

# REPUBLIC OF THE CONGO

## National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPS)



Center of POPs Management and Remediation

Brazzaville, Republic of the Congo

September 2006



## **PREFACE**

A large number of people in the Congo is still undernourished and many food products are imported. In order to meet the needs in this field, the agricultural production has to be substantially increased. In achieving this progress the fight against pests and plant diseases plays an important role.

Pesticides are a key element in the integrated campaign against pests. They have proven effective in augmenting the yield of the harvest and avoiding losses.

Like the pesticides, fertilizers and other chemical products are used for increasing the agricultural production. However, their excessive application has become object of serious concern, since it poses grave danger for human health and environment. Therefore, the envisaged objective is to maximally reduce the detrimental effects of all such products.

Besides, for the best possible reduction of undesirable effects of chemical products on health and environment, research and development activities should support precautionary and preventive measures, which are part of various sectoral plans for the implementation of the Stockholm Convention on Persistent Organic Pollutants.

We hope that the international community will provide the financial and scientific support, which is needed to achieve these noble goals.



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## GLOSSARY

APC	Air Pollution Control
ARI	Acute Respiratory Illness
ASP	African Stockpile Programme
BCEAO	Banque Centrale des États de l'Afrique de l'Ouest
BEAC	Banque des États de l'Afrique Centrale
CENAMES	Centre National d'Achat des Médicaments
CFA	Communauté Financière Africaine
CIEN	Chemical Information Exchange Network
COP	Conference of the Parties
CORAF	Congolaise de Raffinage (Petroleum Refinery)
CTA	Chief Technical Advisor
DDT	1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; d(ichloro)d(iphenyl)t(richloroethane)
DGE	Directorate General of Environment
EA	Enabling Activity
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ENI	Ecole Normale d'Instituteurs
ENS	Ecole National Supérieure
ENSP	Ecole National Supérieure Polytechnique
EPA	Environmental Protection Agency
EU	European Union
EUR or €	Euro, Currency of the European Union
FEM	Fonds pour l'Environnement Mondial (GEF)
GEF	Global Environment Facility
GHS	Globally Harmonized System (of Classification and Labeling of Chemicals)
GINC	Global Information Network on Chemicals
GIS	Geographical Information Systems
Gle	Générale
GOROC	Government of the Republic of the Congo
HCB	Hexachlorobenzene



HQ	Headquarters
HSSE	Health, Security, Safety and Environment
IEC	Information, Education and Communication
INRAP	Institut National de Recherche et d'Action Pédagogique
IPEN	International POPs Elimination Network
ISO	International Organization for Standardization
LAV	Lutte Anti Vectorielle
MARPOL	International Convention on the Prevention of Pollutants from Ships, London 1973
MEFE	Ministère de l'Economie Forestière et de l'Environnement
MIC	Ministère de l'Information et de la Communication
MICAT	Ministry of Information, Culture and Tourism
MLME	Ministry of Lands, Mines, and Energy
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOF	Ministry of Finance
MOH	Ministry of Health
NAAQS	National Ambient Air Quality Standard
NGO	Non-governmental Organization
NIP	National Implementation Plan
NPC	National Project Coordinator/POPs Enabling Activities
OCC	Office du Café et du Cacao
ONUDI	Organisation des Nations Unies pour le développement industriel (UNIDO)
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzo-p-dioxin
PCDF	Polychlorinated dibenzo furan
PIC	Prior Informed Consent (Rotterdam Convention)
PNC	POPs National (Steering) Committee
PNM or PNMO	Plan National de Mise en Œuvre
PNUE	Programme des Nations Unies pour l'environnement (UNEP)
POPs	Persistent Organic Pollutants
PRTR	Pollutant Release and Transfers Register
PTM	Phenyl tolyl methane



PVC	Polyvinyl chloride
PXE	Phenyl xylyl ethane
QMS	Quality Management System
QSP	Quick start program
SARIS	Société Agroalimentaire de Raffinage Industriel de Sucre
SITC	Standard International Trade Classification of the United Nations
SNDE	Société Nationale de Distribution d'Eau
SNE	Société Nationale d'Electricité
SNPC	Société Nationale des Pétroles du Congo
TCDD	Tetrachlorodibenzo-p-dioxin
TEF	Toxic Equivalency Factor
TEQ	Toxic Equivalent Quantity
TNC	Transnational Corporation
TOR	Terms of Reference
UMNG	Université Marien Ngouabi
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nation Environment Programme
UNIDO	United Nations Industrial Development Organization
UPM	UNIDO Project Manager
UPOP	Unintentionally Produced Persistent Organic Pollutant
UR	UNIDO Representative
USD or \$	United States Dollar
WHO	World Health Organization
XAF	CFA Franc BEAC, Currency of Cameroon, CAR, Chad, Congo, Equatorial Guinea, Gabon



## SUMMARY

Chemical products, including pesticides and industrial chemicals, have become indispensable for the socio-economic activities of all societies. There is broad consensus nowadays that they must be managed in a rational way in view of their enormous threats to health and environment.

In accordance with the Stockholm Convention and in order to take the right measures for reducing or eliminating emissions from intentional and unintentional production or use of chemical substances, the Republic of the Congo has been executing since January 2003 a project aimed at applying the Initial Guidelines of the Global Environmental Facility for Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants.

The Action Plan for the Implementation of the Stockholm Convention, which is described in this document, is based on a list of priority problems pursued by different sectoral plans of this implementation. This National Implementation Plan consists of the following parts:

- Brief presentation of the Republic of the Congo
- POPs country profile
- Declaration of Intent
- Sectoral action plans
- Implementation schedule
- Examination of strategies
- Required resources for the implementation
- Support activities
- Other commitments

### 1. Brief presentation of the Republic of the Congo

- Area 342,000 km<sup>2</sup>
- Climate Austral with most rain between October and April; the annual average of precipitation is 1,500 – 2,000 mm; the average temperature is around 24°C
- Vegetation There are two types of vegetation, the forests and the savannas; the forest zones cover about 60% of the national territory (22.5 million ha) or 10% of the African rainforest; the savanna zones cover some 40% of the total area of the Congo (12 million ha)
- Hydrography There are two main river basins: the Congo basin (the world's second largest after the Amazon basin) and the Kouilou-Niari basin
- Population The census of 2001 counted 2,854,000 inhabitants, 49% of which are males and 51% females; 65% of the population live in the urban centers of Brazzaville, Pointe-Noire, Dolisie, Nkayi and Ouessou; the 2006 population estimate of the World Fact Book is 3,702,314.



- **Administration** The national territory is divided into prefectures, sub-prefectures, communes, districts, quarters and villages. The Congo has also 11 departments, one of which is its political capital Brazzaville.
- **Economy** The principal economic activities are oil extraction (90% of exports in 1992), forestry and wood processing, and production of sugar, cement and certain petroleum products.

## 2. POPs country profile

The profile is characterized by the fact the Republic of the Congo neither manufactures any POPs (which is an advantage) nor has experience in managing them.

### 2.1 Pesticides

Pesticides of different types have been used for over 40 years in the Congo. Among them were also POPs pesticides, such as aldrin, dieldrin, DDT, endrin and heptachlor. Large quantities of these products were used in the

- Agricultural sector, at the time when cash crops (coffee and cocoa) and certain industrial crops (palm oil) were promoted
- Forestry sector by reforestation enterprises
- Health sector by the hygiene and sanitary services in their fight against disease vectors

The key weaknesses of the country in the pesticide area are the

- Lack of specialized structures for monitoring and controlling pesticides
- Inadequacy of the current legislation, which has only texts of a general nature
- Absence of an interministerial committee for homologation of pesticides

### 2.2 DDT

In the Congo DDT is traded illegally under the name Gesapon, not only because it is effective, but also because it is more affordable than other chemical pesticides. DDT and its metabolites are persistent and bioaccumulative substances, which can travel long distances in the atmosphere.

DDT has played a central role over a number of years in combating disease vectors and has become a load on the environment. However, the portion used for health purposes was minor compared to the large quantities used in agriculture, until the product has been banned for agricultural use from the 1970s on.

### 2.3 PCBs

The national inventory of these products and of equipment containing them has counted 557 transformers, 161 (33%) of which contain PCB contaminated dielectric.

The main sources of PCBs in the Congo are electrical transformers and cables with impregnated paper, which were imported mostly from France, Germany, South Africa, Lebanon and Belgium.



## 2.4 Dioxin and furan emissions

The national inventory of dioxin and furan emissions to the environment, which was compiled in 2003, results in 300,412 mg TEQ for the reference year 1996. Apportioned to population and area of the country in 1996, the emission values are 116 µg TEQ/person/year or 878 µg TEQ/km<sup>2</sup>/year. The exposure of the population to PCDD/PCDF emissions is therefore potentially dangerous.

## 2.5 Contaminated sites

The inventory and assessment of contaminated sites, on which PCBs were either identified or assumed, has resulted in a priority list of sites, where closer investigation is needed in order to remediate them. The inventory has also uncovered the following weaknesses:

- Lack of reliable data regarding quantities imported and dispersed to the environment
- Ignorance on the part of users of legislation in force

## 2.6 POPs impacts on health and environment

In the Congo no study has yet been carried out for the evaluation of POPs levels and their impact. Taking into account the proven toxicity of these substances, the Congo should get more involved in the elimination of POPs risks and enforce current legislation governing the importation, distribution and use of these products. These measures should be supported by in-depth studies in laboratories and by reinforcing the capacities of sanitary and scientific infrastructures.

## 2.7 Evaluation of the capacities of infrastructures and institutions

The evaluation assessed some ten institutions, which represent the essential scientific and technological potential in the Congo. It has revealed the following situation:

- The institutions have acceptable premises, though renovation of several research centers is necessary
- The scientific equipment for verification of sold pesticide quantities, determination of active ingredients, checking of right formulations, evaluation of accumulation of toxic substances in the most exposed persons, is lacking
- The human resources of high scientific qualification are insufficient, though an important part of them is well educated

## 3. General strategies

### 3.1 Declaration of Intent

Considering on the one hand the importance of the POPs situation in the Congo in terms of urgency of problems to be resolved and systemic weaknesses, and on the other hand the need to protect human health and environment against toxic and dangerous chemical products, the Government of the Republic of the Congo has committed itself to reducing or eliminating chemical substances inscribed in Annexes A and B of the Stockholm Convention, and prioritized its policy orientation towards the Millennium Development Goals.



## 3.2 Logical framework

The general strategy of the logical framework elaborates a plan for the implementation of the Stockholm Convention on POPs, while defining the overall project goals and identifying the potential risks and problems associated with the project start up and implementation. The logical framework may be summarized as follows:

1. Identification Plan: implementation of the POPs Convention
2. Problem definition
  - Ratification of the Convention on Biodiversity
  - Ratification of the Stockholm, Basel and Rotterdam Conventions
  - Misconception of the POPs problem on the part of the general public
  - Absence of production or formulation of POPs in the Congo
  - Lack of specific national legislation on POPs
  - Lack of a specific institutional framework
  - Lack of a national mechanism for POPs monitoring and control
3. Definition of goals
  - Progressively mastering the management of POPs
  - Harmonizing national and regional legislations and regulations on POPs
  - Defining the implementation mechanism
  - Defining the partnership
  - Awareness raising of the general public

The detailed matrix of the logical framework is presented in section III.2 (B) of the present document.

## 4. Action plans for the implementation of the Stockholm Convention

The sectoral action plans of the NIP represent the totality of measures envisaged for pursuing the objectives assigned to the Parties by the Stockholm Convention, with regard to:

- Establishment of a legislative, regulatory and institutional framework for executing the national policy on POPs
- Raising of awareness, information and education of the general public
- Polychlorinated biphenyls (PCBs, Article 3 and Annex A, Part II)
- Emissions from unintentional production of dioxins and furans, HCB and PCBs (Article 5 and Annex C)
- Contaminated sites (Article 6 §e)
- Pesticides
- Importation, use, storage and waste of DDT (Annex B)
- Research and development (Article 11)



- Register of specific exemptions (Article 4)

#### NIP implementation schedule

The NIP overall implementation schedule takes the schedules of the sectoral implementation plans into consideration. The measures related to reduction or elimination of dioxin and furan emissions have the longest deadline envisaged in the following order:

- Uncontrolled combustion of waste
- Domestic heating and cooking
- Urban wastewater

#### 5. • Required resources for the implementation

The financial requirements are indicated in the matrices of priority actions of each sectoral plan. The estimated total amount is USD 5,372,600.

The table below shows the estimated budget for the implementation of the Stockholm Convention on Persistent Organic Pollutants.

**Table 1: Estimated budget for the NIP implementation**

Item	Description	Estimated USD
1	Action plan: Regulatory and institutional framework	30,000
2	Action plan: Public awareness, information and education	1,031,600
3	Action Plan: PCBs and PCB contaminated equipment	2,110,000
4	Action plan: Unintentional production	636,000
5	Action plan: Contaminated sites	232,000
6	Action plan: POPs pesticides importation, use, stocks, waste	75,000
7	Action plan: DDT importation, use, stocks, waste	205,000
8	Action plan: Research, development and monitoring	820,000
9	Action plan: Register of specific exemptions	42,000
10	Action plan: Performance evaluation and reporting	56,000
10	Action plan: Resource mobilization	135,000
<b>Total</b>		<b>5,372,600</b>

#### 6. Support activities

According to Articles 9, 10 and 11 of the Stockholm Convention, the principal support activities for the implementation of the NIP are:

- Information exchange
- Public information, awareness and education
- Research, development and monitoring
- Fund raising



## 7. Other commitments

Other commitments concern financial resources and mechanisms (Article 13), technical assistance (Article 12), reporting to the Conference of Parties (Article 15), effectiveness evaluation (Article 16) and listing of chemicals in Annexes A, B and C (Article 8).



## INTRODUCTION

The Stockholm Convention on Persistent Organic Pollutants (POPs), elaborated under the auspices of the United Nations Environment Programme (UNEP), is an international agreement adopted and opened for signature during a conference of plenipotentiaries 22 – 23 May 2001 in Stockholm, Sweden. The Republic of the Congo is one of the signatories.

Since 7 January 2003, the Republic of the Congo, with technical assistance from UNIDO, has executed the project Enabling Activities for the Development of a National Implementation Plan (NIP) of the Stockholm Convention, in accordance with Article 7 of the Convention. The goal of this NIP is to protect human health and environment against POPs.

It is an objective of the NIP to inform the Conference of Parties and the general public about initiatives taken by the Republic of the Congo for fulfilling its obligations towards the Stockholm Convention. These initiatives are of large scale and great variety. They encompass a multitude of activities, which reflect the identified priorities of the stakeholders and the public. In particular, the execution of these activities is aimed at the reduction of all sorts of emissions related to importation, use, and storage of POPs. They deal with the following issues:

1. Establishment of a legislative, regulatory and institutional framework for executing the national policy on POPs
2. Raising of awareness, information and education of the general public
3. Polychlorinated biphenyls (PCBs, Article 3 and Annex A, Part II)
4. Emissions from unintentional production of dioxins and furans, HCB and PCBs (Article 5 and Annex C)
5. Contaminated sites (Article 6 §e)
6. Pesticides
7. Importation, use, storage and waste of DDT (Annex B)
8. Research and development (Article 11)

Executing these activities will allow the Republic of the Congo to join the countries, which have implemented the Stockholm Convention and to honor its international commitments as stipulated in Article 7 of the Convention.



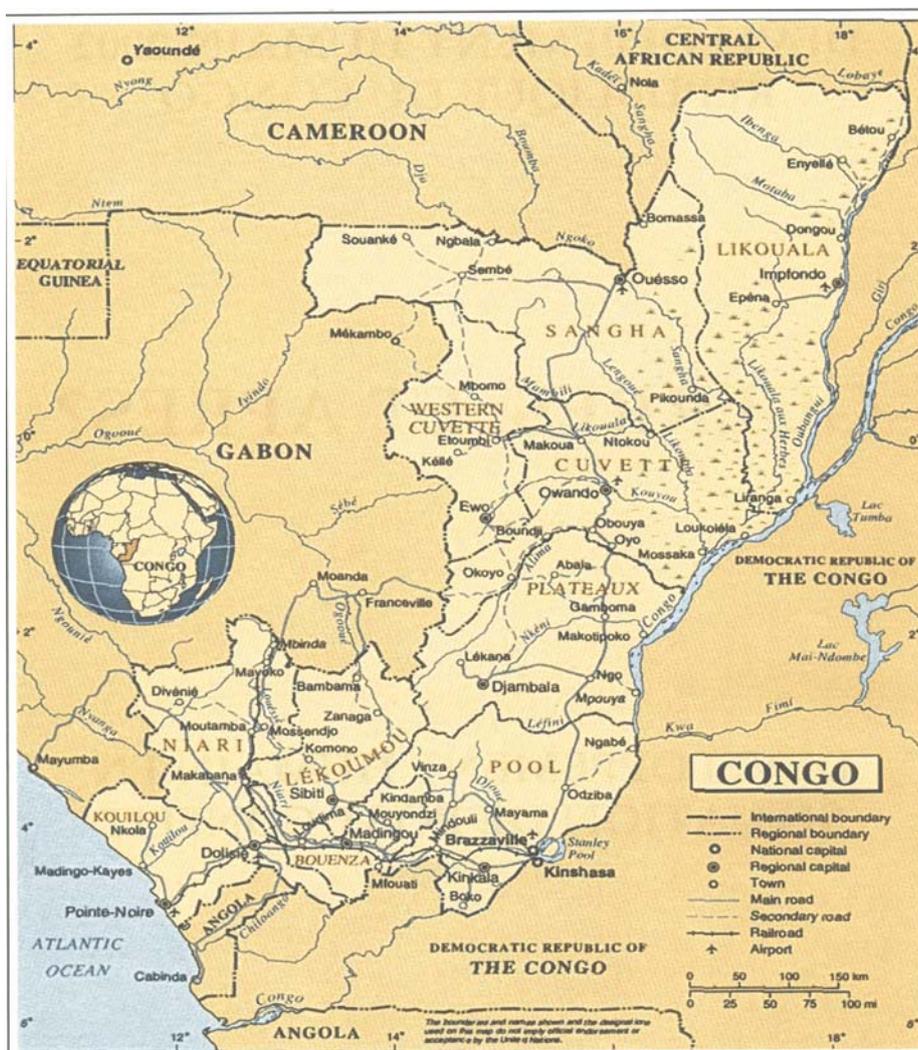
# I. BRIEF PRESENTATION OF THE REPUBLIC OF THE CONGO

## I.1. Physical Data

### Geography

The Republic of the Congo has a coastline of 170 km with the Atlantic Ocean. The country's location in central Africa gives it strategic regional importance. Lying in the heart of the African continent directly on the equator, it has an area of 342,000 km<sup>2</sup>. It has borders with Cameroun and the Central African Republic in the north, with Angola in the south (and with its enclave Cabinda), and with the Democratic Republic of the Congo in the East. This location makes the Republic of the Congo the principal point of entry and exit to and from central Africa and therefore an important transit country.

Figure 1: Map of the Republic of the Congo



Source: UNDP Human Development Report for the Republic of the Congo, 2002

**Table 2: Key indicators of the Republic of the Congo (World Fact Book 2006)**

<b>Capital:</b>	Brazzaville
<b>Area:</b>	342,000 sq km
<b>Land boundaries:</b>	5,504 km ( Angola 201 km, Cameroon 523 km, Central African Republic 467 km, Democratic Republic of the Congo 2,410 km, Gabon 1,903 km)
<b>Coastline:</b>	169 km
<b>Climate:</b>	tropical; rainy season (March to June); dry season (June to October); constantly high temperatures and humidity
<b>Terrain:</b>	coastal plain, southern basin, central plateau, northern basin
<b>Elevation:</b>	<i>lowest point:</i> Atlantic Ocean 0 m, <i>highest point:</i> Mount Berongou 903 m
<b>Natural resources:</b>	petroleum, timber, potash, lead, zinc, uranium, copper, phosphates, natural gas, hydropower
<b>Land use:</b>	<i>arable land:</i> 1.45%, <i>permanent crops</i> 0.15, <i>other:</i> 98.4% (2005 est.)
<b>Irrigated land:</b>	20 sq km (2003 est.)
<b>Natural hazards:</b>	seasonal flooding
<b>Environment - current issues:</b>	air pollution from vehicle emissions; water pollution from the dumping of raw sewage; tap water is not potable; deforestation
<b>Geography - note:</b>	about 70% of the population lives in Brazzaville, Pointe-Noire, or along the railroad between them
<b>Population:</b>	3,702,314 (July 2006 est.)
<b>Age structure:</b>	<i>0-14 years:</i> 46.4%, <i>15-64 years:</i> 50.7%, <i>65 years and over:</i> 2.9%
<b>Growth rate:</b>	2.6% (2006 est.)
<b>Infant mortality:</b>	85.29 deaths/1,000 live births (2006 est.)
<b>Life expectancy:</b>	<i>total population:</i> 52.8 years <i>female:</i> 53.98 years <i>male:</i> 51.65 years (2006 est.)
<b>Total fertility rate:</b>	6.07 children born/woman (2006 est.)
<b>Ethnic groups:</b>	Kongo 48%, Sangha 20%, M'Bochi 12%, Teke 17%, Europeans and other 3%
<b>Religions:</b>	Christian 50%, animist 48%, Muslim 2%
<b>Languages:</b>	French (official), Lingala and Monokutuba (lingua franca trade languages), many local languages and dialects (of which Kikongo has the most users)
<b>Literacy:</b>	<i>definition:</i> age 15 and over can read and write <i>total population:</i> 83.8%, <i>male:</i> 89.6%, <i>female:</i> 78.4% (2003 est.)
<b>Independence:</b>	15 August 1960 (from France)
<b>GDP:</b>	purchasing power parity \$4,631 billion (2005 est.) Official exchange rate: 4,694 billion (2005 est.)
<b>GDP - real growth rate:</b>	8% (2005 est.)
<b>GDP - per capita:</b>	purchasing power parity - \$1,300 (2005 est.)
<b>GDP composition:</b>	<i>agriculture:</i> 6.2%, <i>industry:</i> 57%, <i>services:</i> 36.9% (2005 est.)

