

République du Cameroun

Paix ó Travail ó Patrie

Republic of Cameroon

Peace ó Work - Fatherland

Ministère de l'Environnement,
de la Protection de la Nature et
du Développement Durable



Ministry of Environment, Protection
of Nature and Sustainable
Development

**Revised and Updated National Implementation Plan (NIP) for the
Stockholm Convention on Persistent Organic Pollutants in
Cameroon**



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET



May 2016

TABLE OF CONTENTS

EXECUTIVE SUMMARY	12
RÉSUMÉ ANALYTIQUE.....	16
CHAPTER 1: INTRODUCTION.....	20
1.1. THE INITIAL NIP	20
1.1.2. Institutional and legal measures	22
1.1.3. Action plan of POP pesticides.....	22
1.1.4. Action plan of elimination of PCB	23
1.1.5. Action plan for the reduction of unintentional POP releases	23
1.2. PROGRESS MADE IN THE IMPLEMENTATION OF THE 2012 NIP.....	24
1.2.1. Legal and institutional measures	24
1.2.2. Elimination of POP pesticides.....	24
1.2.3. Elimination of PCBs.....	24
1.2.4. Reduction of unintentional release of POPs.....	24
CHAPTER 2: BASELINE DATA ON CAMEROON	27
2.1. DESCRIPTION OF THE NATIONAL SITUATION	27
2.1.1. Political and administrative organization.....	27
2.1.2. Demographic context.....	29
2.1.3. Economic situation	29
2.1.4. Synthesis of the socio - economic data of Cameroon.....	30
2.2. LEGAL AND INSTITUTIONAL FRAMEWORK.....	31
2.2.1. Overall picture of the situation of the environment and POPs in Cameroon	31
2.2.3. International obligations and commitments to take into account	37
2.3. METHODOLOGY OF CONDUCTING INVENTORY	39
2.3.1 Step 1: Planning of the inventory	40
2.3.2 Step 2: Data collection.....	40
2.3.3 Step 3: Compilation of data from key sectors	41
2.3.4. Step 4: Management and evaluation of data	41
2.4. SITUATION OF NEW POPs IN CAMEROON	41
2.4.1. POP pesticides.....	41
2.4.3. Perfluorooctane sulphonic acid (PFOS), its salts, and perfluorooctane sulphonyl fluoride	46
2.4.4. Review of dioxins and furans inventory	50
2.4.5. Existing programmes for monitoring releases and incidences on the environment and human health	54
2.4.6. Current situation of target groups as regards information, awareness and education.....	56

2.4.7. Relevant activities of non-public sector stakeholders.....	57
2.4.8. Technical structures required for evaluations, measurements and analyses, management and research and development of POPs.....	57
2.4.9. Census of populations or affected areas, gravity of threats on public health and quality of the environment í ...	57
2.4.10. System of evaluation and regulation of commercialized chemicals	57
2.5 MEASURES TO REDUCE OR ELIMINATE PRODUCTION, USE, IMPORT AND EXPORT OF POP RELEASES	58
2.5.1. Prohibition or elimination of production and use of chemicals listed in Annex A.....	58
2.5.2. Limitations of production, import, export and use of chemicals listed in Annex B	59
2.5.3. Imposing restrictions on import and export of new persistent organic pollutants.....	60
2.5.4. Prevention of the production and use of chemicals with characteristics of persistent organic pollutants í ...	60
Chapter 3: STRATEGY AND NATIONAL IMPLEMENTATION ACTION PLANS.....	61
3.1. DECLARATION OF INTENT.....	62
3.2. IMPLEMENTATION STRATEGY	62
3.2.1. Objectives of the strategy.....	62
3.2.2. Guidelines of the strategy	63
3.2.3. Implementation mechanisms.....	63
3.3. ACTION PLAN	64
3.3.1. National priorities as regards management of new POPs	64
3.3.2. Intervening institutions	66
3.3.3. Action plan, management of pesticides stockpile listed in Annex A.....	71
3.3.4. Action plan relating to the elimination of wastes from articles containing c-pentaBDE and/or c-OBDE and í ...	73
3.3.5 Action Plan for Perfluorooctane Sulfonic Acid (PFOS, Annex B)	80
3.3.6. ACTION PLAN FOR THE REDUCTION OF UNINTENTIONAL POP RELEASES.....	81
3.3.7. Education, training and awareness	89
3.3.8. Calendar of implementation and review of strategies.....	89
3.3.9. Identification and management of contaminated sites.....	90
3.3.10. Public information, awareness and education	90
3.3.11. Research-development and monitoring	90
3.3.12. Technical assistance.....	91
3.3.13. Financial resources and funding mechanisms	91
3.3.14. Communication of information (Reporting)	91
GENERAL CONCLUSION.....	92
Bibliography.....	94

Annex 1: LIST OF POPS LISTED IN THE CONVENTION ANNEXES IN 2015	96
Annex 2: Requirements of the Convention	98
Annex 3: OVERVIEW OF NEW PERSISTENT ORGANIC POLLUTANTS TAKEN INTO ACCOUNT IN THIS UPDATE ^[2]	102
Annex 4: LIST OF STRUCTURES INVESTIGATED WITHIN THE FRAMEWORK OF THE INVENTORY.....	105

LIST OF TABLES

Table 1 : Situation of PCBs in Cameroon 2011	21
Table 2: Evolution of the population (in million) of Cameroon per sex.....	29
Table 3 : below gives the synthesis of the socio-economic data of Cameroon	30
Table 4: Regulatory situation of POPs in Cameroon.....	32
Table 5 : Missions of sector Ministries intervening in the environment sector.....	34
Table 6: Inter-ministerial committees and institutions working in the area of environment.....	36
Table 7 : Conventions, Agreements, Protocols ratified by Cameroon.....	37
Table 8 : Previous use of c-PentaBDE in polymers/resines, applications and articles	43
Table 9 : Fields of application of c-OctaBDE in polymers/materials and products	43
Table 10 : Global assessment of POP PBDE (kg) in Cameroon	45
Table 11 : List of articles and products likely to contain PFOS imported in Cameroon in 2014.....	46
Table 12 : Inventory of PFOS and related products in the articles imported in Cameroon in 2014.....	47
Table 13: Inventory of PFOS in the articles in stockpile or in waste	49
Table 14 : Categories and subcategories of sources of PCDD/PCDF releases in Cameroon.....	50
Table 15 : Dioxin and furan emissions in Cameroon in gTEQ per annum	52
Table 16 : Update of the calculation of dioxins and furans releases in 2009 using the version 2013 Toolkit.....	54
Table 17 : Best and bad practices observed in the field	56
Table 18 : Overview of legal instruments for the management of chemicals per stage of life cycle.....	60
Table 19 : Coordination mechanism of chemical management in Cameroon.....	66
Table 20 : Action plan for enhancement of the institutional and legal framework and awareness	68
Table 21 : Action plan for the elimination, monitoring of sites contaminated by POP pesticides (list 2004) maintained	72
Table 22 : Action plan for the elimination, prohibition and elimination of waste containing POP PBDE and other flame retardant POPs	77
Table 23 : Action plan for the elimination of articles, products and waste containing PFOS in Cameroon	80
Table 24 : Text contributing to the reduction of emissions and releases of unintentional POPs.....	82
Table 25 : Action plan for the reduction of involuntary emissions of dioxins and furans	86

LIST OF FIGURES

Figure 1 Storage warehouse of transformers with PCB in Ngouso (Yaounde)	25
Figure 2: Administrative map of Cameroon (Sources: NIP Cameroon (2012)).....	28
Figure 3: Global chart of the institutional organization of environmental management in Cameroon (source: MINEP, report PNGE 2012).....	33
Figure 4: Overview of the process of developing the national inventory of new POPs	40
Figure 5: Quantity of dioxins and furans per area of emission or release	53
Figure 6: Emission of dioxins and furans in the air per source.....	53
Figure 7 (a) Warehouse KR2 in Edéa before rehabilitation (NIP, 2012) (b) after rehabilitation as Infrastructure for Temporary Storage pending their elimination.....	55
Figure 8 Flow chart of the NIP implementation	64
Figure 9 Overview of the validation workshop of action plans	65
Figure 10 Family photograph of participants at the final validation workshop of the NIP.....	68
Figure 11 Institutional organization for the sound management of POP PBDE and other flame retardant POPs.....	74
Figure 12 Composting of household waste in Dschang	84

LIST OF ACRONYMS

- ADC:** Aéroport du Cameroun
- Aes-sonel:** National Electricity Company
- AFD:** French Development Agency
- ALUCAM:** Cameroon Aluminium Company
- ANOR:** Standards and Quality Agency
- APCS:** Air Pollution Control System
- ABS:** Acrylonitrile butadiene styrene
- ADB:** African Development Bank
- W.B:** The World Bank
- BUCREP:** Central Office for the Census and Survey of Populations
- C.C.C:** Chemical Complex of Cameroon
- CAMAIR:** Cameroon Airlines
- CAMAIRCO:** Cameroon Airlines Corporation
- CAMRAIL:** Cameroon Railway Company
- CAMTEL:** Cameroon Telecommunications
- CAMWATER:** Cameroon Water Utilities
- CAS:** Chemical Abstract Service
- CAWFHI:** Central African World Forest Heritage Initiative
- CDC:** Cameroon Development Corporation
- CEFDHAC:** Conference on Ecosystems of Dense and Humid Forests of Africa
- CEMAC:** Commission of the Economic and Monetary Community of Central Africa
- CHOCOCAM:** Chocolate factory of Cameroon
- CIE:** Inter-ministerial Committee of Environment
- CIMENCAM:** Cement factories of Cameroon
- CIS/LCD:** Inter-ministerial Committee for the Follow-up of the Fight against Desertification
- CITES:** Convention on International Trade in Endangered flora and fauna Species
- CN:** National Coordinator
- CNC:** National Coordination Committee
- CNE:** National Water Committee
- CNHP:** National Commission of Pesticides Registration
- CNPS:** National Social Insurance Fund
- COMIFAC:** Conference of Ministers of Central Africa Forests

COP: Conference of the Parties
CPC: Centre Pasteur of Cameroon
CRE: Regional Council of Environment
CSE: Higher Council of Water
CTE: Cameroon Tee Estate
D&F: Dioxins and furans
DASRI: Waste from Activities of Infectious Risk related Health Care
DDT: Dichlorodiphényltrichloroéthane
DSDSR: Document for Rural Sector Development Strategy
GESP: Growth and Employment Strategy Paper
EDC: Electricity Development Corporation
EPI: Individual Protection Equipment
FAO: Food and Agricultural Organization
GEF: Global Environment Facility
FFEM: French Fund for Global Environment
IMF: International Monetary Fund
GEF: Global Environment Facility
gTEQ: Gram Toxic Equivalent
HAP: Hydrocarbons Aromatic Polycyclic
HCB: Hexachlorobenzene
HCH: Hexachlorocyclohexane
IEC: Information, Education, Communication
IRAD: Institute of Agricultural Research for Development
ISO: International Standardization Organization
I-TEF: International Toxicity Equivalency Factor
LASPEE: Laboratory for Soil, Plant, Manure and Water Analysis
MIKE: Monitoring Illegal Killing of Elephants
MINADER: Ministry of Agriculture and Rural Development
MINCOM: Ministry of Communication
MINDAF: Ministry of State Property and Land Tenure
MINEE: Ministry of Water Resources and Energy
MINFOF: Ministry of Forestry and Wildlife
MINEPAT: Ministry of the Economy, Planning and Regional Development

MINEPDED: Ministry of Environment, Protection of Nature and Sustainable Development
MINEPIA: Ministry of Livestock, Fisheries and Animal Industries
MINESUP: Ministry of Higher Education
MINFI: Ministry of Finances
MINIMIDT: Ministry of Mines, Industries and Technological Development
MINRESI: Ministry of Scientific Research and Innovation
MINREX: Ministry of External Relations
MINSANTE: Ministry of Public Health
MINTP: Ministry Public Works
MINTRANS: Ministry of Transport
MINTSS: Ministry of Labour and Social Security
MJ: Mega jules or million jules
MPE: Best Environmental Practices
MTD: Best Techniques Available
NIP: National Implementation Plan for Stockholm Convention
OGD: General ORTEC of Depollution
ILO: International Labour Organization
WTO: World Trade Organization
MDGs: Millennium Development Goals
WHO: World Health Organization
NGO: Non-Governmental Organization
UNO: United Nations
UNIDO: United Nations Industrial Development Organization
P.A.D: Port Authority of Douala.
PA-PNGE: Support Programme to the National Environmental Management Plan
PAS: Regional Strategic Action Plan for environmental resources and biological diversity of ecosystems of the Congo Basin
PAU: Emergency Action Plan
PNGPOC: National Programme for the Management of Obsolete Pesticides and related waste
PBB: POLYBROMOBIPHENYL
BPC: Polychlorinated Biphenyls
PCB: Polychlorobiphényles
PCDD: Polychlorodibenzo-p-dioxane or dioxane polychlorinated para dibenzodioxins

PCDDs: Polychlorinated dibenzo - *p* dioxins polychlorinated dibenzofurans

PCDF: Polychlorodibenzofuranne or furan

PCP: Pentachlorophénol

GDP: Gross Domestic Product

PLASTICAM: Plastics of Cameroon

PNGE: National Environmental Management Plan

NIP: National Implementation Plan

UNDP: United Nations Development Programme

PNUE: United Nations Environment Programme

POP: Persistent Organic Pollutants

HIPCI: Highly Indebted Poor Country relief Initiative

PSFE: Forest& Environment Sector Programme

PVC: Polyvinyl chloride

REIC: Network for Exchange of Information on Chemicals

SAICM: Strategic Approach to International Chemicals Management

SCDM: Cameroon Metallurgy Company

SCDP: Cameroon Petroleum Depots Company

SIC Cocoa: Cocoa Industrial Company

SNH: National Hydrocarbons Corporation

SOCAFER: Cameroon Scrap Iron Company

SOCAVER: Cameroon Glass Company

SONARA: National Refinery Corporation

SOSUCAM: Sugar Company of Cameroon

SOWEDA: South West Development Authority

SOWEFCU: South West Farmers& Cooperative Union

TEF: Toxic Equivalence Factor

TEP: Tonne Equivalent in Petroleum

gTEQ: gram Toxic Equivalent

UE: European Union

UNEP: United Nations Environment Programme

PREFACE

The Stockholm Convention on Persistent Organic Pollutants (POPs) is a binding international treaty whose objective is to protect human health and the environment from harmful impacts of pollutants. It is subjected to ratification, acceptance or approval of member States and regional economic integration Organizations. The ratification of the aforementioned Convention, commits signatory parties, to combine their efforts in order to reduce, even eliminate these substances.

Cameroon ratified the Stockholm Convention on 26 May 2005 and in accordance with article 7.1.a. of the aforementioned Convention, a first National Implementation Plan (NIP) was developed and transmitted to the Secretariat of Convention in 2013.

In order to comply with its obligations, Cameroon brought updated its National Implementation Plan in a participatory manner, in accordance with article 7.1.c which stipulates that: **"each party shall review and update, as appropriate, its implementation plan on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties "**. This update of the National Implementation Plan became necessary following the listing of new Persistent Organic Pollutants. The updated National Plan takes into account the eleven new Persistent Organic Pollutants listed in 2009, 2011 and 2013, as well as Dioxins and Furans introduced following the review of the toolkit developed in 2013. This National Plan was developed on the basis of guidelines for the development of national implementation plans for the Stockholm Convention, and directives enacted by the United Nations Environment Programme (UNEP). It serves as a complete guide, and will be exploited as a technical reference document, by all stakeholders in the management of Persistent Organic Pollutants in Cameroon.

Cameroon resolutely undertakes to implement the National Implementation Plan, which will contribute to significantly restrict or to eradicate Persistent Organic Pollutants on the national territory. Through all the actions envisaged by the National Implementation Plan, as well as those prescribed by the Growth and Employment Strategy Paper, the government expresses its determination to implement the Stockholm Convention on persistent organic pollutants, and sustainably fight against the harmful effects of POPs on human health and the environment.

The development of this National Implementation Plan document could not have been carried out successfully without the co-operation and support of all stakeholders of which the government, industrialists and the general public. We would like to express our gratitude to the Global Environment Facility (GEF) and the United Nations Environment Programme (UNEP) for their financial and technical support. My very high appreciation to the members of the National Coordination Committee for the update of the National Implementation Plan of the Stockholm Convention on POPs in Cameroon for their contributions, orientations and support in the elaboration of this document. My thanks also go to the entire technical team who worked within the framework of the elaboration of this document, to experts involved in the finalization phase.



HELE Pierre

EXECUTIVE SUMMARY

Cameroon signed the Stockholm Convention on Persistent Organic Pollutants (POPs) on 5 October 2001, ratified it on 26 May 2005 and the ratification instruments were submitted on 19 May 2009. This report is the first update of the National Implementation Plan (NIP) of the Convention, which was developed in December 2012 and transmitted to the Secretariat of the Convention in March 2013. This update became necessary following the listing of eleven new POPs in Annexes A, B and C of the Convention in 2009, 2011 and 2013, but also as a result of the review of the Dioxin and Furan inventory tool (2013Toolkit) of and other unintentional POPs. However, the 2015 inventory for the three new POPs (hexachlorobutadiene, pentachlorophenol and polychloronaphtalene) could not be carried out and it will be included in the next NIP update.

Inventories made in the course of this NIP update concerns the following POPs:

- ✓ The following POPs pesticides: Alpha hexachlorocyclohexane (alpha-HCH), Beta hexachlorocyclohexane (beta-HCH), Chlordecone, Pentachlorobenzene (PeCB), lindane (gamma-HCH), technical Endosulfan;
- ✓ Flame retardant chemicals: Hexabromobiphenyl (HBB), Hexabromodiphenyl ether (hexaBDE) and Heptabromodiphenyl ether (heptaBDE), Tetrabromodiphenyl ether (tetraBDE) and Pentabromodiphenyl ether (pentaBDE), Hexabromocyclododecane (HBCD);
- ✓ Industrial perfluorinated chemicals such as perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF);
- ✓ Unintentionally produced POPs from anthropogenic processes such as the burning of waste, the manufacture of some chemicals, transport, etc.

The main findings of the inventory are summarized below:

1) POPs pesticides concerned in this inventory have for many years now been subject to some legal provisions prohibiting their importation and use. They practically no longer subsist in Cameroon.

2) Given that flame retardants are substances that are usually incorporated in common raw materials such as plastic, artificial rubbers or various insulating materials, their inventory was made on the basis of an estimate of proportions of these substances in articles likely to contain them. This approach revealed that about 35 788 kg of flame retardant Pops were still in use in Cameroon by the end of 2015. These substances which are mainly made up of commercial PBDEs (PBDE and TBDE) and commercial OBDE (HpBDE and HxBDE), are contained in the carcasses of electrical or electronic equipment, in the waste of these articles and in old vehicle that are still running or in scrap conditions.

Meanwhile HBB probably does not exist anymore since it is no longer being manufactured since the 1970s.

The amounts of flame retardant HBCD used in the composition of insulating plates in the construction industry could not be estimated due to the lack of sufficient data and the lack of appropriate insulation standards applicable in Cameroon.

3) PFOS and their salts exist in Cameroon in fire-fighting foams (ports, airports, hydrocarbon stocks) but also in imported products and goods such as chemicals used in photo development, medical x-rays, in waterproofed textiles, treated carpets and some types of paper among others. The inventory carried out following the same principle as with flame retardants enabled the identification of a stock of 107,025 liters of synthetic fire-fighting foam likely to contain PFOS at the level of the *Cameroon Petroleum Storage Depot Corporation (SCDP)*, and estimated PFOS present in articles and products in circulation in Cameroon at between 122 and 171 tons.

4) Dioxins and Furans (D & F) are unintentionally produced in Cameroon through various human activities and industrial processes. The updated inventory of emissions and releases of D&F for 2014 baseline year, developed using the tool for identification and quantification of Dioxins and Furans releases and emissions (2013 Toolkit), showed that nine categories of emission sources of dioxins/furans exist in Cameroon, contributing to a total release of 256 g TEQ/year, representing an increase of emissions of 14 g TEQ/year compared to the level of emissions in 2009, calculated with the same tool.

This first review of the NIP was developed using a participatory approach that included the various government services involved in the management of POPs, national and international organizations (FAO, UNDP and UNEP), the civil society and the private sector.

The overall objective of the POPs elimination strategy aims to contribute to the fight against poverty and the promotion of sustainable development, by enhancing chemical safety, reducing threats posed by POPs to human health and the environment, thus keeping in line with the objectives of the Growth and Employment Strategy Paper (GESP) in force in Cameroon.

The specific objectives aim to eliminate articles, products and wastes containing POPs listed in Annexes A and B and reduce emissions of unintentionally produced POPs listed in Annex C of the Convention.

Cameroon's national priorities in eliminating and reducing the eleven new POPs include:

- ✓ The strengthening of the institutional and legal framework, communication and raising awareness of all stakeholders on the dangers of POPs and the reduction and elimination programs of these products;
- ✓ the disposal of POPs pesticides listed in Annex A of the Convention: Alpha-hexachlorocyclohexane (alpha-HCH), Beta hexachlorocyclohexane (beta-HCH), lindane (gamma-HCH), Chlordecone, in addition to those listed in the Convention in 2004;
- ✓ the collection, storage and final disposal of equipment, articles and wastes containing PBDEs and other POPs of the flame retardants category;
- ✓ the reduction of dioxins and furans emissions from six major categories of sources identified: uncontrolled combustion, dangerous waste incineration, production of ferrous and non-ferrous metals, manufacture of mineral products, production of electricity and heat, disposal/releases;
- ✓ the reduction of products, items and wastes containing POPs listed in Annex B of the Convention, including PFOS.

Based on the national priorities, five action plans were developed for the 2016-2020 period.

The first action plan deals with strengthening of the legal and institutional framework and the capacity of actors to sensitize the population on the dangers of POPs and risk related practices. Combined awareness actions during the implementation period will enable us reach all the stakeholders involved directly or indirectly in the management of POPs (government services, private operators, and the civil society) as well as a large section of rural and urban populations. The outcome of this action plan is that Cameroon would end up taking measures to ban the importation of products and articles containing the eleven new POPs listed between 2009 and 2013.

The action plan on pesticides containing POPs (2004 list) is already being implemented since August 2015 within the framework of a project co-financed by GEF, the Government of Cameroon and other donors. Additional actions planned within the framework of this NIP focus solely on monitoring the clean-up of contaminated sites and monitoring of the plan for disposal of stockpiles and waste.

Cameroon has a large stock of flame retardants classified as POPs which are found in articles in use and in waste. The actions planned in this NIP will contribute to the banning of importation of these articles, but also to the disposal of articles and waste containing these substances. During the 2016- 2020 period, budgeted actions in this NIP will enable the disposal of about 50% of wastes likely to contain PBDEs and this will take place in four regions harboring 63% of these wastes. Efforts will continue beyond this period for the complete disposal of waste containing POPs by 2035.

The action plan for the reduction of dioxins and furans emissions and other unintentional POPs will enable Cameroon to set up legislative, institutional, administrative and technical mechanisms to reduce releases of these toxic chemicals in the environment and hence their adverse effects on health. In order to attain each specific objective, short, medium and long term activities have been proposed.

The total budget of the action plan is **26.629 million USD**, representing **fourteen billion six hundred and forty six million (14,646,000,000)** CFA francs for the first five years. Negotiations will be entered into with key donors to help Cameroon carry out these action plans.

Action plan	Budget required in \$US	Possible source of financing	Duration
Action plan 1: strengthening institutional, legal framework, sensitization and communication	2 480 000	State of Cameroon, GEF and CEMAC, other partners	5 years
Action plan 2: elimination and monitoring of sites contaminated by POP pesticides (complement NIP 2012)	1 374 000	State of Cameroon, FAO, GEF, other partners	5 years
Action plan 3: elimination and prohibition of waste containing POP PBDE and other	10 680 000	State of Cameroon, WB, ADB, UNEP,	5 years

flame retardant POPs		other partners	
Action plan 4: reduction of the involuntary emissions of dioxins and furans	10 900 000	State of Cameroon, CTD, GEF, FAO, other partners	5 years
Action plan 5: elimination of articles, products and waste containing PFOS in Cameroon	1 195 000	State of Cameroon, GEF, UNEP, UNDP UNIDO, other partners	5 years
Total Cost NIP	26 629000		

The period of implementation of these plans for the activities evaluated in this NIP shall run from 2016 to 2020.

RÉSUMÉ ANALYTIQUE

Le Cameroun a signé la Convention de Stockholm sur les Polluants Organiques Persistants (POP) le 05 octobre 2001, l'a ratifié le 26 mai 2005 et a déposé les instruments de ratification le 19 mai 2009. Ce rapport est la première actualisation du Plan National de Mise en œuvre (PNM) de ladite Convention, qui a été élaboré en décembre 2012 et transmis au Secrétariat de la Convention en mars 2013. Cette mise à jour a été rendue nécessaire suite à l'inscription de onze nouveaux POP dans les annexes A, B et C de la Convention en 2009, 2011 et 2013, également à cause de la révision de l'outil d'inventaire (Toolkit de 2013) des dioxines et furannes et les autres POP non intentionnels. Toutefois, l'inventaire des trois nouveaux POP de 2015 (hexachlorobutadiène, pentachlorophénol et le polychloronaphtalène) n'a pas pu être réalisé, car le Cameroun n'a pas encore ratifié l'interdiction et de ce fait sera inclus dans la prochaine mise à jour du NIP.

Les inventaires effectués à l'occasion de la mise à jour de ce NIP ont concerné les POP suivants :

- ✓ Les pesticides POP suivants : Alpha-hexachlorocyclohexane (alpha-HCH), Bêta-hexachlorocyclohexane (bêta-HCH), Chlordécone, Pentachlorobenzène (PeCB), Lindane (gamma-HCH), Endosulfan technique ;
- ✓ Les substances utilisées comme retardateurs de flammes : Hexabromobiphényle (HBB), Hexabromodiphényléther (hexaBDE) et Heptabromodiphényléther (heptaBDE), Tétrabromodiphényléther (tétraBDE) et Pentabromodiphényléther (pentaBDE), Hexabromocyclododécane (HBCD) ;
- ✓ Les substances industrielles perfluorées telles que l'Acide perfluorooctane sulfonique (PFOS), ses sels et le fluorure de perfluorooctane sulfonyle (FPFOS) ;
- ✓ Les POP non produits intentionnellement mais qui sont rejetés au cours de processus anthropiques tels que les combustions de déchets, la fabrication de certains produits chimiques, le transport, etc.

Les principaux résultats de l'inventaire sont résumés ci-dessous :

1) Les pesticides POP concernés par cet inventaire font déjà l'objet depuis de nombreuses années de dispositions juridiques interdisant leur importation et leur utilisation. Il n'en subsiste pratiquement plus au Cameroun.

2) Les retardateurs de flammes étant généralement des substances incorporées à des matières premières communes comme le plastique, les caoutchoucs artificiels ou diverses matières isolantes, leur inventaire a été réalisé sur la base d'une estimation des proportions de ces substances dans les articles susceptibles d'en contenir. Cette approche a montré qu'il subsistait à fin 2015 au Cameroun environ 35 788 kg de POP retardateurs de flammes. Ces substances, essentiellement du PBDE commercial (PBDE et TBDE) et de l'OBDE commercial (HpBDE et HxBDE), sont contenues dans les carcasses de équipements électriques ou électroniques, dans les déchets de ces articles et dans les véhicules anciens en circulation ou à l'état de ferraille.

Le HBB quant à lui n'existe probablement plus vu qu'il n'est plus fabriqué depuis les années 1970.

Les quantités de HBCD, retardateur de flammes entrant dans la composition des plaques isolantes du secteur de la construction, n'ont pas pu être estimées faute de données suffisantes et faute de normes d'isolation applicables au Cameroun.

3) Les PFOS et leurs sels existent au Cameroun dans les mousses d'extinction des feux de nappes (ports, aéroports, stocks d'hydrocarbures) mais aussi dans les produits et articles importés tels que les substances de développement des photographies, des radios médicales, dans les textiles imperméabilisés, les moquettes traitées et certains types de papier entre autres. L'inventaire réalisé selon le même principe que pour les retardateurs de flammes a permis d'identifier un stock de 107025 litres de mousse synthétique anti-incendie pouvant contenir des PFOS au niveau de la société nationale des dépôts pétroliers (SCDP) et estimé les PFOS présents dans les articles et produits en circulation au Cameroun dans une fourchette variant entre 122 et 171 tonnes.

