies	30
Cement factories	More than 15
Ceramic factories	More than 15
Smoke & tobacco companies	Some
Aluminum industry	(Naga' amadi)
Lead smatters	10
Cupper industries	More than 20
Textile industries	More than 20
Brick industries	More than 15

D. EEAA Regional Branches:

1. Cairo & El-Fayoum branch
2. Suez branch
3. Alexandria branch
4. Assiut branch
5. East of delta branch
6. West of delta branch

E. Non Governmental Organizations:

- General Federation of non governmental and Foundations.
- Specialized Federation of NGO's in Environmental Affairs.
- Concerned NGO's:
  1. Alexandria Businessman Association.
  2. Egyptian Association for Toxicology.
  3. Environmental Protection Association –Alex.
  4. Environmental Protection Association –Aswan.
  5. Community Development Association- Cairo.
  6. Friend of the Environment & Development Association – Cairo.
  7. Association Business Institute Management for Protecting the Environment –Cairo.
  8. The Social Organization for Environment Protection - in Fayoum (SOEP).
  9. Social Services Association- Kafr Elsheikh.
  10. Social Care & Services Association – Menoufia.
  11. Egyptian Youth Association for Environment & Development – New Valley.

12. Community Capacity Development & Environmental Protection Association – Qena.
13. Quseir Environmental Protection Association.
14. Hurghada Environmental Protection Association- Hepca.
15. Environmental Protection Association- Sharkia.
16. 6 October City Investors Association.
17. El Sadat City Investors Association.
18. Hospitals Organization Day for Preparation & Development.
19. El – Rahman Association for Social Services – 6 October City.
20. Small Industries Association for Developing the Local Association- 6 October City.
21. Cooperation Association for Building Material Production.
22. Science Protect our lifes Society.

F. Governorates:

1. Cairo Governorate.
2. Alexandria Governorate.
3. Red sea Governorate.
4. Assiut Governorate.
5. Aswan Governorate.
6. Bani Sweif Governorate.
7. Beheira Governorate.
8. El-Fayoum Governorate.
9. El-Minia Governorate.
10. El-Gharbia Governorate.
11. El-Ismailia Governorate.
12. Kafr El Sheikh Governorate.
13. Matrouh Governorate.
14. El-menoufia Governorate.
15. New valley Governorate.
16. El- Kalioubia Governorate.
17. Qena governorate.
18. North Sinai Governorate.
19. South Sinai Governorate.
20. Sharkia Governorate.
21. Sohag Governorate.
22. Suez Governorate.

23. Port said Governorate.
24. Dakahlia Governorate.
25. Giza Governorate.
26. Damietta Governorate.

G. Researches Centers & Laboratories:

1. Agriculture research center.
2. Central Pesticide laboratory.
3. Central Laboratory of Residue Analysis of Pesticides.
4. Environmental – Solid and Water research institute.
5. National Research Center.
6. Academy of Scientific Research and Technology.
7. National water Research Center.
8. Chemistry Agency.
9. Petroleum Research Institute.

H. Universities:

1. Environmental hazardous mitigation center – Cairo niversity
2. Central laboratory – Cairo University
3. Faculty of Science – Ain Shams University
4. Alexandria University.

Annex 9

List of Priorities set for the national objectives

The priorities related to national objectives were set through the participation of the National Steering Committee of the project and different EEAA branches and departments together with ministries and relevant authorities and non-governmental organizations that include woman and child associations, universities, the private sector (companies) and other relevant authorities in Setting Priorities and Determining Objectives Workshop. as following:

S.					Activities and sources	Degree	Priorities
1						131	Inventory, treatment and rehabilitation of areas polluted with dioxins and furans .
	1.1				Uncontrolled burning processes		Prevention of uncontrolled burning processes
		1.1.1			Public dumps		Rehabilitation of public dumps to prevent uncontrolled burning
		1.1.2			Random dumpsite in Greater Cairo		Prevention of uncontrolled burning processes in random landfill
		1.1.3			Biomass burning		Prevention of uncontrolled burning of biomass (agricultural and animal wastes).
			1-1-3-1		Rise straw		Prevention of burning rice straws in fields and