## Climate

The Congo has an austral climate with rain periods. Most of the rain falls between October and April. The annual average of precipitation is 1,500 – 2,000 mm. The average temperature is 24°C. The climate is characterized by two main seasons:

- The dry season between June and September with temperatures cooling down to 20°C in average in Brazzaville
- The rainy season between October and May with periods of sunny and hot days

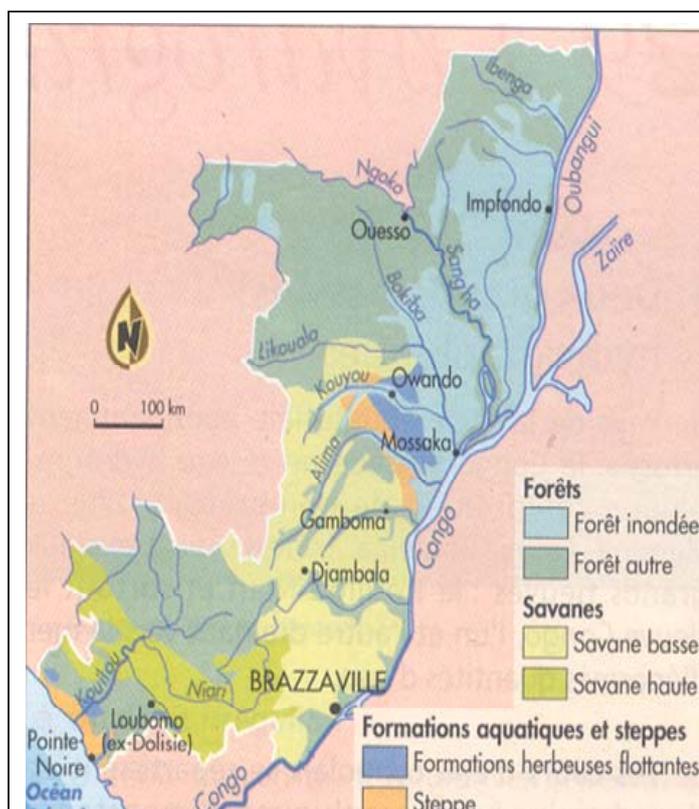
## Vegetation

The Republic of the Congo comprises several geographical zones, which consist mainly of forests and savannas. The forest zones cover about 60% of the national territory and make up 10% of dense African rain forests, an area of 22.5 million hectares. They are divided in three principal massifs:

- Mayombe massif
- Chaillu massif
- North Congo massif

The savanna zones cover about 40% of the country's area on 12 million hectares.

**Figure 2: Map of the vegetation of the Congo**

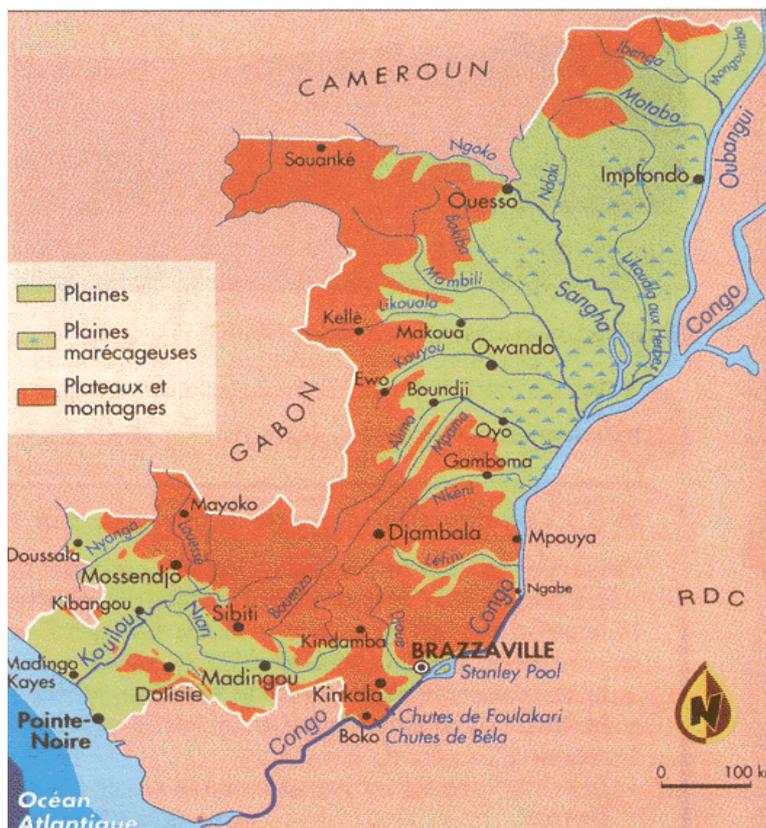


Source: INRAP

## Hydrographic network

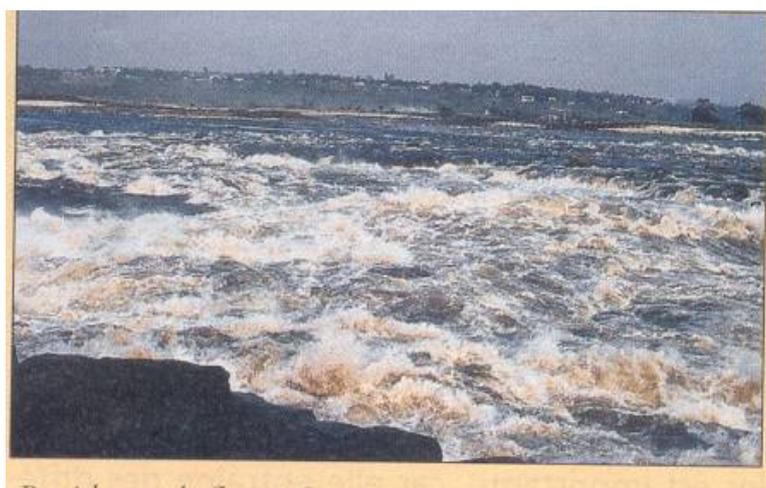
The hydrographic network consists of two main river basins, the Congo Basin and the Kouilou-Niari Basin. These basins are important transportation routes and very rich fishery reserves.

Figure 3: Hydrographic map of the Congo



Source: INRAP

Figure 4: View of the Congo River



Source: INRAP



## I.4. Economy

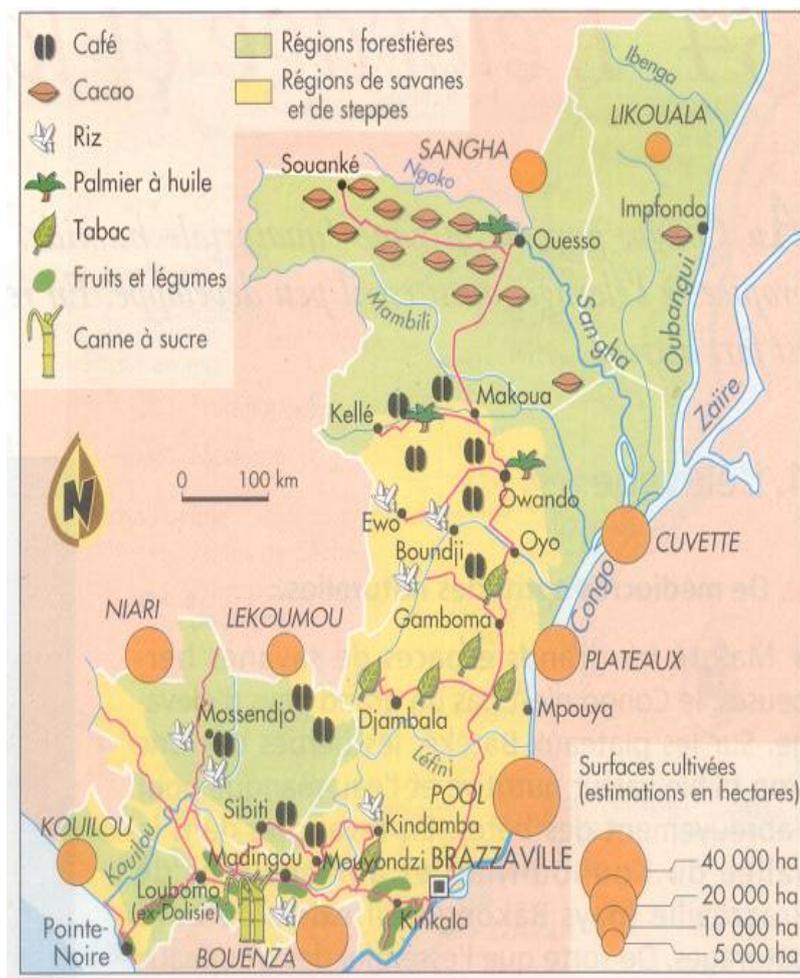
### I.4.1. Primary sector

#### Agriculture, fishery and livestock farming

Though some aspects of intensive agriculture are emerging, the Congo's agriculture is rudimentary, characterized by low yields and far from satisfying basic development needs.

Livestock farming has never been developed in the country because of the weak propensity of the rural population to pursue this activity on a long-term base.

**Figure 6: Agricultural map of the Congo**



Source: INRAP

#### Forestry

Forestry is still one of the most productive and employment generating activities. It provided 10% of the employment in the formal sector in 1992. The wood industry offers real potentials of growth and diversification, resulting from the large natural reserves (60% of the national territory are forests), the national afforestation policy and the development of fast-growing tree species.

**Figure 7: Forest exploitation**



*Source: Ministry of Forest Economy and Environment*

### **I.4.2. Secondary sector**

The secondary sector is dominated by extractive industries, in particular petroleum extraction. Industries other than petroleum are underdeveloped and represent 7% of GDP. The most important industries are wood transformation (XAF 100 billion FOB export value), sugar production, cement production and petroleum refining, which generated 90% of exports (USD 1.2 billion) in 1992.

**Figure 8: Oil rig**



*Source: INRAP*

### **I.4.3. Tertiary sector**

The 1980s and 1990s showed a growing tertiary sector (53% of the working population). The employment generated by this sector overlaps with the employment in the informal sector.

## **Environment**

In the Republic of the Congo, the environment is managed according to the principles recommended in 1992 by the Conference in Rio de Janeiro, in particular, assign priority to ecological precautions for a development, which ensures a better living for current and future generations.

In this context, a status assessment of the environment carried out in 1992 as part of the development of the National Action Plan for the Environment (PNAE) showed that the environment in the Congo was still little degraded. Nevertheless, the environmental strategy laid out in that plan envisages, among others, the following measures: reinforcement of the regulatory framework, the resumption of the Superior Environmental Council's activities, and the awareness raising and education of the public on environmental problems.

The multisectoral and multidisciplinary dimension and the regional and global significance of environmental management are the base for the creation of Law 003/91 of 23 April 1991 on the Protection of the Environment. This law is being revised in order to reflect newly emerged principles.



## II. POPS COUNTRY PROFILE

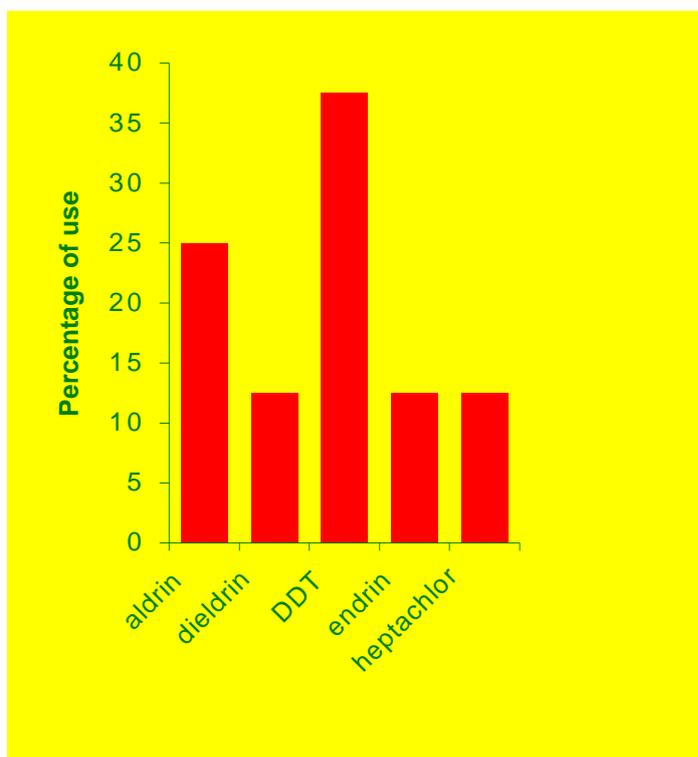
### II.1. Pesticides

POPs pesticides have been used in the Congo mainly in agriculture, forestry and healthcare.

#### II.1.1. Agriculture

Pesticide use in agriculture started in the 1950s. Between 1964 and 1974 the Congo imported 1,319,112 tons of pesticides for XAF 273,657,500. The preference for this practice increased during the 1960s, 1970s and 1980s with the creation of state-owned and private farms.

During this era certain pesticides such as DDT, aldrin, dieldrin and heptachlor, which are now classified by the Stockholm Convention as POPs, were used by certain enterprises. The inventories established under Project GF/PRC/02/014 revealed the scale of use of these POPs as shown in Figure 9.



**Figure 9: POPs pesticide use in agriculture 1970 – 1980**

The figure demonstrates that DDT, traded under the brand name Gesapon, followed by aldrin, was the most used pesticide for treating coffee and cocoa plants, fighting isoptera (termites), homoptera (aphids, cochineals, etc.), diptera (flies), and coffee berry borers.

Dieldrin, endrin and heptachlor were only used specifically for treatment of oil palms, compost and for some parasites.

It should be mentioned that one ton of obsolete DDT was found in the depot of Sangha and 100 kg in Makoua.

## II.1.2. Forestry

Three forestry sectors use pesticides:

- Forest exploitation
- Forest industry
- Silviculture

Afforestation activities are of great importance in the Congo with regard to already reafforested area. Two agencies specialize in reforestation: the National Reforestation Service (SNR) and the Union for Industrial Afforestation of the Congo (UAIC), currently called Eco-SA (Eucalyptus of the Congo SA).

Available data reveal the use of dieldrin, heptachlor and DDT:

a) Dieldrin

Agency \ Application	Nursery	Plantation
SNR	976.8 kg	122,100 kg
Eco-SA	4,617.6 kg	577,200 kg

b) Heptachlor and chlordane: some forestry enterprises in the north of the Congo use these products illegally.

In this category the data of quantities used by the old Center for Tropical Forest Techniques (CTFT, a research center) and those used for treatment of electricity poles are missing.

## II.1.3. Healthcare

In the healthcare sector obsolete stocks are of main concern. These consist, basically, of chemical products abandoned by state-owned enterprises, which are not active anymore.

## II.1.4. Obsolete stocks

In this category are:

- a) Pesticides previously used by the enterprise Sangha Palm against cryptogamic diseases, such as:
  - Cupran against psylla, which perforates the cabosse (cocoa fruit)
  - Lindane SH16, used against capsid bugs (2 liters lindane, mixed with 2 liters of diesel as adjuvant, per hectare)
- b) Materials and chemical products used by the former Office for Coffee and Cocoa (OCC), which were transferred for the disposition of the department directorates.

**Table 3: Chemical products used by the former Office for Coffee and Cocoa**

Chemical	Packaging	Quantity	State
Lindane	60 liter kegs	1	
Gammophele	60 liter kegs	38	
Cuprocol	Sacks of packets	15 1/4	
Methyl paraphene	Sacks of packets	1/2	
Thimul 35 EC	60 liter kegs	2	
Chemical products of the ex-OCC transferred to the Department Directorate for Agriculture of Niari Proces-verbal (statement on record) of 10 June 1988 in Mossendjo			
Cuprocol	Cartons	45	Good but in bulk
Methyl paraphene	Drums	41	Good but in bulk
Methyl paraphene	Batch of sacks	1	Good but in bulk
Parathion ethyl	Cartons	13	Good but in bulk
Gammophele	Drums	5	Good but in bulk
Thimul	Kegs	12	Good but in bulk
Lindane	Barrels	3	Good but in bulk
Chemical products of the ex-OCC transferred to the Department Directorate for Agriculture of Lekoumou			
Thimul (endosulfan)	55 liter kegs	42	
Methyl paraphene	Sacks	200	
Chemical products of the ex-OCC transferred to the Department Directorate for Agriculture of Sangha Proces-verbal (statement on record) of 29 August 1988 in Sembe			
Lindane SH16	Drums	2	Obsolete
Cuprocol	Sacks	12	Spoiled
Chemical products of the ex-OCC transferred to the Department Directorate for Agriculture of Bouenza, Proces-verbal (statement on record) of 26 June 1988 in Mouyondzi			
Methyl paraphene	80 kg sacks	1	
Endrine	Drum	1	
Methyl paraphene	Cartons	20	
Thimul	Kegs	1/2	

Source: *National Profile on Chemicals Management 2005*

- c) Chemical products formerly used by certain farms against plant pests constitute significant obsolete stocks because of the liquidation of these farms

Examining the usage situation of pesticides in the Congo reveals weaknesses:

- Lack of reliable statistics at most agencies concerned
- Lack of specialized agencies for tracking and controlling pesticides
- Inadequacy of the current legislation, which contains only text of a general nature
- Absence of an interministerial committee for pesticide homologation



## II.2. Polychlorinated Biphenyls

The main sources of PCBs are

- Electrical transformers
- Cables in impregnated paper
- Capacitors
- Partially closed applications and open (e.g., hydraulic equipment and agricultural materials)

### II.2.1. Electrical transformers

Since 1970 the National Electricity Company (SNE) in the Congo has imported almost 850 transformers. 510 transformers are in service in the power grid. Over 30% of these transformers are PCB contaminated. PCB contaminated transformers out of service are being reused without particular precautions. On public dump sites or on the premises of maintenance workshops for transformers one can often find transformers or their parts, which are PCB contaminated.

The oil firm TOTAL possesses significant quantities of PCB contaminated oil, which are listed in Table 5. In expectation of the ratification of the Basel Convention by the Republic of the Congo, an agreement was signed between the Governments of the Republic of the Congo and France for the repatriation of these oils to France, where they will be destroyed.

A large number of places that had sheltered contaminated transformers and are contaminated by PCB containing oil serve today as makeshift dwellings. The transformers were often emptied and their oil content was used as fuel in diesel engines. This increases the risks of dioxin emission.



Figure 10: Transformer station in Moukoundzi Ngouaka (Brazzaville)



Figure 11: Decommissioned transformers at SNE Headquarters in Pointe-Noire

### II.2.2. Cables in impregnated paper

According to information received from the National Electricity Company and contradicting our first results on PCBs in 2002, in Brazzaville, Pointe-Noire and Bouansa exist important lines of cable in impregnated paper, which are gradually replaced when they fail.

On 26 August 2003 1,040 m of cable were replaced in Brazzaville. The copper and lead from these cables were recovered, sold on markets and used by jewelers and fishermen, respectively.