4) Les dioxines et furanes (D&F) sont involontairement produites au Cameroun à travers diverses activités humaines et procédés industriels. L'inventaire actualisé des émissions et rejets de D&F pour l'année de référence 2014, élaboré en utilisant l'outil d'identification et de quantification des rejets et émissions de dioxines et furanes (Toolkit version 2013), a montré l'existence au Cameroun de neuf catégories de sources d'émission de dioxines/furanes, contribuant à un rejet total de l'ordre de 256 g TEQ/an, soit une augmentation des émissions de l'ordre 14 g TEQ/an par rapport au niveau des émissions de 2009, calculées avec le même outil.

Cette première révision du PNM a été élaborée selon une approche participative ayant intégré les administrations impliquées dans la gestion des POP, des organisations nationales et internationales (le FAO, le PNUD et PNUE), la société civile et le secteur privé.

L'objectif global de la stratégie d'élimination des POP est de contribuer à la lutte contre la pauvreté et à la promotion du développement durable, par le renforcement de la sécurité chimique, la réduction des menaces causées par les POP sur la santé humaine et l'environnement, et ce, conformément aux objectifs du Document de Stratégie pour la Croissance et l'Emploi (DSCE) en vigueur au Cameroun.

Les objectifs spécifiques sont d'éliminer les articles, produits et déchets contenant les POP inscrits aux annexes A et B et de réduire les émissions des POP produits involontairement, inscrits l'annexe C de la Convention.

Les priorités nationales du Cameroun en matière d'élimination et de réduction des onze nouveaux POP sont :

- ✓ renforcement du cadre institutionnel, juridique, communication et sensibilisation du public et de toutes les parties prenantes sur les dangers des POP et les programmes de réduction et d'élimination de ces produits ;
- ✓ l'élimination des stocks de pesticides inscrits dans l'annexe A de la Convention : Alpha-hexachlorocyclohexane (alpha-HCH), Bêta-hexachlorocyclohexane (bêta-HCH), Lindane (gamma-HCH), Chlordécone, en plus de ceux inscrits dans la convention en 2004 ;

- ✓ la collecte, le stockage et l'élimination finale des équipements, articles et déchets contenant les PBDE et autres POP de la catégorie des retardateurs de flammes;
- ✓ la réduction des émissions des dioxines et furannes issues de six principales catégories de sources identifiées : combustion non contrôlée, incinération des déchets dangereux, production des métaux ferreux et non ferreux, fabrication des produits minéraux, production d'électricité et de chaleur, élimination/décharges ;
- ✓ la réduction des produits, articles et déchets contenant les POP inscrits à l'Annexe B de la Convention, notamment le PFOS.

Sur la base de ces priorités nationales, cinq plans d'action ont été élaborés pour la période 2016 à 2020.

Le premier plan d'action concerne le renforcement du cadre juridique et institutionnel, ainsi que la capacité des acteurs à sensibiliser les populations sur les dangers des POP et les pratiques à risque. Les actions de sensibilisation combinées permettront de toucher tous les acteurs impliqués de près ou de loin dans la gestion des POP (administration, opérateurs privés, société civile) ainsi qu'une large frange des populations rurales et urbaines pendant la période de mise en œuvre. À l'issue de ce plan d'action, le Cameroun aura pris des mesures en vue de l'interdiction des importations des produits et articles contenant les onze nouveaux POP inscrits entre 2009 et 2013.

Le plan d'action sur les pesticides contenant les POP (liste 2004) fait déjà l'objet d'une mise en œuvre depuis le mois d'août 2015 dans le cadre d'un projet cofinancé par le GEF, l'État du Cameroun et d'autres donateurs. Les actions complémentaires prévues dans le cadre du présent PNM portent uniquement sur le suivi de la dépollution des sites contaminés et le suivi du plan d'élimination des stocks et des déchets.

Le Cameroun dispose d'un stock important de retardateurs de flammes classés POP que l'on retrouve dans les articles en circulation et les déchets. Les actions prévues dans ce NIP contribueront à interdire l'importation de ces articles, mais également à éliminer les articles et déchets contenant ces substances. Pendant la période 2016 à 2020, les actions budgétisées dans le présent PNM permettront d'éliminer environ 50% de déchets susceptibles de contenir des PBDE et cela dans quatre régions qui détiennent 63% de ces déchets. Les efforts devront continuer au-delà de cette période en vue de l'élimination complète des déchets contenant ces POP à l'horizon 2035.

Le plan d'action de réduction des émissions des dioxines et furanes et des autres POP non intentionnels va permettre au Cameroun de mettre sur pied des dispositifs législatif, institutionnel, administratif et technique pour la réduction des rejets ces substances toxiques dans l'environnement et partant, ses effets néfastes sur la santé. Pour atteindre chaque objectif spécifique, des activités à court, moyen et long terme sont proposées.

Le budget total du plan d'action est de 26,629 millions de dollars américains soit vingt-neuf milliards cent huit millions (14,646 milliards)¹ de francs CFA pour les cinq premières années. Des tractations seront menées avec les principaux bailleurs de fonds pour aider le Cameroun à réaliser ces plans d'action.

Plan d'action	Budget requis en \$US	Source de financement possible	Durée
Plan d'action 1 : renforcement du cadre institutionnel, juridique, sensibilisation et communication	2 480 000	Etat du Cameroun, GEF et CEMAC, autres partenaires	5 ans
Plan d'action 2 : élimination et surveillance des sites contaminés par les pesticides POP (complément NIP 2012)	1 374 000	Etat du Cameroun, FAO, GEF, autres partenaires	5 ans
Plan d'action 3 : élimination et interdiction des déchets contenant les POP PBDE et autres POP retardateurs de flammes	10 680 000	Etat du Cameroun, BM, BAD, PNUE, autres partenaires	5 ans
Plan d'action 4 : réduction des émissions involontaires des dioxines et furanes	10 900 000	Etat du Cameroun, CTD, GEF, FAO, autres partenaires	5 ans
plan d'action 5 : élimination des articles, produits et déchets contenant du PFOS au Cameroun	1 195 000	Etat du Cameroun, GEF, PNUE, PNUD ONUDI, autres partenaires	5 ans
Coût Total NIP	26 629 000		

La période de mise en œuvre de ces plans pour les activités évaluées dans ce NIP est de 2016 à 2020.

¹ 1 US\$ = 550 CFAF

CHAPTER 1: INTRODUCTION

Cameroon is signatory to the Stockholm Convention on Persistent Organic Pollutants (POPs), an international agreement which entered into force on 17 May 2004. The main objective of the Stockholm Convention is to protect human health and the environment, by creating an institutional and legal framework that enables to combine efforts of the international community to eliminate or restrict persistent organic pollutants from our environment.

The chemicals known as Persistent Organic Pollutants are strong pesticides or industrial products. Some of these pollutants are also released involuntarily in by-products of combustion or by-products of industrial processes. They are characterized by the following four properties: i) they are highly toxic, ii) they persist for years or even for tens of years before breaking up into less dangerous substances, iii) they can be transferred over long distances by atmospheric movements and marine currents, iv) they accumulate in fatty tissues.

The Convention classifies persistent pollutants in three categories listed in annexes A, B and C. Depending on the category to which they belong, there are measures which respectively aim to prohibit their manufacture and use, reduce their use and finally take measures to reduce the involuntary release in the environment.

Initially, the Convention targeted twelve particularly toxic POPs. Eleven new substances of this type were added to annexes A, B and C of the Convention in 2009, 2011 and 2013 (see the list CAS of these POPs in annex 1). These new substances are the subject of this NIP update in accordance with article 7.1.c. of the convention which stipulates that "each party shall review and update, as appropriate, its implementation plan on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties".

1.1. THE INITIAL NIP

In order to meet its obligations under the Stockholm Convention, Cameroon developed its National Implementation Plan in 2012. In January 2013, Cameroon transmitted the aforementioned NIP to the Secretariat of the Stockholm Convention, relating to the elimination and reduction of 12 substances listed in annexes A, B and C in 2004.

É **Synthesis of the initial NIP**

Cameroon did not await for the signing and ratification of the of Stockholm Convention to decide at the regulatory level on the use or prohibition of some pollutants, in particular POP pesticides, the regulation of which was established within the framework of the implementation of the FAO Code of conduct on the use of the pesticides. In addition to POP pesticides, PCBs were prohibited from importation in 2011. Moreover, in 2012, a Decree to regulate the management, transport, sorting, recycling and final disposal of waste was signed. This Decree was followed by Orders which specify inter alia:

- É the management of dangerous and/or toxic industrial waste;
- É the management of medical and pharmaceutical waste;
- É the use of non-biodegradable packaging, of which light plastic which is prohibited;
- É the management of electric and electronic equipment and waste disposal resulting from their use.

- É the application of these new measures will have the induced effect of reducing unintentional release of dioxins and furans coming from the burning of medical and household waste.
- É At the institutional level, the Ministry of Environment, Protection of Nature and Sustainable Development (MINEPDED) ensures leadership in the field of elimination and/or reduction of the use of POPs in Cameroon. Other Departments collaborated in the formulation of this NIP in particular: the Ministry of Agriculture and Rural Development, the Ministry of Public health, the Ministry of Livestock, Fisheries and Animal Industries, the Ministry for Finances. The private sector and the civil society were also consulted and participated within the framework of deliberations of the National Coordination Committee.
- É The inventory carried out in Cameroon in 2012 showed that just a small stockpile of 3 tons POP pesticides remaining (Lindane, Dieldrine, DDT and Endosulfan) including 151 kg of DDT counted as POP and obsolete pesticides, in the process of being eliminated in the project "elimination of POPs, obsolete pesticides and enhancement of the rational management of pesticides in Cameroon".

Some PCB equipment or containing PCB indexed in 2011 are still in use on the national territory. The Electricity Company (AES-SONEL) now ENEO is the principal owner of equipment, with 95% of stock inventoried. The inventory report revealed that 8866 potential matrices have been inventoried. They are set out as follows (Table n1):

Table 1 : Situation of PCBs in Cameroon 2011

Type of equipment	Unit	Quantity	Equipment With PCB	Mass contaminated equipment (tons)
Transformers	Unit	8745	2021	1600
Condensers	Unit	87		
Dielectric liquids	Drums of 200 L	14		
Dielectric oil	bottles	3		

To evaluate the level of PCB contamination in the electrical equipment, 342 pieces of equipment with mineral oil were analyzed, 23% were found to be contaminated with PCBs. On the basis of this result, this proportion was extrapolated to all electrical equipment in the country, and it was considered that 23% of equipment inventoried and manufactured with mineral oil are contaminated with PCB. There exist thus in Cameroon 1600 tons of apparatuses with mineral oil contaminated with PCB, and 200 tons of equipment with pure PCB are still in operation. ENEO transformers that are likely to contain PCB are centralized in warehouses fitted out by the aforementioned Company, and those held by other companies are stored in their respective structures while waiting for their elimination within the framework of project « *PCB reduction in Cameroon through the use of the local expertise and the development of national capacities* ».

Dioxins and furans (D&F) are involuntarily produced in Cameroon through various human activities and industrial processes. The result of the D&F inventory in Cameroon for the year under review 2009, conducted within the framework of the development of the NIP for the Stockholm Convention on POPs, revealed the presence of nine sources of emission of dioxins/furans in Cameroon, contributing to a total release of about 596 G TEQ/a. This result was obtained by using the Toolkit version 2005 whose emission factors for some categories of sources have been reviewed in the current version.

Among the nine categories of sources of unintentional emission of POPs identified in Cameroon in 2011, six are more alarming and require urgent actions on the short, average and long term. This involves in order of decreasing importance savanna and forest fires (54% of emissions), incineration of medical waste (18.3% of emissions), fires of dumps (15.2% of emissions) and uncontrolled combustion of domestic waste and agricultural residues (11% of emissions).

Socio-economic surveys carried out within the framework of the NIP (2012), showed that in Cameroon, the most exposed populations are those bordering industrial plantations which use POP pesticides. In the same vein, employees of structures using equipment contaminated with PCB are equally exposed.

Taking into consideration these results, the NIP proposed four action plans:

- É Strengthening the institutional and legal framework;
- É the action plan of management and elimination of POP pesticides, including DDT;
- É the action plan of management and elimination of PCB and equipment containing these products;
- É the action plan aiming at the reduction of POP emissions produced unintentionally: PCDD/PCDF, HCB and PCB.

1.1.2. Institutional and legal measures

The Action plan for strengthening the institutional and legal framework is cross cutting. It envisaged: (1) building or strengthening the capacity of administrations involved in the implementation of the plan, (2) support and accompany the administration in charge environment for the development of an institutional and legal framework that is enabling to the development of activities related to the protection of the health of populations and ecosystems, and the uncontrolled use of POPs.

1.1.3. Action plan of POP pesticides

The action plan relating to POP pesticides is aimed at the final elimination of existing stockpiles, in order to effectively protect human health and the environment against the harmful effects of POPs in general. Six activities were proposed to attain this objective:

- É information, communication and education of the public and actors in the management of POP pesticides;
- É identification, securing and ecologically rational elimination of stocks of obsolete pesticides and likely to contain POPs;
- É the rational management of empty pesticides packaging;

- É building technical capacity for the ecological management of POP pesticides and alternatives to conventional chemical pesticides products;
- É the programme for monitoring of the level of POP in the release and receptor environments and in the food chain;
- É the management and monitoring-evaluation of actions of the plan.

1.1.4. Action plan of elimination of PCB

The general objective of the PCB action plan was to gradually replace the electric equipment with PCBs (transformer, condenser etc.) with equipment with mineral by 2025, and eliminate the stockpile of PCB waste by 2028. Seven groups of activities were proposed to achieve these objectives, in addition to the cross-cutting activities of strengthening of the institutional and regulatory framework as regards the management of PCBs:

- É formation of a national experts group for the environmentally sound management of PCBs;
- É implementation of the system of traceability of PCBs;
- É completion of inventories on uncovered zones;
- É development of financial mechanisms applicable to the management of PCBs;
- É reduction of emissions and transfer of PCB which can have an impact on health and the environment;
- É elimination of PCB-containing equipment or contaminated with PCBs;
- É decontamination of polluted sites.

1.1.5. Action plan for the reduction of unintentional POP releases

The action plan for dioxins and furans was aimed at setting up institutional, legal and technical provisions for the reduction of their emissions in the environment. Four specific objectives were set out to achieve this goal:

- É reduce of forest and savanna fires;
- É reduce the burning of agricultural residues;
- É reduce the emissions of dioxins and furans related to the poor management of medical waste through the review of the national plan for the management of hospital waste inter alia;
- É reduce fires from dumps and uncontrolled combustion of household waste.

Alongside, actions relating to sensitization, information and education of target groups were proposed.

The total budget of this action plan was 29.05 million American dollars, including 1,088 million for the action plan on the strengthening of the institutional and regulatory framework, 7.2 million for the action plan for POP pesticides and DDT, 16 million for the PCB action plan, 3,46 million for the dioxin and furan plan and 1,2 million for the action plan relating to sensitization. The implementation period of the plan run from 2013 to 2018, for the first phase.

1.2.PROGRESS MADE IN THE IMPLEMENTATION OF THE 2012 NIP

1.2.1. Legal and institutional measures

Since the adoption of the first Implementation Plan in December 2012, Cameroon improved its system of inspection of establishments classified unhealthy and inconvenient which are the principal sources of dioxin and furan production, but also major users of articles and products containing POPs. To this end, Cameroon promulgated Decree No.2014/2379/PM of 20 August 2014 to lay down the conditions of coordination of inspections of establishments classified as dangerous, unhealthy or inconvenient, as well as Decree No.2013/0172/PM of 14 February 2013 to lay down the terms and conditions for conducting environmental impact assessments. This latter decree, which is a review of that of 2005 relating to the same subject, introduced new environmental management tools, in particular by introducing the environmental impact notice, which makes it possible to anticipate during the setting up of very small projects, to take into account the environmental impacts. Moreover, this decree makes it possible to deal with and reduce diffuse pollution of activities of the informal sector. The adoption by the Ministry for Water Resources and Energy of a new organizational chart which envisages a specialized department of renewable Energy and Energy Control.

1.2.2.Elimination of POP pesticides

Within the framework of the 2012 NIP, the project titled "elimination of POPs, obsolete pesticides and enhancement of the rational management of pesticides in Cameroon" started being implemented thanks to GEF financing. This project with a cost of 11,017374 million dollars, of which GEF contribution is 3 million dollar, was owned by the Ministry in charge of Environment with FAO as Executing Agency. It is in the process of execution since July 2015. It comprises four components: (1) rational elimination of POPs and other obsolete pesticides and restoration of contaminated sites, (2) management of empty pesticides packaging, (3) strengthening of institutional and regulatory framework of pesticides management and (4) promotion of alternatives to conventional pesticides and communication strategy.

1.2.3. Elimination of PCBs

On the basis of the PCB action plan, a project entitled "PCB reduction in Cameroon through the use of the local expertise and the development of national capacities" was studied and approved at the level of GEF; its implementation is imminent. It also comprises four components:

- É reinforcement of the institutional legislative framework for the sound management of PCBs in Cameroon;
- É strengthening of national capacities in the ecologically rational management and elimination of PCBs;
- É environmentally sound elimination of stockpiles of PCBs;
- É awareness of actors in the ecologically rational management of PCBs.

1.2.4. Reduction of unintentional release of POPs

Two greenhouse gas reduction projects thanks to collecting and burning of biogas were approved and recorded at the CDM Executive Committee. These two projects, although they fall within the framework of the fight against climate change, will have a direct effect on the reduction of unintentional emissions and releases of POPs. This concerns the dumps of

Yaounde and Douala. These projects made it possible to improve the practice of dumping in 12 cities within the competence of HYSACAM company and to thus reduce the practice of burning of waste in dumps in the country. They thus also fall within the scope of the Stockholm Convention by implementing best environmental practices.

Other activities were carried out by other administrations and private companies:

a) MINEE

- É Transformation in April 2015 of Thermal Power stations using heavy fuel of Logbaba (30 MW) and Bassa (20 MW) into power stations running with fuel and gas to reduce pollution (Dioxins and Furans);
- É Construction of a gas Power station in Kribi in 2013 of 216 MW, in order to reduce the operation time of existing power stations using heavy fuel;
- É Impounding of Lom Pangar which should, inter alia, contribute to reduction in the use of Power stations;

b) ALUCAM

Elimination in 2014 of 300 tons transformers with PCB by export for ecologically rational elimination abroad and their replacement by transformers with mineral oil.

c) ENEO

Construction of three provisional storage warehouses of transformers with PCB in Ngouso-Yaoundé, Bassa-Douala and Bafoussam before their elimination by export abroad. Other regional places of storage are in the process of being constructed;

In 2010, AES SONEL² built two storage warehouses of transformers with PCB respectively in Douala and Yaoundé which meet international standards in the field.



Figure 1 : Storage warehouse of transformers with PCB in Ngouso (Yaoundé)

- É Adoption of a new procedure of management of transformers which obliges all transformers to be subjected to tests (chlorometric L 2000 and analyses using gas chromatography) before their storage when they are not in use;
- É Organization of an awareness or sensitization forum on PCB and several formations in the sites of Ngouso, Bassa, Ombé, Bertoua, Bafoussam, Ebolowa, Ambam and Mefou.

² Although these two warehouses are old, storage done here facilitates the start off of the current project of elimination of PCBs.

d) SYNDUSTRICAM

- É Preventive action of storage and use of tanks for the chemicals used by Companies manufacturing foam and by-products;
- É Public awareness campaign for members of the trade union organized by SYNDUSTRICAM and Foncham International on the dangers of chemicals.

CHAPTER 2: BASELINE DATA ON CAMEROON

2.1. DESCRIPTION OF THE NATIONAL SITUATION

Cameroon is a country of sub-Saharan Africa with a surface area of 475 650 km² and a population of 23 million inhabitants of which nearly 54% reside in urban area according to the Central Census Office. Cameroon's income is mainly from agriculture, the exploitation of the riches of the sub-soil and forest resources. The industrial and services sectors are rapidly expanding or in full growth and the long-term of development orientations of the country are reflected or enshrined in a reference document called "Growth and Employment Strategy Paper" (GESP). The informal sector is dynamic in Cameroon and still uses polluting technologies and practices in the various branches of industry. Great climatic diversity induces a diversity of vegetation spanning from steppe in north to wet dense forest in the South, while transiting through the savanna. This climatic diversity encourages a range of modes and types of crops which makes Cameroon the bread basket of Central Africa. In spite of the existence of the densest hydrographic network in Africa and its potential of development of hydro-electric dams, Cameroon still resorts to the construction of power stations operating with fossil energy to meet the energy demand of its populations.

2.1.1. Political and administrative organization

Cameroon is a bilingual³ country. It got its independence on 1st January 1960 for East Cameroon placed under French administration, and 1st October 1961 for West Cameroon under British administration. On 20 May 1972, following a referendum, the Federal Republic of Cameroon made way to a unitary State. Then in 1983, the United Republic of Cameroon became the Republic of Cameroon. After a long period of single party regime shortly after independence, multipartism was reintroduced by law 90/053 of 19 December 1990 to organize political parties.

Executive power is exercised by a President of the Republic elected by the direct suffrage or vote for a seven-year renewable term of office. The legislative power is exercised by Parliament which is made up of two houses: the National Assembly made up of 180 members of parliament elected by direct vote for a 5 years renewable mandate and the Senate which has 100 members, that is 10 members per region of which 3 are appointed by the President of the Republic and 7 others are elected officials by indirect suffrage by a regional electoral college. The Cameroon Peoples' Democratic Movement (CPDM), the party in power, has a large majority in the National Assembly since 2007 approximately equivalent to 5/6 of seats. The remaining seats are distributed among the four opposition parties: the Social Democratic Front (SDF), the Cameroon Democratic Union (CDU), the National Union for Democracy and Progress (NUDP), the Union of the Populations of Cameroon (UPC). Judicial power is vested on a set of jurisdictions at the helm of which is the Supreme Court.

³English and French are the two official languages used.

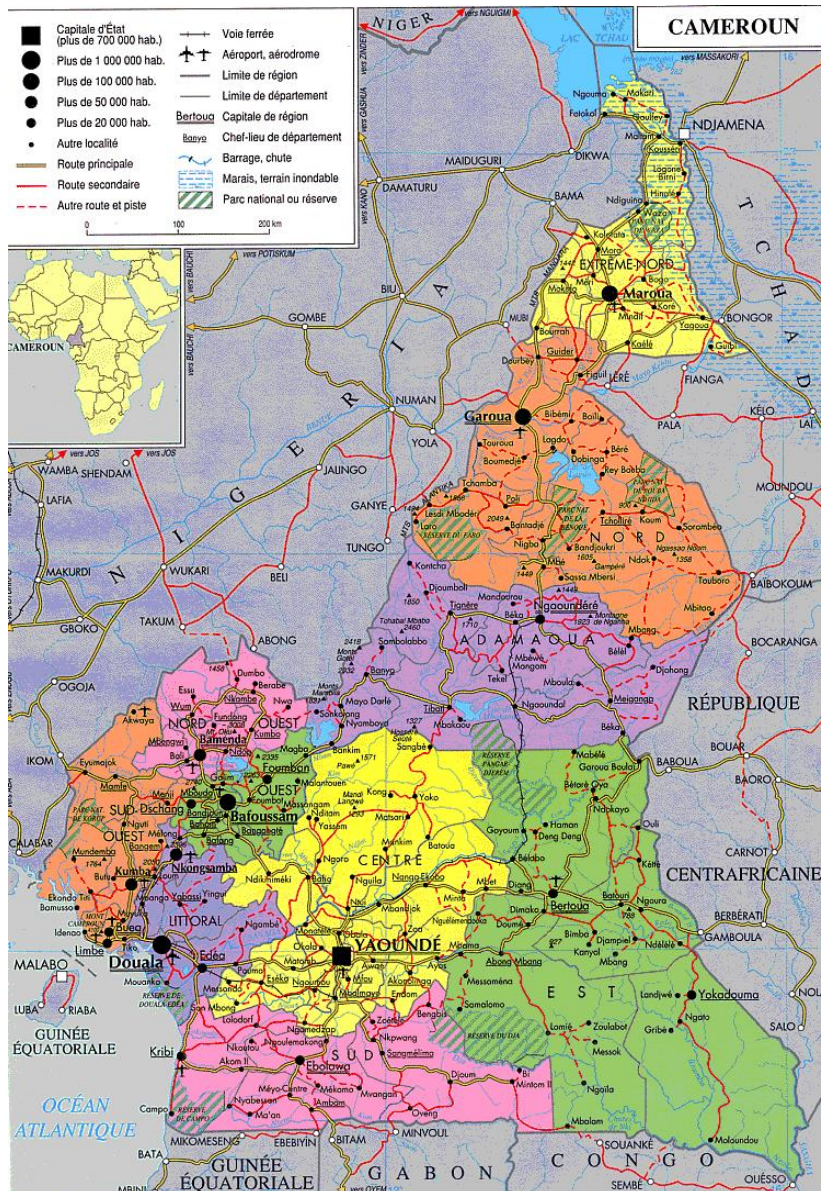


Figure 2: Administrative map of Cameroon (Sources: NIP Cameroon (2012))

There is also the Economic and Social Council and an Accounts Bench. The Constitution of January 1996 in addition provides for a Constitutional Council which has not yet been set up. Since Decree 2008/376 of 12 November 2008 to create Regions, the national territory, is subdivided into 10 Regions, 58 divisions, 361 sub-divisions placed respectively under the authority of governors, senior divisional officers and sub-divisional officers. The decentralized technical services of the State are represented at these various levels of administration.

Laws Nos. 2004/016, 2004/017 and 2004/022, to lay down orientations of decentralization, attributes to local authorities, autonomy in the management of the territory and natural resources. Decrees of implementation were signed to transfer to these Decentralized Local Authorities the means necessary to carry out their actions.

2.1.2. Demographic context

Estimated at 17 123 688 inhabitants during the third general census of the population and Housing in November 2005 with a demographic growth rate of 2.8% per annum, the population of Cameroon was estimated at 23 million inhabitants in 2015. It is estimated to reach 26.5 million in 2020 according to projections' of the GESP. This population is primarily young, those who are less than fifteen years account for 45% of the population against 3% for old people of more than sixty five years. The women constitute approximately 50.5 % of the population (table No. 2).

Table 2: Evolution of the population (in million) of Cameroon per sex.

Year Population	2005	2010	2015	2020
Women	8.6	10.1	11.6	13.4
Men	8.5	9.9	11.4	13.1
Total	17.1	20	23.0	26.5

Source: BUCREP and GESP projection (2009)

2.1.3. Economic situation

The country has several natural resources such as: petroleum and natural gas, bauxite, iron, timber, hydro-electric power, cobalt, nickel, manganese, diamond, and many other resources.

The rural sector remains the engine of the national economy both for its contribution to the GDP (45% in 2009) and the ripple or spillover effects of on the other sectors. It occupies more half of the working population. Breeding is significant in the Adamawa massive and the savannas of North. The industrial sector occupies approximately 8.9% of the working population and contributes to 27.6% of the GDP.

Since 2008, Cameroon has witnessed high economic growth. The Cameroon economy has made sustained great strides since 2010, thanks to the export driven sectors. The growth rate of the GDP was estimated at 4.2% in 2011 (against 2.9% in 2010), in spite of a drop in oil production. This evolution reflects the dynamism of activities in food products, building, public works, as well as in the tertiary sector.

Inflation was contained below 3% in 2011, although it is on the rise compared to 2010 (1.3%). This increase is explained by a rise in the prices of foodstuffs of about 4.7% in 2011. Inflationary pressures were however limited by the price freeze of petroleum products and electricity and the actions of the Mission for the Regulation of Procurement of Consumer Products (MIRAP). The deficit of the external current account remained stable around 3%.

The GESP, aims to: take growth to approximately 5.5% on annual average for the period 2010-2020; bring down under-employment from 75.8% to less than 50% in 2020 with the creation of tens of thousands of formal jobs per annum for the next ten years; bring down the monetary poverty rate from 39.9% in 2007 to 28.7% in 2020; attain all the millennium development goals (MDGs) by 2020.

In the area of infrastructure, the country has approximately 10% of asphalt paved roads, on a total of 50 000 km of linear. The railway network adds up 1016 km of railways. Cameroon has several ports of which the most significant are those of Douala and Limbé. There is also a

seasonal river port in Garoua (on the Benoué river). The project for the construction of a deep seaport in Kribi is under execution. There are also 3 international airports (Douala, Yaoundé-Nsimalen and Garoua).