S.					Activities and sources	Degree	Priorities
							recycling it.
			1-1-3-2		Uncontrolled burning of biomass		Prevention of uncontrolled burning of agricultural and animal wastes.
		1.1.4			Random dumpsite		
	1.2				composting		Applying the BAT/BEP in composting factories.
	1.3				Industrial Activities		Applying the BAT/BEP in industry to reduce the releases of dioxin &furan from industrial sources.
		1.3.1			Iron and Steel Industry		
		1.3.2			Bricks		
		1.3.3			Lime Industry		
		1.3.4			Lead casting		
		1.3.5			Cement Industry		
		1.3.6			Asphalt		
		1.3.7			Iron		
			1.3.7.1		Iron and steel company		
		1.3.8			Coke production		
			1.3.8.1		El Naser Company for coke and essential chemical		
		1.3.9			Charcoal production		

S.					Activities and sources	Degree	Priorities
		1.3.10			Iron and steel casting		
		1.3.11			Lead Casting		
		1.3.12			Aluminum Casting		
		1.3.13			Glass Industry		
		1.3.14			Ceramic Industry		
		1.3.15			Zinc Industry		
	1.4				Medical waste Incinerators		Appling BAT/BEP in medical waste incinerators to reduce the resulting dioxin& furans releases.
	1.5				Power Generation		Applying BAT/BEP in power stations to reduce the resulting dioxin& furans releases.
	1.6				Chemical Industry		Applying BAT/BEP and using alternatives in chemical industries to reduce the resulting dioxin& furans releases, and replacing that contain chlorine in paper industry .
		1.6.1			Chlorinated Pulp &Paper Production , or other Bleaching Chemicals		Using unchlorinated substances in pulp &paper production.
		1.6.2			Fabric Industry		

S.					Activities and sources	Degree	Priorities
		1.6.3			Production of chlorine ,phenol , chlorophenol and PVC		
	1.7				Waste oil Treatment		Applying BAT/BEP and using of alternatives in petroleum oils waste treatment stations.
		1.7.1			Alex. Company for Petrol		
	1.8				Transportation		Using of unleaded fuel and catalysts in transportation sector
	1.9				Cigarettes manufacturing		Applying BAT/BEP in smoke and cigarette industry.
2						102	Establishing of national center for POPs
3						89	Setting a national program on reduction of food pollution .
4						79	Disposal of obsolete pesticides.
	4.1						Disposal of 5.975 of DDT
	4.2						Disposal of 557 L of

S.					Activities and sources	Degree	Priorities
							Toxaphene
	4.3						Disposal of 1.187 Ton of Lindane& DDT
5						70	Disposal of PCBs.
	5.1						Checking transformers manufactured during the period 1955-1977 that totally contain almost 20490 Kilos of oil, that may contain PCBs , for the purpose of disposal. Also checking the number of 3666 condensers, manufactured in 1970, that may contain PCBs oils.
6						70	Disposal of equipment polluted with POPs
	6.1						Checking for & disposing of 3666 condensers and 26 transformers, that were manufactured during the period from 1955-1977.
7						62	Inventory &treatment of areas polluted with

S.					Activities and sources	Degree	Priorities
							POPs.
8						61	Inventory &treatment of areas polluted with PCBs.
9						59	Establishing databases on the results concluded.
10						43	Amending laws and legislations
11						41	Using of BAT/BEP.
12						41	Setting of plan for the protection of public health from potential hazards of exposure to POPs.
13						40	Dissemination & elaboration of data and making access to such info. Available.
14						39	Initiating prevention procedures .
15						39	Setting a strategy for raising awareness.
16						39	Environmental sound management of wastes
17						37	Establishing a mechanism for information exchange