Table 4: PCB database

Location	Total number of transformers	Number of PCB contaminated transformers	Total mass of transformers kg	Total mass of liquid dielectric kg	Total mass of PCB contaminated material kg	Total mass of PCB contaminated dielectric kg
Brazzaville	370	130	759,662	211,480	322,690	83,361
Pointe-Noire	115	35	394,200	86,303	83,175	19,249
Nkayi	17	4	38,438	8,472	15,921	3,593
Dolisie	9	5	7,265	1,625	5,195	1,246
Madingou	3	3	21,225	5,175	21,225	5,175
Bouansa-Loudima	10	4	56,700	15,500	56,700	14,000
Loutete-Mindouli	6	4				
Makoua-Owando-Oyo-Olombo	10	3	7,021	1,981		
	540	188	1,284,511	330,536	504,906	126,624

**Table 5: PCB waste quantities at TOTAL in Pointe-Noire**

Type	Material	Est. quantity tons
Dielectric	Liquids	70
Drums	Waste	8
Soil	Waste	8
Waste	Waste	3
Transformers	Metal	92
<b>Total est. quantity</b>		<b>181</b>

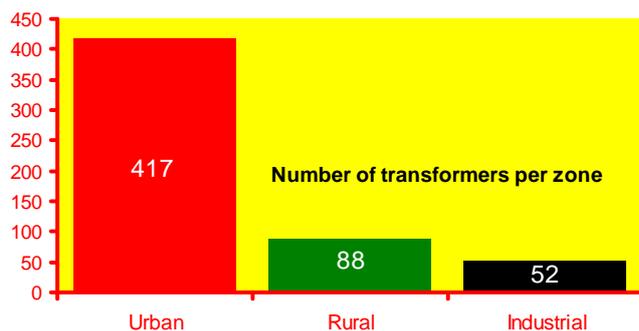
**II.2.3. PCB statistics**

The following figures show

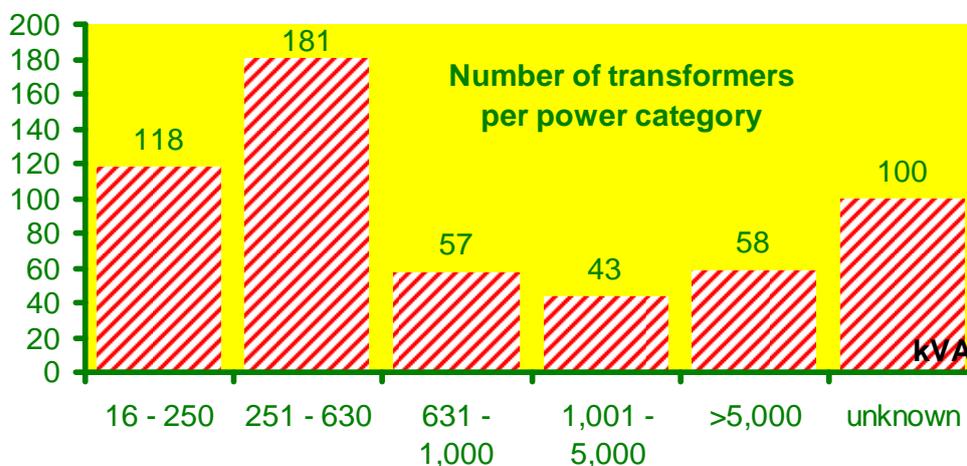
- Geographical distribution
- Distribution in terms of power (kVA)

The geographic distribution chart shows that most transformers are in urban zones

**Figure 12: Geographical distribution**



**Figure 13: Distribution by power category**



Most of the transformers are in the category 250 – 1,000 kVA. Transformers over 1,000 kVA are located at the terminal stations of high voltage power lines.

**Figure 14: Distribution by PCB contamination**

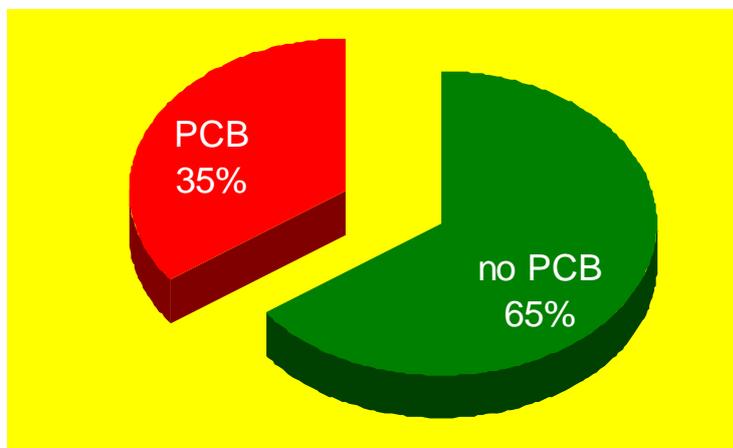
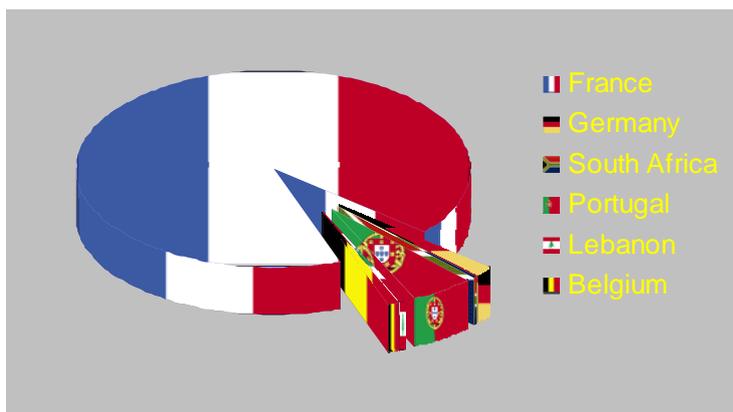


Figure 14 shows that about ¼ of the material is PCB contaminated.

**Figure 15: Distribution by supplier country**



As Figure 15 reflects, the vast majority of transformers in the Congo comes from France.

### **II.3. Dioxins and Furans**

In the Congo, like in other countries, the media most contaminated by UPOPs are ambient air, water, soil, products, wastes and residues.

The main emission categories are

1. Waste incineration
2. Ferrous and non-ferrous metal production
3. Power generation and heating
4. Mineral products
5. Transport
6. Uncontrolled combustion processes

7. Production of chemicals and consumer goods
8. Miscellaneous
9. Disposal/landfilling
10. Hot spots

The analysis by category shows the following results.

### **II.3.1. Waste incineration**

This category refers to the incineration of different types of waste by special incinerators other than for energy production from wood or other biomass.

#### **Incineration of hospital waste**

The healthcare system of the Congo is organized in integrated medical centers, basic hospitals and reference hospitals in almost all departments. Only the Central University Hospital (CHUB) in Brazzaville has a functioning incinerator.

According to information received from CHUB, the average quantity of waste generated there is 125 kg per day or 45.6 tons per year. Other types of waste incinerators do not exist in the Congo.

The medical waste of the other centers is burnt on open air. The estimated quantities are:

##### *Hospitals in Brazzaville*

Maternite Blanche Gomez:	24 kg/ day
Hospital Makelekele:	89.2 kg/day
Hospital de Talangai:	60.4 kg/day

##### *Hospital in Pointe Noire*

Hospital de Tietie:	42 kg/ day
---------------------	------------

##### *Hospitals in rural areas*

Hospital de Madingou:	30 kg/day
Hospital de Mouyondzi:	31.5 kg /day
Hospital de Sibiti:	30 kg / day
Hospital de Mindouli:	19.34 kg /day

Total per day: 326.44 kg/day = 119.15 tons / year

These 119 tons of medical waste, which are burnt on open air, should be considered as uncontrolled combustion. However, since the Toolkit does not have an emission factor for open-air burning of medical waste and the factor for medical incinerators without APC is already 40,000 µg TEQ/t for air, which is much higher than the factors for any other type of uncontrolled combustion, this quantity has been added to the 45.6 tons per year of CHUB and calculated in Category 1 as if it were combusted in a low-tech incinerator. The resulting emission to air is 6,560 mg TEQ/year and 33 mg TEQ/year in bottom ash.

### II.3.2. Ferrous and non-ferrous metal production

In this category only aluminum production needs to be considered for the Congo, because some aluminum wastes are recycled. Secondary aluminum is manufactured by melting aluminum scrap and other aluminum containing materials in small artisanal furnaces. The informal character of this activity does not allow estimating the recycled aluminum quantities.

### II.3.3. Power generation and heating

#### Fossil fuel power plants

The statistics of consumption of petroleum products is reflected in Table 6. The fuels considered are: light fuel oil (fuel 1500), heavy fuel oil as used for power production in the industrial sector, and natural gas as used on oil rigs for their energy needs.

Table 6 shows the energy consumption in terajoules (TJ) along with the emission factors.

**Table 6: Power production from fossil fuels in TJ**

Source category	TJ/a	µg TEQ/TJ Air	mg TEQ/a Air
Light fuel oil fired power boilers	421.34	0.5	0.211
Heavy fuel fired power boilers	134.12	2.5	0.335
Natural gas fired power boilers	2,880.00	0.5	1.440
<b>Total</b>	<b>3,435.46</b>		<b>1.986</b>

Source: National inventory of UPOPs emissions

#### Biomass Power Plants

The Agricultural and Industrial Sugar Refining Company (SARIS), whose factory is in Nkayi, uses bagasse (the dry residue of sugar cane after the extraction of the juice) for power generation with two vapor boilers, which operate continually during the harvest. These boilers are mechanically charged.

The quantity of bagasse used was 137,696 tons in 1996, which yields 1,239 TJ. The corresponding emission factor is 500 µg TEQ/TJ for “other biomass fired power boilers”.

**Table 7: Power production from bagasse in TJ**

Source category	TJ/a	µg TEQ/TJ Air	mg TEQ/a Air
Other biomass fired power boilers	1,239	500	620

Source: National inventory of UPOPs emissions

#### Landfill and biogas combustion

50% of the total production of natural gas associated with crude oil production is flared off, which corresponds to 9,600 TJ.

**Table 8: Flaring off natural gas associated with crude oil production**

Source category	TJ/a	µg TEQ/TJ		mg TEQ/a	
		Air	Residue	Air	Residue
Flaring	9,600	8		77	

Source: National inventory of UPOPs emissions

## Household heating and cooking - biomass

In the Congo, firewood is used for cooking in small ovens or fireplaces. In 1996 the total consumption of firewood (including wood for charcoal production) was 1,975,366 tons, which yields 29,630 TJ (15 MJ/kg).

**Table 9: Combustion of firewood**

Source category	TJ/a	µg TEQ/TJ		mg TEQ/a	
		Air	Residue	Air	Residue
Virgin wood/biomass fired stoves	29,630	100	20	2,963	593

Source: National inventory of UPOPs emissions

## Domestic heating and cooking – fossil fuel

Besides firewood and charcoal, butane and electric plates are used for cooking. In 1996 3,197 tons of butane were used, which is equivalent to 55.9 TJ.

**Table 10: Domestic cooking with butane gas**

Source category	TJ/a	µg TEQ/TJ		mg TEQ/a	
		Air	Residue	Air	Residue
Virgin wood/biomass fired stoves	55.9	1.5		0.084	

Source: National inventory of UPOPs emissions

### II.3.4. Production of mineral products

#### Cement kilns

The Congo has only one production plant for Portland cement, but it has not operated since 1996. Back then the production was 43,444 tons par year. Currently the plant is being restored and changed to dry kiln production. This calculation is based on the assumption that the plant will manufacture the quantity of 1996 in dry kilns.

**Table 11: Cement production**

Source category	t/a	µg TEQ/t		mg TEQ/a	
		Air	Residue	Air	Residue
Dry kiln with electrofilters	43,444	0.15	0.003	6.5	0.130

Source: National inventory of UPOPs emissions

## Lime production

Lime has not been produced since 1991, but since the Mindouli area, where the plant is located, is now calm, the production should be resumed. In 1991 about 170,475 were produced, which is assumed for this hypothetical calculation.

**Table 12: Lime production**

Source category	t/a	µg TEQ/t Air	mg TEQ/a Air
Cyclone/no dust control	170,475	10	1,705

Source: National inventory of UPOPs emissions

## Brick production

The number of houses built from bricks was estimated at 4,025 per year in 1996. In general, bricks made from clay are sized 28 x 14 x 14 cm and have a density of 1,850 kg/m<sup>3</sup>. According to the Office for Construction Assessment and Public Works (BBATP), a typical house consists of 2,182 bricks in average, which translates into 8,782,550 bricks for 4,025 houses. The total mass is 89,167 tons.

The traditional kilns use firewood and have no dust control.

**Table 13: Brick production**

Source category	t/a	µg TEQ/t Air	mg TEQ/a Air
Cyclone/no dust control	89,167	0.2	17.8

Source: National inventory of UPOPs emissions

### 11.3.5. Transport

#### 4-stroke engines

The quantity of fuel consumed by 4-stroke engines is calculated from the total consumption (37,558 tons) by subtracting the quantity used by 2-stroke engines. The latter quantity is extrapolated at 16 tons per year from the amount of oil used in 2-stroke engines.

The fuel quantity combusted in 4-stroke engines is therefore 37,542 tons.

**Table 14: 4-stroke engines**

Source category	t/a	µg TEQ/t Air	mg TEQ/a Air
Leaded fuel	37,542	2.2	82.6

Source: National inventory of UPOPs emissions

## 2-stroke engines

The quantity of fuel consumed in 2-stroke engines is calculated from the oil consumption in these engines, which is 40 ml per liter of fuel. The oil quantity was estimated at 0.78 tons in 1996, which corresponds to a fuel quantity of 16 tons.

**Table 15: 2-stroke engines**

Source category	t/a	$\mu\text{g TEQ/t}$ Air	mg TEQ/a Air
Leaded fuel	16	3.5	0.056

Source: National inventory of UPOPs emissions

## Diesel engines

Heavy and light trucks, certain passenger cars, heavy construction machinery, boats, power generators, pumps, farming equipment and tractors have diesel engines.

The total consumption of diesel fuel in 1996 was 61,907 tons, 5% (3,095 tons) of which were used by manufacturing industries and agriculture and 95% (58,812 tons) for road, railroad and ship transport.

**Table 16: Diesel engines**

Source category	t/a	$\mu\text{g TEQ/t}$ Air	mg TEQ/a Air
Diesel engines	61,907	0.05	3.1

Source: National inventory of UPOPs emissions

## Heavy oil fired engines

In the Congo fuel 1500 is exclusively used in the manufacturing industries. According to the Directorate General for Energy and the inventory results for greenhouse gases, the consumption was 9,724 tons in 1996.

**Table 17: Heavy oil fired engines**

Source category	t/a	$\mu\text{g TEQ/t}$ Air	mg TEQ/a Air
All types	9,724	4	38.9

Source: National inventory of UPOPs emissions

### II.3.6. Uncontrolled combustion processes

#### Fires/burnings – biomass (not treated with chemicals)

##### *Forest fires*

The area cleared for agricultural purposes has been in average 17,000 ha per year since 1990, according to information received from the Service for Silviculture of the Ministry for Forest Economy. The quantity of biomass burnt on site is 819,460 tons of dry matter.

##### *Savanna fires*

In 1996 almost 200,000 ha of new land has been cultivated. The savanna area was estimated by subtracting the forest area (17,000 ha), which was cleared for the same purpose. The result is 183,000 ha, which corresponds to 1,317,600 tons of burnt biomass.

##### *Agricultural residue burning*

The quantity of different agricultural residues burnt on site was assessed at 2,112,182 of dry matter in 1996.

**Table 18: Fires/burning biomass**

Source category	t/a	µg TEQ/t		mg TEQ/a	
		Air	Land	Air	Land
Forest fires	819,460	5	4	4,097	3,278
Savanna fires	1,317,600	5	4	6,588	5,270
Agricultural residue burning	2,112,182	30	10	63,365	21,122
<b>Total</b>	<b>43,444</b>	<b>0.15</b>	<b>0.003</b>	<b>74,051</b>	<b>29,670</b>

Source: National inventory of UPOPs emissions

##### *Landfill fires*

The quantity of waste burnt in landfills is estimated at 70% of the waste dumped into landfills or 147,997.86 tons.

##### *Accidental fires in houses, factories*

According to the insurance company ARC (Société d'Assurance et de Réassurance du Congo) 14 residences and 7 commercial and industrial buildings burnt down in Brazzaville and in Pointe-Noire. For lack of better information, the same factor of 0.5 tons of burnt material per fire is used, following the example of the national inventory of dioxins and furans of Uruguay. The total quantity of combusted matter is therefore 10.5 tons.

##### *Uncontrolled domestic waste burning*

For lack of data, it is assumed that of the estimated total quantity of domestic waste not dumped at landfills 75% (39,642 tons) is burnt at residences and 25% (13,214 tons) is buried.

### ***Accidental vehicle fires***

According to ARC, in 1996 2 vehicle fires were reported in Brazzaville and 1 in Pointe-Noire.

### ***Open burning of wood (construction/demolition)***

The quantities and types of wood used for construction and potentially burnt subsequently are not known.

**Table 19: Open waste burning and accidental fires**

Source category		µg TEQ/t		mg TEQ/a	
		Air	Residue	Air	Residue
Landfill fires	148,043 t	1,000		148,043	23,789
Accidental fires in houses, factories	10.5 t	400	400	4	4
Uncontrolled domestic waste burning	39,642	300	600	11,893	23,785
Accidental vehicle fires	3 events	94	18	negligible	negligible
<b>Total</b>	<b>43,444</b>	<b>0.15</b>	<b>0.003</b>	<b>159,940</b>	<b>23,789</b>

Source: National inventory of UPOPs emissions

## **II.3.7. Production of Chemicals, Consumer Goods**

### **Petroleum refineries**

The Congo has one refinery (CORAF), which has a catalytic reformation unit with a capacity of 6 – 12 tons/hour. The catalyst consists of platinum oxide and rhenium oxide on amorphous aluminum support, activated by injection of carbon tetrachloride or trichloroethane.

The catalyst is regenerated once in three years by burning the coke layer formed in the catalytic bed by flushing with hot nitrogen at temperatures of 480 – 525°C. The regeneration can take place between the regular intervals if the activity goes down or in case of an accident.

The quantity of the regenerated catalyst is 6 tons and the quantity of carbon tetrachloride used is 1.5 liters per ton of catalyst.

The emission factors are not yet available.

### **Textile factories**

Textile manufacturing existed in the Congo, but the factories closed down one after the other before 1996 because of management problems.

### **Leather plants**

There are no leather plants in the Congo.

### II.3.8. Miscellaneous

#### Smoke houses

Smoking fish and meat is practiced in the country, but the meat quantities are negligible compared to the fish quantities smoked. The fuel for fish smoking is wood and the fish quantity smoked was estimated at 4,796 tons in 1996.

**Table 20: Smoke houses**

Source category	t/a	µg TEQ/t		mg TEQ/a	
		Air	Land	Air	Land
Clean fuel, no afterburner	4,796	6	20	28.8	95.9

Source: National inventory of UPOPs emissions

#### Dry cleaning

In the Congo, there are only a few dry cleaners operating in the major cities. Their UPOPs emissions are negligible in the overall picture.

#### Tobacco smoking

Cigar smoking is negligible in the Congo. The customs statistics show less than 10 kg per year in imports. Cigarette consumption was 829,026,000 pieces per year in 1996, 776,000,000 of which were manufactured by the Industrial and Agricultural Tobacco Company (SIAT).

**Table 21: Tobacco smoking**

Source category	pcs/a	pg TEQ/pc		mg TEQ/a	
		Air		Air	
Cigarettes	829,026,000	0.1		0.083	

Source: National inventory of UPOPs emissions

### II.3.9. Disposal/Landfilling

#### Landfill leachate

The quantity of waste discharged was estimated at 246,869 tons in 1996 and the quantity of waste buried at 15,429 tons. The volumes of leachate have not been determined. At this time no study on leachate is available yet.

#### Sewage/sewage treatment

Wastewater is practically not treated in the country. Existing treatment facilities at some industrial enterprises and hotels have been out of service for a long time.

## Open water dumping

This includes wastewater from households, offices, other small business activities, but also industrial wastewater, which is dumped in the same way. In 1996 the total volume of urban wastewater from the 6 largest cities was estimated at 20,376,909 m<sup>3</sup>.

**Table 22: Wastewater dumping**

Source category	t/a	µg TEQ/t Product	mg TEQ/a Product
Mixed urban wastewater	20,376,909	5	101.9

Source: National inventory of UPOPs emissions

## Composting

The quantity of discharged waste, which has been recovered for composting, has been estimated at 6,172 tons. The composting process leads to a mass reduction of about 50%. Thus the yield of compost is about 3,086 tons. Since compost contains some 30% water, the dry mass would be 2,160 tons.