2.1.4. Synthesis of the socio - economic data of Cameroon

Table 3 : below gives the synthesis of the socio-economic data of Cameroon

Surface area	475650 Km ²
Population	23 000 000 inhabitants in 2015
Urban population	12 420 000 inhabitants in 2015, that is 54% of the total population
Administrative capital	Yaoundé
Official Languages	French and English
Bordering countries	Chad in the North East, Central Africa Republic in the East, Nigeria in the West, Congo, Gabon and Equatorial Guinea in the South
Relief	High lands (Cameroonian dorsal) Plains (coastal littoral, part of North and Far North Regions)
Hydrography	Dense (2 nd in Africa). Sanaga is the longest river (920 km)
Vegetation	varied (forest, savanna and steppe) 2 nd forest massive in Africa.
Climate	Equatorial in the south and tropical in the north Alternating dry season and rainy or wet season
Political organization	Unitary decentralized state
Administrative organization	10 Regions, 58 Divisions, 360 Sub-divisions and 374 Councils and urban or city councils
Currency	CFAF (1Euro = 655,957 CFAF)
GDP	51.61 billion USD (2012)
GDP/inhabitant	2 400 USD (2012)
Real average growth rate of GDP	4.1% between 2008 and 2014
Inflation rate	2.7% on average between 2008 and 2014
Literacy rate (2011)	75%
Population growth rate	2.2% per annum after 2012
Poverty rate	37.5% in 2014
Primary school attendance rate	87% in 2014
Life expectancy at birth	54.8 years in 2005
Quotient of infant-juvenile mortality (for 1000 life births)	122 in 2011
Report of maternal mortality (for 100 000 life births)	782 en 2011

Source: MINH DU, 2016. Report of Cameroon for Habitat III

2.2.LEGAL AND INSTITUTIONAL FRAMEWORK

2.2.1. Overall picture of the situation of the environment and POPs in Cameroon

É **Importance of the environment in development policies and strategies**

In the preamble of the Constitution of Cameroon, it is stipulated that in Republic of Cameroon, the environment constitutes a common heritage of the nation. It is an integral part of the universal heritage. Protection of the environment and the rational management of resources which it offers to human life is of general interest. This aims in particular the geosphere, hydrosphere, atmosphere, their material and immaterial contents, as well as the social and cultural aspects thereof.

The President of the Republic defines the national environment policy. Its implementation is the responsibility of Government which applies it, in conjunction with Regional and Local Authorities, grassroots communities and environmental protection associations. To this end, the Government develops national strategies, plans or programmes intended to ensure the conservation and sustainable use of resources of the environment.

It is in this vein that three priority programmes were developed by the Ministry of Environment, Protection of Nature and Sustainable Development to meet the current environmental imperatives. These programmes are related to desertification and climate change, the sustainable management of biodiversity, pollution control, nuisances and harmful and/or dangerous chemicals.

One of the objectives of the Growth and Employment Strategy Paper (GESP) of Cameroon is to attain, by 2020, the MDGs No.7 " ensure a sustainable environment by reducing by half the proportion of the population without sustainable access to safe drinking water and basic sanitation, achieve significantly the improvement in habitat by integrating the principles of sustainable development in national policies and reverse the current trend of the loss of environmental resources".

Cameroon adhered to a number of international initiatives, in fact to about thirty multilateral, regional and sub-regional Conventions as regards sustainable development and environmental protection, in particular on biodiversity, climate change, desertification, protection of the ozone layer, nuclear power, persistent organic pollutants, etc.

Pegging the battery of legal instruments of Cameroon to international mechanism relating to environment related topics is effective. This adherence provides Cameroon with a variety of opportunities related to the management and valorization of cultural heritage and related natural resources, but also offers a framework for the development of sustainable agriculture and setting up of mechanisms to check desertification.

The need for an efficient management of natural resources in particular, energy and mineral resources, led to the development of many laws in the area. However, the first texts with actual environmental connotation date back to the end of the 80s and relate to the management of toxic waste. The legal arsenal as regards environment was enriched in 1996 by the framework law relating to environmental management, and other sector laws.

The implementation of the environmental legal framework was faced with major challenges related to the insufficiency of implementation texts which had to specify the details of execution of the legislative provisions. The implementation texts signed by the executive

(Decrees, Orders, Decisions, Circulars) are intended to provide suitable indications for the application of the sectoral laws or framework law.

É Legal framework specific to POPs

With regard to the POPs, it is necessary to point out that Cameroon did not await for the signing and ratification of the of Stockholm Convention to decide, at the regulatory level, on the use or prohibition of some persistent pollutants. Table No.4 shows that all pesticides covered by the Stockholm Convention are prohibited in Cameroon since 1989.

Table 4: Regulatory situation of POPs in Cameroon

Product	Regulation in force
Unregistered pesticides	Order No.020/A/MINAGRI/DPA/SDPV/SPP/BCIP of 7 May 1998 to prohibit some pesticides for agricultural use.
Lindane	Order No.057/05/A/MINADER/SG/DPA/SDPV/LAD of 22 August 2005 to prohibit the formulation of pesticides containing lindane.
Endosulfan	Order n071/08/D/MINADER/SG/DRCQ/SDRP/SRP of 17 July 2008 to prohibit the use of some pesticides on cocoa.
Mirex, DDT, Endrin, Aldrin, Chlordane, Hexachlorobenzene, Toxaphene	Prohibited by law No.90/013 of 10 August 1990, decree No.92/223/PM of 25 May 1992 and Order No. 0020/A/MINAGRI/DPA/SDPV/SPP/BCIP of 07/05/1998
Dieldrin, Heptachlore,	Prohibited by Order No.0002/MINAGRI/DIRAGRI/SDPV of 17/01/1989
Polychlorobiphenyles (PCB), Chlordecone, Pentachlorobenzene	Prohibited by decree No.2011/2581/PM of 23 August 2011 to regulate harmful and/or dangerous chemicals

It should be noted that before its prohibition by the decree of 2011 on the chemicals, Pentachlorobenzene has never been used in Cameroon. It is no longer being manufactured anywhere and has never had any notable use. It is especially found as an impurity in "quintozene", another pesticide, or as a by-product of decomposition of hexachlorobenzene of which the use was prohibited in Cameroon since 1990. The decrees and orders of prohibition of POPs cited above are related to import, export, marketing and use.

It is worth noting that the Minister in charge of Agriculture signed in August 2005 two important orders: one relates to the prohibition of the formulations of pesticides containing lindane in Cameroon, and the other on the withdrawal of the registration of Almethio20/25 pesticide (thirame25% plus lindane20%). Thus, the import, export, conditioning, storage, distribution and use of pesticides containing these two products are prohibited. All the pesticides belonging to new POPs listed in Annexes A or B of the Stockholm Convention are already the subject of prohibition of import, sale and use in Cameroon. The oldest being lindane, prohibited in 2005, and the most recent chlordecone, prohibited in 2011.

Concerning POPs produced in an unintentional manner, there is not yet any specific regulation. In fact, future regulation concerning these substances consists of introducing best environmental practices and adopting best technologies available at the level of industries:-

Texts relating to chemicals

Several regulatory mechanisms analyzed in the preceding paragraphs, although they are not specific to POPs, however enable the management of these types of products in Cameroon. The most recent regulations are Decrees Nos.2011/2581/PM, 2011/2582/PM, 2011/2584/PM, 2011/2585/PM of 23 August 2011 to regulate harmful and/or dangerous chemicals, lay down the conditions of protection of the atmosphere, conditions of protection of soils and sub-soils and the list of harmful or dangerous substances, and the mode of their discharge in inland waters respectively.

As concerns pollutants produced in an unintentional manner, there is not yet any specific regulation thereof.

As regards dangerous chemicals in general and POPs in particular, Cameroon adopted from the onset the precautionary principle. Any substance must be registered before it is put on the market. This registration is done after the technical opinion of members of the pesticides registration council.

2.2.2.Roles and responsibilities for the actors involved in the life cycle of POPs

Figure No.2 presents the global diagram of the institutional arrangement of environmental management in Cameroon.

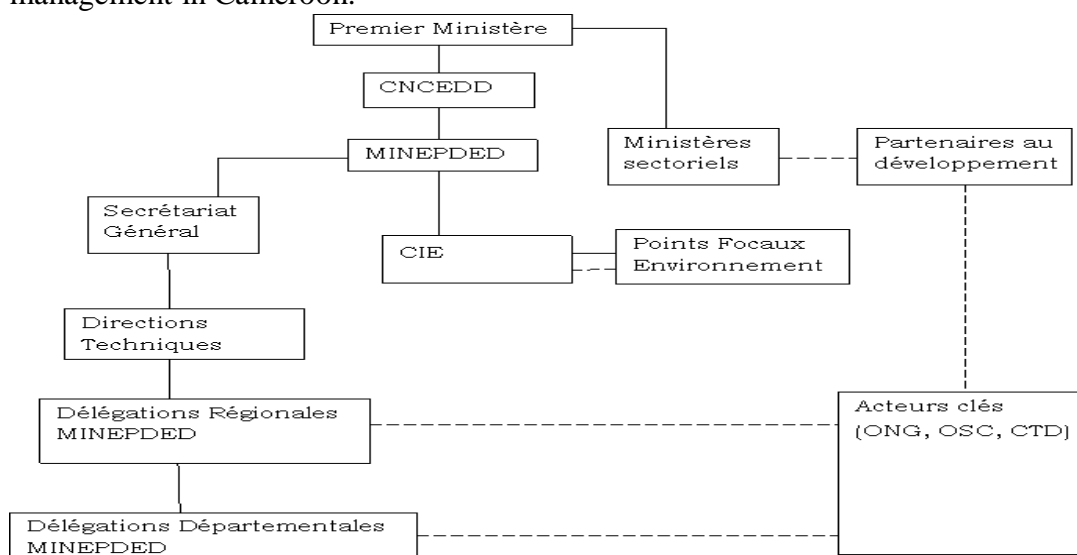


Figure 3: Global chart of the institutional organization of environmental management in Cameroon (source: MINEP, report PNGE 2012)

The bold lines correspond to institutionalized relations and dotted lines correspond to non-institutionalized relations. Apart from governmental Institutions cited above, several other actors also intervene in the field of chemicals (the private sector which imports and manufactures the chemicals registered or approved on the territory). They could play a significant role in the implementation of the action plan.

Cameroon does not manufacture products containing POPs. The only POPs produced in the country are unintentionally produced organic pollutants (PCDD, PCDF, HCB, PCB). The various institutions, both public and private, intervene solely in importation, transport, marketing, handling, storage, the use of articles likely to contain POPs as well as the treatment of waste containing them.

Several Ministries are involved in the management of chemicals and the supervisory authority is the Ministry in charge of environment in Cameroon (table No.5).

Table 5 : Missions of sector Ministries intervening in the environment sector

Ministries	Treated aspects
MINEPDED	<p>Development and implementation of government policy in the sector of environment, protection of nature from the sustainable development perspective. To this end, it is responsible for;</p> <ul style="list-style-type: none"> É defining the terms and conditions and the principles of rational management of natural resources; É Defining environmental management measures, in conjunction with government departments concerned; É coordination and follow-up of interventions of the regional or international co-operation bodies as regards environment and protection of nature in conjunction with MINREX; É follow-up of environmental conformity in the implementation of major projects; É informing the public in order to trigger its participation in the management, protection, and restoration of the environment and nature; É negotiation of Conventions and international agreements relating to the environmental protection in conjunction with MINREX.
MINFOF	Implementation of International Conventions ratified by Cameroon on wildlife (fauna) and hunting.
MINTP	Protection of environment related concerns during the realization of public works related projects.
MINMIDT	<p>Development of industrial development strategies, by developing human and natural resources of Cameroon;</p> <p>Control natural and industrial risk management;</p> <p>Follow-up of establishments classified as dangerous, unhealthy and inconvenient.</p>
MINEPAT	Negotiation of international financing as regards sustainable development. Taking into account environmental constraints in major development projects and programmes, in particular the provisions of the Stockholm Convention on persistent organic pollutants.
MINADER	<p>Participation in the planning of programmes for improvement of living conditions in rural area in conjunction with the relevant ministries; Management of forest plantations and promotion of investments; average and large farms in the agricultural sector;</p> <p>Fight against soil erosion;</p> <p>Phytosanitary protection of plants;</p> <p>Registration of pesticides and their control on the territory.</p>
MINEPIA	<p>Management of pastures;</p> <p>Protection of maritime and river resources and improvement of</p>

	production and health and statistical control as regards river and piscicultural maritime fishing, and livestock production.
MINTSS	Occupational safety and Pollution; Design, application and control of legislation and regulation as regards social security; Promotion of health measures, as well as hygiene measures and occupational safety.
MINEE	Development, implementation and evaluation of State policy as regards production, transport and distribution of energy and water; Management of water resources (prospection, research, collection, supply and sanitation); Energy production (securing supply and use, energy planning/pollution and correlative impacts/promotion of new and renewable energies in conjunction with the Ministry in charge of scientific research).
MINSANTE	Development of the health policy; Improvement of the national health system through the development of promotional, preventive, curative and rehabilitation health care; Guarantee of the development of standards as regards quality of care, drugs and medical devices, infrastructures and health, water and food equipment; Prevention, fight against pandemics and promotion of environmental hygiene.
MINT	Pollution control in the field of transportation, Safety in transportation
MINHDU	All types of activities as regards urban development, planning and control of urban development (sanitation, drainage, control and respect of standards, hygiene and public health, collection and treatment of household refuse, etc.).
MINRESI	International co-operation as regards scientific research and innovation in connection with the Ministry of External Relations, the Ministry for Higher Education and the administrations concerned; Technological monitoring or survey in conjunction with the Administrations concerned; Follow-up of research in the field of traditional pharmacopeia, in conjunction with the Ministry for Public Health and the Government departments concerned.
MINFI	Control of entries and exits, in particular of POPs on the territory (Customs); Potential financing as regards elimination of POPs.
MINCOMMERCE	License for importation of products and articles
MINREX	Participation in negotiations of international agreements and Conventions relating to environmental protection; Contribution to their implementation.

In order to facilitate intergovernmental coordination as regards the management of chemicals, the government set up intersector bodies the most significant of which are:

National Commission for Registration of Phytosanitary Products and Certification of Treatment Equipment for these products. This Commission is chaired by MINADER and brings together five other government departments: MINRESI, MISANTE, MINEPDED, MINESUP, MINEPIA and MINCOMMERCE.

the National Advisory Committee of Environment and Sustainable Development (CNCEDD). Placed under the Prime Minister, this Committee directs the government as regards environment and sustainable development.

The other institutions which intervene in the field are: the Chamber of Agriculture, Fisheries, Livestock and Forestry and the Chamber of Commerce and Industry of Cameroon.

Table No.6 presents the inter-ministerial and intersector institutions which have the responsibility of working with the principal institutions known as supervisory authority as regards environment.

Table 6: Inter-ministerial committees and institutions working in the area of environment

Year	Related institutions and inter-Ministerial or inter-sectoral coordination created	Mentorship Ministries
1975	National commission of hygiene and occupational safety (decree 75/740 of 20 November 1975)	MINTSS
1976	Advisory commission of resolution of agro-pastoral conflicts (decree 76-166 of 27 April, 1976 and 78/263 of 3 September 1978)	MINEPIA/MINADER
1977	Environmental Protection Unit (CPE)	MINTP
1977	National committee of agricultural, zootechnical and veterinary teaching (decree 77-350 of 31 April 1977) National Commission for registration of veterinary products/drugs	MINEPIA
1978	National commission for agro-agro-pastoral shows (decree 78/103 of 31 March 1978)	MINADER
1983	Land tenure advisory commission (law 83-19 of 26 November 1983)	MINDCAF
1984	Regional committee for the fight against drought and desertification	MINEPAT
1985	National water committee (decree 85/758 of 30 May 1985)	MINEE
1987	National coordination committee of the campaign of hygiene and health (decree 87-1906 of 22 December 1987)	MINSANTE
1994	National Advisory Commission on Environment and Sustainable Development (CNCEDD)	Prime Minister's Office
2001	Interministerial Committee of Environment (ICE)	MINEP
2005	National Phytosanitary Council	MINADER
2006	National Coordination Committee of the Stockholm Convention	MINEPDED
	National Commission of Registration of Phytosanitary	MINADER

	Products and Certification of Treatment Equipment	
2014	National Committee of Inspections of Establishments Classified as Unhealthy and Inconvenient	MINMIDT
	Standing Committee for Negotiations of Oil and Gas Contracts	

The private sector intervenes in the importation, marketing and use of chemicals and articles containing POPs. The most important actors are agricultural processing industries, in particular with regard to POP pesticides and the electronics sector. Electricity production and distribution companies are the principal owners or holders of equipment containing PCBs or contaminated by PCBs.

The private sector and the civil society may contribute to raising the awareness of populations on the impacts of POPs, popularization of texts relating to POPs, promotion of best environmental practices and best techniques available for the reduction of unintentional POPs.

2.2.3. International obligations and commitments to take into account

Cameroon adhered to several international agreements as regards the management of chemicals (table No.7).

Table 7 : Conventions, Agreements, Protocols ratified by Cameroon

Field	Conventions, Agreements, Protocols
Industrialization/pollution	<p>London Convention of 29/11/1969 on civil liability for damages due to pollution from hydrocarbons, modified by the protocol of 1976. London Convention of 29/11/1969 on the preparation, control and co-operation as regards pollution from hydrocarbons.</p> <p>Brussels Convention of 18 December 1977 for establishing an international compensation fund for damages due to pollution from hydrocarbons.</p> <p>Abidjan Protocol of 1981 relating to co-operation as regards control of marine pollution in the event of a critical situation.</p> <p>Vienna Convention of 29/9/1986 on assistance in the event of nuclear accident or of urgent radiological situation.</p> <p>Stockholm Convention of 22/5/2001 on persistent organic pollutants.</p> <p>MARPOL Convention on the prevention of hydrocarbons pollution by ships of 2/11/1973.</p> <p>MINAMATA Convention on mercury (ratification process in progress).</p>
Management of special waste and other waste	<p>Montreal Protocol of 1987 on the control of chlorofluorocarbons (CFC); Basle Convention of 23/3/1989 on control of transboundary movements of dangerous waste and their</p>

	<p>disposal;</p> <p>Bamako Convention of 30/1/1991 on prohibition to import into Africa dangerous waste and on control of transboundary movements and the management of dangerous waste produced in Africa;</p> <p>Cartagena Protocol on Biosafety.</p>
<p>Flora and fauna Biodiversity</p>	<p>African Convention of Algiers of 15/9/1968 on the conservation of nature and natural resource;</p> <p>RAMSAR Convention of 2/2/1971 relating to the wetlands of international importance particularly as habitat of water fowls;</p> <p>Washington Convention of 3/3/1973 on international trade on endangered fauna and flora species (CITES); Bonn Convention on the conservation of migratory species belonging to wild fauna;</p> <p>ENUGU Agreements; Nigeria of 3/12/1977 on the joint regulation relating to fauna and flora in the Conventional basin of Lake Chad;</p> <p>Libreville/Gabon Agreements of 16/4/1983 of co-operation and consultation between Central African States on the conservation of wild fauna;</p> <p>Rio de Janeiro Convention of 5/6/1992 on biological diversity;</p> <p>International agreement on tropical timber;</p> <p>Treaty relating to the conservation and sustainable management of forest ecosystems of Central Africa. African convention for the conservation of nature and natural resource (Maputo 2003);</p> <p>NAGOYA Protocol on access to genetic resources.</p>
<p>Biological resources of the sea and protection of marine and coastal ecosystems</p>	<p>Niamey Act of 1963 relating to navigation and economic co-operation between States of the Niger Basin; International Convention of Brussels of 29/11/1969 on intervention in high sea in the event of accident resulting in or likely to cause pollution from hydrocarbons; Convention on co-operation as regards protection development of the marine environment and coastal zones of West and Central Africa;</p> <p>Abidjan Protocol of 1981 relating to co-operation as regards control of marine pollution in the event of a critical situation;</p> <p>MONTEGO BAY Convention of 10/12/1982 on right of the sea (maritime law).</p>
<p>Cultural heritage and development</p>	<p>Paris Convention of 16/12/1972 for the protection of the world, cultural and natural heritage;</p>

	<p>Faranah/Niger Convention of 2/11/1980 on the creation of the Niger Basin Authority;</p> <p>Faranah/Niger Protocol of 2/11/1980 on the development fund of the Niger Basin.</p>
Desertification	<p>KANO/Nigeria Convention of 23/5/1994 on African migratory locust;</p> <p>United Nations Convention/Paris of 17/6/1994 on desertification control in the countries seriously affected by drought and/or desertification, in particular in Africa.</p>
Water resources	<p>Convention of the Statutes of Fort Lamy/Chad of 25/5/1964 relating to the Commission of Lake Chad Basin;</p> <p>Niamey/Niger Agreement of 1964 on the creation of the of the NIGER River commission;</p> <p>Yaounde Agreement of 1973 on the creation of the development fund of the Lake Chad Basin Commission.</p>
Climate change	<p>United Nations Framework Convention on Climate Change of 9/06/92 with its Kyoto Protocol.</p>
Chemicals	<p>Vienna Framework Convention of 22/3/1985 for the protection of the ozone layer;</p> <p>Montreal Protocol of 16 September 1987 on ozone layer depleting substances.</p> <p>Rotterdam Convention of 11/9/1998 on the prior informed consent procedure applicable to some dangerous chemicals and pesticides which are the subject of an international trade.</p>

As it can be noted, Cameroon is signatory or has adhered to several international Conventions and agreements of which it is necessary to take into consideration for the development of the implementation plan of the Stockholm Convention on persistent organic pollutants.

2.3.METHODOLOGY OF CONDUCTING INVENTORY

This section describes the five major steps for planning and conducting the national inventory of the 11 POPs taken into account in this NIP. After training of the investigators, there was a definition of the priority sectors which was subject of the inventory. All the inventory tasks were initiated and carried out under the supervision of the focal point of the Stockholm Convention on persistent organic pollutants. was assisted by an international consultant who trained the inventory team and a national consultant who accompanied the entire team in the preparation, data-collection and drafting of the inventory of new POPs. Figure No.4 gives an outline of the inventory process.

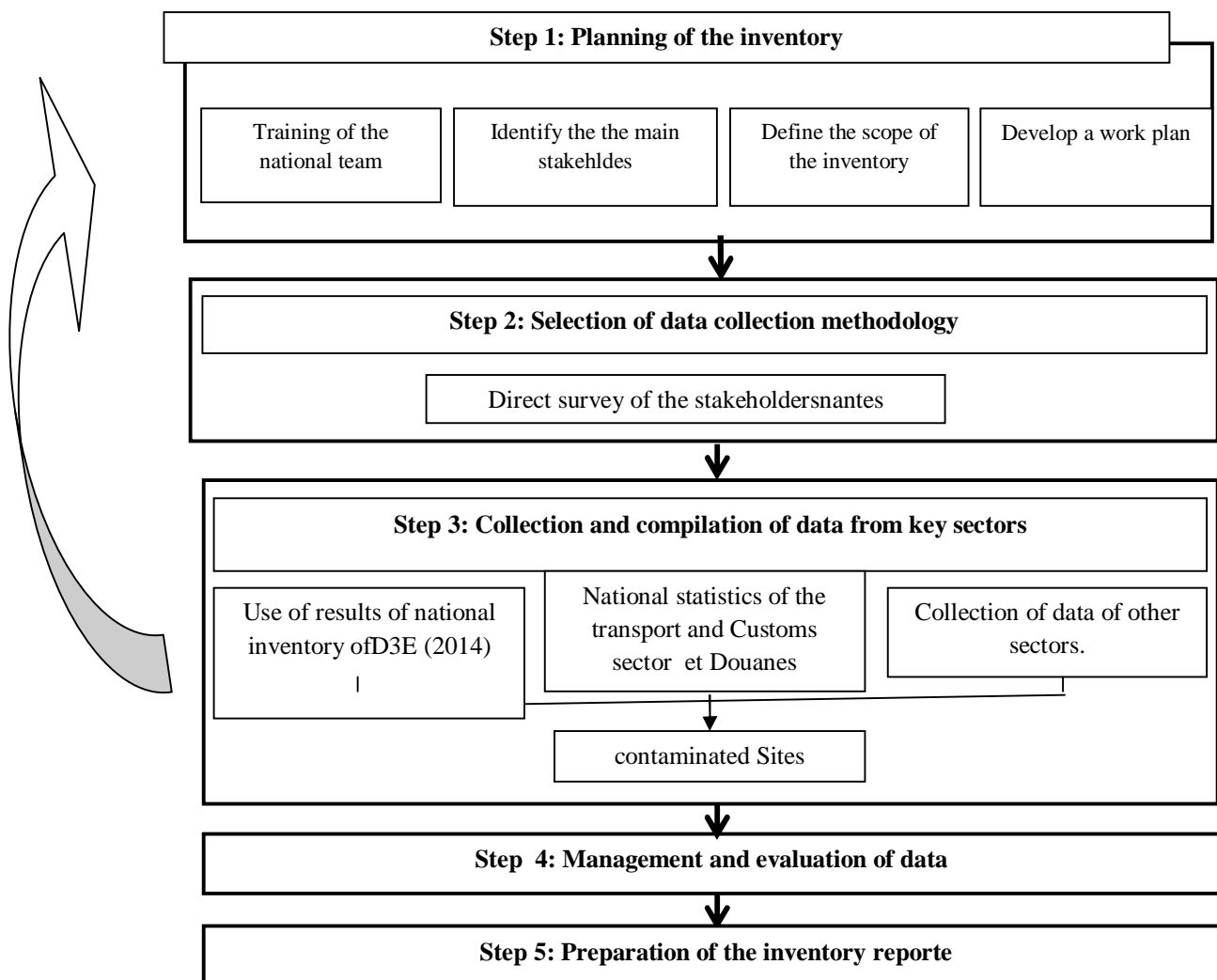


Figure 4: Overview of the process of developing the national inventory of new POPs

2.3.1 Step 1: Planning of the inventory

The inventory was limited solely to 11 the new POPs, including five substances of the flame retardant family, as well as the update of dioxins and furans inventory. Taking into account the limited means for this exercise, the team proceeded within the framework of this step with the following:

- identification of the sectors of use, or articles likely to contain these POPs in Cameroon, as well as key actors from whom these data could be collected;
- identification of companies, administrations and other actors likely to provide baseline data to establish the inventory of 11 the new POPs;
- bibliographical search;
- survey within actors identified in the previous step for the bolection of basic data for the inventory. The table of annex 3 presents the various actors surveyed, as well as the POPs targeted for each category of actor.

2.3.2 Step 2: Data collection

The next step consisted in selecting the suitable methods of data collection, by using an approach with several levels. Within the framework of the inventory of 11 new POPs in

Cameroon, one stopped at level II, i.e. visiting, the data-collection by questionnaire administered to identified stakeholders. This method nevertheless had some limitations that had earlier been mentioned in the guide, in particular the gaps in the content of information, which enables to get only a summary outline of the situation. To this end, out of nearly one hundred companies and stakeholders identified for the field survey, we could have useful responses only for half of the identified actors. Another significant challenge with which we were confronted was the knowledge of the quality of the articles. Indeed, the majority of stakeholders did not know if the articles which they use contain the POPs or not that we intended to inventory. At the level of Customs statistics, it was almost impossible to have the importation data over several years. The staff of the inventory team is presented in annex 4.1.

2.3.3 Step 3: Compilation of data from key sectors

With the end of the stakeholder survey, the inventory team held a meeting of capitalization of the field survey. During these meetings, the teams of investigators pointed out the strong and weak points of the field data-gathering campaign. A data compilation model was provided to them by the national consultant. With regards to the disparity of the sectors of activities of the surveyed institutions, and also the diversity of POPs targeted, we agreed to draw up a recap sheet per stakeholder. These primary data were the subject of an analysis by the national consultant. This analysis made it possible to bring out the data necessary for calculating the inventory of each POP.

2.3.4. Step 4: Management and evaluation of data

This step consisted in estimating from data collected in the field, information at the national level for the inventory of various POPs. This estimate is made with more or less precision according to POPs targeted.

The data collection for the inventory review of dioxins and furans was carried out during the same period.

2.4. SITUATION OF NEW POPs IN CAMEROON

2.4.1. POP pesticides

We present here below the situation of new POP pesticides in Cameroon

a - Chlordecone

This pesticide has never been registered in Cameroon and we did not find any existing stockpile.

b - Lindane

According to the Ministry in charge of Agriculture, the last importation of pesticides containing of substances with Lindane goes back to 2007. However the report of POP pesticides inventory drafted in 2012 shows that there is a Lindane stockpile in Cameroon which is being safeguarded in the main storage warehouse of Edéa and is recorded in the stockpile of pesticides to be eliminated within the framework of the project "elimination of POPs, obsolete pesticides and strengthening of the rational management of pesticides in Cameroon". Apart from this stockpile intended for elimination, there are no more Lindane in use. Indeed, Lindane was prohibited in 2005 (decree No.57/05/A/MINADER/SG/DPA/SDPVP/LAD of 22 August 2005)"

c - Endosulfan

Endosulfan was also prohibited in Cameroon in 2005 by the decree No.071/08/D/MINADER/SG/DRCQ/SDRP/SAP, to prohibit the use of some pesticides on cocoa. However, the inventory report of POP pesticides realized in 2012 shows that there is a stockpile of endosulfan in Cameroon which is safeguarded in the main storage warehouse of Edea and has been registered in the stockpile of pesticides to be eliminated within the framework of the project "elimination of POPs, obsolete pesticides and enhancement of the rational management of pesticides in Cameroon". Apart from this stockpile intended for elimination, there is no more endosulfan in use.

d - Pentachlorobenzene

Pentachlorobenzene (PeCB) in the past was used in Canada in products containing PCBs. It was also used for the manufacture of dyes, as well as fungicide and flame retardants. It is also unintentionally produced during thermal and industrial processes and appears in the form of impurities in products such as solvents and pesticides.