S.					Activities and sources	Degree	Priorities
18						37	Raising awareness of heads and decision – makers concerning POPs.
19						36	Making information on POPs available to the public by different means.
20						35	Raising awareness of the public, especially of women & child, concerning POPs & their effects on health & the environment.
21						35	Involvement of the public in combating POPs and their effects on public health & the environment & providing the opportunity for them to participate, at national level, in the implementation of the provisions of the convention.
22						35	Training of workers, scientists, Woman organization, staff and

S.					Activities and sources	Degree	Priorities
							administrators on how to deal with POPs.
23						34	Exchange of educational and public awareness tools (materials) related to POPs & their alternatives at national and international levels.
24						34	Establishing registers of releasing and transporting POPs for the purpose of collecting &disseminating information on annual estimation of chemicals under the convention ,that are released or disposed of.
25						33	Encouraging researches on POPs and their alternatives.
26						32	Establishing a methodology for Inventory processes of the sour as generating POPs, and analytical

S.	Activities and sources	Degree	Priorities
			methods for measuring levels of releases.
27		31	Making available more data & information on POPs, their properties, accumulation in the environment and means of controlling them.
28		30	Measuring their levels in the soil and their effects.
29		30	Legislative support
30		28	Setting mathematical models for measurement and analysis processes.
31		28	Checking the results.
32		28	Applying quality settings for supervision &measurement.
33		27	Using simple means for taking samples.
34		27	Using more accurate &sensitive means in analysis.
35		26	Checking the effectiveness of the means of analysis and sample

S.					Activities and sources	Degree	Priorities
							taking.
36						26	Checking the used model and the credibility of results .
37						26	Making data on POPs and their transfer in the environment available.
38						25	Establishing a network for monitoring ,following and supersion network .
39						25	Checking current hazards of POPs on health
40						25	Providing technical support to build ,develop &strengthen the state's capabilities to fulfil its obligations &establishing regional centres for capacity building &technology transfer.