**Table 23: Composting**

Source category	t/a	µg TEQ/t Product	mg TEQ/a Product
Garden and kitchen wasted	2,160	15	32.4

Source: National inventory of UPOPs emissions

## Waste oil treatment (non-thermal)

Apparently this activity is not carried out in Congo.

### II.3.10. Hot spots

#### Timber manufacture and treatment

At most forestry enterprises Cryptogil DC6 is used for the protection of wood against insects. The dosage varies between 0.05 and 0.1 l/m<sup>3</sup> wood. Sometimes is applied together with fuel oil.

At Congo Impregnated Woods (CBI), which treats timber and logs produced by Eucalyptus of Congo (ECO), the chemical used is a mixture of oxides of copper, chrome and arsenic (CCA), 5% concentrated for eucalyptus and 3% for pine. This timber (or wooden poles) is used by the National Electricity Company (SNE) for electricity poles.

#### Transformers and capacitors filled with PCBs

All transformers and capacitors containing PCBs also contain PCDFs. If there is any leakage, PCDFs are released into the environment.

A recent study showed that the PCB quantity used in the country is 130,000 liters of pure PCB, while the total volume of PCB containing oil is 340,000 liters.



## Dumps of waste/residues from categories 1 – 9

Everywhere, where products or residues contaminated by PCDD/PCDF are deposited, release into the environment is possible. In discharged water PCDD/PCDF is accumulated in oily layers or organic phases. However, in the Congo industrial and domestic wastes are difficult to separate, since they pass the same uncontrolled discharges. Besides, no analytical capacity for PCDD/PCDF detection exists in the country.

## Dredging of sediments

The Congo has a seaport in Pointe-Noire and a river port in Brazzaville, which are very important parts of the infrastructure. Once in a while, because of sand accumulation in the two ports, dredging is carried out. This happened the last time in the year 2000.

According to the directorate of the port of Brazzaville, all sediments removed from the port were dispersed offshore in the Congo River in order to be carried away by the water current.

The dredging of the port of Pointe-Noire was finished in June 2000, according to information given by the directorate for equipment and infrastructure. It concerned three sites:

- The access channel including the sand trap  
The sand trap is designed to catch sand granules of 250  $\mu$ . The excavated quantity was 1,195,600 m<sup>3</sup>.  
The quantity excavated from the access channel was 1,142,333 m<sup>3</sup>, including pebble, green clay and some silt.
- From the port basin 242,503 m<sup>3</sup> of sediments were excavated, consisting of silt and some sand
- At the quai intel's 285,121 m<sup>3</sup> of sediments were dredged, consisting of sand and silt

The total quantity of dredged sediments was 2,865,557 m<sup>3</sup> in 2000. The dumping sites of these sediments are the following.

- 2/3 or 1,910,371 m<sup>3</sup> were deposited on land, behind the quai intel's for banking up Lake Tchikobo (behind the Antonetti statue)
- 1/3 or 955,186 m<sup>3</sup> were dumped into the sea on the Banc de Sogolo and the Banc de l'Aristophane, which are in the exclusive dredging zone 5 – 10 km northwest of Pointe-Noire.

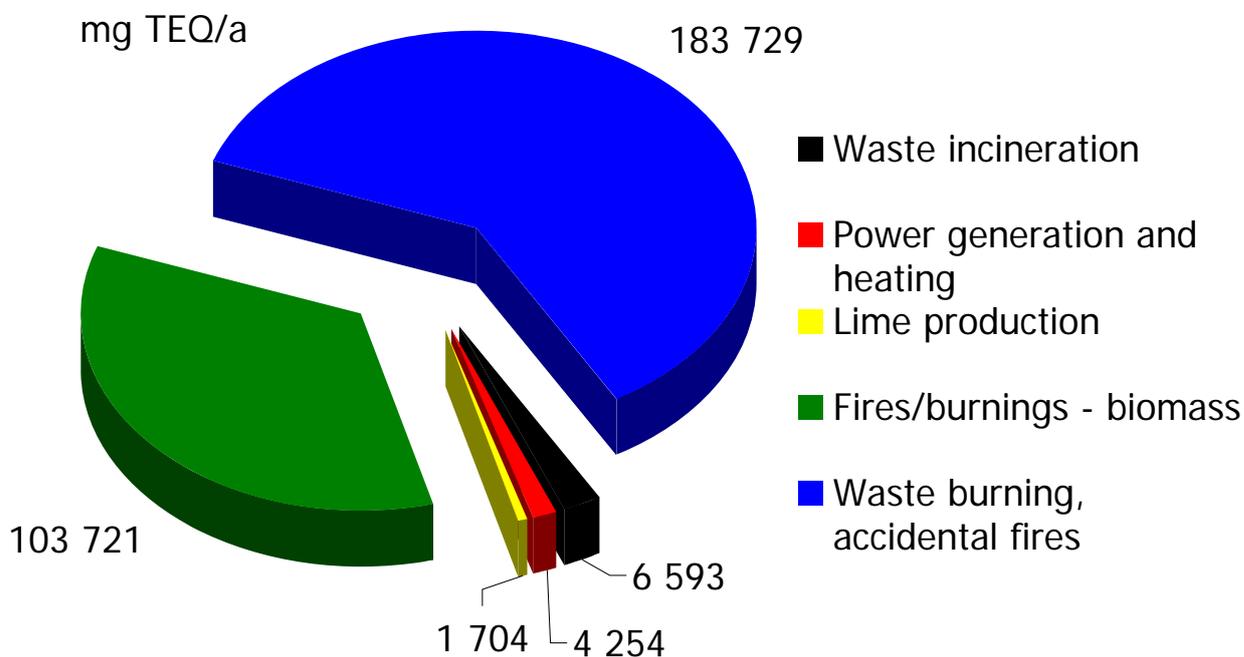
Table 24 gives an overview of the UPOPs situation by categories and environmental media.



**Table 24: Dioxin and furan emissions by categories and sub-categories**

No.	Source category	Annual emissions (mg TEQ/a)				
		Air	Water	Land	Products	Residue
1	Waste Incineration	6,560				33
2	Ferrous and Non-Ferrous Metal Production					
3	Power Generation and Heating	3,662				593
3-1	Fossil fuel power plants	2				
3-2	Biomass power plant	620				
3-3	Flaring of natural gas	77				
3-4	Household heating and cooking - biomass	2,963				593
3-5	Domestic heating and cooking - fossil fuels					
4	Production of Mineral Products	1,730				
4-1	Cement production	7				
4-2	Lime production	1,705				
4-3	Brick production	18				
5	Transportation	125				
5-1	4-stroke engines	83				
5-2	2-stroke engines					
5-3	Diesel engines	3				
5-4	Heavy oil fired engines	39				
6	Uncontrolled Combustion Processes	233,991		29,670		23,789
6-1	Fires/burnings - biomass	74,051		29,670		
6-2	Waste burning, accidental fires	159,940				23,789
7	Production of Chemicals and Consumer Goods					
8	Miscellaneous	29				96
8-1	Smoke houses	29				96
8-2	Tobacco smoking					
9	Disposal/Landfilling		102		32	
	Composting				32	
	Open wastewater dumping		102			
<b>Total emissions</b>		<b>246,097</b>	<b>102</b>	<b>29,670</b>	<b>32</b>	<b>24,511</b>

From this overview it is obvious that over 90% of all UPOPs are generated by uncontrolled combustion processes. Therefore most releases go to the ambient air, but uncontrolled combustion is also the main source for PCDD/PCDF release to land and residues. Open wastewater dumping is the main source for UPOPs releases to water.

**Figure 16: Most important UPOPs sources**

## II.4. Contaminated Sites

The inventory and assessment of places where POPs spillages were identified or suspected allowed compiling a priority list of contaminated sites, where closer investigation is required for their remediation.

### II.4.1. PCB contaminated sites

#### Brazzaville

The city of Brazzaville is the largest urban center in the Congo. It possesses old transformers, which contain PCBs. Frequent repairs of these transformers have increased the contamination risk.

5 contaminated sites have been identified (see map in Figure 17):

- The hydroelectric plant in Djoué
- The transformer group of Moukoundzi Ngouaka
- The headquarters of SNE
- The transformer group of Mpila
- The warehouse of the company SOCECA in Mpila

### ***The hydroelectric plant in Djoué***

The site located on State Route 1 in the Massissia quarter in the southeast of Brazzaville. In this quarter agriculture and fishery are practiced.

The plant in Djoué is also used as repair workshop for used transformers. The oils released during these repairs are discharged directly into a canal which disperses them into the Congo River. The proximity of watercourses is the reason for large scale pollution at this location.

### ***The transformer group of Moukoundzi Ngouaka***

The site of Moukoundzi Ngouaka is situated in a residential quarter with the same name (district 1 Makélékélé) in the center of Brazzaville.

### ***The headquarters of SNE***

It is located in the center of Brazzaville on Adrien Conus Avenue. The whole headquarters is considered a contaminated site.

Because of a near watercourse (Mfoa) and massive oil releases (the site is also a repair workshop for broken transformers) the site poses high danger of pollution.

### ***The transformer group of Mpila***

This state owned site, which brings together the transformers of Mpila, is lying on the Congo River in an industrial zone with the same name towards the marina camp on Port Avenue.

### ***The warehouse of the company SOCECA in Mpila***

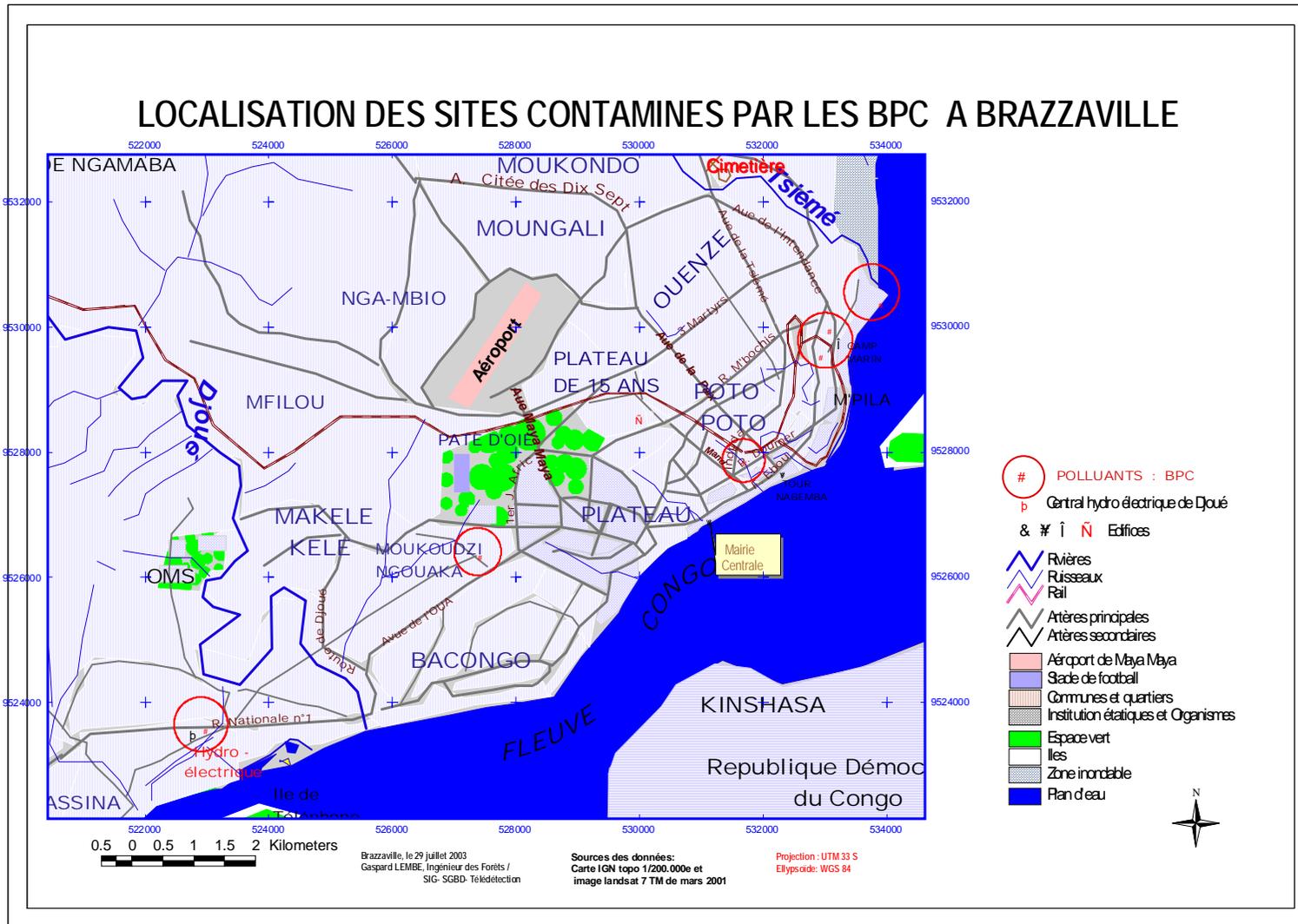
Owned by SOCECA, this warehouse is a disused site in the industrial zone of Mpila. Some used transformers, which had belonged to SNE, are abandoned here.

The leaks are very serious at this site and the pollution risk is rather high.

**Table 25: PCB contaminated sites in Brazzaville**

Site	GPS position and area	Owner	Geology	Pollutants	Impact
Hydroelectric plant in Djoué	x = 0522952 y = 9523560 2,000 m <sup>2</sup>	State	Stratified arkosic sandstone (Inkisi sandstone) covered by a thick formation of clayish sands, which comes from disintegration of the underlying sandstone	Transformer oil Turbine oil	High risk of pollution of the Congo River
Transformer group of Moukoundzi Ngouaka	x = 0527455 y = 9526339 1,000 m <sup>2</sup>	State	Embedded in a sand plateau	Transformer oil	Low risk of pollution, oil is released only from small leakages
SNE headquarters	x = 0531630 y = 9527935 23,000 m <sup>2</sup>	State	Alluvial plane of the Congo River, consisting of silty yellow sands, which overlay white sands	Transformer oil	High risk of pollution of a near watercourse (Mfoa)
Transformer group of Mpila	x = 0533085 y = 9529958 2,500 m <sup>2</sup>	State	Alluvial plane of the Congo River, consisting of silty yellow sands, which cover white sands and probably also clay	Transformer oil	Low pollution risk, but some leaks
SOCECA warehouse in Mpila	x = 05227928 y = 9537866 5,000 m <sup>2</sup>	SOCECA	Alluvial plane of the Congo River, consisting of very fine silty yellow and gray sands, which overlay white sands	Transformer oil Askarel	High pollution risk because of serious leakage

Figure 17: Map of PCB contaminated sites in Brazzaville



## PCB contaminated sites in Pointe-Noire

The city of Pointe-Noire is home of numerous industrial companies, which release besides PCBs also UPOPs. Apart from the transformers, which belong to SNE, the industrial zone can be considered in its entirety as contaminated site.

### *The industrial zone of Pointe-Noire*

The industrial zone of Pointe-Noire borders on the sea, the Nautic Club and the fishermen's beach. It accommodates numerous companies and industries (TOTAL, ENI, Schlumberger, Zetha, beer breweries, paint manufacturers, etc.)

In addition to the inherent emissions from all the respective activities, there is a storage facility with containers of PCB contaminated transformers on the base of TOTAL, which are waiting to be repatriated to Europe for destruction.

Because of the presence of many companies, the responsibilities are shared. The site is thus a collective property.

All POPs are suspected to be present in the zone. The environmental impact of the pollutants is substantial due to the proximity of the ocean, where discharges (intentional and accidental) occur.

### *The transformers of SNE in Pointe-Noire*

Two PCB contaminated sites have been identified: the departmental headquarters of SNE and the road leading to the industrial zone.

The departmental headquarters of SNE is considered a contaminated site, because it also serves as repair workshop for used transformers (point no. 1). The oil is discharged directly to a canal which releases it into the sea.

On the road leading to the industrial zone several leaking transformers have been identified (point no. 2)

The main pollutants are Askarel and Pylalene. The environmental impact is great because of the proximity of the ocean, where the discharges (intentional and accidental) end up.

**Table 26: PCB contaminated sites in Pointe-Noire**

Site	Location	Owner	Geology	Pollutants	Impact
Industrial zone	By the sea, between the Nautic Club and the fishermen's beach	State and private national and international companies	Sands and gravel	Potentially all POPs	High risk of large scale pollution
SNE transformers	Point no. 1 x = 0816487 y = 9471751 Point no. 2 x = 0819815 y = 9470957	State	Sandy soils	Askarel Pylalene	High pollution because of discharges



## 11.4.2. POPs pesticides contaminated sites

### Brazzaville

There are two types of POPs pesticides contaminated sites in Brazzaville: depots and agricultural zones.

#### *Pesticide depots*

3 depots have been identified:

- The depot of the General Hygiene Center
- The depot of CENAMES in Mpila
- The depot of the former OCC in Mpila

**The depot of the General Hygiene Center** lies below the University Hospital Center in a residential quarter (Poto-Poto). Formerly it contained pesticides for the sanitation of Brazzaville. Currently the depot is not used, but the containers that contained the pesticides and the equipment for their manipulation are abandoned there without any precaution.

**The depot of CENAMES in Mpila** has received all unused DDT stocks from the General Hygiene Center. It is located in a residential quarter by the Congo River. Although there are no stocks left, the site is considered as potentially contaminated.

**The depot of the former OCC in Mpila** used to serve as storage facility of pesticides for phytosanitary campaigns on coffee and cocoa plantations. The stored pesticides were dumped into nature. This site is within the industrial zone of Mpila.

#### *Agricultural zones*

Kombé constitutes the main agricultural zone of Brazzaville. It extends over about 3 hectares in the southeast of the capital not far from the Congo River and is influenced by sub-equatorial climate. The annual average of rainfall is 1,600 mm. Savanna grasses (*Aristida*) are the principal vegetation.

Anthropogenic impact on the zone is basically manifested by the consequences of pesticide use in uncontrolled quantities. The propagation of POPs pollution is very serious because of the proximity of the Congo River. Since POPs pesticides, which were certainly used, are resistant to degradation, they accumulate in living organisms and are dispersed through air and water.

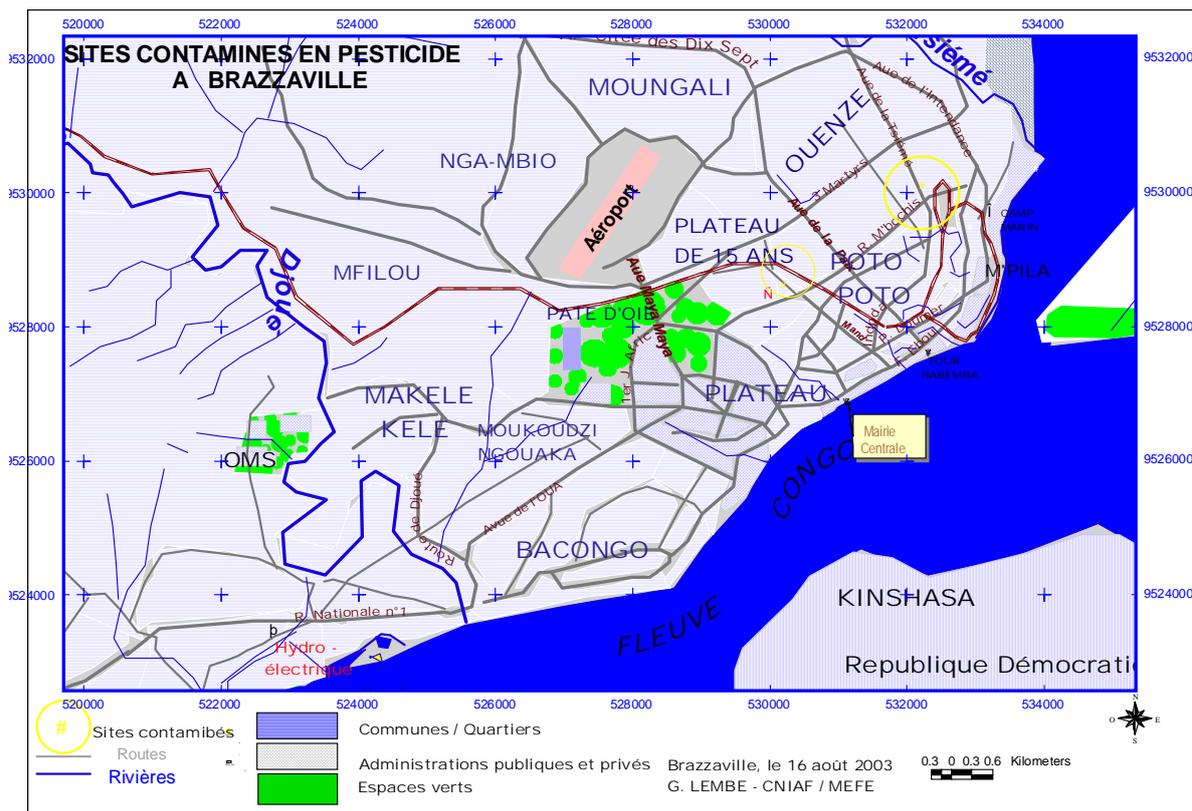


Figure 19: Pesticide contaminated sites in Brazzaville

## Pointe-Noire

There are two types of pesticide contaminated sites in Pointe-Noire: pesticide depots and agricultural zones.