Ultimately, none of the four new POP pesticides is present in Cameroon. In fact, these products were never used or prohibited from importation, use and marketing.

2.4.2. Flame retardant POPs

Flame retardant POPs listed in annex A of the Stockholm Convention are:

- a) Hexabromobiphenyl (HBB)⁴
- b) Hexabromodiphenylether and the heptabromodiphenylether, (components of commercial octabromodiphenylether, c-OctaBDE);
- c) Tetrabromodiphenylether and pentabromodiphenylether (component of commercial pentabromodiphenylether, c-PentaBDE);
- d) Hexabromocyclododecane (HBCD).

Cameroon is not a producer of these flame retardants. The branches of industry which imported one of these products or products containing them are the following:

- É wholesalers and retailers of electrical and electronic equipment, as well as actors of the sale of second hand equipment imported from European countries;
- É transport industry, in particular importers of second hand vehicles used in the various sectors of transport: private vehicles, public transport by taxi, interurban transport, carriage of goods, rail transport;
- É the furniture industry, in particular importers of pieces of furniture and fabrics for the local manufacture of pieces of furniture;
- É the textile and carpet industry, in particular industries producing or making clothes, carpets and others;
- É the industry for the production of plastic objects and articles, of which some recycle plastic waste collected from within the country.

⁴Given that the the HBB production ended in the 1970s, most of the products and articles containing Hexabromobiphenyl were eliminated since decades. Therefore, the scope of the HBB inventory is limited.

2.4.2.1. Use of c-PentaBDE in Cameroon.

The main field of application of the c-PentaBDE in Cameroon, like in the majority of other countries of the world is the treatment of foam polyurethane (imported or manufactured locally). These foams, for the majority, come in stuffings of vehicles seats, pieces of furniture, insulations and some electrical and electronic equipment (Table No.8).

Table 8 : Previous use of c-PentaBDE in polymers/resines, applications and articles

Materials/polymers/resines	Applications	Articles
Polyurethane (PUR)	Materials of stuffing, packaging, filling, construction	Pieces of furniture, transport, Soundproofing, packaging, panels wall cladding, rigid structure of PUR foam
Textiles	Coatings	Coating of back and impregnation for carpets, seats of cars, pieces of furniture in the houses and official buildings,
Epoxy resins	Printed circuit boards, protective coatings	Computers, electronic parts
Rubber	Transport	Conveying belts, foam tubes for insulation
Polyvinyl chloride (PVC)	Sheets of cable	Wire, cables, protective carpets, industrial sheets
Unsaturated polyesters (thermohardening) (UP)	Printed circuit boards, coatings	Electrical equipment, building boards
Paints/lacquers	Coatings	Marine and industrial lacquers to protect the containers

Source: UNEP, 2009 and field survey.

The use of PUR containing c-pentaBDE is limited to vehicles manufactured between 1970 and 2004. Other flame retardants were used in the vehicles after this period.

2.4.2.2. Uses of c-OctaBDE in Cameroon

c-OctaBDE was used as flame retardant in ABS used for the manufacture of torches and frames of electric and equipment. It is thus through the importation of this equipment that c-OctaBDE is found in Cameroon. They are frames of computers and cathode ray tube television sets which contain most of ABS. They can also be found in photocopiers and printers. Typical concentrations in the main uses range between 12% and 18% of the weight⁵.

Table 9 : Fields of application of c-OctaBDE in polymers/materials and products

Polymers/materials	Applications	Articles
Acrylonitrile-butadiene-styrene (ABS)	Plastic coatings of electrical and electronic appliances	Cases or frames of computers and TV (CRT); office equipment (printers, photocopiers);

⁵Guideline for the inventory of polybromodiphenylethers (PBDE)

Polystyrene shock (HIPS)	Coatings of polymers/spare parts of electrical and electronic appliances layer resistant to cold	Refrigerator
Polybutylene terephthalate (PBT)	Polymer coatings	Electronic appliances
	Transport sector	Connectors of vehicles
	Everyday use	Iron
Polyamide polymers	Textiles	Pieces of furniture
	Construction	plastic pipes and films

Source: Guidelines for the inventory of polybromodiphenylethers (PBDE)

Old electronic appliances can contain PBDE in particular the external frames of television sets and cathode ray tube monitors (CRT). They are still in the keeping of households, administrations and retailers of second-hand equipment. It is also possible that some articles manufactured after 2005 with recycled plastics may still contain PBDE. However, thorough analyses are necessary to determine with precision the existence or not of PBDE in these articles.

2.4.2.3. Use of HBB in Cameroon

Hexabromobiphenyle was used as flame retardant mainly in three commercial products:

- É thermoplastics ABS used in the building industry, casings of small machines and in the industrial and electric sector (such as spare parts for radio and television);
- É the foam of PUR for automobile upholstery or trim;
- É Coatings and lacquers.

Because of its low production and its limited use, it is very probable that this category of POP is no longer present in Cameroon.

2.4.2.4. Use of HBCD in Cameroon

HBCD was used mainly as flame retardant expanded or extruded polystyrene. It was found mainly in polystyrene used for external packaging and protection of electronic equipment and fragile articles as well as in interior automobile textiles, vehicles cushions or in heat insulation plates of buildings. This last use has a specific exemption; the use of expanded PS, fireproofed with HBCD, authorized by the Stockholm Convention under the terms of a specific exemption in the building industry.

Packaging with current PSE no longer contains any HBCD but it is almost certain that there are still waste of packaging in PSE (electronic appliances, fragile kitchen utensils) or foam containing HBCD in Cameroon. However, it is difficult to quantify them without thorough surveys.

2.4.2.5. Potentially contaminated sites

Contaminated sites are mainly the dumps of household rubbish or refuse and composting sites which also receive D3E of households, lixivats of dumps, sites of uncontrolled dismantling of electric and electronic equipment in cities and sites of sale of second hand equipment. The

concentrations are either negligible, or diffused in a significant mass of domestic waste or by leaching.

2.4.2.6. Global Assessment of flame retardant POPs in Cameroon

Table No.10 presents the global assessment of PBDE POP and flame retardants in Cameroon according to the various sources. The details of calculation are presented in the inventory report of PBDE POP. The quantity of C-OctaBDE was obtained from the stockpile of electric and electronic equipment of urban households in 2014, as well as imported equipment, while based on the percentage of polymer provided in guidelines of the PBDE POP inventory. The quantity of C-OctaBDE, TetraBDE and PentaBDE obtained from the transport sector was calculated from the statistics of vehicle in use in Cameroon whose date of first use was before 2004. The steps and methods of calculation used are those of the guidelines for the inventory of POP PBDE (July 2012).

Table 10 : Global assessment of POP PBDE (kg) in Cameroon

	Type of PBDE				
Sources	C-OctaBDE	TetraBDE	PentaBDE	HBCD	HBB
Importation EEE	211.5				
EEE Stockpile held by users	9339				
Flow of waste (D3E)	8035				
Vehicles in service and end of life cycle	370.7	1440,25	2531,36		
Global assessment	17585.5	1440.5	2531.6		

The proportions of TetraBDE, PentaBDE, HexaPDE in the inventoried PBDE POP is given in the PBDE inventory guide (page 71). These proportions are 33% for TatraBDE, 58% for PentaBDE and 8% for HexaBDE. It is on this basis that we calculated the share of these POPs in table10.

Cameroon does not produce equipment likely to generate POP PBDE, HBB and HBCD but it uses products and articles containing these POPs. Since they are no longer in use in the producer countries of industrial and domestic articles, the largest deposits of these POP is in old electric and electronic equipment (EEE) found in households and in stockpiles of waste generated by this equipment. As a whole, Cameroon should have, through various sources in 2014:

- É 17585 kg of c-OctaBDE, the two main sources of which are the electric and electronic equipment kept by households and the flow of waste of electric and electronic equipment, of which:
 - 2283.55 kg of HexaBDE, the main sources of which are stockpiles of electric and electronic equipment kept by households, WEEE and vehicles in use or at the end of life cycle.
 - 7583.32 kg of HeptaBDE, the main sources of which are stockpiles of EEE held by households and flows of WEEE.

É 2531.36 kg of PentaBDE coming exclusively from vehicles in use or at the end of life cycle.

É 440.25 kg of TetraBDE coming exclusively from vehicles at the end of life cycle or in use.

There is no precise information on the other flame retardant POPs.

Based on data of the inventory presented above, in 2014, Cameroon has nearly 35 788 kg of flame retardants classified as POPs, of which:

É 49% of c-OctaBDE, coming mainly from EEE held by the households and flows of WEEE;

É 7% of pentaBDE coming from vehicles in use or at end of life cycle;

É 4% of TetraBDE coming from vehicles in use or at end of life cycle;

É 12.2% of POP PBDE coming from vehicles in use or at end of life cycle.

2.4.3. Perfluorooctane sulphonic acid (PFOS), its salts, and perfluorooctane sulphonyl fluoride

2.4.3.1. Estimate of PFOS, its salts and perfluorooctanesulphonyl fluoride in products and articles

Given that Cameroon is not a producer country, the estimated consumption of PFOS was worked out on the basis of the statistical data of importation provided by the Customs Department in the categories which use it.

In the case of the PFOS inventory, it is the qualitative approach which was used. In fact, the inventory team did not have the means to measure the rate of PFOS in the various articles produced locally or imported. The qualitative method makes it possible to base the estimates on the quantity of PFOS applied to materials and articles. This method is not very precise, more so especially as analyses were not carried out to confirm the presence of PFOS in potential articles and products. Information provided by the bibliography constituted the single reference index.

Table No.11 presents the quantities imported by Cameroon in 2014.

Table 11 : List of articles and products likely to contain PFOS imported in Cameroun in 2014

Name of article	Quantity (kg)	Origin
Inks for printers	530 759	Asia, Europe, USA
synthetic textiles	878056	China, Turkey, India, Pakistan
Fills extinguishing apparatuses, extinguishing grenades and bombs	63 825	Europe, the USA
Sport track suit in synthetic material	590 658	China, Asia, Europe, Latin America
Extinguishers, even filled	236 241	China, USA, Europe, Asia

Polyurethane in primary form	60 039	Europe, USA
Elevator, conveying belts, belts	137 194	China, Europe

Sources: data provided by Customs (inventory 2015)

Data collected from the Dago Consult company, one of the major operators of extinguisher refill in Cameroon, enables us to observe that the majority of foams used in the portable extinguishers do not contain PFOS. Indeed, for over 10 years the 3M company which used to manufacture PFOS for foams no longer does so. In the same vein there has never been such in small portable apparatuses but only in foams for extinction of fires from petroleum and equivalent.

The majority of extinguishers indexed on the Cameroonian market are extinguishers with water, carbon dioxide and powder. Given that the Airport Authority did not respond to the questionnaire, it is difficult to know the quantity of the fire-fighting foams in stockpile in the airports of Cameroon.

2.4.3.2. Inventory of waste, stockpiles and contaminated sites containing PFOS and related substances

It was not possible during the inventory, to identify all the stockpiles kept by the various stakeholders. It can nevertheless be noted that firemen used in 2014, a quantity of 375 liters of fire-fighting foam, and that they are still keeping 625 litres in stock.

12 dry-cleaners shops surveyed use mainly the cleaning and stain-removing products not containing PFOS. However, the products used are imported and entered in the customs statistics.

The articles containing PFOS, used by households and even companies, are disposed of in dumps of household refuse. These dumps remain the only sites contaminated with PFOS. Articles and products imported since 2010 were entered as waste or in stockpile in households and the companies.

2.4.3.3. Results of PFOS inventory in Cameroon

Table No.12 gives the quantity of PFOS and related products present in the articles and products imported in Cameroon in 2014.

Table 12: Inventory of PFOS and related products in the articles imported in Cameroon in 2014

Articles or products	Quantity (kg)	Proportion of the articles containing PFOS	Min. Content of PFOS(mg/kg)	Max. content (mg/kg)	Min quantity (kg)	Max. quantity (kg)
Lubricating oil for aviation	2561	100%	500	1000	1,2805	2,561
Printing inks	530759	100%	100	100	53,0759	53,0759
Compositions and refills for extinguishing	63825	10%	5000	15000	31,9125	95,7375

apparatuses; extinguishing grenades and bombs						
Wool fabrics with synthetic or artificial filaments; jacket, coverí etc.	878056	10%	500	5000	43,9028	439,028
Extinguishers, even refilled?	236141	10%	5000	15000	118,07	354,2
Elevators, conveyors..... continuous actioní band orí belt	137194	10%	50 000	500 000	685,97	6859,7
Products of photography	1029000	100%	100	100	102,9	102,9
paper and paperboard	93 950 000	3%	1%	1%	28185	28185
synthetic or artificial filament	8 925 000	10%	0,03%	0,03%	267,75	267,75
impregnated fabrics and special fabrics	319000	100%	0,03%	0,03%	95,7	95,7
shoe and their part	17 488 000	10%	0,03%	0,05%	4372	8744
paint, varnish, cement, ink	11 088 000	0%	0,005%	0,01%	0	0
TOTAL					33957,6	45199,7

The quantity of PFOS contained in articles and products imported in Cameroon in 2014 ranges between 33957.6 kg and 45 199.7 kg. This estimate remains rough insofar as, for each article, there is no proportion of the PFOS which it contains. The estimate of the proportion of PFOS is a function of the data of technical literature and the information provided by the Customs authorities.

With regard to PFOS present in products in stockpile or in the form of waste, in the absence of reliable information, the statistics of articles imported between 2010 and 2014 were considered. Nevertheless, some of these articles such as paper and paperboard have probably already become waste while others are still being used. Only the firefighters could provide data on foam anti fire stockpile which they have recorded. It is probable that some stockpiles are kept in airports and some military barracks, but access to this information was difficult and even impossible.

Table No. 13 gives the PFOS inventory in articles in stockpile or their waste.

Table 13: Inventory of PFOS in the articles in stockpile or in waste

Articles or products	Quantity (kg)	Proportion containing PFOS	Minimum content (mg/kg)	Maximum content (mg/kg)	Minimum quantity (kg)	Maximum quantity (kg)
Aviation hydraulic fluids	2561s	100%	500	1000	1.28	2.56
Printing inks	1 231 045	100%	100	100	123.10	123.10
Preparations and charges for fire-extinguishers; charged fire-extinguishing grenades	240858	10%	5000	15000	120.43	361.3
Synthetic or artificial fibres/filaments	26 547 000	10%	500	5000	1327.35	13273.5
Fire extinguishers, even charged?	236241	10%	5000	15000	118.1	354.3
Lifting machinery (elevators), conveyors... ...continuous action, ...belt or...tape?	537613	10%	50 000	500 000	2688.07	26880.6
Photographic materials	1206000	100%	100	100	120.6	120.6
Paper and cardboard	275 268 000	3%	1%	1%	82580.4	82580.4
Impregnated fabrics and special fabrics	789000	100%	0.03%	0.03%	236.7	236.7
Shoes and their parts	34 841 000	10%	0.03%	0.05%	871.02	1742.05
Paint, varnish, filler, ink	22 446 000	0%	0.005%	0.01%	0	0
TOTAL					88187.1	125675.2

Articles and stockpile products, or wastes imported in Cameroon between 2010 and 2013 contain between 88187 kg and 125 675 kg of PFOS. Thus, the total quantity of PFOS found in these articles and products in Cameroon ranges between 122 144.6 kg and 170 874.9 kg.

There is a high uncertainty on the quantity of PFOS currently in use, given that their presence in products and articles imported or circulating is not easy to establish in the absence of very detailed analysis the realization of which is not possible in Cameroon.

Apart from the PFOS contained in products and articles currently in use, a stockpile of fire-fighting foam likely to contain PFOS⁶ in the Cameroon Petroleum Storage Depot Corporation (SCDP) has been listed, it contains:

⁶Due to the lack of instruments and in the absence of precise labeling, we cannot give the proportion of PFOS contained in these foams.

- É Protein foams: 26 700 litres;
- É Synthetic foams: 106 700 litres.

Cameroon should then take necessary measures to review the inventory before recommending effective measures to reduce or eliminate articles and products containing PFOS in the country. Two measures are already required: (1) eliminate in an environmentally sound manner wastes containing PFOS, (2) the stockpile of fire-fighting foam containing PFOS should no longer be used until their expiry date and eliminate them in an environmentally sound manner.

2.4.4. Review of dioxins and furans inventory

2.4.4.1. Summary of the methodology

The methodology used in this inventory was mainly based on the new version of the specialised tool (Toolkit) for the identification and quantification of releases of PCDD/PCDF and other unintentional POPs, 2013 version. This new tool replaces the 2005 methodology used for the first inventory in 2011 with the 2009 data. As the new Toolkit recommends, the following procedure was used:

- É the identification of groups of activities likely to produce and emit dioxins and furans: it was all about identifying the main Categories of PCDD/PCDF Main Sources existing in Cameroon and dividing them in order to identify individual activities which are likely to release dioxins and furans;
- É the compilation of information relating to the production process to characterize and classify identified sources of releases of PCDD/PCDF. Standardized questionnaires provided in the Toolkit have been adapted and used for the collection of relevant information. It is worth noting that the update only concerned those sectors which had undergone changes from the 2011 inventory;
- É estimating releases based on the information obtained in the previous stages using the Excel spread sheet provided in support of the 2013 Toolkit;
- É the compilation of the standardized PCDD/PCDF inventory, using the results generated in stage 1 to 3.

The various sources identified in the new tool and developed during the November 2014 training were reviewed in order to identify the relevant sources for Cameroon (Table 14):

Table 14 : Categories and subcategories of sources of PCDD/PCDF releases in Cameroon

No.	Groups of sources	Existing source categories
1	Incineration of wastes	Incineration of medical wastes
		Incineration of dangerous wastes
2	Production of ferrous and non-ferrous metals	Iron/steel foundry
		Aluminium production
		Cable burning
3	Electricity and heat generation	Fossil fuel-plants
		Burning of landfill biogas
		Three-stove stove with wood fire

		Cooking with fossil fuels by households (LPG and kerosene)
4	Manufacture of mineral products	Cement kiln
		Production of bricks
		Production of glasses
		Production of asphalt
5	Transport	Four-stroke engine
		Two-stroke engine
		Diesel engine
6	Uncontrolled combustion	Agricultural residues burning of poor combustion conditions
		Pre-harvest sugar cane burning
		Forest fires
		Savanna fires
		Accidental houses and vehicles fire
		Burning of household wastes
7	Production and use of chemicals and mass market products	Chlorine
		PVC
		Refinery
		Textile factories
		Leather
		Smoking shops
8	Others	Dry cleaning (no data)
		Biomass drying
		Tobacco smoke
9	Disposal/landfills	Dumps, landfills and excavation of buried wastes
		Waste water and waste water treatment
		Discharge of waste water in the natural environment
		Processing of waste oil

The year 2014 was retained as the baseline year to update the inventory of dioxins and furans. The choice of 2014 as the baseline year was motivated by the probability to get more recent data in the various targeted sectors.

2.4.4.2. Balance sheet of dioxins and furans emissions

Table No. 15 shows the overall balance sheet of dioxins and furans emissions in Cameroon in the various components. Detailed calculations per sector are appended.

This summary confirms the presence of nine sources of dioxins/furans emissions in Cameroon. Three sources out the nine are more preoccupying and need urgent action plans in the short and medium term. These sources, in descending order, include: (1) Open burning of

biomass, in particular savanna and forest fires, incineration of household wastes; (2) the incineration of industrial dangerous wastes and hospital wastes, (3) the production of ferrous and non-ferrous metals. Three other sectors are preoccupying and need a medium and long term intervention to change practices. They include: (1) domestic heating and cooking of meals, (2) production of minerals (cement, lime and clay bricks), (3) landfill of household wastes and uncontrolled release of urban waste water.

Table 15 : Dioxin and furan emissions in Cameroon in gTEQ per annum

	Group of sources	Annual Releases (g TEQ/a)				
		Air	Water	Soils	Products	Wastes
1	Incineration of wastes	50.6	0.0	0.0	0.0	7.6
2	Production of ferrous and non-ferrous metals	46.3	0.0	0.0	0.0	0.2
3	Electricity and heat generation	14.6	0.0	0.0	0.0	1.6
4	Manufacture of mineral products	17.5	0.0	0.0	0.1	0.0
5	Transport	2.6	0.0	0.0	0.0	0.0
6	Uncontrolled combustion	60.5	0.0	28.9	0.0	0.0
7	Production and use of chemicals and mass market products	0.0	0.0	0.0	1.1	0.0
8	Others	0.0	0.0	0.0	0.0	0.0
9	Disposal/landfills	0.0	0.2	0.0	0.0	24.6
10	Black spots				0.0	0.0
1.-1	TOTAL	192.0	0.2	28.9	1.2	34.0
	Total of emissions and releases	256				

With the new assessment tool (2013 version), the quantity of dioxins and furans emitted by Cameroon in 2014 was estimated at 256g/TEQ. Emissions to air are the highest with 192 g/TEQ (75%), followed by residue emissions (ash and waste), representing 34.0 g TEQ (13.3%), soil releases, representing 28.9 g TEQ (grams of toxic equivalent) (11.3%). Releases to water (0.2 g TEQ) and products (1.2 g TEQ) are marginal (Figure 5).

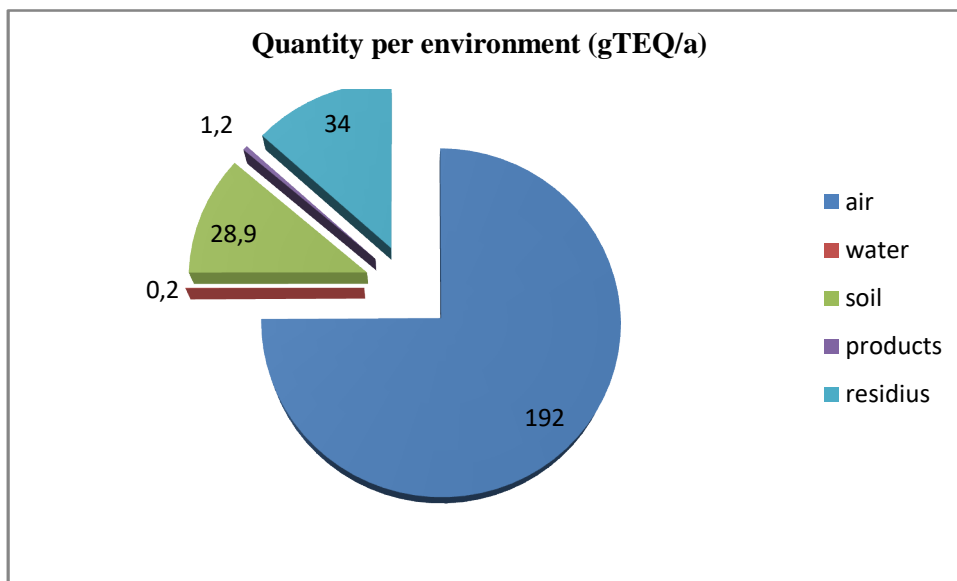


Figure 5:Quantity of dioxins and furans per area of emission or release

Six sources account for the main dioxins and furans emissions to air (Figure 5), representing 75% of total emissions. These sources of emissions to air are classified in order of importance: uncontrolled combustions (31.53%), dangerous waste incineration (26.3%), ferrous and non-ferrous metal production (24.1%), manufacture of mineral products (9.1%), electricity and heat generation (7.6%) and transport (1.4%) (Figure 6).

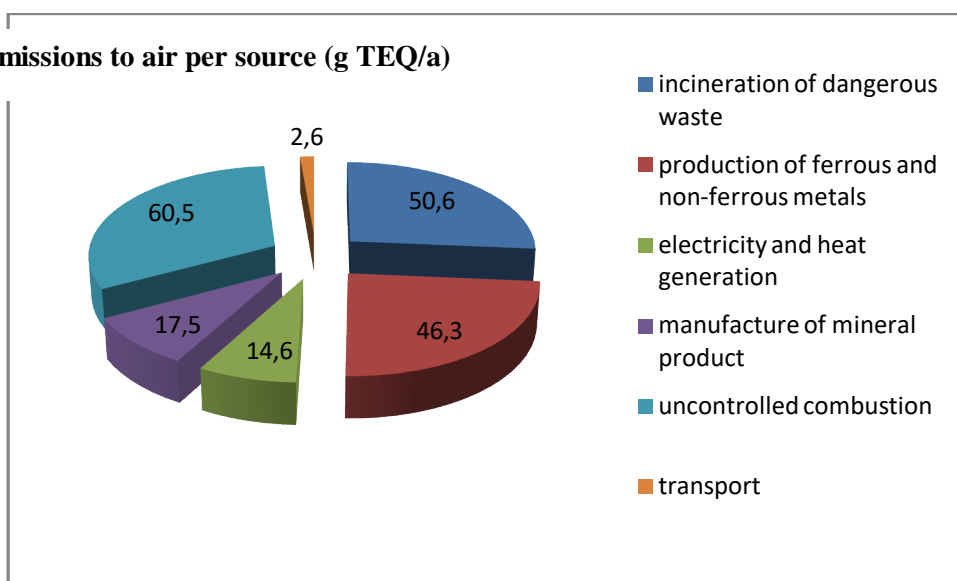


Figure 6:Emission of dioxins and furans in the air per source

The review of the 2011 inventory with the new calculation tool showed that total dioxin and furan emissions were approximately 242 g TEQ/year in 2009 (Table No.16).

Table 16: Update of the calculation of dioxins and furans releases in 2009 using the version 2013 Toolkit

	Group of sources	Annual emission/releases (g TEG/a)				
		Air	Water	Soil	Products	Wastes
1	Incineration of wastes	127.3	0.0	0.0	0.0	5.2
2	Production of ferrous and non-ferrous metals	0.0	0.0	0.0	0.0	0.1
3	Electricity and heat generation	0.6	0.0	0.0	0.0	0.1
4	Manufacture of mineral products	6.2	0.0	0.0	0.0	0.0
5	Transport	0.8	0.0	0.0	0.0	0.0
6	Uncontrolled combustion	76.1	0.0	7.1	0.0	0.0
7	Production and use of chemicals and mass market products	0.0	0.0	0.0	1.1	0.0
8	Others	0.0	0.0	0.0	0.0	0.0
9	Disposal/landfills	0.0	0.0	0.0	0.0	17.6
10	Black spots				NA	NA
1.-1	TOTAL	211.0	0.0	7.1	1.1	23.0
	Total of emissions and releases	242				

NA = not available (this does not mean that it is nil but it could not be estimated)

Compared to 2011, the level of dioxin and furan emissions in Cameroon increased from 242 to 256 gTEQ/per annum, representing a 2% average annual increase. This increase is mainly due to the installation of two new cement production factories, an increase in waste incineration practices in the open air in cities, the use of non-performing incinerators in hospitals, use of unimproved stoves for cooking practices in towns and rural areas.

The transport sector with 2.6 g TEQ/a in the air is the sixth source of dioxin and furan emission and should be taken into account in the implementation plan review. In this sector, the most important emissions result from land transport.

Furthermore, we note among others a decrease in the emission of ferrous and non-ferrous metals, which represents a drop from 46.3 gTEQ/year to 0.0 gTEQ/year in air and from 0.2 gTEQ/ year to 0.1 gTEQ/ year in waste).

2.4.5. Existing programmes for monitoring releases and incidences on the environment and human health

In Cameroon, there is no specific programme for monitoring releases and impacts of POPs on the natural environment and human health. Similarly, there are currently no concrete measures that can contribute to the environmental friendly management of new POPs, in particular flame retardants and PFOS. However, the Ministries in charge of Agriculture, Environment, Health, Livestock and Forestry are actively involved in initiatives likely to ensure the rational management of pesticides.

MINADER is currently implementing the National Programme for the Management of Obsolete Pesticides and Associated Wastes (PNGPOC) by government funding.

MINEPDED is involved in the coordination and monitoring and evaluation of activities of two major projects, namely: the World Bank-funded project dubbed PASP and Clean Farms Project funded by Croplife International (CLI).