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
1-	**Institutional and Regulatory Strengthening Measures**	Establishing of national center for POPs.	**102**	Coordination between commitment authorities and national and international experts		✓	100 000 000
		Amending laws and legislations	**43**	Incentive policy for the actors and implementors of NIP.	✓		20 000 000
		Legislative support and institutional development	**30**	Providing a legislative resolution to the problem of treatment of fly ash from incinerators and other facilities.	✓		600 000
				Providing a legislative resolution to the problem of POPs disposal – with a preference for non-combustion technology for POPs disposal.		✓	600 000
				Supplement Egypt legislation(Law no. 4/1994) with limiting values for POPs content in sewage sludge in relation to the significant environmental risks and contamination of food chains		✓	2 000 000
				Giving a legislative resolution to the problem of storing of hazardous waste at dumping sites as newly-created "hot spots" for future generations.		✓	600 000
		Initiating prevention procedures .	**39**	Implement a limit for PCDD/PCDF content and to re-evaluate limits for other POPs in waste		✓	800 000
				Avoiding the creation of POPs-containing waste, by applying BAT/BEP to the industry		✓	1 000 000
				Strengthen the Environmental Inspection Departments in EEAA and in environmental units at governerates.		✓	60 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
2-	**Production, import and export ,use, stockpiles and wastes of Annex A POPs pesticides (Annex A, part 1chemicals)**	Disposal of obsolete pesticides.	**79**	Actual inspection of past and present dumping sites for old stores, through inspection by concerned Ministries .	✓		50 000 000
				Coordination with Ministry of Agriculture and other responsible authorities for remediation of contaminated sites and storge units of persistent chlorinated pesticides in Egypt.		✓	200 000 000
				Establishing monitoring programmes for POPs based on the international commitments of Egypt.	✓		90 000 000
				Monitoring and evaluation.	✓		10 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
3-	**Production, import and export ,use, identification ,labeling ,removal ,storage ,and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)**	Disposal of PCBs oils.	**70**	Checking transformers manufactured during the period 1955-1977, that may contain PCBs, for disposal. Also checking the condensers manufactured before 1970, that may contain PCBs oils for disposal	✓		10 000 000
		Disposal of equipment polluted with PCBs	**70**	Complete the PCBs Inventory at the local levels.		✓	2 000 000
				Establishing a collection system for safe disposal of oils and instruments contaminated with PCBs.		✓	3 000 000
				Disposing of condensers and transformers that were manufactured during the period from 1955-1977.		✓	20 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
4-	**Production, import and export ,use, stockpiles and wastes of DDT (Annex B, chemicals) if used in country**	Disposal of DDT.		Disposal of DDT	✓		2 000 000
				Disposal of Toxaphene	✓		500 000
				Disposal of Lindane& DDT	✓		1 000 000
				Remediation of the contaminated sites with DDT.		✓	3 000 000
				Combating of any illegal trade of DDT that may take place .		✓	200 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
5-	**Releases from unintentional production of PCDD/PCDF, HCB and PCBs**	Rehabilitation of areas polluted with dioxins & furans .	**131**	Prevention of uncontrolled burning processes in random landfill	✓		500 000 000
				Prevention of uncontrolled burning of biomass (agricultural and animal wastes).		✓	500 000 000
				Prevention of burning rice straws in fields & recycling it.	✓		90 000 000
				Applying the BAT/BEP in composting factories.	✓		200 000 000
				Applying the BAT/BEP in industry to reduce the releases of dioxin &furan from industrial sources (lead, aluminum, copper, iron and steel, zinc, textile, coke, asphalt mixing, brick,cement, ceramics, glass, lime)	✓	✓	2 000 000 000
				Appling BAT/BEP in medical waste incinerators to reduce the resulting dioxin& furans releases.	✓		900 000 000
				Applying BAT/BEP in power stations to reduce the resulting dioxin& furans releases.		✓	500 000 000
				Applying BAT/BEP and using alternatives in chemical industries to reduce the resulting dioxin& furans releases, and replacing that contain chlorine in chemical industry		✓	500 500 000
				Using unchlorinated substances in pulp &paper production.		✓	40 000 000
				Applying BAT/BEP and using of alternatives in petroleum oils waste treatment stations.		✓	300 000 000
				Using of unleaded fuel and catalysts in transportation sector	✓		400 000 000
				Applying BAT/BEP in tobacco industry.		✓	200 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
6-	**Strategy ; identification of relevant stockpiles ,articles in use and wastes-plan for assessment and migration of releases from stockpiles and wastes :pesticides, DDT, PCBs and HCB (Annex A, B and C chemicals).**	Setting a strategy for identification of relevant stockpiles ,articles in use and wastes-plan for assessment and migration of releases from stockpiles and wastes :pesticides, DDT, PCBs and HCB (Annex A, B and C chemicals).		Completion of the inventory of stockpiles.	✓		50 000 000
				Completion of the database of hot spots, old loads, and contaminated areas.	✓		900 000