### *Pesticide depots*

The pesticide depots are concentrated in the industrial zone of the city along the coast. This zone has many storage facilities, some of which are disused, which served or are still serving as pesticide stocks, including POPs pesticides.

### *Agricultural zones*

The principal agricultural activities, which resort to pesticides, are industrial eucalyptus plantations above the city on the Hinda plateau.

Pointe-Noire lies in a region by the Atlantic Ocean, which is an integral part of the coastal plane. The municipality of Pointe-Noire occupies the littoral plane with an elevation between 0 and 25 m.

The climate of Pointe-Noire, as everywhere in the southern part of the country, is of the Bas-Congo type, with two alternating seasons: a dry season, which lasts from June till September, and a rainy season, which extends through the rest of the year, with abating precipitation in January and February. The annual average temperature is 25°C and the annual average precipitation is 1,250 mm.

The geology of the region is characterized by four principal formations:

- A formation of surface material (soils), consisting of fine and medium fine sands of yellowish or white color
- An upper lithological formation, consisting of different geological layers (clays, clayey sands, more or less clayey sandstone, conglomerates with varying clay content)
- An intermediate lithological formation (15 – 50 m thick), consisting of white and pinkish red fine and medium fine sands with occasional small local clay layers
- A very thick lower lithological formation, consisting of layers of clayey sand, clay, and clayey to very clay sandstone

In Pointe-Noire the hydrographic net is formed of two small coastal basins:

- The Songolo Basin, the stream of which flows sluggishly in serpentine virtually across all quarters of the city
- The Tchinkoumbi Basin, which is nowadays entirely within the city

The above-mentioned geological formations support two water tables:

- The superficial aquifer corresponds to the upper pedological layer of sands; this aquifer is not industrially exploited but extensively drawn from numerous wells by households in the residential quarters of Pointe-Noire
- The deep aquifer corresponds to the intermediate lithological formation, which consists mostly of sands; this aquifer is intensely used for industrial purposes (Mayo water, SNDE drilling)

The zone covers about 8,000 hectares.

The development of industrial eucalyptus plantations above the city with massive application of unidentified pesticides poses a high risk for the population of Pointe-Noire, as the groundwater is the principal source of drinking water.

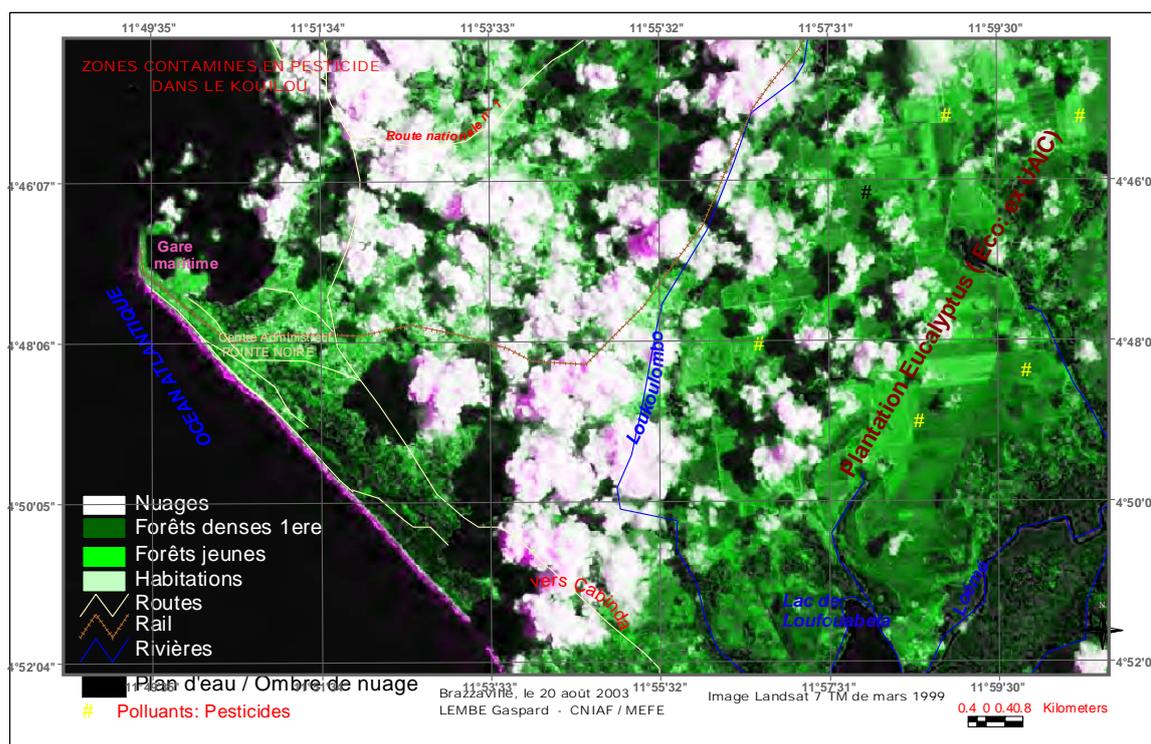


Figure 20: Pesticide contaminated sites in Pointe-Noire

## Niari River Valley

The alluvial plane of the Niari River Valley covers approximately 15,780 hectares. It served for a long time numerous agroindustrial activities (eucalyptus plantations, fruit plantations, intensive food crops including maize and paddy in Loudima, sugar cane plantations in Nkayi, cotton plantations and maize and paddy cultures in Madingou, manioc plantations in the zone of Bouansa). In Loutété was also a cement factory.

These activities were all gradually abandoned for different reasons. The only activity that has never abated is cultivation of sugar cane. For this purpose pesticides have been used. Because of the absence of analytical data, the whole zone has been rated as contaminated.

## Makoua-Etoumbi

The Makoua-Etoumbi sector with its 700 hectares accommodated industrial palm oil cultures. In these palm farms pesticides were undeniably used. DDT was the principal insecticide used against pests. Considering the presence of many watercourses and the dispersion of DDT there, the pollution risk to people and environment is substantial.

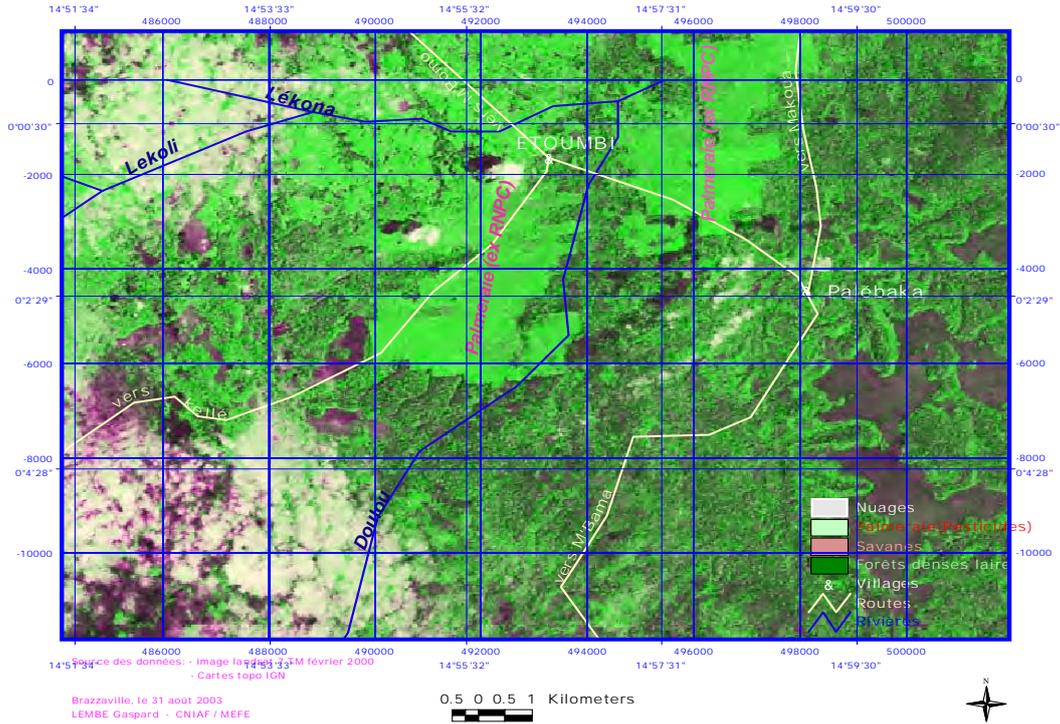


Figure 21: Pesticide contaminated sites in Makoua-Etoumbi

### Mokeko-Kandeko

The Mokeko-Kandeko (Ouesso) sector covers about 8,000 hectares. Palm farming was the most important activity here. The massive use of pesticides in the zone has had a detrimental impact on human health and environment.

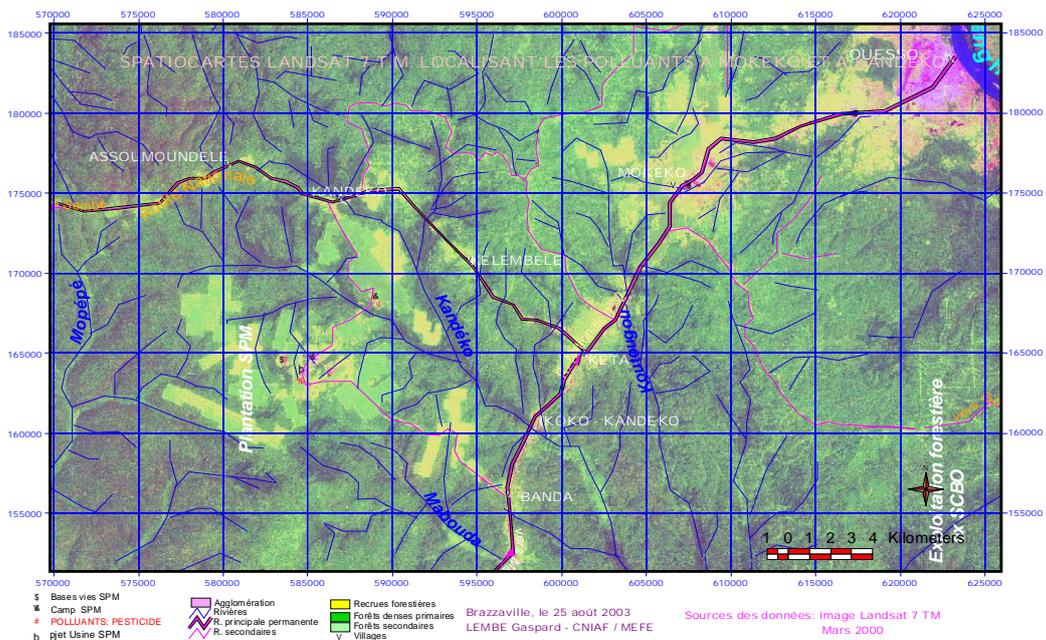


Figure 22: Pesticide contaminated sites in Mokeko-Kandeko

Table 27: Pesticides contaminated sites

	Site	GPS location	Activity	Operator	Geology	Environment	Priority
Brazzaville	General Hygiene Center	X = 0530204 Y = 9528627	DDT storage	State	Sandy plateau	Residential	High
	CENAMES depot	X = 0532262 Y = 9530179	Pesticide storage	State	Alluvial plane of the Congo River	Residential	High
	OCC depot	X = 0532873 Y = 9528478	Pesticide storage	State	Alluvial plane of the Congo River	Mpila industrial zone	High
	Kombé zone		Horticulture	State	Inkisi sandstone and clayey sand	Near the Congo River	Very high
Pointe-Noire	Industrial zone		Miscellaneous and PCB contaminated waste storage	Private companies	Sands and gravel	Seashore	Very high
	Hinda zone (Gonji)		18,000 ha forest cultures	State and private companies	Clayey sands	Plateau above the city	Very high
Niari River Valley			Industrial forests Agroforestry Food crops (paddy, maize) Sugar cane	State and private companies	Limestone, dolomite, sandstone and clay	Niary River Valley	Very high
Makoua-Etoubi			Palm farms	State and private companies	Sands and sandstone	Savanna and forests	Very high
Mokeke-Kandeko			Palm farms	State and private companies	Schist, limestone and sandstone	Firm ground forest	Very high

## II.5. POPs Impacts on Human Health and Environment

### II.5.1. Health impacts

Both in developed and developing countries, POPs can cause grave damage to human health of persons exposed to them in their professional activities, nutrition, and/or residences.

A study carried out by the Association for the Protection of the Environment and for the Promotion of Biological Agriculture in Nkayi and Ouessou (pesticides and POPs contaminated sites) has revealed the following data:

#### *Nkayi*

**Table 28: Statistical data of 2001 from health center in Nkayi**

Disease	Nkayi Health Center	General Hygiene Center Nkayi	School Health Center Nkayi	Medical Clinic Foundation MV	Integrated Health Center Mouana Ntô	Total
Pneumopathy	40	31	18	150	31	270
Other pulmonary diseases	1,046	39	22	9	168	1,284

Source: Mission Report, Ministry of Forestry and Environment 2003

**Table 29: Statistical data of 2002 from the Hospital Center in Makélélé**

Disease	Total
Pneumopathy	270
Other pulmonary diseases	1,284

Source: Statistical Office of the Hospital Center in Makélélé

The data from Nkayi are very disturbing with 1 in 29 inhabitants suffering from a pulmonary disease. Makélélé is not a contaminated site and has 2.5 times more people than Nkayi, but only 1 in 92 inhabitants suffers from a pulmonary disease.

More profound studies are required to better understand the magnitude of the impacts of pesticides and POPs on the exposed populations.

## Ouesso

**Table 30: Statistal data of 2002 from the hospital in Ouesso**

Disease	Total
Pneumopathy	66
Other pulmonary diseases	458
Tuberculosis	262
Acute gastroenteritis	161

The data from the basic hospital in Ouesso are as disturbing as the ones from Nkayi, since 1 in 15 inhabitants suffers from a pulmonary diseases and 1 in 74 from acute gastroeneteritis.

These worrying data alarm the NGOs as also in the case of Nkayi. Therefore more profound studies are needed to establish a causal link between pesticide use and health effects. Based on results of such studies, the public authorities could improve the current situation.

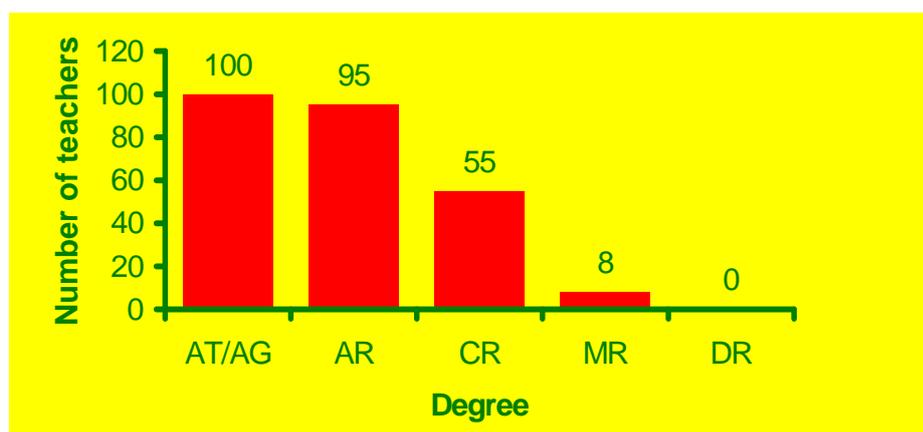
### II.5.2. Environmental impacts

The impacts of POPs on the environment are described in other paragraphs of this chapter, which elaborate not only on the POPs inventory of the Congo, but also on the degree of environmental pollution from these chemicals.

## II.6. Assessment of the Capacity of Infrastructures and Staff

The distribution by rank of scientific and technical personnel of the General Delegation of Scientific Research and Technology is shown in Figure 23.

**Figure 23: Staff distribution of the General Delegation for Scientific Research and Technology by degree**



AT/AG Technical Assiant and Research Agent  
 AR Research Adjunct  
 CR Research Scientist  
 MR Senior Research Scientist  
 DR Director of Research

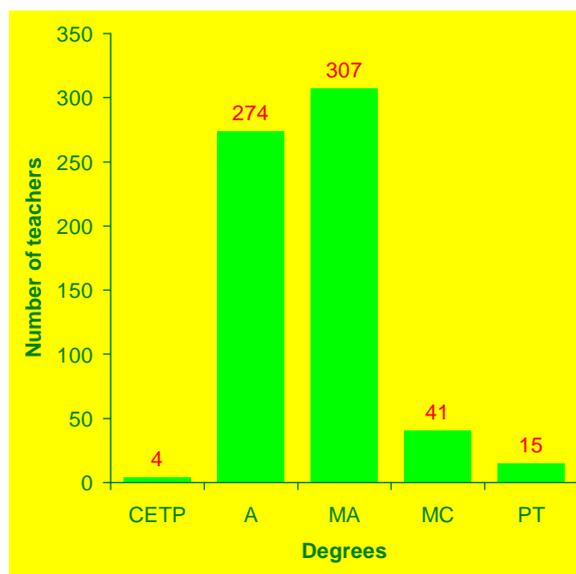
The number of scientists and engineers available at the Delegation is 258. The Agronomic Research Center of Loudima (CRAL), of the Veterinary and Zootechnical Research Center (CRVZ), the Study Center for Plant Resources (CERVE), and the Center for Research and

Initiation of Technology Projects (CRIPT) have 70 scientists and engineers available in the field of POPs, which is 27% of the respective staff of the General Delegation. Additionally, about 60 scientific support staff members could help the effort of better understanding and manipulating pesticides in the Congo.

### ***Staff of the Marien Ngouabi University***

The distribution of research staff by rank is shown in Figure 24.

**Figure 24: Staff distribution by rank at Marien Ngouabi University as of 30 June 2003**



CETP	Technical and Professional Lecturer
A	Assistant
MA	Senior assistant
MC	Associated professor
PT	Full professor

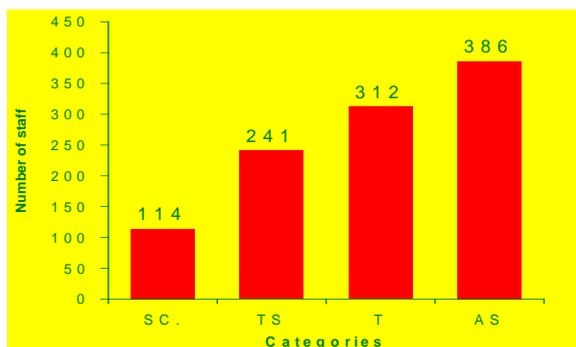
The university staff consists of 641 teachers/researchers. The sciences faculty and the health sciences faculty have together 172 teachers/researches, which is about 27% of the total number.

For the purpose of knowledge gathering on POPs pesticides the 41 teachers of the Institute for Rural Development can also be mobilized.

Besides, graduate students with a bachelor's or master's degree from these three institutions should also be included in the university's scientific potential, which adds another 500 engineers and high level technicians.

### ***Staff of the University Hospital Center (CHUB) in Brazzaville***

As of 31 December 2002, CHUB had 1,053 scientific and technical staff members. The distribution is given in Figure 25.



**Figure 25: Staff distribution by rank at CHUB as of 31 December 2002**

SC	Scientist
TS	Senior Technician
T	Technician
AS	Scientific support staff

It should be noted that the scientific staff of CHUB are 114 persons, more than 50% of which work at the same time for the Ministry of Higher Education and Scientific Research or for the Ministry of Health and Population.

### *Assessment of capacities to enforce regulations*

The judicial and institutional framework provided two institutions for control, supervision and orientation of the national research policy: the Superior Council for Science and Technology and the Interministerial Committee for Science and Technology.