Within the framework of these projects, safeguarding and securing obsolete pesticide stockpiles is done with the goal of their progressive disposal abroad. To achieve this goal, a warehouse was built in Edéa in order to temporarily accommodate the collected stockpiles, pending their export for environmentally sound disposal. A national NGO facilitates operations while MINADER, MINEPDED and MINSANTE are responsible for monitoring.



Figure 7 : (a) Warehouse KR2 in Edéa before rehabilitation (NIP, 2012) (b) after rehabilitation as Infrastructure for Temporary Storage pending their elimination

In December 2012, nearly 45 tons of obsolete pesticides, including POPs, soils and contaminated materials, were stored in Edéa's warehouse. Operations intended to safeguard stockpiles identified until then were completed in February 2013. Future removal can therefore be carried out thanks to the financial support of GEF within the framework of the pesticide project.

It is also worth noting the existence of the WHO/Bill Gates Foundation project led by MINSANTE to reduce the health risks associated with the use of pesticides.

ENEO (former AES SONEL), which is the largest holder of transformers, has already set up an internal programme to monitor and gather PCB equipment destined to be disposed of. This programme will enable to reduce the risks identified during the inventory, including:

- É obsolescence of devices: the total of 417 devices having more than 30 years old listed should be gathered and eliminated within the framework of the programme set up by ENEO;
- É the inventory enabled to list 270 transformers with an average or high leakage level. Their replacement is imperative.

Within the framework of the Action Plan (2012), the project "Reducing PCBs in Cameroon through local expertise and national capacity-building" was developed and submitted to GEF

for funding. This project was approved on 17 December 2015 and is funded to the tune of \$ 3 million by GEF and will be launched in the upcoming days.

2.4.6. Current situation of target groups as regards information, awareness and education

People suffering from the direct impacts of POPs activities include:

- É workers in agricultural industries and other industrial production facilities;
- É repairers and recyclers of electrical and electronic equipment, as well as waste from such equipment;
- É automotive repairers, including old vehicles the seats of which may contain flame retardant POPs (mainly painters);
- É carriers of the said chemicals;
- É planters and their families;
- É the surrounding populations of industrial facilities.

Surveys conducted in 2014, within the framework of the development of the D3E management strategy, revealed that:

- É Only 46.8% of consumers interviewed have heard of D3E. Generally, users dispose of their equipment by throwing them away, keeping them at home, abandoning them, selling them to repairers, or giving them to friends or family members. They are ignorant of the risks associated with the presence of flame retardants in their equipment;
- É Repairers and other D3E recycling agents are ignorant of dangers associated with the presence of dangerous elements in the said equipment. High-risk practices were observed in the field, in particular: dismantling of equipment with hammers, without any safety measure; storing in the open air of materials to be dismantled or already dismantled, releasing unused parts, in particular plastics containing flame retardants in refuse containers, burning of cables to extract metals; etc.

Distributors of pesticides recognize that they are making a lot of awareness efforts to their clients. However, the fact that a large number of this target group is illiterate limits the impact of their message.

Table No. 17 summarizes the good and bad practices observed.

Table 17 : Best and bad practices observed in the field

Targets	Best practices	Bad practices
Companies holding or using PCB-containing equipment	Export of part of PCB waste for destruction, PCB transformer inventory, staff awareness programme (ENEO)	Illicit sale of damaged transformers without prior testing; Abandoning PCB transformers at inappropriate places
Repairers and recyclers of electrical and electronic equipment	Some dismantling and treatment operators of D3E approved by MINEPDED operate under	The vast majority of repairers and recyclers abandon screens and other parts of waste and

	acceptable environmentally friendly conditions. Screens containing flame retardants are exported to be taken care in Europe.	recover only metals, thus abandoning parts of equipment that can contain flame retardant POPs in nature.
--	--	--

Awareness-raising must be strengthened in all sectors to reduce the impact of POPs on health and the environment.

2.4.7. Relevant activities of non-public sector stakeholders

There is regulatory control over the activities of companies in order to ensure the quality of their releases into the environment. These controls are carried out by MINEPDED' sworn inspectors.

2.4.8. Technical structures required for evaluations, measurements and analyses, management and research and development of POPs

Despite the fact that Cameroon currently has a quality control laboratory for pesticides in MINADER, and despite the fact that the Centre Pasteur carries out some quality control analysis, many samples of pesticides are analyzed in foreign laboratories. The lack of equipment, qualified staff and the very limited quantity of samples received hamper the proper functioning of the quality control section at the Centre Pasteur.

The Institute of Agricultural Research for Development (IRAD), the expertise of which is respected internationally, has several renowned researchers in various fields, such as plant protection and the environment. A scientific and technical cooperation agreement in the area of plant protection links IRAD to CPAC (Central Africa Inter-State Committee of Pesticides).

CPAC is a sub-regional organization that has carried out a study on the state of pesticides in the CEMAC member countries and is working to strengthen the knowledge of its experts with a view to setting up a mechanism for the common registration of pesticides. The Ministry in charge of the environment also has the Lx2000 device for the analysis of PCB levels in dielectric oils. Cameroon does not have a laboratory that can control other POPs, including dioxins and furans, PFOS, PBDE, and other flame retardants.

2.4.9. Census of populations or affected areas, gravity of threats on public health and quality of the environment

Cases of POPs poisoning in general are not identified by the Ministry of Environment or the Ministry of Public Health. There are no health statistics for pesticide poisoning. Nevertheless, there is a significant exposure of the populations living around the wild dumps and pesticide warehouse sites. This is the case, for example, in most of the secondary towns in the country where open burning of waste is a common practice in household waste management.

2.4.10. System of evaluation and regulation of commercialized chemicals

The control system set up in Cameroon is mainly limited to the control of structured enterprises, in particular through environmental audits and inspections. Almost a hundred

inspections are carried out annually and result in sanctions in 10% of cases. Cameroon does not have a system for monitoring the quality of products and articles currently in use concerning POPs.

2.5 MEASURES TO REDUCE OR ELIMINATE PRODUCTION, USE, IMPORT AND EXPORT OF POP RELEASES

2.5.1. Prohibition or elimination of production and use of chemicals listed in Annex A

As specified in the inventory, Cameroon has orders prohibiting chemicals listed in Annex A, including new POPs pesticides from the 2009 list and endosulfan listed in Annex A in 2011.

2.5.1.1. Alpha-HCH, beta-HCH and chlordecone

There is no registered use of these persistent organic pollutants in Cameroon. These pesticides have never been registered. Therefore, their production, sale or use as pesticides is prohibited in Cameroon.

2.5.1.2 Lindane

Lindane has never been manufactured in Cameroon. Since 22 August 2005, Lindane is no longer registered for pest control purposes for veterinary and human health uses, pursuant to Order No. 5705/A/MINADER/SG/DPA/SDPVP/LAD of 22 August 2005. Even the use of this product for public health purposes for the treatment of lice and scabies is not permitted since the above text does not provide for any derogation. The last stockpile of 450 litres introduced in 2007 for this purpose has been exhausted and no import authorization has been issued by MINADER since that date.

2.5.1.3. Pentachlorobenzene (PeCB)

The PeCB is currently not manufactured or used in Cameroon. The manufacture, sale, offer for sale, and import of PeCB, or any mixture or product containing it, having been proscribed under Decree No. 2011/2581/PM of 23 August 2011, to regulate harmful and/or dangerous chemicals. The use of PeCB in the dye supports was interrupted and the presence of this substance in transformers containing PCBs, in which it could be found in the dielectric fluids used to fill the transformers, is being phased out, in line with *the Convention's implementation plan (2012)*. Cameroon's National Implementation Plan has a timeframe (2025) for the disposal of PCB-containing equipment, including transformers that may use dielectric liquid containing PeCB.

PeCB can also be present as an impurity in some pesticides. Contaminants in pesticides are regulated under Decree No. 2011/2581/PM of 23 August 2011, to regulate harmful and/or dangerous chemicals. An Inter-Ministerial Commission for the registration of phytosanitary products is working with importers of products that may contain traces of this substance in order to identifying and possibly prohibit them.

2.5.1.4. TetraBDE, pentaBDE, hexaBDE and heptaBDE

These persistent organic pollutants are included in the composition of commercial mixtures of flame retardants, such as c-pentaBDE and c-OctaBDE, but have never been produced in Cameroon. Given that Cameroon is not a producer, it has not adopted any specific regulations

to prohibit Polybrominated diphenyl ethers (PBDE) and polymer resins and other mixtures containing them. Cameroon has undertaken to eliminate the stockpiles of BDE POPs contained in the equipment and vehicles currently in use, as well as the waste of these equipment. A strategy is proposed to eliminate the stockpile currently in use or contained in wastes (see action plan). Only imports of electrical and electronic equipment are subject to prior monitoring by the Ministry in charge of the Environment. Indeed, joint Order No. 005/MINEPDED/ MINCOMMERCE of 24 October 2012 lays down the specific conditions to govern the management of electrical and electronic equipment and the disposal of waste from such equipment. The sale of electrical and electronic equipment, according to Article 4 of the aforementioned Order, shall be subject to a technical visa specifying that the product does not contain PBDE.

2.5.1.5. Hexabromobiphenyl (HBB)

The production and use of HBB ended in the late 1970s in the world. Nevertheless, this chemical is subject to Decree No. 2011/2581/PM of 23 August 2011, to regulate harmful and/or dangerous chemicals. The Regulations also prohibit the production, use, sale, offer for sale and import of all polybrominated biphenyls, including HBB.

2.5.2. Limitations of production, import, export and use of chemicals listed in Annex B

Article 3 (1) of the Convention states that each Party shall limit the production and use of the chemicals listed in Annex B subject to the provisions of that Annex. Perfluorooctane sulfonic acid (PFOS) was listed in Annex B of the Convention following the 2009 review of the list of POPs. Measures relating to DDT, another substance listed in Annex B of the Convention, were discussed in the initial NIP.

PFOS, its salts and precursors are not manufactured in Cameroon. The main supplier of United States PFOS voluntarily stopped producing these substances in 2002. Although the Convention provides for specific exemption for the use of these products for acceptable purposes, Cameroon has not yet requested an exemption and intends to do so after submitting this NIP.

Cameroon undertakes the new implementation action plan, to take measures in order to limit the import of articles containing PFOS into its territory, and eliminate, under environmental sound acceptable conditions, articles currently in use containing POPs⁷, as well as waste stockpiles (see action plan).

A practical measure would be to prohibit the use of foams containing PFOS for fire extinguishing exercises and leave them for use in real fire situation until their expiration date. Beyond that, they should be eliminated in an environmental sound manner, and eventually export them.

⁷ Disposal may be done through incineration for articles and wastes containing PFOS. As such, Cameroon has hazardous waste incineration facilities in its territory.

2.5.3. Imposing restrictions on import and export of new persistent organic pollutants

2.5.3.1. Import of new persistent organic pollutants

The national regulations already restrict the import of POPs listed in Annex A as specified in Chapter 2.2.

2.5.3.2. Export of new persistent organic pollutants

Cameroon does not export POPs. Current waste management regulations limit the export of waste for treatment and/or recycling outside the country.

2.5.4. Prevention of the production and use of chemicals with characteristics of persistent organic pollutants

Cameroon does not intend to produce or give authorization for production on its soil of substances having POP characteristics. This provision is governed by Decree No. 2013/0171/PM of 14 February 2013 to lay down the terms and conditions to conduct environmental and social impact, which gives the State the means to authorize or prohibit industrial projects likely to have negative impacts on the environment.

Existing legal instruments are involved in the management of chemicals at various stages of their life cycle enable to confirm this provision (Table 18).

Table 18 : Overview of legal instruments for the management of chemicals per stage of life cycle

Category of chemical	Import	Production	Storage	Transport	Distribution/Marketing	Use/Handling	Export	Elimination
Pesticides (agricultural use, public and veterinary health)	x	X	x	X	X	x	x	x
Fertilizers	x	X	x	X	X	x	x	x
Industrial chemicals (used in installations of manufacture/transformation)	x	x	x	X	X	x	x	x
Products of petrochemical industry	x	X	x	X	X	x	x	
Chemical products destined to	x	X	x	X	X	x	x	x

consumption								
Chemical wastes	X	X	X	X	X	X	X	x
Others?	x	X						

Source: MINEDED (2011) Cameroon's chemical profile

Chapter 3: STRATEGY AND NATIONAL IMPLEMENTATION ACTION PLANS

This chapter deals with an update of the National Action Plan on Persistent Organic Pollutants published in 2012. This Plan includes information on projects, laws and current policies, and presents strategies that Cameroon has adopted in its national programmes for the environmentally sound management of POPs, specifically concerning: the reduction of releases resulting from the unintentional production of dioxins and furans, the elimination of POPs listed in Annex A, and the reduction in the use of POPs listed in Annex B found in articles, products and wastes.

3.1. DECLARATION OF INTENT

Cameroon is resolutely committed to implement the NIP which will contribute to significantly reduce or eradicate Persistent Organic Pollutants throughout the national territory. Through all the actions planned by the NIP, and those prescribed by the Growth and Employment Strategy Paper, the Government is determined to implement the Stockholm Convention on persistent organic pollutants and the sustainable management of the harmful effects of POPs on human health and the environment. Cameroon therefore undertakes to take all possible measures for the identification of POPs in its territory and their elimination through environmentally acceptable techniques.

Faithful to its vision for an emerging Cameroon by 2035, the Government undertakes to achieve sustainable development goal No. 12 dealing with sustainable consumption and production patterns, in order to ensure to the whole population, a healthy environment, without profound changes in the lifestyles of its inhabitants. Indeed, the long-term management of resources, waste and chemicals, the fight against food wastage, the promotion of sustainable tourism and the development of corporate social and environmental responsibility feature at the centre of the fresh impetus that Cameroon wishes to stimulate through the implementation plan of the Stockholm Convention.

3.2. IMPLEMENTATION STRATEGY

The success of this National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants for the reduction/elimination of sources and POP releases depends on:

- É the setting up of appropriate institutional and legal mechanisms;
- É the accountability of all stakeholders;
- É the mobilization of internal and external financial resources for the implementation of action plans;
- É awareness, education and communication;
- É strengthening international cooperation and the mobilization of financial resources for the implementation of action plans.

3.2.1. Objectives of the strategy

The overall objective of the strategy is to contribute to the fight against poverty and the promotion of sustainable development by strengthening chemical safety, reducing threats

posed by POPs to human health and the environment, and in line with the objectives of the Growth and Employment Strategy Paper (GESP) as well as the Emergency Plan of Cameroon by 2035⁸.

The specific objectives are to eliminate articles, products and wastes containing the POPs listed in Annexes A and B, and reduce emissions of unintentionally produced POPs listed in Annex C to the Convention. These objectives will be made possible through the following actions:

- É strengthen the institutional and legal framework, and raise public awareness on the threats of the dangers of POPs;
- É eliminate pesticide stockpiles listed in Annex A to the Convention and their wastes⁹;
- É collect, process and/or dispose of equipment, articles and wastes containing PBDE and other POPs in the category of flame retardants;
- É reduce emissions and releases of unintentionally produced dioxins and furans;
- É monitor articles and products containing PFOS and eliminate wastes containing these POPs.

3.2.2. Guidelines of the strategy

The guiding principles of this strategy include:

- É the promotion of good environmental governance;
- É the sound management of chemicals;
- É sub-regional integration as a solution-seeking approach to the elimination of POPs;
- É the participation of the population and all stakeholders in the search for solutions to reduce and eliminate POPs emissions/ releases.

3.2.3. Implementation mechanisms

MINEPDED benefits from the leadership for the implementation of NIP activities in Cameroon. The institutional organization planned for the implementation of the first plan (NIP, 2012) is still topical (Figure 8).

⁸ A long-term development vision (Cameroon, an emerging country, democratic and united in its diversity).

⁹ Although the new POPs pesticides are not present in Cameroon, the 2012 NIP has identified activities that have not been taken into account in the project to eliminate obsolete pesticides.

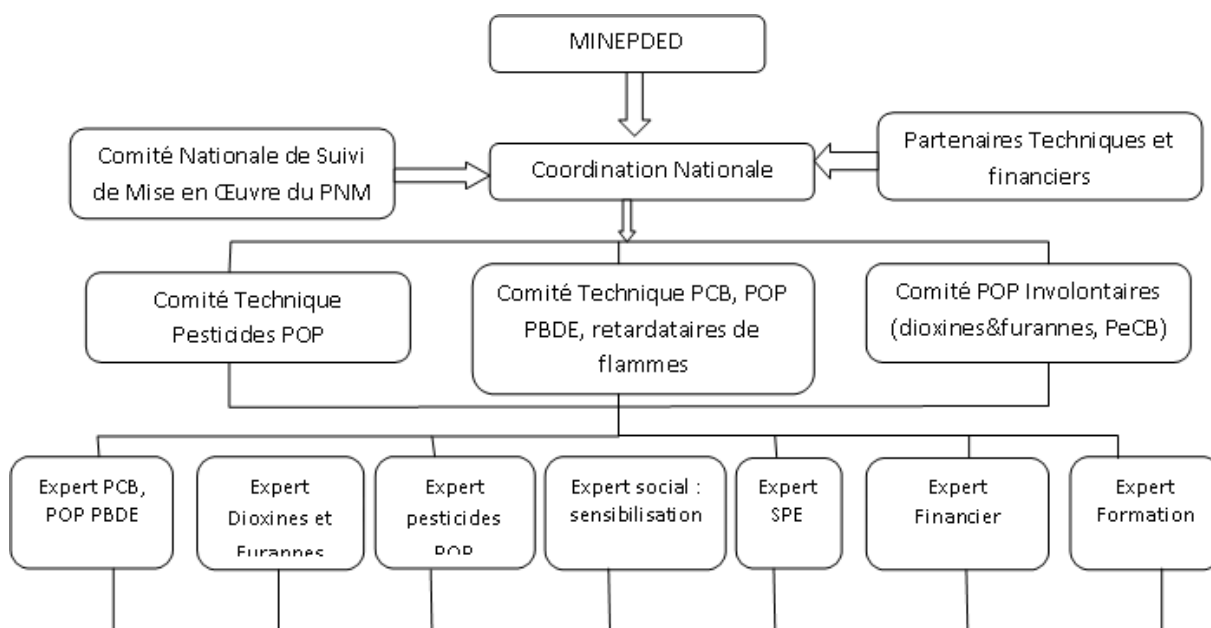


Figure 8 : Flow chart of the NIP implementation

The National Committee for Monitoring the Implementation of the NIP, made up of officials of the ministries involved in the management of POPs, user companies, NGOs and academics, will monitor the activities of the plan in collaboration with the National Coordination. Technical Committees will monitor the sectoral activities of experts. Seven executives or experts will be recruited to accompany the National Coordination in the implementation of the activities of the NIP on a daily basis.

3.3. ACTION PLAN

3.3.1. National priorities as regards management of new POPs

Measures presented in this strategy document are mainly related to the elimination of new POPs from the 2009, 2011 and 2013 updates.

Actions chosen by Cameroon have been prioritized taking into account the following aspects:

- É targeting of POPs still present in the territory
- É the availability of alternatives to POPs and the feasibility of these alternatives, including best environmental practices and the best available techniques;
- É the availability of human, material and financial resources.

Socio-economic assessments have not been done at the national level. POPs descriptive sheets were used to carry out an assessment. On the basis of these criteria, national priorities in the area of the elimination and reduction of POPs set forth at the end of the validation workshop of the action plan held on 26 and 27 November 2015 (Figure 9) are as follows:

- É strengthening the institutional and legal framework;
- É raising public and all stakeholders awareness on the knowledge of the dangers of POPs and the programmes for the reduction and eradication of POPs. Apart from the sensitive areas identified in the first report, this raising awareness will be

- extended in cities, in particular to those involved in the recovery of waste from electrical and electronic equipment;
- É the elimination of pesticides listed in Annex A to the Convention: in particular those listed in 2004 present in wastes or contaminated sites;
 - É the collection, storage and final disposal of equipment, articles and wastes containing PBDE and other flame retardant POPs, including electrical and electronic equipment currently in use, and waste from such equipment;
 - É reduction of dioxin and furan emissions from the six main identified sources, including: savana and forest fires, burning of household waste in landfills and the open air, incineration of health care waste;
 - É as concerns articles containing POPs listed in Annex B to the Convention, in particular perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (PFOS), Cameroon will request an exemption after submitting this NIP, but will take regulatory and supervisory measures to reduce imports of these products into the country.

The gaps and weaknesses observed in Cameroon and which may have an influence on the implementation of this action plan include: (1) lack of labelling of products containing POPs, (2) lack of equipment to detect new POPs in products and articles, including PBDE and other flame retardants, PFOS, (3)) insufficiency of resources (equipped laboratories, trained personnel and sufficient financial resources).



Figure 9 : Overview of the validation workshop of action plans

A cross-cutting action is proposed to improve the socio-economic and environmental impacts of the above mentioned priorities. This involves strengthening the institutional and legal

framework in order to adapt it to the requirements for the elimination or reduction of POPs emissions.

3.3.2. Intervening institutions

At the administrative level, several structures have been set up to coordinate government interventions in the control, monitoring of production and use of chemicals (including POPs). The table below lists these institutions:

Table 19 : Coordination mechanism of chemical management in Cameroon

Name of mechanism	Responsibilities	Organizational text
National Registration Commission of Phytosanitary Products and Certification of Sprayers	MINADER	Law 2003/003 of 21 April 2003 to lay down Phytosanitary Protection;
National Phytosanitary Council	MINADER	Decree No. 2005/0769/PM of 6 April 2005 to create a National Phytosanitary Council
National Committee for the Follow-up of Pesticides Initiative Programme (CNPIP)	MINADER	Order No. 870/MINAGRI/CAB of 14 June 2001 creating the national committee for the follow-up of pesticides Initiative programme known as PIP National Committee (CNPIP).
Commission responsible for examining the authorization request files to put on the market veterinary medicinal products	MINEPIA	Order No. 178 CAB/PM of 5 December 2008 on the creation, organization and functioning of the Commission responsible for examining the authorization request files to put on the market veterinary medicinal products
National Coordination Committee for the Implementation of the National Strategic Approach to International Chemicals Management (CNCMO/SAICM-Cameroon).	MINEPDED	Order on the creation, organization and functioning of the National Coordination Committee for the Implementation of the National Strategic Approach to International Chemicals Management.
Inter-ministerial Committee on Environment	MINEPDED	Decree No. 2001/718/PM of 3 September 2001 pertaining to the organization and functioning of the Inter-ministerial Committee on Environment.
Commission for the Evaluation	MINMIDT	Decree 9 November 1999

and Validation of Risk Studies and Emergency Plans		
Committee on Protection against Contamination due to Hydrocarbons	MINMIDT	Decree No 2001/024/CAB/ PM of 30 January 2007 on the organization and functioning of the Committee on Protection against Contamination due to Hydrocarbons.
National Advisory Commission on Environment and Sustainable Development	MINEPDED	Decree No. 94/PM of 31 May 1994 and its subsequent amendments

The participants in the revised NIP validation workshop held on 6 May 2016 approved the action plan with the following activities:

- É the development of a regulatory text to manage new POPs still currently in use (PBDE and flame retardants, PFOS) listed in Annexes A and B of the Convention between 2009 and 2013, as well as those to come;
- É capacity-building of members of the National Coordination Committee for the implementation and monitoring of the NIP;
- É capacity-building of customs officers for the import and export control of products and articles containing POPs;
- É capacity-building of other stakeholders and key actors, including members of civil society and private companies involved in POPs management;
- É the setting up and equipping of a laboratory for the detection and measurement of concentrations of PBDE, PFOS and other flame retardant POPs;
- É the setting up of a laboratory for the analysis and control of POPs;
- É conducting a socio-economic study of POPs on the impacts of POPs, PBDE, PFOS and flame retardants;
- É raising media awareness on the socio-economic impacts of POPs;
- É raising awareness of both Chambers of Parliament (Senate and National Assembly) on the issues of POPs and mobilization of resources for the implementation of the NIP;
- É the creation of a platform for sharing and exchanging information among the different actors.

This workshop, chaired by the Minister of Environment and Protection of Nature, was attended by the Minister of Housing and Urban Development and all the members of the National Committee for the follow-up of the Convention (figure 10).



Figure 10 : Family photograph of participants at the final validation workshop of the NIP

Table 20 highlights the action plan to strengthen the institutional, legal and awareness-raising framework. The needs are assessed on the basis of the BRS Secretariat guide.

Table 20 : Action plan for enhancement of the institutional and legal framework and awareness

Activities	Objectives	Duration (period)	Cost (in \$)	Responsible	Partners
Activity 1: Enhancing the institutional framework for the NIP implementation					
Setting up of POP Technical Committees	Decision to create Committees (it is not an objective)	6 months (2016)	40 000	MINEPDED	

Building capacities of Technical Committees and MINEPDED's staff	The training was carried out and the staff was provided with the necessary equipment for a smooth follow-up of the NIP	24 months (from 2017)	100 000	MINEPDED	MINADER, MINMIDT
Functioning of the National Committee and Technical Committees	1 National Committee meeting per annum 2 technical Committees meetings per annum	Continuou s (2016-2020) (before the review)	100000	MINEPDED	MINFI Technical and financial partners
Support to the creation of a national laboratory of POPs analysis	A national laboratory is set up with an operational capacity for the identification and analysis of POPs in articles and products.	36 months (2016-2018)	500 000	MINEPDED	MINRESI MINADER Universities
Total activity 1			740 000		
Activity 2: Awareness, education and communication					
Awareness workshop of national and international stakeholders to mobilize resources for the NIP funding	A national workshop for the mobilization of resources is held and involved administrations, private operators and technical and financial partners	12 months (2017)	30 000	MINEPDED	MINEPAT, MINFI, NGO
Strengthen and make operational the existing National Phytosanitary Council (CPN)	Measures intended to strengthen and make operational the CPN are taken All the activities related to pesticides are identified and implemented	36 months (2016-2018)	60 000	MINEPDED	MINADER MINEPIA MINSANTE IRAD
Awareness of media and advocacy to Parliamentarians and Senators on POPs	The impacts of POPs are regularly addressed on the media and Parliamentarians and Senators	2016 - 2020	100,000	MINEPDED	MINCOM PM Media promoters and association of journalists.

	support the government in the awareness aspect				
Creation of a platform for sharing and exchanging on POPs	An electronic platform of information-sharing on POPs is operational in MINEPDED	2016 - 2020	50 000	MINEPDED	
Carrying out of a socio-economic study on the impacts of new POPs	A socio-economic on POPs is published and regularly updated depending on the Convention evolution	2017	100 000	MINEPDED	MINRESI CNE (National Education Centre)
Awareness of the populations on the impacts of POPs;	Key actors receive information on the impacts of POPs	2017 - 2020	300 000	MINEPDED	MINCOM
Total activity 2			640 000		
Activity 3: Improving the legal framework on POPs					
Support to the drafting of specific legislation on POPs (PCBs, POP pesticides, POP PBDE, PFOS)	Draft texts are drafted; Specific Decrees and Orders are published.	36 months (2016-2019)	150 000	MINEPDED	MINADER MINEPDED MINJUSTICE MINSANTE MINCOMMERCE
Regulatory and institutional framework related to the reduction of unintentional emissions.	Monitoring mechanism of forests and savanna against fire is operational; Texts are drafted.	36 months (2016-2018)	160 000	MINEPDED	MINDHU MINATD Universities
The harmonization of custom's nomenclature with those of products and articles of the Convention	A harmonised nomenclature is adopted by CEMAC countries	2017 - 2020	150 000	MINEPDED	PM MINFI Other CEMAC countries
Total activity 3			460 000		
Activity 4: Capacity-building of stakeholders					

Mid-term and final evaluation of the first phase of the NIP implementation (including the restitution workshop)	Evaluation report Report of the restitution workshop	2nd bi-annual 2018 and end of 2020	100 000	MINEPDED	MINFI Technical and financial partners
Capacity-building of customs officers for the control of products and articles containing POPs	Two training sessions are organized in favour of customs officers	2016 and 2016	60 000	MINEPDED	MINFI, Secretariat of the Stockholm Convention
Capacity-building of other stakeholders and key actors	A training is carried out every two years in favour of all NIP stakeholders	2016, 2018 and 2020	180 000	MINEPDED	Technical and financial partners
Capacity-building of Inspectors	Four capacity-building workshops in favour of Inspectors of MINEPDED are organized every two years	2016, 2018 and 2020	300 000	MINEPDED	MINMIDT
Monitoring and evaluation of PNDM	A final evaluation is carried out at the end of period (2020)	2020	30 000	MINEPDED	Secretariat of the Convention
Total activity 4			640 000		
Total action plan			2 480 000		

The total cost of implementing these activities to strengthen the institutional, legal, and awareness-raising and communication framework is \$ 2.48 million, representing CFAF 1.364 billion.