				Supporting the research and development of new technologies and biotechnologies focused on the eventual liquidation of problematic waste and contaminated sites.	✓		5 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
7-	**Identification and appropriate management of contaminated sites (Annex A, B and C chemicals).**	Providing technical support to build ,develop &strengthen the state's capabilities to fulfill its obligations &establishing regional centers for capacity building &technology transfer.	**25**	Completion of the inventory of contaminated areas with an analysis of ecological risks	✓		5 000 000
				Establishing regional centers for capacity building & technology transfer		✓	400 000 000
				Environmental sound management of wastes		✓	5 000 000
				Establishing registers of releasing and transporting POPs for the purpose of collecting &disseminating information on annual estimation of chemicals under the convention ,that are released or disposed of.	✓		5 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
8	**Facilitating or undertaking information exchange and stakeholder involvement.**	Dissemination & elaboration of data and making access to such info. Available.	**40**	Establishing web site to access to both national and international environmental related databases ,to fulltext of environmental related journals ,to national electronic directories of scientifis instruments ,research centrs and institutes ,experts in the field of environment and related subject areas	✓		200 000
		Establishing a mechanism for information exchange	**37**	Establishing a mechanism for information exchange	✓		200 000
		Establishing databases on the results concluded.	**59**	Establishing databases on the results concluded.	✓		20 000
		Involvement of the public in combating POPs and their effects on public health & the environment & providing the opportunity for them to participate, at national level, in the implementation of the provisions of the convention.	**35**	Desigen and production of educational and public awareness tools (materials) related to POPs & their alternatives at national & international levels.	✓		8 000 000
		Making available more data & information on POPs, their properties, accumulation in the environment and means of controlling them.	**31**	Making available more data & information on POPs, their properties, accumulation in the environment and means of controlling them.	✓		200 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
9	**Public awareness ,information and training**	Setting of plan for the protection of public health from potential hazards of exposure to POPs.	**41**	Setting a plan of awareness for the protection of public health from potential hazards of exposure to POPs.	✓		5 000 000
		Setting a strategy for raising awareness.	**39**	Establishing workshops ,Tranings and Tools (Documents ,Brochores ,…)	✓		5 000 000
		Exchange of educational and public awareness tools (materials) related to POPs & their alternatives at national & international levels.	**34**	Establishing Tools (Documents ,Brochores ,…)	✓		5 000 000
		Training of workers, scientists, Woman organization, (National Council for Motherhood and Childhood) staff and administrators on how to deal with POPs.	**35**	Establishing workshops ,Tranings and Tools (Documents ,Brochores ,…)	✓		2 000 000
		Raising awareness of the decision – makers and public, especially women & child by different means concerning POPs and their health and environmental effects.	**37**	Establishing workshops ,Tranings and Tools (Documents ,Brochores ,…)	✓		2 000 000
		Making information on POPs available to the public by different means.	**36**	Establishing website .	✓		200 000
		Raising awareness of the public, especially of women & child, concerning POPs & their effects on health & the environment.	**35**	Raising awareness of the public, especially of women & child, concerning POPs & their effects on health & the environment.	✓		2 000 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
		Making data on POPs & their transfer in the environment available.	**26**	Making data on POPs & their transfer in the environment available.	✓		200 000
10	**Monitoring**	Checking current hazards of POPs on health	**25**	Risk assesment ,anlysis for foods .	✓		7 000 000
		Using simple means for taking samples.	**27**	Using simple means for taking samples.	✓		2 000 000
		Establishing a network for monitoring ,following and supersion network	**25**	Establishing a network for monitoring ,following and supersion network		✓	2 000 000
		Measuring their levels in the soil and their effects.	**30**	Measuring their levels in the soil and their effects.	✓		20 000 000
		Using more accurate &sensitive means in analysis.	**27**	Increase Laboratory Qualifications	✓		2 000 000
		Checking the effectiveness of the means of analysis and sample taking.	**26**	Checking the effectiveness of the means of analysis and sample taking.	✓		800 000
		Checking the used model and the credibility of results.	**26**	Checking the used model and the credibility of results.		✓	500 000
		Setting mathematical models for measurement and analysis processes.	**28**	Setting mathematical models for measurement and analysis processes.		✓	600 000
		Checking the results.	**28**	Checking the results.		✓	500 000
		Applying quality settings for supervision &measurement.	**28**	Applying quality settings for supervision &measurement.		✓	500 000