#### *Superior Council for Science and Technology*

The Superior Council for Science and Technology is an organ of consultation and cooperation between the agents of research and their partners, representing the production sector, the socio-cultural sector and the departments. It consults to the Government on the priorities of its science and technology policies, in particular

- Orientation and evolution of scientific and technological activities
- Preparation of the national scientific and technological development plan

#### *Interministerial Committee for Science and Technology*

The Interministerial Committee for Science and Technology is, as opposed to the Superior Council, an organ of cooperation between the representatives of the different ministerial departments in the field of science and technology. It is charged with

- Proposing a list of key areas for master plans
- Assessing the required resources for the execution of the master plans
- Evaluating the total research budget and the results of research works
- Mobilizing the resources required for research

### *Assessment of laboratories and scientific equipment*

Table 31: Scientific equipment available at research institutions Table 1 lists scientific instruments relevant for POPs and pesticides determination, as available in different institutions of the Congo.

Table 31: Scientific equipment available at research institutions

Institution	State of Equipment	HPLC	GLC	TLC	IR	UV	MS-FID	Data system	Analytical balance	pH-meter	Ion selective electrodes	Premises
CERVE	Available	-	-	-	-	-	-	-	-	+	-	+
	Functional	-	-	-	-	-	-	-	-	+	-	+
CRVZ	Available	-	-	-	-	+	-	-	+	+	-	+
	Functional	-	-	-	-	+	-	-	+	+	-	+
CRCRT	Available	-	-	-	-	-	-	-	-	-	-	++
	Functional	-	-	-	-	-	-	-	-	-	-	+
CRIPT	Available	-	-	-	-	-	-	-	-	-	-	+
	Functional	-	-	-	-	-	-	-	-	-	-	+
FSS	Available	-	-	-	-	-	-	-	-	+	-	+
	Functional	-	-	-	-	-	-	-	-	+	-	+
FS	Available	-	-	-	-	+	-	-	++	++	-	+
	Functional	-	-	-	-	+	-	-	++	++	-	+
EPRAN	Available	+	+	-	+	+	-	-	-	+	-	+
	Functional	+	-	-	+	+	-	-	-	+	-	+
LNSP	Available	-	-	-	-	-	-	-	+	+	-	++
	Functional	-	-	-	-	-	-	-	+	+	-	++
CHUB	Available	-	-	-	-	-	-	-	+	+	-	++
	Functional	-	-	-	-	-	-	-	+	+	-	+

+ Equipment or premises available  
 ++ Equipment very functional or premises large  
 - Equipment or space not available/not functional  
 HPLC High performance liquid chromatograph  
 GLC Gas liquid chromatograph  
 TLC Thin layer chromatograph

IR Infrared spectrometer  
 UV UV spectrometer  
 CERVE Study and Research Center for Plants  
 CDVZ Veterinary and Zootechnical Research Center  
 CRCRT Research Center for Land Preservation and Restoration  
 CRIPT Center for Research and Initiation of Technology Projects

FSS Faculty of Health Sciences  
 FS Faculty of Sciences  
 EPRAN Multidisciplinary Team for Nutrition Research  
 LNSP National Laboratory of Public Health  
 CHUB University Hospital Center Brazzaville



### III. GENERAL STRATEGIES

The Congo does not produce or formulate POPs. In this context, the strategies to be designed have to focus on:

- Control of importation and use
- Raising awareness of decision makers and users
- Equipping the institutions involved with means of identification and intervention

#### *III.1. Declaration of Intent*

- Considering that the need to protect the environment and human health against toxic and dangerous chemical products is getting worldwide attention and the number of international agreements with regard to managing these products multiplies, and
- Aware of the fact that POPs pose a serious threat to human health and environment,

The Government of the Republic of the Congo has decided to make reducing or eliminating the chemicals inscribed in Annexes A and B of the Stockholm Convention its priority in its greater policy orientation towards the Millennium Development Goals.

In its approach, the Government will focus on the creation and reinforcement of capacities for managing chemical products and dangerous wastes.

#### *III.2. Draft of a Logical Framework of the Action Plan for Implementation*

##### B. Summary of the logical framework

1. Plan identification: implementation of the POPs Convention
2. Problem definition
  - Ratification of the Convention on Biodiversity
  - Ratification of the Stockholm, Basel and Rotterdam Conventions
  - Misconception of the POPs problem on the part of the general public
  - Absence of production or formulation of POPs in the Congo
  - Lack of specific national legislation on POPs
  - Lack of a specific institutional framework
  - Lack of a national mechanism for POPs monitoring and control
3. Definition of goals
  - Progressively mastering the management of POPs
  - Harmonizing national and regional legislations and regulations on POPs
  - Defining the implementation mechanism
  - Defining the partnership
  - Awareness raising of the general public

## C. Logical framework for the implementation of the Stockholm Convention

Table 32: Matrix of the logical framework

Description	Performance indicator	Verification means	Risks and limitations	Risk management
<b>Goal</b> Implementation of the Stockholm Convention	<ul style="list-style-type: none"> <li>★ Ratification of the Stockholm, Basel and Rotterdam Conventions</li> <li>★ Establishing infrastructures according to the recommendations</li> </ul>	<ul style="list-style-type: none"> <li>★ Report of the National Assembly</li> <li>★ Publication of the national mechanisms</li> <li>★ Texts on the creation of infrastructures</li> </ul>	<ul style="list-style-type: none"> <li>★ Failure to ratify the Stockholm Convention</li> <li>★ Infrastructures not established according to recommendations or not functional</li> </ul>	<ul style="list-style-type: none"> <li>★ Accelerate the ratification of the Stockholm Convention</li> <li>★ Stimulate the establishment of the infrastructures according to the recommendations</li> </ul>
<b>Objective No. 1</b> Progressively mastering POPs management	<ul style="list-style-type: none"> <li>★ Drafting the implementation plan of the Stockholm Convention</li> </ul>	<ul style="list-style-type: none"> <li>★ Implementation activities for the Stockholm Convention</li> </ul>	<ul style="list-style-type: none"> <li>★ Action plan not elaborated</li> </ul>	<ul style="list-style-type: none"> <li>★ Engage the responsibility of different agencies and stakeholders in the implementation process</li> </ul>
<b>Objective No. 2</b> Harmonizing the national and regional legislations and regulations	<ul style="list-style-type: none"> <li>★ Analysis of the relevant texts of the region</li> <li>★ Drafting of texts based on the analysis</li> </ul>	<ul style="list-style-type: none"> <li>★ Analysis report</li> <li>★ Drafted texts</li> </ul>	<ul style="list-style-type: none"> <li>★ Lacking commitment to harmonization</li> <li>★ Administrative inertia</li> <li>★ Sluggish drafting of text</li> </ul>	<ul style="list-style-type: none"> <li>★ Stimulate the harmonization of legal texts</li> <li>★ Encourage the elaboration of appropriate texts</li> </ul>
<b>Objective No. 3</b> Define an implementation mechanism	<ul style="list-style-type: none"> <li>★ Reinforcement and/or creation of a mechanism for control, monitoring and analysis</li> </ul>	<ul style="list-style-type: none"> <li>★ Existing mechanisms reinforced and/or other appropriate mechanisms created</li> </ul>	<ul style="list-style-type: none"> <li>★ Lethargy in defining the appropriate mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>★ Encourage the rapid definition of the implementation mechanism</li> </ul>
<b>Objective No. 4</b> Define the partnership	<ul style="list-style-type: none"> <li>★ Definition of needs and target partners and initiation of subsequent steps</li> </ul>	<ul style="list-style-type: none"> <li>★ Documents describing the needs, target partners and results of envisaged steps drafted</li> </ul>	<ul style="list-style-type: none"> <li>★ Information on potential partners not available</li> <li>★ Lack of resolve to define the partnership</li> </ul>	

Description	Performance indicator	Verification means	Risks and limitations	Risk management
<b>Objective No. 5</b> Awareness raising of the general public	★ Initiation of awareness raising activities, such as seminars, etc.	★ Reports on awareness raising actions submitted	★ Lack of resolve or lethargy in initiating the required actions for awareness raising	★ Starting the action at a suitable time
<b>Results</b> Execution of all sectoral implementation plans for the implementation of the Stockholm Convention	<ul style="list-style-type: none"> <li>★ Different subject reports</li> <li>★ Promulgation of specific information</li> <li>★ Budget available</li> <li>★ National focal point defined</li> <li>★ National POPs Committee established</li> </ul>	<ul style="list-style-type: none"> <li>★ All documents from the implementation process finalized</li> <li>★ Structures induced by the NIP are functioning</li> </ul>	<ul style="list-style-type: none"> <li>★ Sectoral plans not executed</li> <li>★ Lack of resources required for the implementation of the sectoral plans</li> </ul>	
Establishment of a regulatory and institutional framework	★ Regulatory and institutional framework established	★ Legal texts of the regulatory and institutional framework available	★ Institutional framework not established	★ Involve the relevant mechanisms for establishing the regulatory and institutional framework
Information campaign for education and awareness raising of the general public on POPs	<ul style="list-style-type: none"> <li>★ Installation of mechanisms and support for the campaign</li> <li>★ Launching of the campaign</li> </ul>	<ul style="list-style-type: none"> <li>★ Involvement of the public in campaign activities</li> <li>★ Public broadcasts and publicity spots</li> </ul>	★ Information campaign not approved	★ Justify the need of the information campaign and activate the mechanisms relevant for its execution
Management measures for PCBs	★ Definition and funding of the measures	★ PCB management operating	★ Insufficient attention to PCB management	★ Attract attention of authorities for the need of good PCB management as an element of the NIP
Measures for the reduction or elimination of UPOPs as inscribed in Annex C of the Conventions, in particular dioxins and furans	★ Launching activities for reduction or elimination of UPOPs	★ Pertinent activities completed	<ul style="list-style-type: none"> <li>★ Bad understanding of the dangers posed by dioxins and furans for the food chain</li> <li>★ Insufficient resources</li> </ul>	<ul style="list-style-type: none"> <li>★ Enhance the perception of the real danger of dioxins and furans for the food chain</li> <li>★ Raise the required funds</li> </ul>

Description	Performance indicator	Verification means	Risks and limitations	Risk management
Progressive measures for contaminated sites remediation	★ Launching the measures	★ Measures carried out	★ See above	★ See above
Measures for the reduction of pesticide production and industrial use of pesticides	★ See above	★ See above	★ See above	★ See above
Measures for the reduction or elimination of DDT stocks and wastes	★ See above	★ See above	★ See above	★ See above
Research and development pertaining to the NIP	★ See above	★ See above	★ See above	★ See above
Establishment of an implementation schedule for the NIP	★ The different stages are defined	★ The schedule is completed	★ Reluctance to define a time frame for the implementation stages of the NIP	<ul style="list-style-type: none"> <li>★ Emphasize the necessity to implement the NIP in a coherent manner</li> <li>★ Explain to the concerned agencies that the schedule demonstrates effective project management</li> </ul>
Assessment of required resources for NIP implementation	★ The required resources are identified	★ Information on the significance of each resource and for the totality of resources available	<ul style="list-style-type: none"> <li>★ Drafting of different non-evaluated implementation plan</li> <li>★ Bad NIP evaluation</li> </ul>	★ Explain to the concerned agencies that evaluation is an integral part of every activity

Description	Performance indicator	Verification means	Risks and limitations	Risk management
<b>Inputs</b> Coordination team Research team Consultants Existing legislative texts Research institutions Public administration experts Required agreements Other bibliographic elements Budget	★ Factual availability of all resources	★ Consultancy contracts signed ★ Questionnaires and forms designed ★ Project agreements available ★ Public libraries and websites researched ★ Financial project papers available	★ Percentage of budget released by the project coordinator ★ Questionnaires and forms available ★ Competent national institutions in place ★ Documents factually existent	

## **IV. ACTION PLANS FOR THE IMPLEMENTATION OF THE NIP**

The objectives to be pursued and attained through the NIP require the completion of priority actions as specified above and reflected in the logical framework, addressing the POPs situation in the Congo. The respective steps of the NIP described below are derived from this situation.

### ***IV.1. Defining a Regulatory and Institutional Framework for the National POPs Policy***

#### **IV.1.1. Regulatory framework**

The draft law, which modifies Law 003 on the protection of the environment envisages measures for dealing with harmful and dangerous chemical substances and the different aspects of their production, importation, exportation, sales and distribution, and their waste. But, most importantly, the draft law stipulates that:

“The management of products from modern biotechnology, as well as of persistent organic pollutants and other products of the same nature is subject to specific legislative and regulatory measures.”

This procedure allows elaborating a judicial frame of reference for POPs, which consists of a legislative text, supplemented by implementing regulations (as stipulated in Article 3, paragraph 3 of the Convention).

Agricultural pesticides have already been object of a legislation initiated by the Ministry of Agriculture, Stock Farming and Fishery.

#### **IV.1.2. Institutional framework**

The institutional frame of reference for the implementation of the Stockholm Convention ought to include:

- Competent authority
- National center for POPs management and remediation
- Analytical toxicological laboratory
- Laboratory for studying the impacts of pesticides on human health and environment
- Evaluation commission
- Civil society

The competent authority is the Ministry of Environment. It assures compliance and control of implementation of regulatory texts on management and remediation.

The national center for POPs management and remediation is a specialized and autonomous public service, charged with administrative and technical POPs management.

The analytical toxicological laboratory is a scientific and technical institution, charged with studying different aspects of applied toxicology: chemical, vocational, nutritional, veterinary and environmental toxicology and related fields. The desired reinforcement of the scientific and

technical capacities of the existing National Public Health Laboratory should enable it to fill this role. To that aim it should directly collaborate with the University Hospital Center in Brazzaville.

Like for analytical toxicology, the existing National Public Health Laboratory should be reinforced for being able to conduct research and monitoring of pesticide impacts on human health and environment in direct collaboration with the University Hospital Center in Brazzaville.

Action Plan: Defining a Regulatory and Institutional Framework for the National POPs Policy						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Establishing adequate legislation for POPs management according to the Stockholm Convention	★ Drafting of laws and regulatory texts	MEFE Ministry of Justice Presidency of the Republic Parliament	★ Legislation enacted	1 year	30,000	GEF
Reinforcing the institutional capacities of the country for POPs management	★ Creating and updating institutions and agencies	MEFE State University Ministry of Scientific Research MOH	★ Institutions and agencies created or updated to standard	5 years	To be financed outside of the NIP	National Environmental Protection Agency

#### *IV.2. Action Plan: Public Information, Awareness and Education*

According to Article 10 of the Stockholm Convention, the Republic of the Congo as a Party and within its capabilities agrees to promote and facilitate information, awareness and education of the public on POPs, and ensure that this information is kept up-to-date. It envisages the design of mechanisms for collection and dispersion of information on POPs as listed in the table below.

Action Plan: Public Information, Awareness and Education						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Reinforcing the capacities of the Directorate General of Environment (DGE) and the National Institute for Research and Pedagogic Action (INRAP) for managing educational activities	<ul style="list-style-type: none"> <li>★ Procurement of audiovisual equipment</li> <li>★ Procurement of 32 all-terrain vehicles</li> <li>★ Inception workshop of an awareness program for decision makers, planners, and different partners of MEFE on POPs education</li> </ul>	Ministry of Forest Economy and Environment	<ul style="list-style-type: none"> <li>★ Equipment and vehicles procured</li> <li>★ Inception workshop organized</li> </ul>	3 months	500,000	Donors

Action Plan: Public Information, Awareness and Education						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
on POPs						
Design training programs for environmental education including POPs and elaborate the didactic materials	<ul style="list-style-type: none"> <li>★ Assessment of training needs with regard to POPs</li> <li>★ Organizing a workshop for analyzing existing programs</li> <li>★ Creating a workshop for integration of POPs information into existing programs</li> <li>★ Compiling pedagogic guides</li> <li>★ Elaborating modules on POPs</li> <li>★ Creating didactic materials and aids for POPs awareness raising</li> <li>★ Organizing validation workshops for the programs, guides, modules, didactic materials and aids</li> <li>★ Designing a comic strip for environmental awareness raising of students</li> </ul>	Ministry for Primary and Secondary Education	<ul style="list-style-type: none"> <li>★ Training needs of students assessed</li> <li>★ Workshop for integration of POPs information created</li> <li>★ Pedagogic guides compiled</li> <li>★ Modules elaborated</li> <li>★ Didactic materials elaborated</li> <li>★ All validation workshops conducted</li> <li>★ Comic strip designed</li> </ul>	12 months	61,080	Donors
Training of teachers on the implementation of environmental education programs with regards to POPs in 1,600 secondary school with about 750,000 students	<ul style="list-style-type: none"> <li>★ Organization of departmental seminars for pedagogic training of 500 departmental inspectors of preschools, primary and secondary schools</li> <li>★ Organization of a training workshop for 40 teachers of ENI, ENS and ENSP</li> <li>★ Holding training days for 11,800 teachers of primary and secondary schools</li> </ul>	Ministry for Primary and Secondary Education Directorate General for Basic Education Regional Directorates for Education	<ul style="list-style-type: none"> <li>★ All departmental seminars for pedagogic training conducted</li> <li>★ Training workshop for ENI, ENS and ENSP teachers conducted</li> <li>★ Training days for 11,800 teachers held</li> </ul>	3 months	114,520	Donors
Information and awareness raising of 70% of students of	<ul style="list-style-type: none"> <li>★ Awareness campaign for students on environmental and POPs issues</li> <li>★ Establishing environmental school clubs</li> </ul>	Ministry for Primary and Secondary	<ul style="list-style-type: none"> <li>★ Awareness campaign for students conducted</li> </ul>	7 months	82,020	Donors

## Action Plan: Public Information, Awareness and Education

Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
primary schools, high schools and colleges (about 525,000) on environmental and POPs issues by extracurricular environmental education activities	<ul style="list-style-type: none"> <li>at 33 primary and secondary schools and training of 384 student leaders and 192 animators (teachers) in communication techniques and club management</li> <li>★ Implementing information, education and communication activities by the environmental school clubs</li> <li>★ Production of an information and outreach bulletin of the clubs</li> <li>★ Follow-up and evaluation of the information, education and communication activities in the schools</li> </ul>	Education	<ul style="list-style-type: none"> <li>★ Environmental school clubs established</li> <li>★ Information, education and communication activities by environmental school clubs initiated</li> <li>★ Information and outreach bulletin produced</li> <li>★ Information, education and communication activities in schools realized</li> </ul>			
Information and awareness raising of the students of the M. Ngouabi University on POPs issues	<ul style="list-style-type: none"> <li>★ Awareness campaign for the students of the faculties of sciences and health sciences on POPs issues</li> </ul>	Ministry for Primary and Secondary Education INRAP	<ul style="list-style-type: none"> <li>★ Awareness campaign for students conducted</li> </ul>	2 months	12,000	Donors
Information and awareness raising of horticulturists, foresters, SNE agents, customs officers, journalists, local elected representatives, NGOs, environmental associations, religious	<ul style="list-style-type: none"> <li>★ Identifying human resources for drafting awareness programs on POPs</li> <li>★ Elaborating the program contents</li> <li>★ Producing pedagogic guides on POPs</li> <li>★ Drafting the modules on POPs</li> <li>★ Produce the didactic material and aids for POPs awareness</li> <li>★ Organize validation workshops for the awareness programs, the pedagogic</li> </ul>	Selection experts Ministry of Forest Economy and Environment Ministry for Primary and Secondary	<ul style="list-style-type: none"> <li>★ Awareness of selected persons raised</li> <li>★ Program contents elaborated</li> <li>★ Pedagogic guides and didactic modules produced</li> <li>★ All validation</li> </ul>	9 months	23,000	Donors

## Action Plan: Public Information, Awareness and Education

Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
congregations, and business persons on POPs impacts on health and environment and on the use of alternatives	guides and the didactic modules and aids	Education	workshops held			
Training of trainers for implementing the awareness program for horticulturists, foresters, SNE agents, customs officers, journalists, local elected representatives, NGOs, environmental associations, religious congregations, and business persons on POPs impacts on health and environment	<ul style="list-style-type: none"> <li>★ Organize a training workshop for selected horticulturists, foresters, SNE agents, customs officers, journalists, local elected representatives, NGOs, environmental associations, religious congregations, and business persons</li> </ul>	Ministry of Forest Economy and Environment Ministry for Primary and Secondary Education International expert	<ul style="list-style-type: none"> <li>★ Training workshop for socio-professional target audiences conducted</li> </ul>	3 months	42,636	Donors
Information and awareness raising of target groups in the general public concerned by the preceding objectives with regard to POPs impacts on health and environment	<ul style="list-style-type: none"> <li>★ Awareness campaign for the concerned population groups</li> <li>★ Production of TV and radio programs and documentaries</li> <li>★ Publication of articles in official and private newspapers</li> <li>★ Production of a POPs information bulletin</li> <li>★ Production of a drama in French, Lingala and Kituba</li> </ul>	MEFE MIC Private press National expert Selected theater group	<ul style="list-style-type: none"> <li>★ Awareness campaign carried out</li> <li>★ TV and radio programs and documentaries produced</li> <li>★ Information bulletin produced</li> <li>★ Drama produced</li> </ul>	2 years	116,344	Donors

Action Plan: Public Information, Awareness and Education						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Promotion and dispersion of POPs information	<ul style="list-style-type: none"> <li>★ Creating a website</li> <li>★ Supporting a network for information exchange on POPs</li> </ul>	Selected business operators Financial organisms Districts	<ul style="list-style-type: none"> <li>★ Website established</li> <li>★ Support for the information exchange network assured</li> </ul>	2 years	80,000	Donors

### IV.3. Action Plan: Polychlorinated Biphenyls

PCBs are banned chemicals. Their use is limited to specific equipments by virtue of the LCPE 1999. Besides, the Republic of the Congo, which has not manufactured PCBs, plans the implementation of the measures described in the table below, which are appropriate for reducing or eliminating the emissions from intentional use.