3.3.3. Action plan, management of pesticides stockpile listed in Annex A.

Article 6 of the Convention requires that, as concerns chemicals listed in Annexes A, each Party shall develop appropriate strategies for eliminating their stockpiles, wastes and identifying contaminated sites and their depollution under environmentally sound acceptable conditions.

None of the newly listed pesticides has ever been manufactured in Cameroon and has not been used for many years in accordance with the various orders and decrees banning these substances. The management and disposal of waste and packaging of new POPs pesticides the last imports of which were authorized in 2007 are covered in the first national implementation

plan, including the management of obsolete pesticides and waste packaging of these substances, defended by MINEPDED and implemented by FAO.

Lindane: Since it was prohibited, no import of Lindane for use as a pharmaceutical product has been authorized.

Thus, Cameroon no longer needs to take further measures for its elimination.

Endosulfan: the import of endosulfan in Cameroon is banned. No further measure is required. No stockpile of this pesticide was found in the field during the inventory.

HBB : The manufacture, sale, offer for sale, and import of polybromobiphenyles, (including HBB) are proscribed under Decree No. 2011/2581/PM of 23 August 2011 to regulate harmful and/or dangerous chemicals .

In conclusion, the implementation of measures recommended in the POPs Pesticides action plan (2012) is enough to enable Cameroon to meet its commitments to the Convention. Some activities of the Action Plan (2012) are already covered in the on-going pesticide management and packaging project. The other activities of this revised NIP are summarized in Table 21.

Table 21 : Action plan for the elimination, monitoring of sites contaminated by POP pesticides (list 2004) maintained

Activities	Objectives	Duration (period)	Cost (in \$)	Responsible	Partners
Activity 1: Programme to monitor the level of POPs pesticides in rejecting and receiving environments					
Assess the level of contamination of receiving environments by POPs pesticides	Sites and objects contaminated with POPs are known	36 months (2017-2019)	80 000	MINEPDED	MINADER; MINSANTE ; MINEPIA ; MINRESI ; UNEP ¹⁰ ; other partners
Set up a database of the level of contamination of receiving environments of POPs pesticides	A database is created and is operational	Idem	54 000	MINEPDED	MINADER MINRESI IRAD
Develop and implement a national programme to monitor the level of contamination of POP pesticides receiving environments	The level of contamination of receiving environments and the food chain by POP pesticides is under control	Idem	240 000	MINEPDED	MINADER MINRESI MINEPIA IRAD UNEP
Total activity 1			374 000		
Activity 2: management and monitoring and evaluation of actions plan					
Implement a monitoring system of POP pesticides at the	POP pesticides are environmentally managed	60 (2016-2019)	400 000	MINEPDED	MINADER; MINFI DGSN

¹⁰ Within the framework of monitoring the effectiveness of the Convention (Article 16).

borders					
Awareness of actors (importers, agricultures, administration) on POP pesticides	Awareness tools are developed and distributed campaigns are carried out in the media.	24 (2017-2018)	300 000	MINEPDED	MINSANTE ; MINEPIA ; MINCOM MINADER
Build the capacity of services and staff transferred to the monitoring and evaluation	1 training seminar is organized in each region of the country	2017 - 2018	300 000	MINEPDED	MINADER MINSANTE
Total activity 2			1 000 000		
Total of the budget			1 374 000		

This action plan enables Cameroon to sensitize actors in order to avoid illicit imports of POPs pesticides and to follow up after decontamination of the sites identified in the 2012 NIP. The total amount for this action plan is \$ 1.374 million, representing CFAF 687 million.

3.3.4. Action plan relating to the elimination of wastes from articles containing c-pentaBDE and/or c-OBDE and

Flame retardants in the PBDE family (-c-OctaBDE and c-pentaBDE) have never been produced in Cameroon and are not imported in the pure state, thus there are no stockpiles of such substances. Cameroon does not need additional measures to comply with its obligations to dispose of stockpiles of these POPs (Article 6 of the Convention).

However, Cameroon imported articles and equipment containing these POPs. POP PBDE are then found in these articles and equipment currently in use or in their wastes. POP PBDE in Cameroon are found mainly in electrical and electronic equipment (EEE) generally held by households, as well as in plastic or fabric articles and of course they are found in wastes of these products. They can therefore be eliminated only by minimizing the recycling of these products by the industry.

The main action plan for the management of stockpiles of PBDE-containing POPs focuses on the management of EEE sector in circulation and their wastes. In 2014, Cameroon has completed an inventory of waste from electrical and electronic equipment, which shows that the country produced about 77 000 tons in 2014 [ERA/IDS, 2014].

For the moment, the country barely¹¹ has any installation able to handle waste from electrical and electronic equipment, which is the largest PBDE production sector in Cameroon. To address this situation, Cameroon has developed in 2015 a strategy for the management of D3E in its territory. This strategy provides the basic element for the action plan for PBDE POPs.

A new regulation entered into force in 2012 and aims at sensitizing the importers on their responsibility to manage end-of-life equipment. Cameroon has developed a management strategy of D3E, the implementation of which will help to manage much of this flow and

¹¹ Only one installation exists in Yaoundé with a processing capacity of 40 tons per month, but is not equipped for the processing of screens.

reduce the impacts related to the wild destruction of these equipment by informal sector actors.

3.3.4.1. Activity 1: Setting up of the institutional organization for the sound management of POP PBDE and other flame retardant POPs

Under the coordination of MINEPDED, four ministries are called upon to play an important role in the management of electrical and electronic equipment in Cameroon and the management of wastes from these equipment (Figure 10). These ministries include:

- É Ministry of Environment, Protection of Nature and Sustainable Development (MINEPDED);
- É Ministry of Housing and Urban Development (MINHDU);
- É Ministry of Posts and Telecommunications (MINPOSTEL);
- É Ministry of Finances (MINFI).

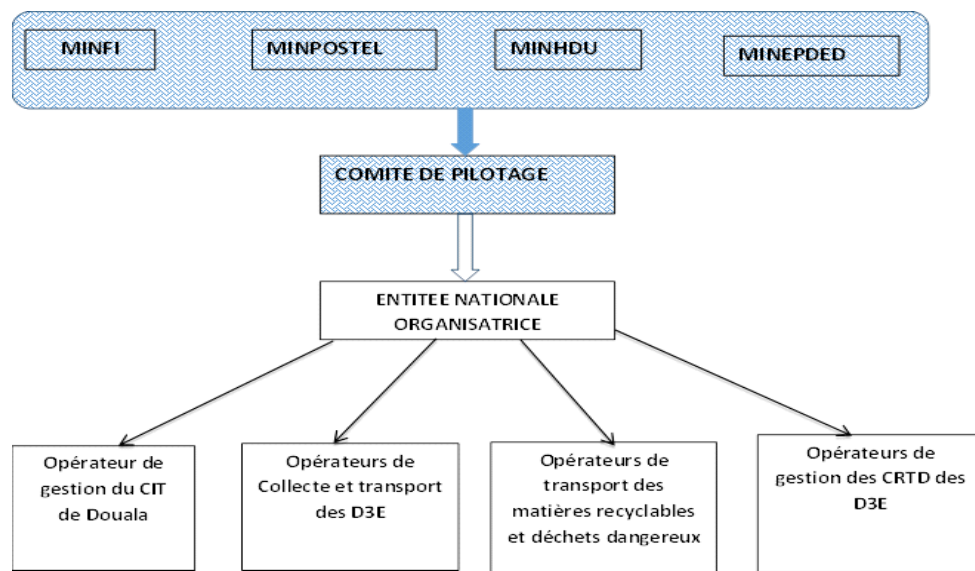


Figure 11 : Institutional organization for the sound management of POP PBDE and other flame retardant POPs

The actions of these ministries will be coordinated through an inter-ministerial WEEE management committee. This committee will bring together the four key ministries listed above in addition to the other ministries involved. The inter-ministerial committee will be responsible for coordinating the interventions of State actors, through the key ministries which are required to propose measures to promote the management sector of the D3E in Cameroon.

At the operational level, the recruitment of an organizing operational entity is envisaged in this activity. This entity will be a private organization recruited according to a model of Public - Private Partnership with MINEPDED. This organ will be responsible for:

- É Organizing the collection, transport, management of regional sorting and dismantling centres, management of the international treatment centre;

- É acting as an interface with recycling operators of re-usable materials (ferrous and non-ferrous metals, recyclable plastics, glasses, electronic cards);
- É selling re-usable materials extracted from D3E during dismantling operations in the CRTDs (Regional Centre for Sorting and dismantling of D3E);
- É sensitizing households and professionals in order to encourage them to bring their D3E to the various fixed and mobile collection points;
- É receive the State's allocation, revenues from direct sales of recyclable materials and other potential revenues and redistribute them to the various operators involved in the management sector of D3E;
- É financially supporting research and development with a view to improving the performance of treatment systems and the search for new markets or opportunities for material flows extracted from D3E during dismantling operations;
- É building the capacities of operators involved in the sector through continuous training, exchange visits, exhibitions, etc. ;
- É and supervising Regional and Local Authorities wishing to be involved in the collection of D3E in their territory.

At the level of each region, the construction of a regional dismantling centre for D3E is envisaged and will be managed by a private operator.

3.3.4.2. Activity 2: Implementation of the D3E collection strategy

The activities proposed for the management of this waste after collection are based on the Regional Centre for Sorting and dismantling of D3E (CRTDs). These centres will be linked to the regional and divisional level, as they constitute the drop point for all obsolete equipment collected in the region. To achieve this, an experimental phase is envisaged in the city of Yaoundé, on a centre of the same nature which already exists but does not have the appropriate capacity for the elimination of these types of waste. The capacity of this centre will be extended to allow it to manage, but in a limited way during the experimental period, D3E household collected in 7 fixed collection points located in the city.

The treatment of ultimate fractions and dangerous waste will be carried out in a single treatment centre based in the city of Douala. This city is chosen to host this centre because of its strategic position (port) and the density of industries that are located there. The treatment carried out here aims at depolluting and integrating into the market recyclable materials resulting from the dismantling of D3E in the various regional centres.

Fixed-point collection will be completed by the mobile collection, which consists of organizing tours according to intervals set in advance and communicated to the populations of the cities or the deployment zone of the collection team.

The transport of obsolete equipment to the regional sorting and dismantling centres will be carried out by specialised vehicles and in line with the transport measures for dangerous waste. The collection operator will be responsible for transport to the regional sorting and dismantling centre.

3.3.4.3. Activity 3: Setting up of D3E dismantling centres in four regions

A Regional D3E Sorting and Dismantling Centre will be set up in each Regional chief town and will handle wastes from fixed collection points as well as wastes from mobile collection. The four regions that will be covered here are the Centre, Littoral, West and North.

The regional D3E sorting and dismantling centres have the following specific objectives:

- É receive, sort and store primary D3E according to their destination;
- É repair equipment and sell them in the local market for re-use;
- É dismantle non-repairable equipment manually and organize the sale of recyclable products in the national and international market;
- É sort hazardous fractions and transferring them to the Douala D3E Treatment Centre;
- É package and dispose of non-hazardous fractions in municipal dumps.

3.3.4.4. Activity 5: Setting up the Douala D3E treatment centre

This centre is designed to support the re-sable fractions of D3E from sorting and dismantling operations carried out in regional centres, the treatment of dangerous waste from D3E dismantling, the transfer of ultimate fractions for to be disposed of in a dangerous waste landfill.

The specific activities of this centre include:

- É reception, sorting and weighing of re-usable materials (scrap, mixed copper, mixed aluminium, stainless steel, plastics, glass ...) from CRTDs;
- É sale of the various re-usable materials on the local market (ferrous and non-ferrous metals, re-usable plastics, glasses) and on the international market for by-products that do not have branches in Cameroon (poor and rich electronic cards, etc.);
- É incineration of pollutant elements (Freon or CFC gases, PCBs, plastics containing POPs PBDE);
- É export to Europe of hazardous and non-reusable elements in Cameroon (such as asbestos, LCD, mercury (in switches), PCB (in some condenser, etc.
- É stabilization of other non-incinerated waste and incineration ash prior to landfill of class 1;
- É capacity-building and awareness of actors involved in this action in order to improve their intervention in the sector and reduce unsafe practices.

The categories of wastes managed in the centre include: D3E components containing POP PBDE and other flame retardant POPs, vehicle seats containing PBDE POPs.

3.3.4.5. Activity 4: Elimination of POP PBDE contained in waste stockpiles of out-of-service vehicles or currently in use.

Inventories have shown that there are 444 676 vehicles currently in use or out of service in Cameroon that may contain PBDE in their seats.

Cameroon, in the light of the objectives of the Convention, should take measures to:

- É eliminate these POP PBDE in the seats of vehicles in use or out of service;
- É prohibit the import and the use of vehicles that may contain PBDE;

To do this, the following actions are proposed:

- É set up in each car control centre a section responsible for dismantling vehicles contaminated with PBDE POPs, and their storage for transfer to the Douala Treatment Centre for disposal;

É Sign an Order banning the import in Cameroon of vehicles made before 2004.

Table 22 summarizes the action plan and the realization cost of activities. Equipment costs and other activities planned here are estimated at in Cameroon's D3E management strategy (MINPOSTEL, 2015).

Table 22 : Action plan for the elimination, prohibition and elimination of waste containing POP PBDE and other flame retardant POPs

Activities	Objectives	Duration (period)	Cost (in \$)	Responsible	Partners
Activity 1: Setting up of institutional organization for the sound management of PBDE POPs					
Setting up of the Steering Committee	A text organizing the Steering Committee for the Management of POP PBDEs set up by the PM	24 (2016 - 2017)	20 000	MINEPDED	MINDHU MINFI MINPOSTEL PM
Recruitment of the National Organizing Entity	The Specification charges is developed and the contract signed	12 months (2017)	20 000	MINEPDED	MINDHU MINFI MINPOSTEL
Development of specification charges of the management operators of the CRTD and ToRs for their recruitment	Specifications charges and ToRs developed and validated	12 months (2018)	50 000	MINEPDED	Steering Committee Organizing Entity or Organ
Recruitment of CRTDE managers, affiliation of collection operators	Operators recruited for the 4 CRTDs	12 months (2018)	50 000	MINEPDED	Steering Committee Organizing Entity or Organ
Follow-up of activities of the National Entity and other operators	An annual report is produced with indicators showing the level of service	36 months (2018-2020)	100 000	MINEPDED	MINDHU MINFI MINPOSTEL
Total activity 1			240000		
Activity 2: Implementation of the D3E collection strategy in four regions					
Setting up and follow-up of the 7 fixed collection points in Yaoundé	A collection point is functional by CAY	60 (2016-2020)	100 000	MINEPDED	MINPOSTEL Technological Solidarity
Setting up of fixed and mobile or	30 fixed collection points are located in the 4 regions. The mobile or itinerant	36 (2018-2020)	700 000	MINEPDED	MINPOSTEL MINDHU Organizing

itinerant collection points in the four regions	collection is operational in 4 regions.				Entity or Organ Operators of collection
Follow-up of activities of D3E collection	An annual report is produced with indicators showing the level of service	36 (2018-2020)	150 000	MINEPDED	MINDHU MINFI MINPOSTEL
Total activity 2			950 000		
Activity 3: Setting up of D3E dismantling centres in four regions					
Extension and equipping of the Yaoundé Pilot Centre	The Yaoundé Pilot Centre has the capacity to process 45 tons of D3E/month	24 (2016-2017)	500 000	MINEPDED	MINPOSTEL Technological Solidarity
Monitoring and capitalization of the Yaoundé Pilot Centre	The Centre is operating and a capitalization report is available	6 (2017)	220 000	MINEPDED	MINPOSTEL Technological Solidarity
Construction of the 4 CRTDs	The 4 CRTDs are constructed and delivered	24 (2017-2018)	4 200 000	MINEPDED	MINDHU MINFI MINPOSTEL
Equipping and commissioning of the 4 CRTDs	The 4 CRTDs are operational	24 (2019-2020)	1 100 000	MINEPDED	MINPOSTEL MINDHU MINFI
Follow-up of the functioning of the 4 CRTDs	An annual report is produced with indicators showing the level of service	24 (2019-2020)	100 000	MINEPDED	MINDHU MINFI MINPOSTEL
Total activity 3			6 120 000		
Activity 4: Elimination of vehicle seats of containing POP PBDE.					
Detailed national inventory of vehicles in service or out of service	The number of vehicles whose seats contain POP PBDE are known	24 (2016-2017)	200 000	MINEPDED	MINTRANSP ORT RLAs
Order banning the circulation of vehicles the seats of which are contaminated	The joint Order MINEPDED/MINTRANSPORT is signed	6 (2017)	50 000	MINEPDED	MINTRANSP ORT PM Professional of transport
Construction and equipping of	The dismantling sections are constructed and are operational.	36 (2018-2020)	1 000 000	MINEPDED	MINTRANSP ORT Managers of

a section charged with dismantling contaminated seats per region in an automotive control centre	The appropriate storage system is set up				automotive control centres
Order banning the import of vehicles made before 2004	The order is signed	6 (2017)	100 000	MINEPDED	MINFI PM SGS
Total activity 4			1 350 000		
Activity 5: Setting up of the Douala D3E Treatment Centre and Waste Disposal containing POP PBDE					
Construction of the Centre	The centre is constructed	24 (2017-2018)	800 000	MINEPDED	MINPOSTEL MINDHU CUD
Equipping of the Centre	The centre is operational	12 (2018)	170 000	MINEPDED	MINPOSTEL MINDHU CUD
Capacity-building of stakeholders	5 training sessions are organized; All actors of the sector were trained and master their role	12 (2018)	250 000	MINEPDED	ENEO MINPOSTEL RLAs MINDHU
Setting up of awareness, information and communication strategy	All key actors are sensitized; Awareness tools are distributed.	36 (2018-2020)	600 000	MINEPDED	MINCOM RLAs MINPOSTEL MINDHU
Follow-up of the functioning of the Centre	An annual report is produced each year; An environmental audit is conducted	36 (2018-2020)	200 000	MINEPDED	ENEO Management operator
Total activity 5			2 020 000		
Total cost of the action plan			10 680 000		

The action plan for POP PBDE and other flame retardants is estimated at \$ 10.88 million (CFAF 5.874 billion) over the 2016-2020 period. A good number of these activities will be financed within the framework of the national strategy for the management of electrical and electronic equipment, as well as waste from such equipment.

3.3.5 Action Plan for Perfluorooctane Sulfonic Acid (PFOS, Annex B)

The main measure to be taken here is to endow Cameroon with measuring equipment to update the PFOS inventory and train the personnel of the Ministry in charge of the Environment for the conduct of this operation

Cameroon will need high- performance liquid chromatograph, mass spectrometer and eventually a gas chromatograph. To ensure the use of this equipment, it will be necessary to recruit an appropriate staff (chemist) and train him in the use of this equipment. This will be complemented by administrative measures, in particular the extension of the import visa for all products and articles that may contain PFOS. As regards the stockpiles of foams still present in the territory, the use of fire-fighting foams containing PFOS for fire-fighters, airports and air bases is acceptable under the Convention. These stockpiles may continue to be used until exhaustion or expiry date. Beyond that, they will have to be disposed of by their holders abroad, that is to say in countries that have acceptable technologies for the disposal of these substances.

In addition, some preliminary measures were identified during the validation workshop of the action plan (Table 23). These measures will be reinforced after the inventory.

Table 23 : Action plan for the elimination of articles, products and waste containing PFOS in Cameroon

Activity/sub-activities	Indicators	Duration (month) (period)	Estimate cost (in \$)	Responsible	Partners
Activity 1: PFOS detailed inventory					
Preparation of survey forms and training of those in charge of surveys	Survey forms List of entities to be interviewed Actors are sensitized Report on the training of those in charge of surveys	6 (2016)	10 000	MINEPDED	MINCOMMERCE MINDEF ADC SCDP
Training of MINEPDED's workers on the use of PFOS testing equipment	10 workers are trained in the use of testing equipment (theory and practice)	3 (2016)	20 000	MINEPDED	Secretariat of the Convention
Conducting an inventory in the field	5000 articles containing PFOS are tested; All stockpiles of products that may contain PFOS are known The inventory report is available	6 (2017)	50 000	MINEPDED	MINCOMMERCE NIS MINFI

Setting up at Customs level of a testing system for articles and products that may contain PFOS	A team is mobilized at each border check point and has adequate equipment for the testing of articles and products.	2018 - 2010	300 000	MINEPDED	MINFI Secretariat of the Convention
Proposing phase-out measures for articles and products containing PFOS	a plan for the disposal of products and articles is proposed	6 (2018)	20 000	MINEPDED	
Total activity 1			400 000		
Activity 2: Elimination of existing stockpiles and wastes					
Drafting of texts banning the import of articles and products containing PFOS	A draft banning decree or order is drafted	6 (2018)	15 000	MINEPDED	MINFI MINCOMMERCE PM
Labelling of articles and products containing PFOS	A labelling model of articles and products is proposed; All stakeholders are sensitized about the new labelling	12 (2017-2018)	80 000	MINEPDED	MINCOMMERCE MINFI
Organization waste collection containing PFOS and articles currently in use in a pilot region	A collection plan is approved by MINEPDED and is available Structures are approved for the collection of articles and products	36 (2018-2020)	200 000	MINEPDED	MINDHU RLAs
Elimination of PFOS-containing waste	The stockpile is exported to the approved disposal units outside the country and wastes destroyed at national level	2017-2020	500 000	MINEPDED	MINFI Secretariat of the Convention
Total activity 2			795 000		
Total action plan			1 195 000		

3.3.6. ACTION PLAN FOR THE REDUCTION OF UNINTENTIONAL POP RELEASES

Under Article 5 of the Stockholm Convention, Parties shall take measures to reduce the total releases derived from anthropogenic sources each of the chemicals listed in Annex C. The action plan shall include the following elements:

- É an evaluation of current and projected releases, including the development and maintenance of source inventories and release estimates, taking into consideration the source categories identified in Annex C;
- É an evaluation of the efficacy of the laws and policies applied by the Party for the management of such releases;
- É Strategies to meet the obligations of this paragraph, taking into account the evaluations in (i) and (ii);
- É Steps to promote education and training with regard to, and awareness of, those strategies;
- É A review every five years of those strategies and of their success in meeting the obligations of this paragraph; such reviews shall be included in reports submitted pursuant to Article 15;

3.3.6.1. A calendar for implementation of the action plan, including the strategies and measures

The priority activities identified in this action plan will be implemented between 2016 and 2020. Each action plan details the implementation calendar of sub-activities. However, it should be noted that some activities are already being undertaken by Cameroon to reduce the unintentional production of POPs, in particular PCDD/ PCDF and PeCB.

These are the legal and institutional measures. From a legal point of view, the following measures are already being taken to reduce emissions or releases of pollutants, including dioxins and furans into the air and their release into soils, surface waters and groundwater (Table 24).

Table 24: Text contributing to the reduction of emissions and releases of unintentional POPs

Reference of the Text	Contribution to the reduction of emissions or releases of unintentional POPs
Decree No. 2011/2582/PM of 23 August 2011 on the protection of the atmosphere;	Lays down the emission level of industrial pollutants in the atmosphere, including emissions of unintentional POPs
Decree No. 2011/2584/PM of 23 August 2011 on the protection of soils and sub-soils;	Lays down the release level of industrial pollutants and PME in water and soils, which reduces the releases of unintentional POPs
Decree No. 2011/2585/PM of 23 August 2011 laying down the list of harmful or dangerous substances and the rules governing their discharge into continental waters;	Lays down the level of discharges of pollutants into continental waters, which reduces releases of unintentional POPs into water.
Decree No. 2012/2809/PM of 26 September 2012, to lay down the conditions for sorting, collection, storage, recovery, recycling, treatment and final disposal of waste ;	Enables to regulate waste containing POPs in Annex A and B

<p>Joint Order No.005/MINEPDED/MINCOMMERCE of 24 October 2012 to lay down the specific conditions to govern the management of electrical and electronic equipment and the disposal of waste from such equipment.</p>	<p>Lays down the conditions for export of electrical and electronic equipment and the responsibility of importers and the final treatment of waste from such equipment.</p>
--	---

Projects and activities carried out to reduce POPs emissions include:

- É projects to capture and burn methane in landfills in Douala and Yaoundé, which have enable to eliminate landfill fires in these two main cities;
- É support to regional and local authorities for the collection, transport and landfilling of waste produced on their territory, making it possible to avoid the burning of waste by households. This support enabled in 2014 to cover nearly 60% of household waste production in the country's cities. In addition, studies are underway for the development of controlled landfills in the cities of Douala, Yaoundé and some secondary cities;
- É the strengthening of surveillance measures of industries and other classified establishments by the adoption in 2014 of a decree organizing joint inspections by the inspectors of the various administrations concerned;
- É promotion of the use of improved stoves and liquefied petroleum gas in urban households to reduce the consumption of firewood, which is the main source of dioxin and furan emissions;
- É the conversion of certain enterprises to the use of gas as fuel;
- É the shift of some gas-fired thermal power plants;
- É the creation of gas-fired power stations (Kribi and Log baba);
- É the transformation of some foundries of basic technology into the foundries of state-of-the-art technology (example of PROMETAL).

3.3.6.2 Activity 1: Reduction/elimination of dioxin and furan emissions from landfill fires and uncontrolled combustion of domestic waste

Short-term action (0-3 years) The action intends to:

- É Support councils and city councils in the development of their waste management plan, as recommended in the regulations in force and provide them with technical and financial support for the implementation of these plans;
- É Support councils and city councils which already have a waste management strategy in place for their operationalization;
- É Sensitize all stakeholders and the population about the impacts of dioxins and furans on human and environmental health;
- É Promote the sorting and composting of organic waste in councils and households.

Short-term action (3-5 years): Ensure the transition to a modern household waste management system based on best environmental practices and best available techniques (circular economy). The sub-activities include:

- É The setting up of waste sorting and selective waste collection activities with a view to their valorization in materials science (recycling) by local industries¹²;
- É Support to councils and the private sector for the implementation at national level of devices for the collection and recovery of non-biodegradable packaging as provided for by the regulations in force;
- É Promoting the consumption of products resulting from the recycling of household waste.



Figure 12 : Composting of household waste in Dschang

Long-term action (more than 5 years): Adoption and implementation of best environmental practices and best available techniques.

The sub-activities are:

- É Set up a viable management system (collection, removal and transfer) of waste in all cities of the country, including small centres (5-10 000 inhabitants);
- É Guide councils in the setting up of inter-municipal trade unions for the valorization of household waste.

3.3.6.3. Activity 2: Reduction/elimination of dioxins and furans emissions from involuntary fires, forest and savanna fires

Short-, medium- and long-term activities are planned at this level.

Short-term actions (0-3 years) Awareness of actors to take into account the dioxin and furan issues and awareness on forest and savanna fires;

¹² The valorization sectors already developed in Cameroon concern: hollow glasses, PVC and PEHD plastics, metals and natural rubbers. The city of Yaoundé, within the framework of the operationalization of its waste management strategy, intends to develop the cardboard sector in addition to existing ones.

- É ensure that the markets of cities (chief town) of the region and administrative offices meet the fire safety standards ;
- É carry out savanna protection campaigns by the competent administrations, with monitoring of compliance, control and supervision by local authorities (divisional officers, traditional rulers, Lamido, etc.);
- É develop and teach new farming techniques other than slash-and-burn agriculture.

Medium-term actions (3-5 years): Implementation of measures and systems to encourage non-burning practices to reduce dioxin and furan emissions. The sub-activities include:

- É promotion of research on the development of non-burning cultivation, pastoral and hunting techniques;
- É development of the housing code in Cameroon, taking into account fire safety standards;
- É introduction of incentive measures for the adoption of non-burning farming, pastoral and hunting techniques;
- É dissemination of existing agro-pastoral and agro-forestry techniques for better utilization of agricultural areas.

Long-term action (more than 5 years): Setting up of a performance monitoring and reporting mechanism. The sub-activities planned are:

- É develop a database of savannas and forests of the country through the mapping or zoning of surface areas under control and surface areas that are not in comparison with savanna and forest fires;
- É establish a national monitoring plan for savannas and forests in areas where control is not carried out; and strengthen monitoring of areas under control;
- É implement environmental rewards for councils that have eliminated all activities using burning practices.

3.3.6.4. Activity 3: Reduction/elimination of dioxins and furans emissions from the incineration of dangerous waste (hospital waste and industrial waste)

Short-term action (0-3 years): awareness and capacity-building of stakeholders on the dioxin and furan issue and improvement of performance of the existing medical waste management system.

Medium-term actions (3-5 years): Ensure the transition to best environmental practices and best available techniques for medical waste management.

Long-term actions (more than 5 years): Implementation of best environmental practices and best available techniques for the management of hazardous medical and industrial wastes.

3.3.6.5. Activity 4: Reduction/elimination of dioxins and furans emissions related to cooking of meals

This activity will aim, in the short and medium-term, to:

É implement a pilot programme for the dissemination of improved cooking stoves in two regions of the country;

É set up a support programme for urban households for the acquisition of gas ovens;

É implement a national household awareness programme on the dangers of using "3 stones" fireplaces inside houses.

The efficacy of these measures will be assessed after five years in during the review of the implementation action plan. Table 25 summarizes the action plan.

Table 25 : Action plan for the reduction of involuntary emissions of dioxins and furans

Activities	Objective	Duration (period)	Cost (in \$)	Responsible	Partners
Action 3: Reduce/eliminate dioxin and furan emissions from landfill fires and uncontrolled combustion of domestic waste					
Support to RLAs for the development and implementation of waste management plans	Each regional chief town has a waste management plan	24 (2016 - 2017)	600 000	MINDHU	MINEPDED MINFI
Study intended to install controlled landfills in 10 cities	Each regional chief town has a landfill development study	24 months (2017 - 2018)	1 000 000	MINDHU	MINEPDED MINFI
Support to RLAs for waste collection	The technical staff of 20 towns are trained; Each of the 20 cities receives technical and financial support for the improvement of waste collection	36 months (2018-2020)	2 000 000	MINDHU	MINEPDED MINFI
Conducting a pilot awareness campaign at national level to reduce waste burning in the open air	Campaign tools are produced; Media personnel are trained to relay the information; A pilot campaign is being implemented in the regional chief towns.	36 months (2018-2020)	1 000 000	MINEPDED	MINDHU MINCOM MINATD RLAs Public and private media
Setting up of a mechanism to monitor fire	A monitoring mechanism for the ten landfills	36 months (2018-	100 000	MINEPDED	MINDHU Mobile telephone operators

landfills	of the regional chief towns is set up and regularly monitored	2020)			RLAs
Total activity 1			4 700 000		
Activity 2: Reduce/eliminate dioxins and furans emissions from forest and savanna fires					
Campaign to protect savannas and forests against intentional fires by the competent administrations	Savanna and forest surface areas burned in one year are reduced by 70% compared to 2009 data	60 (2016-2020)	500 000	MINEPDED	MINADER; MINEPIA MINFOF MINATD
Targeted awareness campaign for farmers and livestock breeders	Farmers and livestock breeders are well sensitized on dioxin and furan issues	36 (2018-2020)	250 000	MINEPDED	MINADER; MINEPIA MINFOF MINATD.
Development, teaching and dissemination other alternatives of slash-and-burn techniques	New alternative of slash-and-burn techniques are identified, taught and disseminated	60 months (2016-2020)	200 000	MINADER	MINEPDED ; MINEPIA
Support for the development of crop and pasture areas and the strengthening of control and Monitoring	Savanna and forest areas have savanna and forest fire records	60 months (2016-2020)	300 000	MINEPDED	CNC MINADER MINEPIA MINATD NGO
promote the cultivation of hay in areas of intense pastoral activity	Areas of intense pastoral activity are identified and livestock breeders are trained to cultivate hay and receive subsidies to carry out pilot projects.	36 months (2018-2020)	100 000	MINEPDED	MINEPIA NGO
Total activity 2			1 350 000		
Activity 3: Reduction/elimination of dioxins and furans emissions from the poor management of medical waste and incineration of dangerous waste					
Setting up of a pilot sorting, collection, storage and transport system in the regional capitals	A pilot system of sorting from the source, secured temporary storage, and transport of	60 (2016-2020)	500 000	MINEPDED	MINSANTE Private operators

	waste to approved destruction centres are operational in the 10 regional hospitals				
Support to private operators to standardize waste incinerators which are operational in the country	The 3 companies with non-performing incinerators have new cleaner incinerators.	36 months (2016-2018)	300 000	MINEPDED	Authorized private operators for the DIS incineration
Set up in each region an environmentally sound management equipment for infectious waste	Each regional hospital has adequate equipment for the management of DASRI	36 months (2018-2020)	500 000	MINSANTE	MINEPDED
Training of medical staff and CTD staff in the environmental management of infectious waste	5 training sessions are organised	36 months (2018-2020)	300 000	MINSANTE	MINEPDED
Total activity 3			1 600 000		
Activity 4: Reduction/elimination of dioxins and furans emissions from domestic heating and cooking of meals					
Setting up of a pilot programme for the dissemination of improved stoves	Models or samples of improved stoves are available 100 000 rural households are subsidized for their acquisition in 2 regions.	60 months (2016-2020)	750 000	MINEPDED	MINEE MINADER
Setting up of a support programme for urban households for the acquisition of gas	A pilot programme is being set up in two regions and 100 000 urban households will benefit from it	60 months (2016-2020)	1 500 000	MINEE	Economic operators or businessmen MINMINDT
National household awareness programme on the dangers of using a 3-stone fireplace.	Awareness tools are produced and distributed; Journalists are trained and relay the	36 (2018-2020)	1 000 000	MINEE	MINEPDED MINSANTE

	campaign				
Total activity 4			3 250 000		
Total action plan			10 900 000		

The implementation cost of the action plan to reduce emissions and releases of dioxins and furans is estimated at \$ 10.9 million (CFAF 6 billion). A large part of these activities will be supported by the public investment budget of MINHDU and the RLAs, as well as programmes intended to promote clean energy developed by MINEE.

3.3.7. Education, training and awareness

Awareness and training programmes will be carried out to inform the population and influence individual behaviour in specific areas where each citizen can help reduce or eliminate releases of toxic substances (eg home waste incineration, in bins or dumps). A phytosanitary index that summarizes all registered pesticides or benefiting from a temporal sale authorization in Cameroon and their conditions of use, as well as certified treatment devices to disseminate information wherever necessary, was published in 2014. It should be widely disseminated within the framework of this NIP.

In addition to the measures already taken, the following activities will be carried out within the framework of the implementation of this NIP:

- É development and dissemination of a collection of texts in the area of production, import, marketing, export and use of chemicals as a whole and POPs in particular. This guide should be widely disseminated, including via the Internet;
- É the other measures to sensitize and inform the populations are described in the section related to "socio-economic impact".

3.3.8. Calendar of implementation and review of strategies

The calendar of implementation of the strategy varies according to the various categories of POPs. The Convention has set 2025 as deadline for the total phase-out of PCBs and PCB wastes.

The strategy to eliminate wastes containing flame retardants classified as POPs will be implemented in four stages, including an experimental project to be carried out in Yaoundé. The period recommended for its implementation is between 2017 and 2035, with the possibility of total disposal of its waste by 2030.

As concerns PFOS, their inventory will be updated in the short-term (less than 3 years). It is following this inventory that the next NIP version to be reviewed in 2021 will propose a detailed action plan. Nevertheless, pilot actions to eliminate PFOS will be carried out in 2018-2020.

As concerns POP pesticides, the calendar for their phase-out is in line with the 2012 Action Plan.

This NIP will be revised in 2021.

3.3.9. Identification and management of contaminated sites

Pursuant to paragraph 6.1 (e) of the Convention, Cameroon has already identified some POPs contaminated sites in its NIP (2012). However, some sites remain, as inventories have not always been exhaustive. As regards new POPs, the sites identified are mainly municipal landfills and uncontrolled dismantling sites of electrical and electronic equipment waste. Sites contaminated by POPs listed in 2004 are already identified in the NIP (2012). Within the framework of this inventory, no sites with critical contamination of new POPs (2009, 2011 and 2013) have been identified. This work should be strengthened within the framework of the implementation of this action plan through the following activities:

- É Set up a method for identifying and assessing contaminated sites, through regulatory means and through the support given to regional and local authorities;
- É Develop a guide on the management of contaminated sites focusing on good environmental practices;
- É Develop an action plan for contaminated sites, with the objective of reducing the risks to human health and the environment posed by these sites.

3.3.10. Public information, awareness and education

Pursuant to Article 10, each Party shall, within its capabilities, promote and facilitate public awareness, education and training activities and ensure that the public has up-to-date information.

Cameroon is making publicly available health and environmental data on persistent organic pollutants from a variety of sources, including the websites of the Ministry in charge of the Environment and UNEP website relating to the Convention. The Yaoundé City Council is in developing a three-year¹³ awareness, information and communication plan, which will be focused on waste management, with the reduction of burning of waste in the open air and burning of the waste bins. This campaign, which will affect 2.3 million of Yaoundé inhabitants, will help to reduce poor household waste management practices, such as burning in the open air. The information, communication and awareness-raising activities planned in the 2012 implementation plan remain relevant for new POPs.

3.3.11. Research-development and monitoring

Pursuant to Article 11 of the Convention, Parties shall, within their capabilities, encourage appropriate research, development, monitoring and cooperation pertaining to POPs.

In Cameroon, the situation of persistent organic pollutants and their socio-economic, health and environmental impacts are currently assessed only qualitatively on the basis of experts' statements. MINEPDED will have to set up collaboration with Universities to strengthen action research in the field of POPs in Cameroon.

¹³ This IEC campaign carried out within the framework of the Yaoundé sanitation project (PADY) is co-financed by the ADB and the French Global Environment Facility through AFD.

3.3.12. Technical assistance

Pursuant to Article 12, developed country Parties shall cooperate with the least-developed countries and provide technical assistance. Since Cameroon is a developing country with limited resources, it will seek, within the framework of the implementation of the Stockholm Convention, to implement programmes of technical and scientific cooperation with developed countries.

3.3.13. Financial resources and funding mechanisms

Article 13.1 of the Convention states that 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.

Cameroon, through its own capabilities, has put in place legal and institutional measures to eliminate, reduce and control emissions of persistent organic pollutants in its territory. It has also contributed to develop its first National Implementation Plan (NIP), as well as the review of this NIP.

However, for larger projects requiring substantial financial resources, Cameroon will need external financing, in particular GEF financing, with the support of international cooperation (UNEP, UNIDO, UNDP, etc.) and bilateral cooperation with friendly countries.

The total budget of this NIP is \$ 26.96 million, representing CFA francs 14.828 billion¹⁴. These resources will be mobilized mainly from the GEF, which is a financial institution for the implementation of the Convention and at national level by Cameroon, through the public investment budget of the ministries already involved in the identified activities. However, other technical and financial partners such as UNEP, UNDP, UNIDO, FAO, the World Bank and the African Development Bank will be solicited to implement these activities. Regional and local authorities (city councils, councils, etc.) will contribute to the financing of certain activities on the territory. Examples include measures to put in place to reduce burning in the open air of household waste in households, dumps and landfills.

3.3.14. Communication of information (Reporting)

Cameroon is in a position to establish communication reports in accordance with Article 15, according to the format criteria and at intervals decided by the Conference of the Parties. In accordance with its obligations, Cameroon submitted its first national report on 5 June 2013 and its national report on the obligations relating to the nine new persistent organic pollutants in March 2016.

¹⁴ The dollar cost taken into account in the calculation is \$ 1 = 550 FCFA.

GENERAL CONCLUSION

The updated version of the Stockholm National Implementation Plan (NIP) on Persistent Organic Pollutants (POPs) in Cameroon was developed between September 2014 and May 2016, according to the principle of participatory approach that integrated the administrations involved in the management of POPs, civil society organizations, the private sector, academics and research institutes with the financial and technical support of GEF and UNEP respectively. This funding enabled, among other things, to recruit two consultants, including one national and one international, to support the project coordination within the framework of the development of this document.

The specific objectives are to eliminate articles, products and wastes containing the POPs listed in Annexes A and B of the Convention, and reduce emissions of unintentionally produced POPs.

The national priorities in the area of the elimination and reduction of the 11 new POPs include:

- É raising public and all stakeholders awareness on the knowledge of the dangers of POPs and the programmes for the reduction and eradication of POPs ;
- É the elimination of new pesticides listed in Annex A to the Convention: Alpha-hexachlorocyclohexane (alpha-HCH), Beta-hexachlorocyclohexane (beta-HCH), Lindane (gamma-HCH), Chlordecone, and those from the 2004 list (Mirex, DDT, Endrin, Aldrin, Chlordane, Dieldrin);
- É collection, storage and final disposal of equipment, articles and wastes containing PBDE and other flame retardant POPs;
- É reduction of dioxin and furan emissions from the six main identified sources, including: savana and forest fires, burning of household waste in landfills and the open air, burning of hazardous medical wastes;
- É the disposal of products, articles and wastes containing POPs listed in Annex B to the Convention, including perfluorooctane sulfonic acid, its salts and perfluorooctane sulfur fluoride (PFOS).

On the basis of this national priority, five action plans were developed and will be implemented for the 2017-2021 period.

Awareness of stakeholders and the public of the dangers of POPs is paramount. As such, this cross-cutting activity is directly integrated into the action plan for the elimination of the various chemicals covered by the Convention. The combined awareness-raising actions will make it possible to target directly or indirectly all actors involved in the management of POPs (administration, private operators, civil society), but also close to 5 million inhabitants in urban and rural areas during the implementation period.

The Action Plan to strengthen the institutional and legal framework is transversal. It will enable to train, in addition to the staff of MINEPDED involved in steering the implementation of this NIP, the staff of the administrations involved in the management of POPs, in particular: the Ministries in charge of Agriculture, Finance (customs) , Industry, Housing and Urban Development, as well as Regional and Local Authorities. This action plan shows that

Cameroon has already taken measures to prohibit imports of products and articles containing six of the 11 new POPs listed between 2009 and 2013.

The action plan on pesticides containing POPs (list 2004) has already been implemented since August 2015 within the framework of a project co-financed by GEF, the Government of Cameroon and other donors. Complementary actions planned within the framework of this NIP deal only with the follow-up of depollution of contaminated sites and the follow-up of the plan for the disposal of stockpiles and wastes.

Cameroon has a large stockpile of PBDE and other flame retardant POPs in articles currently in use and wastes. Actions under this NIP will help to prohibit the import of these articles, but will also help or eliminate articles and wastes containing these chemicals. For the 2016-2020 period, the budgeted actions will enable to eliminate only 50% of wastes in four regions (Littoral, Centre, West and North) which hold about 63% of these wastes. Additional efforts will be essential beyond this period for the final disposal of wastes containing these POPs by 2035.

Given the uncertainties we have on the inventory of articles containing PFOS currently in use, the action plan will enable to get a more accurate inventory before adjusting disposal measures in the next review. Cameroon will also have to request an exemption for the use of stockpiles of fire-fighting foams held by the SCDP and probably other companies like Cameroon Airport, to the extent that such uses are for acceptable purpose by the Convention.

The National Action Plan for Dioxins and Furans will enable Cameroon to implement legislative, institutional, administrative and technical mechanisms for the reduction/elimination of emissions of toxic chemicals in the environment and obviously, its negative impacts on health. To achieve each specific objective, short, medium and long-term activities (by 2025) are proposed.

The total budget for the action plan is US \$ 26.96 million, representing CFA francs 14.828 billion for the first five years, and broken down as follows:

- É 2.76 million for the action plan relating to the strengthening of the institutional, legal, capacity-building and awareness-raising framework;
- É 1.374 million for the POPs pesticides action plan,
- É 10.77 million for the POP PBDE and other flame retardant POPs
- É 10.9 million for dioxins and furans and other unintentional POPs;
- É \$ 1.185 million for the PFOS Action Plan.

Cameroon undertakes to implement this Action Plan to enable it to meet its commitments taken by ratifying the Stockholm Convention on Persistent Organic Pollutants in 2005. Furthermore, Cameroon will notify the Secretariat of the Convention of its intention to recycle PBDE and PFOS.

Bibliography

Anonymous, 2010. Startup Guidance for The 9 New Pops (General Information, Implications of Listing, Information Sources and Alternatives) December 2010, Secretariat of the Stockholm Convention on Persistent Organic Pollutants United Nations Environment Programme, www.pops.int

Anonymous, 2011. Step by step companion guide to Review And Updating The NIP Under The Stockholm Convention on POPs, Secretariat of the Stockholm Convention on Persistent Organic Pollutants United Nations Environment Programme, www.pops.int 24 pages.

BUCREP, 2010. Résultats globaux du recensement des populations et de l'habitat de 2005. March 2010. Bureau Central de Recensement des populations, Yaoundé. 68 pages.

Collins Etienne KANA, 2011. Apport des données de télédétection dans la gestion des feux de végétation en territoire Camerounais ; Thèse de Doctorat/PhD ; UYI.

CPAC, 2012. Gestion réglementée des pesticides au Cameroun et au Tchad. http://www.cpac-cemac.org/cpac/article_fr.php?IDActu=44#).

Dobson, H., 2012. Presentation of the Africa Stockpiles Program (ASP) update and Cameroon progress. By the Program Manager ó CLI ASP. FAO Kribi II Workshop, April 2012.

ERA ó Cameroun, 2006. Rapport final d'une étude pour jeter les bases de gestion des déchets industriels au Cameroun. PNUD/MINEP, Yaoundé décembre 2006, 191p.

ERA ó Cameroun/IDS, 2014. Rapport d'inventaire nation des équipements électriques et électronique, ainsi que des déchets de ces équipements. Rapport d'étude/MINPOSTEL (projet CAB). Yaoundé, décembre 2014. 186 pages.

ERA ó Cameroun/IDS, 2015. Rapport de la stratégie de collecte, valorisation et traitement des D3E au Cameroun. Rapport d'étude/MINPOSTEL (projet CAB). Yaoundé, décembre 2014. 124 pages.

guide to the review and updating of the National Implementation Plans. 24 pages.

Michael B. Vabi, Dieu ne Dort W. NJANKOUA and George A. Muluh, 2003. The Costs and Benefits of Community Forests in selected agro-ecological regions of Cameroon by Understanding Rural Livelihoods ó ODI- London 2003.

MINEDED, 2012a. National implementation plan of the Stockholm Convention on persistent organic pollutants. Yaoundé, décembre 2012.

MINEE, 2011. Bilans énergétiques, MINEE/SIE Cameroun,; 31 Déc. 2010

MINEP, 2006. National Strategy of Waste Management; MINEP (period 2007- 2015)

MINEPDED, 2010. Révision/opérationnalisation du PNGE vers un programme environnement (PE), volume I : diagnostic sur la situation de l'environnement au Cameroun. Final version, January 2010. 152 pages.

MINEPDED, 2012b. Profil National sur la gestion des produits chimiques au Cameroun. Version/2012 edition. 199 pages.

MINEPDED, 2015. Inventaire sur des PFOS au Cameroun. Rapport, Yaoundé. septembre 2015. 25 pages.

MINEPDED, 2015. Inventaire sur des POP PBDE Cameroun. Rapport, Yaoundé. septembre 2015. 60 pages.

MINEPDED, 2015. Mise à jour de l'inventaire des dioxines et furannes. Rapport, Yaoundé. octobre 2015. 65 pages.

MINEPDED, 2015. Rapport du cadre institutionnel et juridique en matière des POP Rapport, Yaoundé. septembre 2015. 22 pages.

MINSANTE, 2010. Plan National de gestion des déchets hospitaliers au Ministère de la Santé Publique

MINSANTE, 2012. Présentation sur la situation des pesticides d'hygiène publique utilisés par le Ministère de la Santé Publique dans le cadre de différents programmes de lutte contre le paludisme et les autres vecteurs, et notamment le Roll Back Malaria. Direction de l'Organisation des soins et de la Technologie Sanitaire, MINSANTE, Yaoundé.

Myrianthus Fosi, 2012. Evaluation socio-économique et environnementale des polluants organiques persistants au Cameroun. Rapport provisoire, MINEPDED, Yaoundé. Octobre 2012, 105 pages.

OMS, PNUE et Stockholm Convention on Persistent Organic Pollutants (POPs), 2008. The Guidelines on best available techniques and best environmental practices relative to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants. 738 pages.

UNEP, 2005. Standardized Toolkit for identification and quantification of Dioxin and Furan Releases, UNEP (2005), 246 pages.

UNEP, 2007. Guidelines on Socio-economic Assessment for national Implementation Plan Development and Implementation under the Stockholm Convention

UNEP, 2010. *The new 9 POPs: Introduction to the nine chemicals added to the Annexes of the Stockholm Convention by the Conference of the Parties at its fourth meeting August 2010, 16 pages.*

Republic of Cameroon, 2009. Growth and Employment Strategy Paper (GESP)

Republic of Cameroon, 2009. 2035 Vision for an Emerging Cameroon .

Stockholm Convention on Persistent Organic Pollutants (POPs), 2011. Endosulfan. An introduction to the chemical added to the Stockholm Convention at the fifth meeting of the Conference of the Parties, 7 pages.

Stockholm Convention on POPs as amended in 2009. Texts and annexes

Stockholm Convention on persistent organic pollutants (POPs), 2011. Step-by-step companion

TATKEU J.G : 2005. Contribution à l'analyse situationnelle des polychlorobiphényles (PCBs) au Cameroun cas de la ville de Douala et Yaoundé. 55 p

Stockholm Convention on Persistent Organic Pollutants (POPs), 2009. GUIDANCE on feasible flame-retardant alternatives to commercial pentabromodiphenyl ether. UNEP/POPS/COP.4/INF24, 2009. 30 pages.

UNEP, Stockholm Convention on Persistent Organic Pollutants (POPs), 2013. Toolkit , Toolkit for identification and quantification of Dioxin, Furan and other Unintentional Releases of POPs, January 2013 310 pages.

UNIDO, UNEP, OMS, Stockholm Convention, UNITAR, 2012. Guidelines for the inventory of perfluorooctane sulfonic acid (PFOS) and related chemicals listed under the Stockholm Convention on Persistent Organic Pollutants, July 2012. 133 pages.

Annex 1: LIST OF POPS LISTED IN THE CONVENTION ANNEXES IN 2015

Name of chemical	Abbreviation	CAS	Main usage	Annex	Date COP	Decision No.	Acceptable purpose	Production exemption	Use exemption
Aldrin		309-00-2	Pesticide	A	2001	Convention	None	None	Ectoparasiticide local
Chlordane		57-74-9	Pesticide	A	2001	Convention	None	Registered Parties and authorized uses	Termiticide in buildings and dams
Dieldrin		60-57-1	Pesticide	A	2001	Convention	None	None	Use: in agricultural operations
Endrin		72-20-8	Pesticide	A	2001	Convention	None	None	None
Heptachlor		76-44-8	Pesticide	A	2001	Convention	None	None	Termiticide in wood treatment
Hexachlorobenzene	HCB	118-74-1	Pesticide	A and C	2001	Convention	None	Registered Parties and authorized uses	Synthesis intermediate
Mirex		2385-85-5	Pesticide	A	2001	Convention	None	None	None
Polychlorinated biphenyls	PCB	230 congeners	Dielectric	A and C	2001	Convention	None	None	Authorized use until 2025, wastes to be eliminated before 2028
Toxaphene		8001-35-2	Pesticide	A	2001	Convention	None	None	None
Dichlorinated diphenyls trichloroethane	DDT	50-29-3	Pesticide	B	2001	Convention	Disease vector control	Registered Parties and authorized uses	Production of dicofol
Polychloro dibenzo para dioxins	PCDD	75 congeners	Industrial sub-product	C	2001	Convention	None	None	None
Polychloro dibenzo furans	PDF	130 congeners	Industrial sub-product	C	2001	Convention	None	None	None
Chlordecone		143-50-0	Pesticide	A	2009	Sc 4/12	None	None	None
Hexabromobiphenyl	HBB	36355-01-8	Flame retardant	A	2009	Sc 4/13	None	None	None
Alpha-hexachlorocyclohexan	Alpha-HCH	319-84-6	Pesticide	A	2009	Sc 4/10	None	None	None
Beta-hexachlorocyclohexan	Beta-HCH	319-85-7	Pesticide	A	2009	Sc 4/11	None	None	None
Lindane:		58-89-9	Pesticide	A	2009	Sc 4/15	None	Registered Parties and authorized uses	Pharmaceutical use against lice and nits
Pentachlorobenzene	PeCB	608-93-5	Industrial sub-product	A and C	2009	Sc 4/16	None	None	None
c-Octabromodiphenyl ether	c-OBDE	68631-49-2	Flame retardant	A	2009	Sc 4/14	None	None	recycling of articles that contain it
c-Pentabromodiphenyl ether	c-PBDE	5436-43-1	Flame retardant	A	2009	Sc 4/18	None	None	recycling of articles that contain it

Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	PFOS and F-PFOS	1763-23-1 307-35-7	Foaming agent	B	2009	Sc 4/17	Many including: Photo-imaging, electronic parts, Aviation hydraulic fluids, metal plating	Registered Parties and authorized uses	Many including: manufacture of semiconductors, metal plating
Endosulphan and isomers		33213-65-9 959-98-8	Pesticide	A	2011	Sc 5/3	None	Registered Parties and authorized uses	Treatment of some ravagers listed
Hexabromocyclododecan and its stereo isomers	HBCD	25637-99-4 3194-55-6	Flame retardant	A	2013	Sc 6/13	None	Registered Parties and authorized uses	In PS for to be isolated in buildings
Hexachlobutadiene		87-68-3	Industrial solvent	A	2015	Sc 7/12	None	None	None
Polychloronaphtalene	PCN	70776-03-3	Dielectric	A and C	2015	Sc 7/14	None	Production of fluoronaphtalene	Production of fluoronaphtalenes
Pentachlorophenol and its salts	PCP	87-86-5	Pesticide	A	2015	Sc 7/13	None	Registered Parties and authorized uses	Protection of electric pylons and sleepers

Annex 2: Requirements of the Convention

Provisions under the Convention include:

- É Ban of production, use, import, export of chemicals listed in Part I of Annex A (except specific exemption or acceptable purpose);
- É eliminate the use of PCBs in equipment (such as transformers, condensers...) by 2025 et their waste before 2028;
- É Limit the production and use of chemicals of Annex B (DDT, PFOS);
- É Develop a register for specific exemptions which identifies the types of exemptions, the Parties that will benefit from an exemption and the expiry date;
- É The obligation for the Parties to take measures that will help reduce unintentional releases of products listed in Annex C (dioxins and furans, hexachlorobenzene, pentachlorobenzene and polychlorinated biphenyls);
- É The obligation for the Parties to take measures that will help reduce releases from stockpiles and wastes contaminated by products listed in Annexes A, B and C;
- É The obligation for the Parties to develop and implement within two years following the date of entry into force of the Convention for it, a national implementation plan (NIP) which will enable them to meet their obligations under the the Convention as well as a National Action Plan relating to the reduction of unintentional POP releases. **The NIP should be reviewed every five years**

Other provisions are provided by the Convention, they concern in particular the possibility to list new POPs in one of the three Annexes; the implementation of an exchange information system; the promotion of training, development in the field of POPs, technical and financial assistance activities for developing countries.

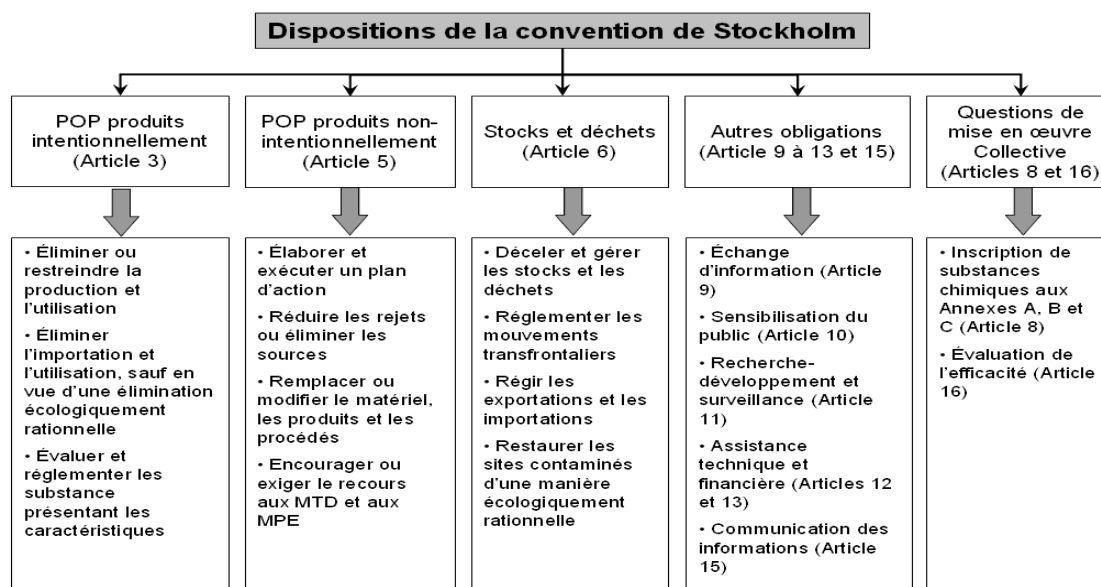


Figure 1: Provisions of the Convention

Table 1 summarizes the obligations under article 3 of the Stockholm Convention.

Table 1: Obligations under article 3 of the Convention

Article/sub-paragraph	Obligations/Recommendations	Comments
Art.3 §1-a-i	Prohibit the production and use of the chemicals listed in Annex A (Aldrin, Chlordane, Dieldrine, Endrine, Heptachlore, Hexachlorobenzene (HCB), Mirex, Toxaphene, Polychlorinate biphenyls (PCB) (Initial list A), Alphachlorocyclohexane, betachlorocyclohexane, Lindane, Chlordecone, Pentachlorobenzene, Hexabromodiphényléther et Heptabromodiphenyl ether, Tetrabromodiphenyl ether and Pentabromodiphenyl ether (added in 2009), Endosulfan (added in 2011), Hexabromocyclododecane (added in 2013))	Specific exemptions limited in time may be granted to the Parties upon explicit request. - Does not concern products already manufactured containing POPs. - A deadline is granted for the final prohibition of PCBs (until 2025) and their wastes (until 2028).
Art.3 §1-a-i	take measures concerning the import/export of the chemicals listed in Annex A	
Art.3 §1- b	Restrict the production and use of the chemicals listed in Annex B (DDT and PFOS) for an acceptable purpose or just like intermediate product	Its use should feature in the register of exemptions and the implementation of an alternative
Art.3 § 3	Regulate at national level the production or use of pesticides or industrial chemicals which exhibit the characteristics of POPs.	
Art.3 § 4	Take into consideration the four criteria when conducting assessments of pesticides or industrial chemicals currently in use	
Art.3 § 5	Exemption for the chemical to be used for laboratory-scale research	
Art.3 § 6	Take measures to ensure that any use under such exemption is carried out in a manner that prevents human exposure and release into the environment.	

Table 2 summarizes the obligations under article 5 of the Stockholm Convention on the reduction and elimination of unintentional releases of POPs.

Table 2: Obligations under the article of the Convention

Article/sub-paragraph	Obligations/Recommendations	Comments
Art. 5 a)	Develop an action plan designed to identify the release of the unintentional chemicals listed in Annex C (PCDD, PCDF, HCB, PCB and PeCB).	Review every five years
Art. 5 b)	Promote the application of practical measures that can achieve a realistic release reduction or source elimination	
Art. 5 c) d) e)	Promote or require the use of MTD and MPE to reduce emissions of products referred to in Annex C	
Art. 5 g)	Release limit values for products of Annex C depending on the MTD	

Table 3 summarizes the obligations under article 6 of the Stockholm Convention.

Table 3: Obligations under article 6 of the Convention.

Article/sub-paragraph	Obligations/Recommendations	Comments
Art. 6 a) b)	Identify stockpiles referred to in Annex A and B or containing chemicals and wastes	
Art. 6 c)	Manage stockpiles identified referred to in Annexes A and B in an environmentally sound manner.	
Art. 6 d)	Take appropriate measures so that products and articles upon becoming wastes are eliminated in an environmentally sound manner;	
Art. 6 e)	Endeavour to identify contaminated sites and perform their remediation in an environmentally sound manner.	

Article 7 of the Convention states that:

É Each Party shall:

- a) Develop and endeavour to implement a plan for the implementation of its obligations under this Convention;
- b) Transmit its implementation plan to the Conference of the Parties within two years of the date on which this Convention enters into force for it;
- c) **Review and update, as appropriate, its implementation plan on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties.**

The other obligations contained in articles 9-15 are summarized in the table below:

Table 4: Obligations under the other articles of the Convention

Article/sub-paragraph	Obligations/Recommendations	Comments
9	The Parties shall exchange the information concerning POPs through the Secretariat of the Convention.	
10	Public information, awareness and education	Target audience: politicians, decision-makers, professionals, researchers and educators, women and the public as a whole.
11	Research, development and monitoring	Capacity-building programmes on the management of chemicals
12	technical assistance and transfer of technology in favour of developing countries	
13	Commitment to implement financial resources to carry out an action plan	depending on the available resources
15	Report to the Secretariat statistical data and other information concerning the country	

Annex 3: OVERVIEW OF NEW PERSISTENT ORGANIC POLLUTANTS TAKEN INTO ACCOUNT IN THIS UPDATE^[2]

Alpha-hexachlorocyclohexan (alpha-HCH)

É Listed in Annex A. No exemption.

É Sub-product of the manufacture related to the production of lindane insecticide.

É Isomer non-active in insecticides HCH techniques totally withdrawn from the market.

Beta-hexachlorocyclohexan (bêta-HCH)

É Listed in Annex A. No exemption.

É Sub-product of the manufacture related to the production of lindane insecticide.

É Isomer non-active in insecticides HCH techniques totally withdrawn from the market.

Chlordecone

É Listed in Annex A. No exemption.

É Organochlorinated pesticide, chemically related to Mirex.

É Used in the 1950s, but has been withdrawn for a long time now.

Hexabromobiphenyl (HBB)

É Listed in Annex A. No exemption.

É Industrial chemical used as fireproof agent.

É Mainly used in the 1970s.

Hexabromodiphenyl ether (hexaBDE) and heptabromodiphenyl ether (heptaBDE)

É Listed in Annex A with a specific exemption for recycling of articles containing chemicals. The Parties listed in the register are authorized to use purposely these chemicals until 2030.

É Commercial brominated flame retardants pentabromodiphenyl ether (pentaBDEE) or octabromodiphenyl ether (octaBDE).

Lindane (gamma-HCH)

É Listed in Annex A with a specific exemption for the use of this chemical Human health pharmaceutical for control of head lice and scabies as second line treatment. The Parties listed in the register can keep using lindane for this purpose for 5 years on the date of entry into force of the amendment concerning them.

É This substance was used, in the past, as a wide spectrum insecticide in the treatment of soils, seeds, plants (treatment of leaves), wood and trees, and destined to ectoparasites control both in humans and animals.

Pentachlorobenzene (PeCB)

É Listed in Annex A and C. No exemption.

É Used in the past in combination with products containing BPC, in colouring support such as fungicides, and fireproof products and as intermediate chemical for the quitozene production.

É Substance likely to be unintentionally produced or released.

Tetrabromodiphenyl ether (tetraBDE) and pentabromodiphenyl ether (pentaBDE)

É Listed in Annex A with a specific exemption for recycling of articles containing chemicals. The Parties listed in the register are authorized to use purposely these chemicals until 2030.

É Components of commercial pentabromodiphenyl ether (pentaBDE).

É Brominated flame retardants

Endosulfan technique

É Authorized for the parties listed in the register of exemptions in accordance with Part VI of Annex A.

É Combinations crop/parasite listed in accordance with the provisions of part VI of Annex A.

Hexabromocyclododecan

É Listed on the list of Annex A in 2013

É Authorized for the parties listed in the register of exemptions in accordance with Part VII of Annex A.

É The only acceptable use is like flame retardant in expanded and extruded polystyrene used in the building sector.

Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride

É Listed in Annex B for acceptable purposes, it benefits from specific exemption for its production and use.

É The current intentional use of PFOS is wide.

É The Parties listed in the register are authorized to use and produce these chemicals in the following acceptable purposes:

É Photo-imaging, photo-resist and anti-reflective coatings for semi-conductors;

É Etching agent for compound semiconductors and ceramic filters;

É Aviation hydraulic fluids;

É Metal plating (hard metal plating) only in closed-loop systems;

É Certain medical devices (such as ethylene tetrafluoroethylene copolymer (ETFE) layers and radio-opaque ETFE production, in-vitro diagnostic medical devices, and CCD colour filters)

É Fire-fighting foam;

É Insect baits for control of leaf-cutting ants from *Atta* spp. and *Acromyrmex* spp.

É Specific exemptions are granted to the Parties listed for 5 years on the date of the entry into force:

É Photo masks in the semiconductor and liquid crystal display (LCD) industries;

É Metal plating (hard metal plating);

É Metal plating (decorative plating);

É Electric and electronic parts for some colour printers and colour copy machines;

- É Insecticides for control of red imported fire ants and termites;
- É Chemically driven oil production;
- É Carpets;
- É Leather and apparel;
- É Textiles and upholstery;
- É Paper and packaging;
- É Coatings and coating additives;
- É Rubber and plastics.

Annex 4: LIST OF STRUCTURES INVESTIGATED WITHIN THE FRAMEWORK OF THE INVENTORY

Number	Name	Cities	Type of POP	Data collection tool
1	Douala City Council	Douala	Dioxins and furans, PENTACHLOROBENZENE	dioxins (Q1), guide
2	Edéa City Council	Edéa	Dioxins and furans, PENTACHLOROBENZENE	dioxins (Q1), guide
3	Limbé City Council	Limbé	Dioxins and furans, PENTACHLOROBENZENE	dioxins (Q1), guide
4	Yaoundé City Council	Yaoundé	Dioxins and furans, PENTACHLOROBENZENE	dioxins (Q1), guide
5	Cameroon Developpement Corporation (CDC)	Limbé	New POP Pesticides	Specific guide
5	SGS	Douala	All POPs, except dioxins and furans	Specific guide
6	COTONNIERE INDUSTRIELLE DU CAMEROUN CICAM	7012 DOUALA 33406215 0 0 0	HEXABROMOCYCLODODECANE(HBCDD)	Specific guide
7	Chantier Naval	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
8	ALUCAM, Edéa	Edéa	Pentachlorobenzene	Unintentional production during the aluminium production process
9	ADC	Yaoundé	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
10	ADC	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
11	HYSACAM	Douala	PFOS, Dioxins and furans	OPFOS, Odioxins
12	Maïscam	Ngaoundéré	Endosulfan, HEXABROMOCYCLODODECANE(HBCDD)	Guide END and stockpile of HBCDD available
13	SODECOTON	Garoua	Endosulfan, HEXABROMOCYCLODODECANE(HBCDD)	Guide END
14	Customs Administration	Yaoundé/Douala	All POPs, except dioxins and furans	Specific guide
15	Ministry of Transport	Yaoundé	Tetrabromodiphenyl ether (1), pentabromodiphenyl ether (2), hexabromobiphenyls (3), POP PBDE (5)	1 and 2 - see POP PDBE, (3) and (4) flame retardants in foarms and seats of vehicles (1975 - 2004),
16	NIS	Yaoundé	Dioxins and furans, all other POPs	Specific guide
17	MINDCAF	Yaoundé	C-PentaBDE, hexabromobiphenyle	Specific guide: public building equipped with fire- fighting system, Public buildings equipped with isolating flame retardants PDBE
18	MINADER	Yaoundé	Endosulfan, Lindane	Specific guide: Authorized impots of potential stockpiles available, storing sites, contaminated sites
19	MINMINDT	Yaoundé	Tetrabromodiphenyl ether and pentabromodiphenyl ether, hexabromobiphenyl, C-PentaBDE	see guide POPs PDBE
20	Cameroon Hydrocarbon Corporation (SNH)	Yaoundé	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
21	NETTOIECAM	Douala	PFOS, Dioxins and furans	OPFOS, Odioxins
22	CENTRE HOSPITALIER PANAFRICAIN GSA	Douala	PFOS	OPFOS
23	ETS A A Z DOUALA Véhicules	Douala	PFOS	OPFOS

24	Syndicat e Froid et climatisation, Douala	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	PDBE Guide
25	SOCIETE CAMEROUNAISE DE RECUPERATION INDUSTRIELLES	Douala	PFOS	OPFOS
26	ALPICAM INDUSTRIES	Douala	Endosulfan.	Guide END
27	ENICAM	Yaoundé	PFOS	OPFOS
28	SABM	Yaoundé	Endosulfan.	Guide END
29	GRACOVIR(GIS)	Yaoundé	Endosulfan.	Guide END
30	SOFIBO	Yaoundé/Douala	Endosulfan.	Guide END
31	Cameroon Tea Estate,	Buea?	Endosulfan.	Guide END
32	Parque Cam	Edéa (Dibamba)	Endosulfan.	Guide END
33	SOPECAM	Yaoundé	PFOS	OPFOS
34	CAMRAIL	Douala	PFOS	OPFOS
35	Transformation Plastic&Metal	Douala	PFOS	OPFOS
36	OK Plast	Douala	PFOS	OPFOS
37	SCIMPOS	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
38	FIYADOR,	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
39	CARTONNERIE IMPRESSION DU CAMEROUN CIC	Douala	PGOS	OPFOS
40	SOCAVER	Douala	PFOS	OPFOS
41	EQUATORIAL FROID ET CLIMATISATION SARL	Douala	PFOS	OPFOS
42	Foamrs and by-products	15429 DOUALA 33476018 0 0 0	Tetrabromodiphenyl ether and pentabromodiphenyl ether, PFOS,	OPFOS, Guide POPs PDBE
43	BOCAM	Douala	PFOS, Dioxins and furans	OPFOS, Odioxins
44	BOCOM RECYCLING SARL	Douala	PFOS, Dioxins and furans	OPFOS, Odioxins
45	SABC	Douala	Dioxins and furans,	Odioxins
46	SABC	Yaoundé	Dioxins and furans,	Odioxins
46	Perenco	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	
47	GUINNESS Cameroun	Douala	Dioxins and furans,	Odioxins
48	SMALTO	Douala	PFOS	OPFOS
49	PILCAM	Douala	PFOS	OPFOS
50	SOCAPALM/DG	Douala	Dioxins and furans,	Odioxins
51	Acierie du Cameroun	Douala	Dioxins and furans	Odioxins
52	ACAFER	Douala	Dioxins and furans,	Odioxins
53	Société Camerounaise de Métallurgie	Douala	Dioxins and furans,	Odioxins
54	boulangerie (Sud Ouest)	Tiko	Dioxins and furans,	Odioxins
55	boulangerie (Sud Ouest)	Muntenguene	Dioxins and furans,	Odioxins
57 to 63	7 Pressings	Yaoundé	PFOS, Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE, OPFOS
64 to 70	7 Pressings	Douala	PFOS, Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE, OPFOS
71	SITRACEL	Yaoundé	PFOS	OPFOS
72	Cameroun continu	Douala	PFOS	OPFOS
73	ADER	Douala	PFOS	OPFOS
74	Littoral des Coles et Peinture	Douala	PFOS	OPFOS
75	CCC	Douala	PFOS	OPFOS
76	MINTOUR	Yaoundé	List of hotels and restaurants	Specific guide
77	Tratafric	Douala	Tetrabromodiphenyl ether and pentabromodiphenyl ether	see guide POPs PDBE
78	GARAGE MARINE CAMEROUN, Tel 33001271/696297400	P; O .Box 9435 DOUALA,	Pentachlorobenzene	Potential presence in solvents and colourings
79	BLAZ DESIGN HAUTE-COUTURE	P. O;Box YAOUNDE	PFOS	OPFOS

		3991 YAOUNDE 22202366 22202366 0 0		
80	BUETEC BRODERIE SARL BUETEC	1919 DOUALA 33433936/33437 019 33434573	PFOS	OPFOS
82	FILATURE AFRICAINNE DE FIBRES NATURELLES, SYNTHETIQUES ET ARTIFICIELLES	1342 YAOUNDE 22210998 22210997 fafinsa@yahoo.fr 0	PFOS	OPFOS
83	OCIETE AFRICAINNE DE FABRICATION TEXTILES ET CONFECTION SOCAFTEC	10043 DOUALA 33374133 0 0 0	PFOS	OPFOS
84	SOCIETE INDUSTRIELLE DU CAMEROUN SINCATEX DOUALA	1844 DOUALA 33370575 0 0 0	PFOS	OPFOS
85	7 STE IDEAL SERVICES SIE IDS	P. O. Box 3938 DOUALA	PFOS	OPFOS
86	kPDC	Douala	Dioxins and furans,	Odioxins
87	SFIL MADEX	Dibamba	Endosulfan.	Endo Guide
88	Société Camerounaise des Dépôts Pétroliers (SCDP)	Douala	PFOS	OPFOS

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTRE DE L'ENVIRONNEMENT, DE
LA PROTECTION DE LA NATURE ET DU
DEVELOPPEMENT DURABLE

REPUBLIC OF CAMEROON
Peace – Work – Fatherland

MINISTRY OF ENVIRONMENT,
PROTECTION OF NATURE AND
SUSTAINABLE DEVELOPMENT

00419

29 OCT 2014

DECISION N° _____/MINEPDED/CAB DU _____ PORTANT
CREATION, ORGANISATION ET FONCTIONNEMENT DU COMITE NATIONAL DE COORDINATION DE
MISE EN ŒUVRE DE LA CONVENTION DE STOCKHOLM SUR LES POLLUANTS ORGANIQUES
PERSISTANTS (POP) AU CAMEROUN

LE MINISTRE DE L'ENVIRONNEMENT, DE LA PROTECTION DE LA NATURE ET DU DEVELOPPEMENT
DURABLE,

Vu la Constitution,

Vu le décret n°2005/171 du 26 mai 2005 portant ratification de la Convention de Stockholm sur les
Polluants Organiques Persistants, adopté le 23 mai 2001 à Stockholm ;

Vu le décret n°2011/408 du 09 décembre 2011 portant organisation du Gouvernement ;

Vu le décret n°2012/431 du 1er octobre 2012 portant organisation du Ministère de
l'Environnement, de la Protection de la Nature et du Développement Durable ;

Considérant les nécessités de service ;

DECIDE:

CHAPITRE I: DISPOSITIONS GENERALES

Article 1er:(1) : La présente décision porte création, organisation et fonctionnement du Comité
National de Coordination (CNC) de mise en œuvre de la Convention de Stockholm sur les Polluants
Organiques Persistants (POP) au Cameroun ci-après désigné le « Comité ».

(2) le Comité peut en tant que de besoin, créer en son sein des groupes de travail thématiques
chargé de traiter des questions techniques spécifiques

Article 2 : Le Comité est chargé d'assister le gouvernement dans la mise en œuvre de la Convention
de Stockholm. A ce titre il est chargé de :

- examiner et valider les TDRs élaborés;
- examiner et approuver les travaux effectués par les groupes de travail ;
- valider les rapports des consultants;
- délibérer sur toutes autres questions relatives à la mise en œuvre de la Convention

- Syndicat des industriels du Cameroun (SYNDUSTRICAM)

D) ORGANISATION DE LA SOCIETE CIVILE

- Crop life Cameroon
- Foncham International
- Yaoundé initiative foundation (YIF)
- Centre de recherche pour l'éducation et le développement (CREPD)
- Association des Femmes Africaines Intègres pour la Recherche et le Développement (AFAIRD).

(2) : Le Président peut inviter toute personne en raison de ses compétences à prendre part aux travaux du Comité sans voix délibérative.

Article 3 : Pour l'accomplissement de ses missions, le Comité dispose d'un Secrétariat Technique assuré par le Coordonnateur et son staff.

Article 4 : Les membres du Comité sont désignés par les administrations ou organisations Socioprofessionnelles auxquelles ils appartiennent.

SECTION II : DU FONCTIONNEMENT

Article 5: (1) Les réunions du Comité se tiennent sur convocation de son Président.

(2) Les convocations accompagnées des documents de travail, sont adressées aux membres du Comité sept (07) jours au moins avant la date de la réunion. Elles indiquent la date, l'heure, l'ordre du jour et le lieu de la réunion. En cas d'urgence, ce délai peut être ramené à trois (03) jours.

Article 6 : (1) Les décisions du Comité se prennent à la majorité simple de ses membres.

(2) Toutefois, lorsqu'à l'issue de la première convocation, le quorum prévu à l'alinéa (1) ci-dessus n'est pas atteint, le Président convoque à nouveau les membres du Comité dans un délai maximum de cinq (05) jours. Dans ce cas, le Comité délibère sans condition de quorum.

Article 7 : Le Secrétariat Technique visé à l'article 3 ci-dessus, assiste le Comité dans l'accomplissement de ses missions. A ce titre, il est chargé de :

- préparer les réunions ;
- rédiger les comptes rendus de sessions et les rapports d'activité du Comité ;
- suivre la mise en œuvre des résolutions du Comité ;
- effectuer toutes autres tâches à lui confiées par le Comité.

Article 8 : Les rapports visés à l'article 7 ci-dessus sont adressés au Président du Comité.

CHAPITRE III : DISPOSITIONS DIVERSES ET FINALES

Article 9 : (1) Les fonctions de Président, de membre du Comité et de Secrétariat Technique sont gratuites.

(2) Toutefois, ceux-ci ainsi que les personnes invitées à titre consultatif, peuvent bénéficier d'une indemnité de session dont le montant est fixé par une décision du Ministre chargé de l'environnement.

Article 10 : Les ressources nécessaires au fonctionnement du Comité sont supportées par les fonds de contrepartie et /ou de la Convention.

Article 11 : La présente décision qui prend effet à partir de la date de sa signature, sera communiquée partout où besoin sera /-

Le Ministre de l'Environnement,
de la Protection de la Nature
et du Développement Durable

Ampliations:

MINEPDED/CAB

MINDEL/MINEPDED/CAB

MINEPDED/SG

INTERESSES

CHRONO

ARCHIVES



HELE Pierre

International Consultant who assists the focal point: Youssef BENNOUNA, international expert in chemical risk-management and member of Toolkit experts group to UNEP.

National Consultant in charge of drafting the revised NIP: Dr Emmanuel NGNIKAM, Lecturer at Ecole Nationale Supérieure Polytechnique of Yaoundé. Civil Engineer and expert in environment and waste management.

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTRE DE L'ENVIRONNEMENT, DE
LA PROTECTION DE LA NATURE ET DU
DEVELOPPEMENT DURABLE

Convention de Stockholm

REPUBLIC OF CAMEROON
Peace – Work – Fatherland

MINISTRY OF ENVIRONMENT
PROTECTION OF NATURE AND
SUSTAINABLE DEVELOPMENT

Stockholm Convention

Atelier de validation du Plan National de Mise en Œuvre actualisé de
la Convention de Stockholm au Cameroun

HÔTEL DJEUGA PALACE-YAOUNDE, LE 06 MAI 2016

FICHE DE PRESENCE

N°	Noms et prénoms	Structures / Fonction	Contact /email	Signature
1.	HELE Pierre	MINEPDED		
2.	AKWA Patrick KUD	SG MINEPDED	677682744 akawa@ypho.com	
3.	ENOH Peter AYUK	DNC		
4.	Aoudou Soswa	Coordo Ndot	677263049 aoudoujoswawad@yahoo.fr	
5.	Gouet Gouet Joseph	GEA2	695-33-19-86	
6.	Dr DJONWE Gaston	DSV MINERIA	677378055	
7.	DJEUKOU NGUEGA RICHEL YANNICK	SYNDUSTRIAM (SJE Moune et d'ouvriers du lam)	694.43.14.16 676.87.96.69 yannickrichel@yahoo.fr	
8.	NGALEU SANBRENE	BOSUCAM Resp Cui roa	691987327 bngaleu@bosucam.com, bngaleu@cam.com	
9.	IBRAHIMA Hahla	SOSUCAM	699880673	
10.	NDOMO TSALA Jules christian	MINEPDED/ CUIAA	679.985.168	
11.	MBARIKOP Murielle			
12.	MOAMPEA Xavia	CAMRAIL CHSE	696947807 Xavia.MOAMPEA@camrail.net	
13.	Dr Kuoporo Calbert	CREPT	677202271	
14.	TATKEU Jean George	PAN EMIRIC	67751782	

15.	Yang Edmond	CDC	676929851 edmondbin@yahoo.com	
16.	KENEMBENI Alette-C	MINEPDED	699474179 archazon@yahoo.com	
17.	Adzée Thérèse ep Minge	MINEPAT	677538767	
18.	ATEBA OWONA Honoune SIC M. NTEP	MINEPDEA CIDE	699260115	
19.	Gennyuy William	MINEPAT SAGSIC	699530377	
20.	WADOU wo ZIEKINE Kugéle	MINEPDED	677346024	
21.	NANFACK NGOUFACK ARMAND	MINEPDED	699096528	
22.	BEMA MINANG Mancele	MINEPDED	677597913	
23.	M. Hopenouy Machu B.	Unit Kéleu BRESAT	699871266 ngopenouy@yahoo.com	
24.	NKAMPOUM Emmanuel	BOLAM	79920226	
25.	MOUATBA Olivier	MINEPDED	694503004	
26.	Dr. Simal Prosper	Finchhigh International Ltd	675615968 stanley.adifo@finchhigh.com	
27.	HAMANI Anatole	P/Ros	677794120 hamanisv@yahoo.com	
28.	Mme Mvate Andinuo Nah Sanga	BOCAM	699312252	
29.	KIKI Delphine Tye	GAUDE POP	677834120	
30.	HAMADJODA	Cadre MINEPDED	699453883	
31.	NGA EBEDÉ	BLUE SKY AF.	678.73.94.32	
32.	MINKONDA MINKONDA R.	MINTI/OGA	674734675	
33.	MBIDA. MBEMBE. SERGE	MINEBESII	677-32-96-99	
34.	MANKE Blaise L	MINEPAT	675520513	
35.	YALIE Mame	MINEPDED	699714022	
36.	SADJO Georgette	MINEPDED	677454760	

37.	Fossi Aurelien	MINEPDED	674873829	
38.	FATA Jacob		699663071	
39.	Djong christian.	MINEE	677842208	
40.	PRINCEWILL TAMON	MINEPDED	674708092	
41.	MOUDOUDOU Jean Blaise	CPAC	698155823 moudoudoujeanblaise@yahoo.com	
42.	NGARTOUBAM T. Lawrence	CPAC	695411253 ngartoubam43@yahoo.fr	
43.	MOUNYELLE NKAKE Manfred elandre	MINREX	695377256 senestclaudym08@yahoo.fr	
44.	Mme KEKO KAMBA	MINEPDED	676745523 cheekmuth@yahoo.fr	
45.	MBARGA MBARGA Bernard	MINEPDED	655373241	
46.	KENMOGNE NATHALIE	AFAIRD	699818024 / 676529169 fairdkam1@yahoo.fr	
47.	DNODA DMSOBO Gabriel	MINEPDED	6724015672 gabrielberve@yahoo.com	
48.	EFFILA Laurent	MINEPDED	662095291 effilalaurent16@gmail.com	
49.	NGANIXAN Emmanuël	Consultant	699840177 emmanuël.nganixan@yahoo.fr	
50.	DANON Laurent A	CIDE - MINEPDED	677400709 laurent.danon@ciide.org	
51.	NTEP Rigobert	CIDE - MINEPDED	677303932 ntep@yahoo.fr	
52.	WONGOLO B. Lionel	MINTSS	691153031 wongolo@yahoo.fr	
53.	BALÉGUÉL Pierre didier	YIF	670042565 didierbale@yahoo.fr	
54.	DJINGOU DJOMENI Michel	MINREX	677426275 djomenimiskelo@yahoo.fr	
55.	FOMBIN Valérie A.	MWADER	674555534 fomvally@yahoo.fr	
56.	Ndipakem Ayuk-Arey	MINEPDED	679394063 andipakem@gmail.com	
57.	BELLA NANGA	IRAO	bedamengafou@yahoo.fr	
58.	NANSAKE Mary	Eneo	mary.nansake@eneo.com	

V

59.	MERENG BOBO Eliane Marina	SBNAV/ MINEPDED	675 409 433 bodoeliane@yahoo.fr	
60.	TEGOURBE Sidonie Alice	Rep DGR MINEPDED	699 561 843 massouri.amadou @daho.fr	
61.	OYONO KPWANG	CSAV/D-NC	679 41 11 M Oyonyanwa@yahoo.fr	
62.	NTJAM Alois Rufe	SOJECOPAN	696 3113 2r alouis.nj.com @telecom.n.cm	
63.	AYUK Martin ENOW	MINEPDED	674408104	
64.	MOUSSA SALI	MINEPDED	677495961	
65.	BELINGA RENQUE REGINE NICAISE	MINEPDED	69929.05.10	
66.	KENBUI nli NGOUASLO Lydie	MINEPDED	677498425	
67.	NGONGAN Marie Chant	MINEPDED	677077651	
68.	ENJEGUE MARIE CARINE PR ZAMBO	MINEPDED	677663919	
69.	HAMAN BALLON BALLON	MINEPDED	697102390	
70.	Tangie Stanley Ndior Altia	Fincham Internat Ltd.	675615962 PS-techno@fincham.cm	
71.	ZANG ZANG Markly	MINEPDED	672922524	
72.	TAPDJIEU Bphelaceme	CACHE/ MINEPDED	677005547	
73.	Dr BRANG	MINEPDED DEPC	699869854 brangechristophe@yahoo.fr	
74.	ALIM HAMADADI	DAG		
75.	MANCHOU NGOKO Justin	PF GEF/MINEPDED	644191449 justin.manchou@ministry.gov.cm	
76.				
77.				
78.				
79.				
80.				