no.	Activity	Strategy	Country Ranking	Action plan	Indicative Time Frame		Budget L.E
					Short Term 2006-2010	Long Term 2011-2020	
11-	**Reporting**				✓		500 000
12-	**Strategy for research and development**	Encouraging researches on POPs and their alternatives.	**33**	Development of researches on the measurement methods of POPs releases from transportation means.		✓	5 000 000
		Establishing a methodology for Inventory processes of the source as generating POPs, and analytical methods for measuring levels of releases.	**32**	Monitoring and evaluation.		✓	600 000
Total for short term action plans							**3 402 320 000**
Total for long term action plans							**3 848 400 000**
Total							**7 250 720 000**

	Action plan	Indicative Time Frame																						Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1-	**Rehabilitation of areas polluted with dioxins & furans .**																							
1.1	public dumps in Graeter Cairo																							
1.2	public dumps in other governerate																							
1.3	Buring of rice strow																							
1.4	Random dumpsite in Greater Cairo																							
1.5	Random dumpsite in other governerate																							
1.6	Applying BEP/BAT in composting																							
2-	**Establishing of national center for POPs**																							
3-	**Setting a national program on reduction of food pollution .**																							
4-	**Disposal of obsolete pesticides.**																							
5-	**Disposal of PCBs.**																							
6-	**Disposal of equipment polluted with PCBs**																							
7-	**Inventory &treatment of areas polluted with POPs.**																							
8-	**Inventory &treatment of areas polluted with PCBs.**																							
9-	**Establishing databases on the results concluded.**																							

	Action plan	Indicative Time Frame																						Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
10-	**Amending laws and legislations**																							
11-	**Using of BAT/BEP in industry.**																							
11.1	Iron ore sintering (Egyption iron and steel company)																							
11.2	Iron and steel industry (Ezz for iron and steel company)																							
11.3	Other company for iron and steel industry																							
11.4	Brick industrial area at Arab Abu Mesaad																							
11.5	Lead foundries in shoubra el khema																							
11.6	Cement industry (cementporteland tora el masraya)																							
11.7	other companies of cement industry																							
11.8	Asfallt mixing stations																							
11.9	coke industry (el naser for coke and basic chemicals)																							
11.1	Charcoal production																							
11.11	Iron and steel foundries (Egyption company for copper																							
11.12	Other companies of iron and steel foundries																							
11.13	Copper foundries																							
11.14	Alumium foundries																							
11.15	Glass industry																							

	Action plan	Indicative Time Frame																						Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
11.16	Ceramics industry																							
11.17	Zinc industry																							
11.18	Medical waste incinerations (in greater cairo)																							
11.19	Medical waste incinerations (in other governerate)																							
11.2	using of natural gas in power generation station (Shoubra El Khima station)																							
11.21	using of natural gas in power generation station (in other satations)																							
11.22	Chemical industry (Egyption Petrochemicals Company)																							
11.23	pulp and paper industry																							
11.24	Textile industry																							
11.25	waste oil treatment (Alexandria for petrolium industry)																							
11.26	Reduction of vehicle exhaust program																							
12-	**Setting of plan for the protection of public health from potential hazards of exposure to POPs.**																							

	Action plan	Indicative Time Frame																						Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
13-	**Dissemination & elaboration of data and making access to such info. Available.**																							
14-	**Initiating prevention procedures .**																							
15-	**Setting a strategy for raising awareness.**																							
16-	**Environmental sound management of wastes**																							
17-	**Establishing a mechanism for information exchange**																							
18-	**Raising awareness of heads and decision – makers concerning POPs.**																							
19-	**Making information on POPs available to the public by different means.**																							
20-	**Raising awareness of the public, especially of women & child, concerning POPs & their effects on health & the environment.**																							
20.1	Raising awareness of the public,for smoking hazards																							
21-	**Involvement of the public in combating POPs and their effects on public health & the environment & providing the opportunity for them to participate, at national level, in the implementation of the provisions of the convention.**																							