Action Plan: Polychlorinated Biphenyls						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Updating the detailed inventory of PCBs and PCB contaminated equipment	<ul style="list-style-type: none"> <li>★ Identifying, labeling and withdrawing from circulation all equipments, which do not conform with Annex A, part II</li> </ul>	Project coordinator National consultants	<ul style="list-style-type: none"> <li>★ Updated inventory</li> </ul>	6 months	30,000	Donors
Reducing exposures and risks related to PCB use (making the workplace safer)	<ul style="list-style-type: none"> <li>★ Regulating PCB use</li> <li>★ Determination of the presence of PCBs in equipments</li> <li>★ Improving PCB storage</li> <li>★ Draft a training plan for persons concerned</li> </ul>	Project coordinator National expert Faculty of Sciences of the M. Ngouabi University Ministry of Research	<ul style="list-style-type: none"> <li>★ Regulatory texts drafted</li> <li>★ PCB detection carried out</li> <li>★ Persons concerned trained</li> </ul>	3 months	80,000	Donors
Identifying, collecting	<ul style="list-style-type: none"> <li>★ Compiling a detailed inventory</li> </ul>	Project	<ul style="list-style-type: none"> <li>★ Decommissioned</li> </ul>	Once every 3	2,000,000	Donors

Action Plan: Polychlorinated Biphenyls						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
and disposing of PCB contaminated equipment out of service	<ul style="list-style-type: none"> <li>★ Defining and installing a mechanism for collection of equipment concerned</li> <li>★ Identifying storage sites of contaminated material</li> </ul>	coordinator National consultants International expert	equipment collected	years		

#### IV.4. Action Plan: Emissions from Non-intentional Production of PCDD/PCDF

The measures described in the table below are aimed at reducing to a minimum or eliminating the emission of substances inscribed in Annex C.

Action Plan: Emissions from Non-intentional Production of PCDD/PCDF						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Reducing/eliminating UPOPs emissions from open air waste burning	<ul style="list-style-type: none"> <li>★ Implementing a strategy against open air waste burning</li> </ul>	Project coordinator City councils INRAP Consultant	<ul style="list-style-type: none"> <li>★ Strategy implemented</li> </ul>	5 years	100,000	Donors Municipal budgets National budget
Reducing/eliminating UPOPs emissions from agricultural activities	<ul style="list-style-type: none"> <li>★ Implementing a strategy against biomass burning in agriculture</li> </ul>	Project coordinator Ministry of Agriculture Ministry of Scientific Research Consultant	<ul style="list-style-type: none"> <li>★ Strategy implemented</li> <li>★ New technology acquired</li> </ul>	3 years	30,000	Donors
Reducing the quantity of biomass used for	<ul style="list-style-type: none"> <li>★ Acquisition of new cooking technology</li> </ul>	Project coordinator	<ul style="list-style-type: none"> <li>★ New technology acquired</li> </ul>	5 years	20,000	Donors

Action Plan: Emissions from Non-intentional Production of PCDD/PCDF						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
domestic heating and cooking		Ministry of Agriculture Ministry of Scientific Research Consultant				
Reducing/eliminating UPOPs emissions from burning of bagasse at SARIS	★ Finding alternatives for bagasse burning	Project Coordinator SARIS MEFE Ministry of Agriculture Consultants	★ Alternatives identified and evaluated ★ Filtration system at SARIS improved	3 years	100,000	Donors
Reducing/eliminating UPOPs emissions from the transport sector	★ Introduction of unleaded gasoline	Ministry of Carbohydrates MEFE Ministry of Transport Ministry of Finance Ministry of Scientific Research SNPC CORAF Project coordinator	★ Unleaded gasoline used the country	3 years for the transition to unleaded gasoline and awareness raising 3 years for follow-up and air quality control	50,000	Donors
Reducing/eliminating UPOPs emissions from	★ Improving the smoking process for fish	Project coordinator	★ Fish smoking process improved	3 years	20,000	Donors

## Action Plan: Emissions from Non-intentional Production of PCDD/PCDF

Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
fish smoking		Consultants in fish processing Ministry of Fishery				
Treatment of domestic and commercial wastewater in the urban centers	★ Participating in the reconstruction of wastewater treatment plants	City councils NGOs Private sector	★ Wastewater treated effectively	5 years	120,000	Donors
Reducing/eliminating UPOPs emissions from medical waste incineration	★ Conducting a feasibility study for the construction of 2 biomedical waste incinerators	Project coordinator Consultant M. Ngouabi University	★ Feasibility study carried out	1 year	50,000	Donors
Tracking organochlorinated compounds from their importation to the treatment sites	★ Drafting a list of imported organochlorinated compounds	Project coordinator Directorate General of Customs Consultant	★ List of imported organochlorinated compounds established	3 years	10,000	Donors
Improving the knowledge about UPOPs formation and sources	★ Characterizing UPOPs emission sources in the Congo	Project coordinator Ministry of Scientific Research M. Ngouabi University DG of Public Health Other partners	★ UPOPs emission sources characterized	2 years	100,000	Donors

Action Plan: Emissions from Non-intentional Production of PCDD/PCDF						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Refining the UPOPs inventory to better assess impacts on health & environment	★ Updating the national UPOPs inventory	Consultant	★ National UPOPs inventory updated	1 year	10,000	Donors
Preparing and evaluating data for future inventories	★ Compiling a database	Consultant Project coordinator	★ Database compiled	3 years	6,000	Donors
Enhancing the judicial framework and the knowledge about UPOPs on the part of stakeholders and the general public	★ Adopt policies and regulations for UPOPs prevention	Project coordinator	Effective presentation of the production of UPOPs	3 years	20,000	Donors

### IV.5. Action Plan: Contaminated Sites

Considering Article 6, paragraph e of the Convention, the Republic of the Congo has strived to elaborate appropriate strategies for the identification of sites contaminated by chemicals inscribed in Annexes A, B or C. The measures presented on the table below are envisaged for decontamination and environmentally sustainable clean-up.

Action Plan: Contaminated Sites						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Elaborate a management plan for contaminated sites	★ Establish a national committee for contaminated sites management	MEFE MOH	★ National committee established	1 months	2,000	State budget
	★ Conduct training workshops on contaminated sites management	Ministry of Agriculture	★ Training workshops conducted	1 year	100,000	Donors
	★ Draft regulations and laws for contaminated sites management	Ministry of Industry Ministry of Energy	★ Legislation elaborated and enacted	6 months	30,000	Donors
Take remediation measures for identified contaminated sites	<ul style="list-style-type: none"> <li>★ Secure and mark contaminated sites</li> <li>★ Identify available remediation technologies</li> <li>★ Establish regulations and guidelines for clean-up of contaminated sites</li> <li>★ Carry out the remediation of the sites</li> </ul>		<ul style="list-style-type: none"> <li>★ Contaminated sites clearly identified and secured</li> <li>★ Environmentally sound remediation methods selected</li> <li>★ Contaminated sites cleaned</li> </ul>	1 year	100,000	Donors

### IV.6. Action Plan: Pesticides

The action plan for pesticides recurs to those of the other substances: aldrin, dieldrin, DDT, endrin, chlordane and heptachlor; mirex, toxaphene and HCB have never been imported by the Congo.

Action Plan: Importation, Use, Stocks and Waste of Pesticides						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Reinforcement of the judicial framework for pesticides	★ Drafting a law on pesticides	Marion Ngouabi University MEFE Association of female jurists of the Congo	★ Law drafted and enacted	6 months	30,000	State Budget Donors
Updating of the pesticides inventory	★ Registering changes in pesticides stocks	MEFE Task team on pesticides	★ Inventory updated	6 months	30,000	Donors
Eliminate the danger of leakage or use of obsolete and POPs pesticides	★ Dispose of obsolete and POPs pesticides	MEFE Ministry of Agriculture FAO	★ Obsolete stocks eliminated	6 months	15,000	Donors

#### *IV.7. Action Plan: Importation, Use, Stocks and Waste of DDT*

In order to make sure that importation, use and stocks of chemicals inscribed in Annex B, or containing them, and the waste consisting of chemicals inscribed in Annex B or C, or containing them or contaminated by them, are managed appropriately to protect human health and environment, the Republic of the Congo has planned measures as described in the table below.

Action Plan: Importation, Use, Stocks and Waste of DDT						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Updating the inventory regarding importation, use and stocks of DDT	★ Detailed inventorying	Project coordinator National consultants	★ Inventory updated	3 months	50,000	Donors

Action Plan: Importation, Use, Stocks and Waste of DDT						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Reducing the exposure of the population and the environment to DDT	★ Assessment of needs for integrated vector management (IVM)	National experts	★ IVM needs evaluated and addressed	3 months	50,000	Donors
	★ Promotion of IVM	International expert				
Reinforcing vector control capacities	★ Evaluation of DDT alternatives	National experts	★ DDT alternatives evaluated	3 months	10,000	
	★ Safe management and disposal of DDT stocks	International expert	★ DDT stocks eliminated	1 month	50,000	Donors
	★ Training of trainers	International expert	★ Trainers trained	6 months	30,000	
Eliminating stocks of DDT	★ Dispose of DDT stocks in an environmentally sound manner	Ministries of agriculture, environment, international expert, FAO and NGOS	★ DDT stock eliminated	1 month	15,000	Donors

#### *IV.8. Action Plan: Research, Development and Monitoring*

The scientific and technological potential available in the Republic of the Congo is not comparable with the potential of the countries that produce pesticides. The measures the Congo can take to manage these products resemble those of comparable parties. Nevertheless, the table below shows envisaged measures of substituting certain pesticides with extracts of two local arborescent plants.

Action Plan: Research and Development						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Reinforcing the scientific and technical capacities of target agencies	Reinforcing the scientific and technical capacities of the ★ Faculty of Sciences of the M. Ngouabi University	MOH Ministry of Scientific Research	★ Capacities of target agencies reinforced ★ Analytical toxicological	2 years	360,000	Donors

Action Plan: Research and Development						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
	<ul style="list-style-type: none"> <li>★ National Laboratory for Public Health</li> <li>★ Research Center for Land Restoration</li> </ul> by <ul style="list-style-type: none"> <li>a) Establishing an analytical toxicological laboratory</li> <li>b) Creating a laboratory for assessment, control and formulation of pesticides</li> </ul>	Ministry of Higher Education	<ul style="list-style-type: none"> <li>laboratory created</li> <li>★ Laboratory for pesticide studies created</li> </ul>			
Studying the substitution of POPs pesticides with extracts from 2 leguminous arborescent plants	<ul style="list-style-type: none"> <li>★ Conducting trials to substitute POPs pesticides with plant extracts</li> </ul>	MOH Ministry of Scientific Research Ministry of Higher Education	<ul style="list-style-type: none"> <li>★ Substitution trials carried out</li> </ul>	2 years	460,000	Donors

### IV.9. Register of Specific Exemptions

The Republic of the Congo intends to undertake the measures listed in the table below for the register of specific exemptions in the implementation of the Stockholm Convention.

Action Plan: Register of Specific Exemptions						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Registering specific exemptions	<ul style="list-style-type: none"> <li>★ Organizing a stakeholder meeting in order to define selection criteria for chemical products that may be eligible for specific exemptions</li> </ul>	National expert	<ul style="list-style-type: none"> <li>★ Stakeholder meeting held</li> </ul>	Once per year	3,000	State budget
	<ul style="list-style-type: none"> <li>★ Conducting a workshop on determining inscription criteria</li> </ul>	National experts	<ul style="list-style-type: none"> <li>★ Workshop conducted</li> </ul>	Once per year	5,000	State budget
	<ul style="list-style-type: none"> <li>★ Creation of a national center for</li> </ul>	National	<ul style="list-style-type: none"> <li>★ Center established</li> </ul>	6 months	20,000	Donors

Action Plan: Register of Specific Exemptions						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
	chemicals management	experts				
	★ Drafting protocols for notifying the Secretariat of the Convention	National experts	★ Protocols drafted	Continually	5,000	State budget
	★ Periodical review of the needs for specific exemptions	National experts	★ Review carried out	Once per year	2,000	State budget
	★ Defining procedures for identifying and selecting products for exemptions	National experts	★ Procedures defined	6 months	5,000	State budget
	★ Periodical review of the needs for continuing specific exemptions	National experts	★ Review carried out	Once per year	2,000	State budget

#### IV.10. Performance Evaluation and Reporting

The Republic of the Congo intends to undertake the measures listed in the table below for evaluating the performance of NIP implementation and reporting according to Articles 16 and 15 of the Stockholm Convention.

Action Plan: Performance Evaluation and Reporting						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
To evaluate the effectiveness of the implementation of the Convention in Congo	★ Develop an evaluation program	MEFE	★ Evaluation programme prepared	2 years	3,000	State budget
	★ Develop format for evaluation		★ Evaluation format developed			
	★ Develop national performance evaluation criteria		★ Criteria Developed			
To report on evaluation results	★ Preparation of evaluation report	MEFE	★ Evaluation report available	3 months	3,000	State budget
To report on measures taken to implement provisions of the Stockholm convention	★ List measures developed to implement provision of convention	MEFE	★ List of measures available	Every 2 years	10,000	State budget
	★ Develop reporting format in line with convention format		★ Reporting format developed			

Action Plan: Performance Evaluation and Reporting						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
To report on measures taken to reduce or eliminate releases from intentional production and use of annex A and B chemicals	<ul style="list-style-type: none"> <li>★ Taking legal/administrative measures taken to eliminate the production and use of Annex A chemicals with dates</li> <li>★ Taking measures to restrict the production and/or use of Annex B chemicals</li> </ul>	MEFE	★ Report available	Every 2 years	10,000	Donors
To report on progress in eliminating polychlorinated biphenyls (PCBs)	Provide report on: <ul style="list-style-type: none"> <li>★ Measures taken to eliminate the use of PCBs in equipment (e.g., transformers, capacitors or other receptacles containing liquid stocks) by 2025</li> <li>★ Measures taken to reduce exposures and risk and to control the use of PCBs</li> </ul>	MEFE	★ Report available	Every 2 years	10,000	Donors
To report on public information, awareness and education	<ul style="list-style-type: none"> <li>★ Provide report on measures taken to implement public information, awareness and education</li> </ul>	MEFE	★ Report available	Every 2 years	10,000	Donors
To report on research, development and monitoring	<ul style="list-style-type: none"> <li>★ Report on the measures taken to encourage research, development and monitoring of POPS</li> </ul>	MEFE	★ Report Available	Every 2 years	10,000	Donors

#### **IV.11. Action Plan: Resource Mobilization**

In order to identify and engage financial sources to facilitate the NIP implementation the Republic of the Congo will do comprehensive donor tracking, produce project proposals for funding and strive to convince donors of the feasibility and benefits of Liberia's NIP.

Action Plan: Resource Mobilization						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Draw from the national budget	★ Request the Government to pay its fair share towards the implementation of the Stockholm Convention	★ Government of the Republic of the Congo	USD 1,725,800 received for the NIP	5 years	0	
Create public-private sector partnerships	★ Ask private enterprises to help remediate POPs problems in agriculture and oil industry	★ Oil firms, SARIS	USD 550,000 received for the NIP	3 years	0	
Raise funds from donors	★ Develop convincing project proposals to attract funding	★ MEFE, POPs coordination NGOs	Project proposals developed and donor funds received	1 year	30,000	State budget and national private sector
Benefit from national sustainable development strategies	★ Synergies with other programs should be sought	★ MEFE, SAICM secretariat, UNEP chemicals	Synergies with SAICM, stockpile project exploited	1 year	25,000	GEF SAICM (QSP)
Cooperate through the secretariats of international conventions and donor/lender agencies	★ Find new sources through international networking	★ MEFE, focal points of POPs, PIC, Basel conventions and SAICM, UNITAR	New sources identified	1 year	60,000	MEFE and bilateral development cooperation programs

Action Plan: Resource Mobilization						
Objective	Action	Implementer	Performance Indicator	Duration	Cost USD	Source
Use bilateral and multilateral cooperation agreements	★ Extend existing development cooperation agreements to the POPs issue	<ul style="list-style-type: none"> <li>★ Ministry of Foreign Affairs, MEFE</li> <li>★ Secretariats of PIC and Basel conventions</li> </ul>	Existing development cooperation agreements extended to support the NIP	6 month	20,000	State budget

### IV.12. NIP Implementation Schedule

The overall implementation schedule of the NIP integrates the schedules of the different action plans, which are presented below.



IV.2. Action Plan: Public Information, Awareness and Education				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Design training programs for environmental education including POPs and elaborate the didactic materials				
Training of teachers on the implementation of environmental education programs with regards to POPs in 1,600 secondary school with about 750,000 students				
Information and awareness raising of 70% of students of primary schools, high schools and colleges (about 525,000) on environmental and POPs issues by extracurricular environmental education activities				
Information and awareness raising of the students of the M. Ngouabi University on POPs issues				
Information and awareness raising of horticulturists, foresters, SNE agents, customs officers, journalists, local elected representatives, NGOs, environmental associations, religious congregations, and business persons on POPs impacts on health and environment and on the use of alternatives				
Training of trainers for implementing the awareness program for horticulturists, foresters, SNE agents, customs officers, journalists, local elected representatives, NGOs, environmental associations, religious congregations, and business persons on POPs impacts on health and environment				
Information and awareness raising of target groups in the general public concerned by the preceding objectives with regard to POPs impacts on health and environment				
Promotion and dispersion of POPs information				

IV.3. Action Plan: Polychlorinated Biphenyls				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Updating the detailed inventory of PCBs and PCB contaminated equipment				
Reducing exposures and risks related to PCB use (making the workplace safer)				
Identifying, collecting and disposing of PCB contaminated equipment out of service				
Once every 3 years				

IV.4. Action Plan: Emissions from Non-intentional Production of PCDD/PCDF				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Reducing/eliminating UPOPs emissions from open air waste burning				
Reducing/eliminating UPOPs emissions from agricultural activities				
Reducing the quantity of biomass used for domestic heating and cooking				
Reducing/eliminating UPOPs emissions from burning of biomass at SARIS				
Reducing/eliminating UPOPs emissions from the transport sector: transition to unleaded gasoline and awareness raising				
Reducing/eliminating UPOPs emissions from the transport sector: follow-up and air quality control				

IV.4. Action Plan: Emissions from Non-intentional Production of PCDD/PCDF				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Reducing/eliminating UPOPs emissions from fish smoking				
Treatment of domestic and commercial wastewater in the urban centers				
Reducing/eliminating UPOPs emissions from medical waste incineration				
Tracking organochlorinated compounds from their importation to the treatment sites				
Improving the knowledge about UPOPs formation and sources				
Refining the UPOPs inventory to better assess impacts on health & environment				
Preparing and evaluating data for future inventories				
Enhancing the judicial framework and the knowledge about UPOPs on the part of stakeholders and the general public				

IV.5. Action Plan: Contaminated Sites				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Establish a national committee for contaminated sites management				

IV.5. Action Plan: Contaminated Sites				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Conduct training workshops on contaminated sites management				
Draft regulations and laws for contaminated sites management				
Take remediation measures for identified contaminated sites				

IV.6. Action Plan: Pesticides				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Reinforcement of the judicial framework for pesticides				
Updating of the pesticides inventory				
<ul style="list-style-type: none"> <li>Dispose of obsolete and POPs pesticides</li> </ul>				

IV.7. Action Plan: Importation, Use, Stocks and Waste of DDT				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Updating the inventory regarding importation, use and stocks of DDT				
Reducing the exposure of the population and the environment to DDT				

IV.7. Action Plan: Importation, Use, Stocks and Waste of DDT				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Reinforcing vector control capacities: Evaluation of DDT alternatives				
Reinforcing vector control capacities: Safe management and disposal of DDT stocks				
Reinforcing vector control capacities: Training of trainers				

IV.8. Action Plan: Research, Development and Monitoring				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Reinforcing the scientific and technical capacities of target agencies				
Studying the substitution of POPs pesticides with extracts from 2 leguminous arborescent plants				

IV.9. Register of Specific Exemptions				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Organizing a stakeholder meeting in order to define selection criteria for chemical products that may be eligible for specific exemptions				
			Once per year	
Conducting a workshop on determining inscription criteria				
			Once per year	
Creation of a national center for chemicals management				

IV.9. Register of Specific Exemptions				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Drafting protocols for notifying the Secretariat of the Convention				
Continually				
Periodical review of the needs for specific exemptions				
Once per year				
Defining procedures for identifying and selecting products for exemptions				
Periodical review of the needs for continuing specific exemptions				
Once per year				
IV.10. Performance Evaluation and Reporting				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Evaluate the effectiveness of the implementation of the Convention in Congo				
Report on evaluation results				
Report on measures taken to implement provisions of the Stockholm Convention				
Every 2 years				
Report on measures taken to reduce or eliminate releases from intentional production and use of annex A and B chemicals				
Every 2 years				
Report on progress in eliminating polychlorinated biphenyls (PCBs)				
Every 2 years				

IV.10. Performance Evaluation and Reporting				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Report on Public Information, Awareness and Education				
Every 2 years				
Report on Research, Development and Monitoring				
Every 2 years				

IV.11. Resource Mobilization				
1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Draw from the national budget				
	through 20			
Create public-private sector partnerships				
Raise funds from donors				
Benefit from national sustainable development strategies				
Cooperate through the secretariats of international conventions and donor/lender agencies				
Use bilateral and multilateral cooperation agreements				

## V. REQUIRED RESOURCES FOR THE IMPLEMENTATION OF THE STOCKHOLM CONVENTION

The resources, in particular financial and informational, needed for the implementation of the POPs Convention, apart from the human resources available from the concerned agencies and the experts and consultants to be recruited for specific tasks, are listed in the respective Action Plans. They constitute the essential budget estimate for the implementation of the Convention, as shown below.