	Action plan	Indicative Time Frame																					Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
22-	**Training of workers, scientists, Woman organization, staff and administrators on how to deal with POPs.**																							
23-	**Exchange of educational and public awareness tools (materials) related to POPs & their alternatives at national & international levels.**																							
24-	**Establishing registers of releasing and transporting POPs for the purpose of collecting &disseminating information on annual estimation of chemicals under the convention ,that are released or disposed of.**																							
25-	**Encouraging researches on POPs and their alternatives.**																							
26-	**Establishing a methodology for Inventory processes of the sour as generating POPs, and analytical methods for measuring levels of releases.**																							
27-	**Making available more data & information on POPs, their properties, accumulation in the environment and means of controlling them.**																							

	Action plan	Indicative Time Frame																						Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
28-	**Measuring their levels in the soil and their effects.**																							
29-	**Legislative support**																							
30-	**Setting mathematical models for measurement and analysis processes.**																							
31-	**Checking the results.**																							
32-	**Applying quality settings for supervision &measurement.**																							
33-	**Using simple means for taking samples.**																							
34-	**Using more accurate &sensitive means in analysis.**																							
35-	**Checking the effectiveness of the means of analysis and sample taking.**																							
36-	**Checking the used model and the credibility of results .**																							
37-	**Making data on POPs & their transfer in the environment available.**																							
38-	**Establishing a network for monitoring ,following and supersion network .**																							
39-	**Checking current hazards of POPs on health**																							

	Action plan	Indicative Time Frame																					Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
40-	**Providing technical support to build ,develop &strengthen the state's capabilities to fulfill its obligations &establishing regional centers for capacity building &technology transfer.**																							

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Action plan	*Indicative Time Frame*					*Budget (L.E.)*
	1	**2**	**3**	**4**	**5**	
Short-term Strategic Action Plan (from 2006 to 2010)						
Incentive policy for the actors and implementors of NIP.						
Providing a legislative resolution to the problem of treatment of fly ash from incinerators and other facilities.						
Actual inspection of past and present dumping sites for old stores, through inspection by concerned Ministries .						
Establishing monitoring programmes for POPs based on the international commitments of Egypt.						
Monitoring and evaluation.						
Checking transformers manufactured during the period 1955-1977, that may contain PCBs , for the purpose of disposal. Also checking the condensers manufactured before 1970, that may contain PCBs oils.						
Disposal of DDT						
Disposal of Toxaphene						
Disposal of Lindane& DDT						
Prevention of uncontrolled burning processes in random landfill						
Prevention of burning rice straws in fields & recycling it.						
Applying the BAT/BEP in composting factories.						
Applying the BAT/BEP in industry to reduce the releases of dioxin &furan from industrial sources (lead, aluminum, copper, Iron and steel, zinc, textile, coke, asphalt mixing, Brick,cement, ceramics, Glass, lime						
Appling BAT/BEP in medical waste incinerators to reduce the resulting dioxin& furans releases.						
Using of unleaded fuel and catalysts in transportation sector						
Inventory of stockpiles.						
Completion of the database of hot spots, old loads, and contaminated areas.						

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Action plan	*Indicative Time Frame*					*Budget (L.E.)*
	1	**2**	**3**	**4**	**5**	
Short-term Strategic Action Plan (from 2006 to 2010)						
Supporting the research and development of new technologies and biotechnologies focused on the eventual liquidation of problematic waste and contaminated sites.						
Inventory of contaminated areas with an analysis of ecological risks						
Establishing registers of releasing and transporting POPs for the purpose of collecting &disseminating information on annual estimation of chemicals under the convention ,that are released or disposed of.						
Establishing web site to access to both national and international environmental related databases ,to fulltext of environmental related journals ,to national electronic directories of scientifis instruments ,research centrs and institutes ,experts in the field of environment and related subject areas						
Establishing a mechanism for information exchange						
Establishing databases on the results concluded.						
Desigen and production of educational and public awareness tools (materials) related to POPs & their alternatives at national & international levels.						
Making available more data & information on POPs, their properties, accumulation in the environment and means of controlling them.						
Setting an emergrncy plan of awareness for the protection of public health from potential hazards of exposure to POPs.						
Setting a strategy for raising awareness.						
Exchange of educational and public awareness tools (materials) related to POPs & their alternatives at national & international levels.						
Training of workers, scientists, Woman organization, (National Council for Motherhood and Childhood) staff and administrators on how to deal with POPs.						
Raising awareness of the decision – makers and public, especially women & child by different means concerning POPs and their health and environmental effects.						

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Action plan	*Indicative Time Frame*					*Budget (L.E.)*
	1	**2**	**3**	**4**	**5**	
Short-term Strategic Action Plan (from 2006 to 2010)						
Making information on POPs available to the public by different means.						
Raising awareness of the public, especially of women & child, concerning POPs & their effects on health & the environment.						
Making data on POPs & their transfer in the environment available.						
Checking current hazards of POPs on health						
Using simple means for taking samples.						
Measuring their levels in the soil and their effects.						
Using more accurate &sensitive means in analysis.						
Checking the effectiveness of the means of analysis and sample taking.						
Reporting						

S	Action plan	Indicative Time Frame										Budget (L.E.)
		1	2	3	4	5	6	7	8	9	10	
	Long-term strategic action Plan (from 2011 to 2020)											
1	Coordination between commitment authorities and national and international experts											
2	Providing a legislative resolution to the problem of POPs disposal – with a preference for non-combustion technology for POPs disposal.											
3	Supplement Egypt legislation (Law no. 4/1994) with limiting values for POPs content in sewage sludge in relation to the significant environmental risks and contamination of food chains.											
4	Giving a legislative resolution to the problem of storing of hazardous waste at dumping sites as newly-created "hot spots" for future generations.											
5	Implement a limit for PCDD/PCDF content and to re-evaluate limits for other POPs in waste											
6	Avoiding the creation of POPs-containing waste, by applying BAT/BEP to the industry											
7	Strengthen the Environmental Inspection Departments in EEAA and Inspection Departments in other concerned agencies.											
8	Ministry of Agriculture and other responsible authorities shall certify when, how, and whether all stores of persistent chlorinated pesticides in Egypt will be remediated.											
9	Complete the PCBs Inventory at the local levels.											
10	Establishing a collection system ensuring safe disposal until an acceptable method of liquidation becomes available.											
11	Disposing of condensers and transformers, that were manufactured during the period from 1955-1977.											
12	Remediation of the contaminated sites with DDT.											
13	Combating of any illegal trade of DDT that may take place .											
14	Prevention of uncontrolled burning of biomass (agricultural and animal wastes).											
15	Applying the BAT/BEP in industry to reduce the releases of dioxin &furan from industrial sources (lead, aluminum, copper, Iron and steel, zinc, textile, coke, asphalt mixing, Brick,cement, ceramics, Glass, lime)											
16	Applying BAT/BEP in power stations to reduce the resulting dioxin& furans releases.											
17	Applying BAT/BEP and using alternatives in chemical industries to reduce the resulting dioxin& furans releases, and replacing that contain chlorine in chemical industry											

S	*Action plan*	*Indicative Time Frame*										*Budget (L.E.)*
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
	Long-term strategic action Plan (from 2011 to 2020)											
18	Using unchlorinated substances in pulp &paper production.											
19	Applying BAT/BEP and using of alternatives in petroleum oils waste treatment stations.											
20	Applying BAT/BEP in tobacco industry.											
21	Establishing regional centers for capacity building & technology transfer											
22	Environmental sound management of wastes											
23	Establishing a network for monitoring ,following and supersion network											
24	Checking the used model and the credibility of results.											
25	Setting mathematical models for measurement and analysis processes.											
26	Checking the results.											
27	Applying quality settings for supervision &measurement.											
28	Development of researches on the measurement methods of POPs releases from transportation means.											
29	Monitoring and evaluation.											
Total												**3 848 400 000**