**Table 33: Budget estimate for the implementation of the POPs Convention**

Item	Activity	Estimated USD
1	Defining a Regulatory and Institutional Framework for Governing the National POPs Policy	30,000
2	Public Information, Awareness and Education	1,031,600
3	Polychlorinated Biphenyls	2,110,000
4	Emissions from Non-intentional Production of PCDD/PCDF	636,000
5	Contaminated Sites	232,000
6	Pesticides	75,000
7	Importation, Use, Stocks and Waste of DDT	205,000
8	Research, Development and Monitoring	820,000
9	Register of Specific Exemptions	42,000
10	Performance Evaluation and Reporting	56,000
11	Resource Mobilization	135,000
<b>Total Estimated Budget</b>		<b>5,372,600</b>

## VI. SUPPORT ACTIVITIES

Notwithstanding the fact that according to Articles 9, 10 and 11 of the Convention activities such as

- Information exchange
- Public information, awareness and education
- Research, development and monitoring

are already represented as constituent elements of the sectoral action plans, these activities have to be considered as support to the implementation of the NIP.

In fact, information material on laws, policies, management strategies and impacts of toxic substances on human health and environment has to be distributed to the public by various means, including the Internet:

- Education and training programs (see 0) are aimed at informing the population and to influence individual behavior in the particular domains, where each citizen can contribute to the reduction or elimination of toxic waste (e.g., avoiding domestic waste burning)
- Appropriate research, development and monitoring activities, such as finding POPs substitutes and identifying potential POPs, should be encouraged or undertaken nationally and internationally
- International research programs should be supported within the frame of available resources
- Reinforcing the country's research capacities should be a permanent effort in order to satisfy the current requirements

## VII. OTHER COMMITMENTS

### VII.1. *Financial Assistance*

Article 13 of the Convention stipulates

Each Party undertakes to provide, within its capabilities, financial support and incentives in respect of those national activities that are intended to achieve the objective of this Convention in accordance with its national plans, priorities and programmes.

2. The developed country Parties shall provide new and additional financial resources to enable developing country Parties and Parties with economies in transition to meet the agreed full incremental costs of implementing measures which fulfill their obligations under this Convention as agreed between a recipient Party and an entity participating in the mechanism described in paragraph 6. Other Parties may also on a voluntary basis and in accordance with their capabilities provide such financial resources. Contributions from other sources should also be encouraged. The implementation of these commitments shall take into account the need for adequacy, predictability, the timely flow of funds and the importance of burden sharing among the contributing Parties.

3. Developed country Parties, and other Parties in accordance with their capabilities and in accordance with their national plans, priorities and programmes, may also provide and developing country Parties and Parties with economies in transition avail themselves of financial resources to assist in their implementation of this Convention through other bilateral, regional and multilateral sources or channels.4. The extent to which the developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention relating to financial resources, technical assistance and technology transfer. The fact that sustainable economic and social development and eradication of poverty are the first and overriding priorities of the developing country Parties will be taken fully into account, giving due consideration to the need for the protection of human health and the environment.

In accordance with Article 13 of the Convention, the Republic of the Congo as Party to the Convention is committed to provide, within its means, financial support and incentives for national activities aimed at achieving the national objective of the Convention.

### VII.2. *Technical Assistance*

Article 12 of the Convention stipulates:

1. The Parties recognize that rendering of timely and appropriate technical assistance in response to requests from developing country Parties and Parties with economies in transition is essential to the successful implementation of this Convention.

2. The Parties shall cooperate to provide timely and appropriate technical assistance to developing country Parties and Parties with economies in transition, to assist them, taking into account their particular needs, to develop and strengthen their capacity to implement their obligations under this Convention.3. In this regard, technical assistance to be provided by developed country Parties, and other Parties in accordance with their capabilities, shall include, as appropriate and as mutually agreed, technical assistance for capacity-building relating to implementation of the

obligations under this Convention. Further guidance in this regard shall be provided by the Conference of the Parties.

4. The Parties shall establish, as appropriate, arrangements for the purpose of providing technical assistance and promoting the transfer of technology to developing country Parties and Parties with economies in transition relating to the implementation of this Convention. These arrangements shall include regional and subregional centres for capacity-building and transfer of technology to assist developing country Parties and Parties with economies in transition to fulfill their obligations under this Convention. Further guidance in this regard shall be provided by the Conference of the Parties.

5. The Parties shall, in the context of this Article, take full account of the specific needs and special situation of least developed countries and small island developing states in their actions with regard to technical assistance.

In order to fulfill its obligations towards the Convention, the Republic of the Congo is committed to:

- Cooperate to receive appropriate technical assistance at the right time
- Develop and reinforce its resources

### **VII.3. Reporting**

According to Article 15 of the Convention,

1. Each Party shall report to the Conference of the Parties on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures in meeting the objectives of the Convention.

2. 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.

3. Such reporting shall be at periodic intervals and in a format to be decided by the Conference of the Parties at its first meeting.

In this regard, the Republic of the Congo has already reported the following conducted activities:

- Compiling a pesticides inventory
- Compiling a PCB and PCB contaminated equipments inventory
- Compiling a contaminated sites inventory
- Assessment of POPs impacts on health and environment
- Assessment of the capacities of infrastructures and institutions
- Assessment of socio-economic consequences of use and reduction of POPs

#### ***VII.4. Effectiveness Evaluation***

Since the Republic of the Congo is a developing Party state and does not have the necessary technical and financial resources for the evaluation of the effectiveness of measures envisaged in each sectoral action plan during their implementation, it is committed to proceed with this evaluation in cooperation with others, as stipulated in paragraph VII.2.

#### ***VII.5. Listing of Chemicals in Annexes A, B and C***

Article 8 of the Convention describes a procedure for future listing of POPs.

In accordance with paragraph 1 of Article 8, the Republic of the Congo may submit a proposal to the Secretariat for listing a chemical in Annexes A, B and/or C. In developing a proposal, the country may be assisted by other Parties and/or by the Secretariat.

## **CONCLUSION**

The ultimate objective of the NIP is mastering the management of POPs. To reach this objective, the Republic of the Congo is committed to:

- Implementing the different priority actions as specified in the sectoral action plans described in Chapter IV
- As listed in Chapter VII

In observation of these commitments, the Republic of the Congo will be able to:

- Fundamentally respect its international obligations
- Protect the health of its population and its environment from the inherent impacts of POPs
- Consequently adapt its legal and institutional framework to the international context with regard to POPs

## **ANNEX I: PROJECT COORDINATION UNIT**

DIRECTION GENERALE DE L'ENVIRONNEMENT

B.P 958 BRAZZAVILLE CONGO

National Project Coordinator:

Ms. Marie Agathe MAKELOLA

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## ANNEX II: LIST OF STAKEHOLDERS

Name	Institution	Contact address and number
ABENA Ange Antoine	Faculté des Sciences de la Santé (UMNG)	Tel :5385546
ANDOKA Gaston	ADIE/CN	Tel. 666 31 55 BP : 2499
BASSOUMBA Jean Henri	Direction Générale de l'Industrie	Tel. 528 07 95 BP. 211
BOUYENA Edouard	Assemblée Nationale	Tel. 663 18 40
DIAMOUANGANA Jean	Groupement pour la Conservation Biodiversité pour le Développement	BP : 14098, Tel. 668 78 97 gecobide@yahoo.fr
DZON Pierre	Direction Générale de la Santé	Tel. 551 67 94
CINZI LIBOUNGA Romuald	Direction Générale de la Douane	
MOALI Jean	Faculté des Sciences UMNG	Tel. : 666 55 46
NGOMA Joseph	Ministère du Plan	Tel. 525 28 70
ONGAYOLO Jean Émile	Présidence de la République	Tel. 521 35 88
OPANGAULT Émile	Société Nationale d'Électricité	Tel. 551 93 13
OBAMBI Maurice	Direction Générale de l'Agriculture	Tel. 521 88 65 obambimaurice@yahoo.fr
SAMBA Jacques	UNICONGO	
TATHY Jean Pierre	Délégation Générale de la Recherche Scientifique et Technologique	Tel. 666 61 54 jptathy@yahoo.fr
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ELOMBILA Jean Claude	Direction Générale de l'Agriculture	Tel. 667 62 24
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AMPIEH Calvin	ONG « OCBE/Vert »	BP : 2912/Bzv Tel. 532 52 08 ampiehcalvin@yahoo.fr
BADILA Maurice	Ministère des Affaires Etrangères de la Coopération et de Francophonie	badilamaurice@yahoo.fr Tel. 666 70 42 BP : 3070
MIKANO Fayette	Mairie	
MASSAMBA Prosper	ONG/CAPITAL	Tel. 663 10 08

## **ANNEX III: LIST OF THE TASK TEAM MEMBERS**

### **TASK TEAM ON LEGAL AND INSTITUTIONAL ASPECTS**

Gabriel Valère ETEKA –YEMET, Doctor of Law  
Ministry of Foreign Affairs and Cooperation

Jean Martin NKOUNKOU MIENANDI, Jurist

### **TASK TEAM ON POPs PESTICIDES**

Jean DIAMOUANGANA, Master of Research in Plant Ecology  
Groupement pour la Conservation de la Biodiversité et le Développement (ONG) ;

Adolphe NGOUISSANI, Rural Development Engineer

### **TASK TEAM ON BY-PRODUCTS**

Eugene LOUBAKI, Doctor of Applied Chemistry and Industrial Processes

Théophile NTIAKOULOU LOULEBO, Water and Forest Engineer

### **TASK TEAM ON PCBs**

Albert YOKA, Doctor of Culture Protection

### **TASK TEAM ON CONTAMINATED SITES**

Japhet Jocelyn NGANGUI, Doctor of Geology

Gaspard LEMBE, Water and Forest Engineer

### **TASK TEAM ON HEALTH AND ENVIRONMENTAL IMPACT OF POPs**

Ange Antoine ABENA, Doctor of Biology, Dean of the Medical Faculty

Pascal TALANI, Physician

## **ANNEX IV: MEETINGS WITH STAKEHOLDERS AND THE GENERAL PUBLIC**

The stakeholders and the general public were regularly involved by the project coordinator in necessary steps of conducted activities. Thus, these two partner categories participated in the following official meetings:

- Inception workshop of the project “Enabling Activities for the Development of a National Implementation Plan (NIP) of the Stockholm Convention”, Brazzaville, 7 January 2003
- Training workshop on initial inventories, Brazzaville, 14 - 15 January 2004
- Validation workshop for the results of the initial POPs inventories, Brazzaville, 7 – 8 July 2004
- Training workshop for elaborating the NIP of the Stockholm Convention on POPs, Brazzaville, 6 – 13 September 2004

## **ANNEX V: EDICT NO. 3986/MIME/DGE**

With regard to creation, organization and function of the Steering Committee of the Project Enabling Activities for the Development of a National Implementation Plan (NIP) of the Stockholm Convention

The Ministry of Mining Industry and Environment

In view of the Constitution;

In view of Law no. 003/91 du 12 April 1991 on the Protection of the Environment;

In view of Decree no. 98-148 of 12 May 1998, governing the attribution and organization of the General Directorate of the Environment;

In view of both the Decree no. 99-1 of 12 January 1999 and the Decree no. 2001-219 of 8 May 2001, governing the nomination of government members;

In view of Decree no. 99-206 of 31 October 1999, governing the attribution and organization of the Ministry of Mining Industry and Environment;

In view of Decree no. 82-072 of 1982, governing the creation of the Superior Council of Environment;

In view of Decree no. 99-149 of 23 August 1999, governing the organization and function of the Fund for Protection of the Environment;

In view of the Project Document of the project Enabling Activities for the Development of a National Implementation Plan (NIP) of the Stockholm Convention, signed by the Government of the Republic of the Congo on 11 September 2001.

### **EDICT**

**Article 1:** A Project Steering Committee for formulating a national action plan on persistent organic pollutants is created within the Directorate General of Environment.

**Article 2:** The Steering Committee, as the authority for orientation and supervision of the execution of the project Enabling Activities for the Development of a National Implementation Plan (NIP) of the Stockholm Convention, is composed as follows:

- President: the Minister of Environment or his/her Representative
- 1st Vice President: the Director General of Environment
- 2nd Vice President: the Director General of Agriculture
- Secretary: the National Project Coordinator
- Members:
  - one representative of the Presidency of the Republic
  - one representative of the Ministry of Water Resources

- one representative of the National Electricity Company (SNE)
- one representative of the Ministry of Health
- one representative of the Ministry of Agriculture

## **MEMORANDUM**

In accordance with the dispositions of Article 5 of Edict no. 3986 MIME/DGE, governing the creation, organization and function of the Steering Committee of the project Enabling Activities for the Development of a National Implementation Plan (NIP) of the Stockholm Convention on Persistent Organic Pollutants, a Steering Committee has been established, which is composed as follows:

- President: the Minister of Forest Economy and Environment of his Representative
- 1st Vice President: the Director General of Environment
- 2nd Vice President: the Director General of Agriculture
- Secretary: the National Project Coordinator
- Members:
  - Macaire NZOMONO, Presidency of the Republic
  - François YOULASSANI, Ministry of Mines, Energy and Water Resources
  - Emile OPANGAUNT, National Electricity Company (SNE)
  - Pierre DZON, Ministry of Health
  - Maurice OBAMBI, Ministry of Agriculture
  - Jean Henri BASSOUMBA, Ministry of Industry
  - Joseph NGOMA, Directorate General of Statistics
  - Romuald LIBOUNGA CINZI, Directorate General of Customs
  - Jean MOALI, Faculty of Sciences, Marien Ngouabi University
  - Ange Antoine ABENA, Faculty of Medicine
  - Jean Pierre TATHY, Directorate General of Scientific and Technological Research
  - Gaston ANDOKA, National Management and Coordination Unit, Regional Program for Environmental Information Management
  - Jacques SAMBA, UNICONGO
  - Edouard BOUENA, National Assembly
  - Jean DIAMOUANGANA, Group for Conservation of Biodiversity and Development (GECOBILE)

This Memorandum takes effect with the date of signature

Brazzaville, 14 August 2003

The Minister of Forest Economy and Environment

Henri DJOMBO

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UMNG/FS	1
DGRST	1
UNGC/PRGIE	1
UNICONGO	1
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## **ANNEX VI: ELEMENTS OF CHEMICAL PRODUCTS ASSESSMENT**

The Republic of the Congo does not manufacture or formulate chemical products. Nevertheless, in awareness of the fact that chemical products and POPs in particular pose a grave menace to health and environment, the Congolese Government is committed to make reducing or eliminating the chemical substances inscribed in Annexes A and B of the Stockholm Convention its priority in the frame of its greater policy orientation towards the Millennium Development goals. Based on the preceding and also on the Declaration of Intent of the Republic of the Congo, the elements of chemical products assessment are defined by the strategies and measures contained in the different action plans for the implementation of the Stockholm Convention on POPs. Thus, the strategies have to converge at this time in:

- Monitoring importation and control of use
- Raising awareness of decision makers and users
- Equipping the concerned institutions with means for identification and intervention according to the written rules

## **ANNEX VII: EXPLANATIONS TO PERTINENT INTERNATIONAL AND REGIONAL TREATIES**

Since the Conference in Rio de Janeiro in 1992 and in application of Agenda 21, the Republic of the Congo has become Party to several pertinent conventions. This annex refers to those of relevance for the application of the Stockholm Convention

### **Convention on Biological Diversity**

The Government of the Republic of the Congo, through its Ministry of Environment, has formulated a National Strategy and Action Plan (SNPA-DB) for the Implementation of the Convention on Biological Diversity.

### **United Nations Framework Convention on Climate Change**

By ratifying the United Nations Framework Convention on Climate Change in June 1996, the Republic of the Congo has committed itself to present its initial communication to the Conference of Parties since March 2000.

This communication has contributed to adopting strategies aimed at identifying emission sources of greenhouse gases, evaluate their impact on the climate and implement effective countermeasures, in order to achieve the ultimate objective of the Convention, which is to reduce greenhouse gas emissions to the atmosphere to a level that prevents any dangerous anthropogenic disturbance of the terrestrial climate system.

The Republic of the Congo, like all Parties, has committed itself to;

- Define national strategies for adopting solutions for the impact of eventual climate change on ecosystems
- Propose measures for adapting these ecosystems by elaborating and implementing appropriate integrated plans for
  - Sustainable management of coastal zones, water resources and agricultural resources
  - Protection and restoration of zones subjected to drought, desertification or floods

### **Cartagena Protocol on Biosafety**

The Cartagena Protocol on Biosafety, as compared to the Convention on Biological Diversity, was adopted in January 2000, in view of contributing to and assuring an adequate degree of protection for the transfer, manipulation, and safe use of genetically modified living organisms, which might have adverse impacts on conservation and sustainable exploitation of biodiversity, considering equally risks to human health, by focusing more accurately on transboundary movements.

During November 2000 the 16<sup>th</sup> Meeting of the GEF Council approved the initial biosafety strategy, in order to assist eligible countries in preparing for the entering into force of the Cartagena Protocol on Biosafety.

During this meeting the Council approved the national project, which aims at helping develop its own national biosafety framework, and which is in congruence with the objectives with the

UNEP-GEF project for the development of national biosafety frameworks, such as approved by the 16<sup>th</sup> GEF Council Meeting in November 2000.

The envisaged objective of each national project is the functionality of the national safety structure at the end of the project, namely after three years.

This means that at the end of the project each country must have:

- A viable and transparent regulatory framework, which corresponds to the national needs and conforms to the Cartagena Protocol and other international third party commitments
- Exploitation systems for:

Management of procedures or of authorization requests (in particular for systems related to administrative procedures, risk management and decision making)

- Application and control
- Public awareness and participation

The Republic of the Congo is currently proceeding to the establishment of a regulatory framework. For this purpose the current state of biodiversity is being determined.

The implementation of the Stockholm Convention will benefit from a favorable institutional framework and environment for applying different measures to reduce or eliminate POPs use:

- The Stockholm Convention on Persistent Organic Pollutants, subject to this document
- The Rotterdam Convention on Prior Informed Consent, which applies in case that certain dangerous chemicals or pesticides are internationally traded
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal