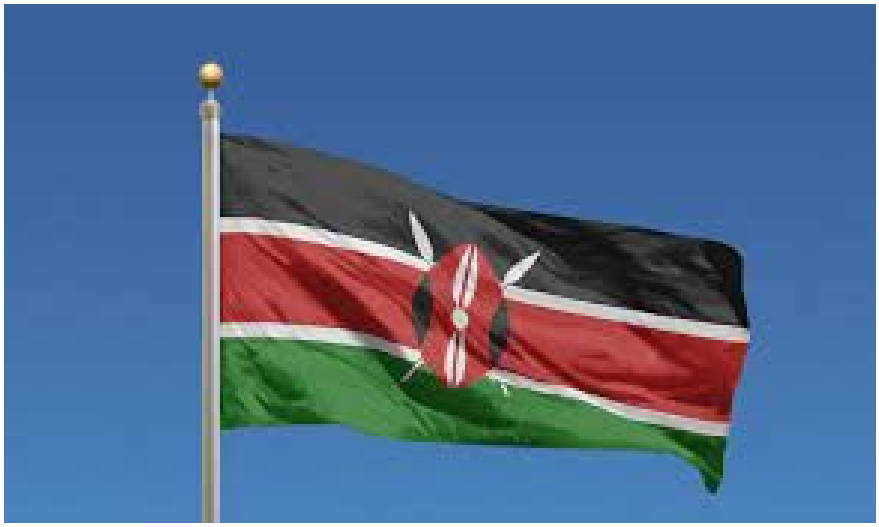
REPUBLIC OF KENYAMINISTRY OF ENVIRONMENT CLIMATE CHANGE AND FORESTRY

STATE DEPARTMENT FOR ENVIRONMENT AND CLIMATE CHANGE

POPS DATA UPDATE AND COLLECTION REPORT



MARCH 2023

National Implementation Plan Module

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EXECUTIVE SUMMARY

On 24th September 2004, Kenya became a Contracting Party to the Convention. The commitment to fully implement the Convention was reiterated when it sent a strong delegation to the First Conference of the Parties held in Punta del Este, Uruguay, 2-8 May 2005 and the second Conference of Parties held in Geneva Switzerland in May 2006. Kenya has developed this National Implementation Plan under the convention in compliance with Article 7 of the convention.

The Plan was endorsed by stakeholders on 30th March, 2023 at Morendat Conference Centre, Naivasha. The endorsement report in **This is the third national implementation plan for Kenya**

a) Pesticides POPs

Most POPs pesticides are now either restricted or banned in the country. DDT continues to be banned for agricultural use and restricted for Public Health use. Kenya is currently engaged in promoting and developing of DDT alternatives that need to be up-scaled to the level of commercialization. Further effort also geared towards ensuring the control of illegal POPs entering Kenya and to dispose the present stockpiles and wastes estimated at 200 tons, as well mopping up the remaining obsolete stocks in the country.

b) Industrial POPs

Kenya does not produce any of the four industrial POPs. The industrial POPs come as items in products and are released into the environment as POPs. Since 2007 there has been an exponential rise in the amounts of Polybrominated Diphenyl ether (PDEs) released from computers, monitors, printers, mobile phones, televisions and refrigerators and other unclassified sources to about 144 tons, those in plastics of vehicles, building and construction, textiles, have not been satisfactorily been inventoried. About 1.5 million units of PFOS fire retardants are imported into Kenya are released during training and fire-fighting activities. The biggest threat is from plastics, electrical and electronic waste.

c) Unintentionally Produced POPs (UPOPs)

Unintentionally produced POPS include: dioxins, furans, polychlorinated biphenyls and pentachlobenzene. Largest source is open burning of waste. A total of 2872 toxic equivalents (TEQs) were released in 2014. Medical waste incineration contributed 837.1 TEQ, heat and power generation 964.1 TEQ, whereas open burning processes contributed 241.1TEQg/year.

d) Strategies and Action Plans

The NIP outlines strategies and action plans that Kenya seeks to employ for effective management of POPs in the country. It recognises the fact that there are a number initiatives on public education, awareness creation, monitoring and research. However, they are all underfunded and new funding approaches should be put in place to accelerate these activities.

The NIP update shows that Kenya lacks established national POPs monitoring programme. Most of the POPs monitoring data in the country has been produced through Global Monitoring Program (GMP) activities. There is no systematic analysis of POPs residues in water and air from the national priority hot spots. However, the existing human and analytical capacity can support analysis of most of the basic POPs pesticides and PCBs. But this requires provision of spare parts and consumables to support POPs monitoring and research activities.

Kenya has several pieces of legislations and such as the draft regulations on electronic waste should be updated to include the related newly listed POPs.

1. INTRODUCTION

This chapter outlines the purpose and structure of the NIP, including a summary of the Stockholm Convention, its aims, and obligations. It describes the mechanism used to develop or review/update the NIP and the stakeholder consultation process. A summary of the POPs issue provides context and background outlining the chemicals, their uses, and the problems they cause.

The objective of this NIP is to come develop activities and programs related to the implementation of the Stockholm Convention. It is also a pre-requisite step to Kenya meeting its obligations to the Convention as a Party. The NIP enables Kenya take appropriate steps towards the management of all intentionally produced listed POPs that are relevant to Kenya, control the processes that generate unintentional POPs. The NIP also addresses other stockpiles of the pops and their waste management issues which would otherwise pose risks to human health and the environment. The NIP is aligned to Kenya's Vision 2030 as well as sustainable development goals. The plan encourages relevant government and private sectors to establish, and participate in an effective national pops management framework.

Annex 1 to this plan. The NIP consists of an executive summary, three chapters and Annexes.
Chapter 1 is the background of the POPs issue and forms the background and rationale for the NIP.
Chapter 2 is Kenya's background and its relevance to the POPs Stockholm convention.
Chapter 3 is the strategy of the implementation plan and action plans.
The annexes are the report of the endorsement, action plans, record of consultations and places visited in the development of the POPs inventory.

The main components of the National Implementation Plan (NIP) provide for the development of a coordinated national strategy highlighting opportunities for sharing data and information.

1.1 Initial National Implementation Plan

The process of developing the NIP, which began in late 2002, was coordinated by the Ministry of Environment and Natural Resources and was financed by the Global Environment Facility (GEF) through the United Nations Environment Programme (UNEP). UNEP also provided technical support for enabling activities which included the national inventory of POPs.

The National POPs Committee guided the process while the University of Nairobi Enterprises Services (UNES) Ltd. carried out the inventory of POPs in Kenya. The Ministry of Environment and Natural Resources (Kenya POPS office), /UNEP/GEF Project under the Enabling Activities for the Development of the National Implementation Plans under the Stockholm Convention on POPs coordinated a national capacity and infrastructure assessment.

The Government of Kenya recognizes the importance of managing risks posed by POPs through the development of policies and action plans as well as building the capacity for comprehensive chemicals management. In addition, the NIP responds to the existing and potential impacts of POPs on human health and the environment. It specifies Kenya's POPs management priorities and includes appropriate short, medium and long-term interventions to mitigate such impacts. Kenya Government is convinced that the implementation of the Stockholm Convention will result in improved quality of life for Kenyans in terms of better health, job creation, poverty reduction, and an improved environment.

The NIP addresses the ways and means of managing POPs through removal of regulatory, technical and financial constraints. Associated actions are summarized as activities towards the following objectives:

i) Capacity building activities to MECC&F to drive the implementation process;
ii) Disposal of wastes containing POPs as contained in the Kenya POPs inventory of July 2006 and February 2013;
iii) Mobilizing financial resources for project proposals to address capacity building, of laboratories, disposal of wastes, alternatives to DDT, open burning of waste etc.;
iv) Health impacts surveillance for POPs;
v) Development of policy and legal instruments top regulate POPs;
vi) vi) Search and introduction of alternatives of DDT;
vii) Disposal of PCBs wastes;
viii) minimizing dioxins and furans emissions from open burning of waste and landfills to the environment;
ix) Capacity building in laboratories for analysis of POPs and also participating in the UNEP Global monitoring program for POPs;
x) Design and implementation of economic instruments to catalyze minimization of POPs missions;
xi) xi) Introduction of Best Available Technologies (BAT) and Best Environmental Practices (BEP) for Annex C Part III sources and especially biomass burning in residential facilities and rural areas;
xii) Development and implementation of a POPS monitoring program in major lakes, rivers and Indian Ocean Coast for organochlorines, dioxins, furans and PCBs;
xiii) Labeling of transformers containing 50 ppm PCBs and above;
xiv) Partnering with specialized institutions to be able to monitor the import of chemicals and their presence in the environment.

Sector priorities are as below;

a) Intentionally Produced POPS

The following are actions for intentionally produced POPs like pesticides, DDT, PCBs and Hexachlorobenzene:

i) Ensure that in future Kenya does not produce any intentionally produced POPs pesticides;
ii) ii. Search for alternatives to DDT especially from Pyrethrum flower;
iii) Controlling illegal entry of POPs by banning those not yet banned;
iv) Adopt legislation banning or restricting the use of PCBs;
v) Prepare institutions, such as Kenya Power and Lighting, KENGEN, etc., for labeling of the PCB equipment in use consistent with the provisions of the Convention;
vi) vi. Comprehensive inventory of PCBs undertaken using better analytical technology to identify equipment containing PCBs in concentrations of 50ppm or greater and labeling such equipment accordingly;
vii) Giving special focus to abandoned d industrial sites that still contain disused power transformers and/or capacitors and in what is an environmentally sound manner;
viii) Monitoring those POPs currently in use and with POPs like characteristics.

b) DDT:

i) Promoting awareness on need to restrict use of DDT
ii) Finalizing policy on DDT and streamlining political consultation;
iii) Developing alternatives to DDT.
iv) Defining linkages between DDT and other multilateral environmental agreements;
v) Mobilizing resources for alternatives to DDT

c) Stockpiles and Wastes Containing POPs

The following are the priorities for stockpiles and wastes: -

i) Dispose of about 15,000 tonnes of obsolete pesticides distributed across the nation in various different conditions of storage in an environmentally sound manner;
ii) Rehabilitate obsolete pesticides at sites detailed in the POPs Inventory and especially at Wajir, Kitengela, Dandora dumpsite and Nakuru;
iii) Evaluating efficacy of alternatives to POPs to ensure they are not reintroduced;
iv) Reduce risks associated with hazardous pops through the use of safe chemical practices;
v) Provide necessary advice and guidance to stakeholders involved in pops cleanup and disposal operations;
vi) Partnership with sector organizations especially the Agrochemical Association of Kenya and Pest Control Products Board in minimizing stockpiles;
vii) Participate in Global POPs Monitoring Program;
viii) Manage PCB waste stockpiles already identified.

d) Unintentional POPs

For unintentionally produced dioxins, furans, hexachlorobenzene, and PCBs . Kenya produces 4,000TEQ g/year mainly from open burning of waste. However, all Category sources were found to be relevant.

i) Developing regulations on dioxins and furans.
ii) Minimizing emissions from key areas such as open burning process
iii) Introduce Best Available Technologies and Best Environmental Practices in all relevant installations
iv) Assess unintentional production of PCBs, and hexachlorobenzene which could not be made because the guidelines are not available;
v) Give priority to the source categories in Annex C of the convention having high dioxin emissions as identified in the dioxin and furan inventory;
vi) Train personnel involved in the handling and disposal of medical wastes;
vii) Upgrade incinerators to meet emission levels consistent with the BAT/BEP guidelines and other regulations;
viii) Support to public awareness programmes on proper waste handling, especially biomass and municipal wastes, and the need to discontinue open burning practices of waste;
ix) Implement fossil fuel regulations No. 121 of 2006. of EMCA on fuel additives;
x) phase-out of lead in gasoline is has been achieved 100%;
xi) Regulate governing environmental monitoring of contaminants, discharges and

xii) emissions from pulp and paper industries should be developed and enforced.

Table 1: Status of initial NIP transmission and technical and financial resources received for NIP

development

Development status	**Transmission status**	**Date of transmission**	**Financial assistance from the Global Environment Facility (GEF) received**	**Reasons for not receiving GEF funding**	**Implementing agency from which GEF's financial assistance was received**
[x] Yes **[] Currently being developed** **[] No** **[] Other**	[x] transmitted [] Pending approval for transmission [] In the process of transmission		[x] Yes [] No [] Other	[] Not qualified for GEF funding. [] Funding available from national sources. [] Funding obtained from other sources. [] Have not requested funding. [] Other reason	[] Food and Agriculture Organization (FAO) [] International Fund for Agricultural Development (IFAD) [] United Nations Development Programme (UNDP) [x] United Nations Environment Programme (UNEP) [] United Nations Industrial Development Organization (UNIDO) [] World Bank [] Regional Development Banks [] Directly accessed from the Global Environment Facility (GEF) [] Other

1.2 Updated National Implementation Plan

Table 2: Status of updated NIP transmission and technical and triggers for its review and update

Reviewing and updating status	Version(s) of the update	Status of transmission	Transmission Date	Trigger for the review and updating of the NIP
[x] Yes **[] Currently being developed** **[] No** **[] Other**	1st update	Transmitted	4/07/2014	New chemicals listed

1.3 Financial assistance from the Global Environment Facility to review and update the national implementation plan

The Global Environmental Facility (GEF) Trust Fund has a portfolio of 46 concluded, ongoing and pipeline projects for a total of 126.6 million USD. GEF operations in Kenya are also channelled through one-hundred global and regional projects. There is a focus on POPs with eleven projects The National Implementation Plan (2001-2009) and its update (approved in 2014), Sound Chemicals Management Mainstreaming and UPOPs Reduction in Kenya (approved in 2016), Continuing Regional Support for the POPs Global Monitoring Plan under the Stockholm Convention in the Africa Region (approved in 2014), Supporting the Implementation of the Global Monitoring Plan of POPs in Eastern and Southern African Countries (Completed in 2018) are some of the most relevant ones.

Table 3: Status of receiving financial assistance for NIP updating

Objective of the updating of your NIP	**Receiving financial assistance from the GEF to review and update the national implementation plan**	**Implementing agency that you received the GEF's financial assistance from**
For updating the national implementation plan to address the 9 new POPs listed by decisions SC-4/10-SC-4/18.	[x] Yes [] No 1st Assistant.	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [] World Bank. [] Regional Development Banks. [x] Directly accessed to the Global Environment Facility (GEF). [] Other.

For updating the national implementation plan to address endosulfan listed by decision SC-5/3.	[X] Yes [x] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [] World Bank. [] Regional Development Banks. [X] Directly accessed to the Global Environment Facility (GEF). [] Other.
For updating the national implementation plan to address hexabromocyclododecane listed by decision SC-6/13.	[X] Yes [] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [X] World Bank. [] Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). [] Other.

For updating the national implementation plan to address hexachlorobutadiene listed by decision SC-7/12.	[] Yes [x] No	[]Food and Agriculture Organization (FAO). []International Fund for Agricultural Development (IFAD). []United Nations Development Programme (UNDP). []United Nations Environment Programme (UNEP). []United Nations Industrial Development Organization (UNIDO). []World Bank. []Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). Other. []
For updating the national implementation plan to address pentachlorophenol and its salts and esters listed by decision SC-7/13.	[] Yes [x] No	[]Food and Agriculture Organization (FAO). []International Fund for Agricultural Development (IFAD). []United Nations Development Programme (UNDP). []United Nations Environment Programme (UNEP).

		[]United Nations Industrial Development Organization (UNIDO). []World Bank. []Regional Development Banks. []Directly accessed to the Global Environment Facility (GEF). []Other.
For updating the national implementation plan to address polychlorinated naphthalene's listed by decision SC-7/14.	[] Yes [x] No	[]Food and Agriculture Organization (FAO). []International Fund for Agricultural Development (IFAD). []United Nations Development Programme (UNDP). []United Nations Environment Programme (UNEP). []United Nations Industrial Development Organization (UNIDO). []World Bank. []Regional Development Banks. []Directly accessed to the Global Environment Facility (GEF). []Other.

For updating the national implementation plan to address decabromodiphenyl ether listed by decision SC-8/10	[] Yes [x] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [] World Bank. [] Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). [] Other. (Please specify.)
For updating the national implementation plan to address short-chain chlorinated paraffins listed by decision SC-8/11	[] Yes [x] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [] World Bank. [] Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). [] Other. (Please specify.)
For updating the national implementation plan	[] Yes [x] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD).

to address hexachlorobutadiene listed by decision SC-8/12		[] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [] World Bank. [] Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). [] Other. (Please specify.)
For updating the national implementation plan to address dicofol listed by decision SC-9/11	[] Yes [x] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [] World Bank. [] Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). [] Other. (Please specify.)
For updating the national implementation plan to address perfluorooctanoic acid, its salts and	[X] Yes [] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP).

PFOA-related compounds listed by decision SC-9/12		[] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [X] World Bank. [] Regional Development Banks. [x] Directly accessed to the Global Environment Facility (GEF). [] Other. (Please specify.)
For updating the national implementation plan to address any other changes.	[] Yes [x] No	[] Food and Agriculture Organization (FAO). [] International Fund for Agricultural Development (IFAD). [] United Nations Development Programme (UNDP). [] United Nations Environment Programme (UNEP). [] United Nations Industrial Development Organization (UNIDO). [X] World Bank. [] Regional Development Banks. [] Directly accessed to the Global Environment Facility (GEF). [] Other.

2. Country baseline

Chapter 2 provides basic background information relevant to the NIP. It describes the current situation and state of knowledge in the country about POPs and the status of institutional and other capacity to address the problem. For Kenya which is updating its NIP, a revision of the former profiles is also be assessed and included as baseline information.

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Figure 1: Map of Kenya

2.1 Country profile

This subchapter was brief country profile in order to place the NIP strategies and action plans in a country specific context. It would summarize information on geography and population, membership in regional and sub-regional organizations, the country's political and economic profile, profiles of potentially important economic sectors in the context of the POPs issue, and overall environmental conditions and priorities in the country.

By 2019 Kenya had a population of about 48 million people, of which about 68% live in the rural areas and the rest in urban areas. Population distribution is 230 persons per km ² in the high potential areas and an average of about 3 persons per km² in arid and semi- arid lands (ASALS). About 45% of the population is below 15 years of age. The population growth rate has declined from 3.9% per annum (1969-1979) to 2.3 % (2011). The country is divided into forty-seven administrative counties: (Fig. 1).

2.1.1 Geography and population

Table 4. Statistics on population

Population (Number of inhabitants)	Census (Year)	Percent of Women vs. Men	Percent of people living in rural vs. urban areas
53,000.000	2009	48/52	70/30

2.1.2 Political profile

Placeholder for narrative]

2.1.3 Economic profile and economic sectors in the context of the POPs issue

Kenya is a lower middle-income country and experienced a rapid population growth and the number of Kenyans more than doubled over the last thirty years from 23.72 in 1990, up to 53.77 million in 20201. The production of food is centred around small scale producers and livestock holders characterized by underperforming yields, subsistence agriculture and underinvestment. As of 2020 Agriculture accounts for 23% of the GDP which compares to a regional average of 25%[2] and employs about 60% of the total workforce[3].

Kenya is a major importer of pesticides – 42% from China and 30% from the European Union4?. According to the Kenyan Pest Control Products Board (PCPB) "out of the current 247 active ingredients registered in 699 products for horticultural use, flower production and forest management only 150 are approved in Europe. In addition, 11 products are not listed in the European database and 78 have been banned in the European marker due to their potentially hazardous nature. Moreover, 188 products are no longer produced or consumed in the EU[5]"

2.1.4 Environmental Overview

The purpose of the NIP is to inform the Conference of the Parties and the public regarding national initiatives and projects designed to meet the requirements of the Stockholm Convention. These initiatives include the preparation of legislation, regulations, voluntary programmes, standards, policies, plans, programmes and other actions by the Kenya government to manage and eliminate POPs from the environment. Articles 3 and 5 of the Convention stipulate that the NIP shall include a National Action Plan (NAP) for reducing intentionally and unintentionally produced POPs, such as polychlorinated dioxins and furans, hexachlorobenzene (HCB) and polychlorinated biphenyls (PCBs).

[1] 2020 World Bank data.
[2] Regional average for East African Community country for Kenya Burundi, Democratic Republic of Congo, Rwanda, Tanzania, and Uganda. 2020 World Bank data.
[3] GoK, National Agriculture Soil Management Policy, September 2020.
[4] EU, 2021. The Use of Pesticides in Developing Countries and their impact on health and the right to food
[5] EU, 2021. The Use of Pesticides in Developing Countries and their impact on health and the right to food

2.2 Institutional, policy, and regulatory framework

i) ***Dual use chemicals***, Ozone Depleting and global warming gases are delt separating.

ii) ***Institutions***: Various institutions are mandated to address various aspects of risks in chemicals life cycle guided by relevant policies and acts. Specialized institutions such as the Government Chemist Department, Pest Control Product Board, Water Resources Management Authority, National Environment Management Authority, Occupational Health and Safety Department, Kenya Medical Research Institute, Kenya Plant Health Inspectorate Service, implement mandated components of monitoring or in production, transport, use and waste disposal. The institutions have sector specialization providing forensic and general analysis services, surveillance and means of enforcing risk reduction measures. However, the institutions have capacity challenges (technical and financial) that have hampered continuous monitoring and enforcement.

iii) ***Technical Infrastructure****:* Institutions handling issues of chemical risks in Kenya, mostly have well trained personnel. However, Laboratory analysis, monitoring, and the ability to support health and environmental surveillance (e.g. for pesticide or workplace exposures, for chemicals in the environment, or for chemical contamination in air, water, soil etc.) is limited. The research institutions indicated limited capacity for detailed monitoring of all POPs and especially unintentional Persistent Organic Pollutants (UPOPs)listed under the Stockholm Convention, in environmental matrices. This is attributed to inadequate human capacity and laboratory infrastructure in all the key institutions targeted for the study. Some institutions have a high-resolution equipment, while in others, the staff lacks the analytical standards and equipment for analyzing dioxins and furans (UPOPs) and other POPs.

This subchapter would describe the present overall institutional framework within which the NIP would be implemented. It would also cover more detailed baseline information about the POPs issue such as the status of action and implementation activities under related Conventions or regional and sub-regional agreements. It can also describe the participation of national sectors in NIP implementation.

2.2.1 Policy and regulatory framework

There is no specific national policy and regulations governing the sector. However, there is exist a draft chemicals policy and Chemicals Regulations in place expected to provide policy and regulatory framework for chemicals management once they are approved by Parliament and gazeted. The new policy and regulatory framework once in place are expected to govern the chemicals sector and bring coherence amongst the players in the industry. Currently, the country relies on the National Environment Policy of 2013 and the Environmental Management and Coordination Act of 1999 EMCA (amendment), 2015. These legislations have domesticated the

Chemicals and Waste multilateral agreements namely, Basel, Stockholm and Rotterdam Conventions (in full). And will in near future do so for the Minamata Convention on mercury

2.2.1.1 Legal/administrative measures for chemicals listed in Annex A to the Convention

Table 5: Policy and Legislation

Policy and Legislation			
Institution	**Sector of Engagement**	**Type of Institution**	**Level of Influence**
Ministry of Environment and Forestry	Environment	Government	National
Ministry of Health	Health	Government	National
Ministry of Industry, Trade and Cooperatives	Trade	Government	National
Ministry of Agriculture, Livestock, Fisheries and Cooperatives	Agriculture	Government	National
Parliament	(Environment and Health Committees)	Government	National
Council of Governors	Health and Environment at county level	Government	County
Ministry of Finance (Treasury)	Planning and monitoring/Finance/Budgeting/resource mobilization	Government	National
Ministry of Water	Water supply, water quality and pollution control and wastewater treatment	Government	National
Ministry of Energy and Petroleum	Mercury added products??????????	Government	National
Office of the Attorney General	Laws and policies legislations	Government	National

Table 6: Compliance and Enforcement

Compliance and Enforcement			
INSTITUTION	**Sector of Engagement**	**Type of Institution**	**Level of Influence**
National Environment Management Authority (NEMA),	Environment (Water, Air, land)	Government	National

Pest Control Products Board (PCPB),	Pesticides and biopesticides	Parastatal	National
Directorate of Occupational Safety and Health Services (DOSHS),	Health and safety of workplaces		National
Kenya Plant Health Inspectorate Service (KEPHIS)	Agricultural inputs and produce	Parastatal	National
Kenya Bureau of Standards (KEBS),	Provision of standards, metrology and conformity	government	National
Kenya Revenue Authority (KRA)	Collection and accounting government Revenue	government	National
Anti-counterfeit Authority	Prohibit trade in counterfeit goods	state corporation	National
Water Resources Authority	Water resources management	State corporation	National
Kenya National Bureau of Statistics	Statistical data	government	National
Ministry of Health	Policy	Government	National
Government Chemist	Enforcement	Government	National
Pharmacy and Poisons Board	Enforcement	Government	National

Table 7 Status of legal/administrative measures taken for chemicals listed in Annex A of the Convention

Chemicals	**Legal/administrative measure (select all that apply)**		**Year**	**Remarks**
Aldrin	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		

	[]	No legal/administrative measures taken.		
Alpha hexachlorocyclohexane	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Beta hexachlorocyclohexane	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Chlordane	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Chlordecone	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		

Decabromodiphenyl ether (commercial mixture, c-decaBDE)	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Dicofol	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Dieldrin	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Endrin	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		

Heptachlor	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Hexabromobiphenyl	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Hexabromodiphenyl ether and heptabromodiphenyl ether	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Hexabromocyclododecane	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Hexachlorobenzene	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		

	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Hexachlorobutadiene	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[x]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Lindane	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Mirex	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Pentachlorobenzene	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		

	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Pentachlorophenol and its salts and esters	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Polychlorinated biphenyls (PCB)	[X]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Polychlorinated naphthalene's (PCN)	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		

	[x]	No legal/administrative measures taken.		
Short-chain chlorinated paraffins (SCCPs)	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Technical endosulfan and its related isomers	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		
Tetrabromodiphenyl ether and pentabromodiphenyl ether	[]	Restriction in accordance with Annex A.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		
Toxaphene	[]	Restriction in accordance with Annex A.		
	[x]	Prohibition on production.		
	[x]	Prohibition on all uses.		
	[x]	Prohibition on import.		
	[x]	Prohibition on export.		
	[]	Currently being developed.		
	[]	No legal/administrative measures taken.		

2.2.1.2 Legal/administrative measures for chemicals listed in Annex B to the Convention

[Placeholder for narrative]

Table 8: . Status of legal/administrative measures taken for chemicals listed in Annex B of the Convention

Chemicals	**Legal/administrative measure (select all that apply)**		**Year**	**Remarks**
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[x]	Restriction in accordance with Annex B.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		
	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[X]	No legal/administrative measures taken.		
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[]	Restriction in accordance with Annex B.		
	[]	Prohibition on production.		
	[]	Prohibition on all uses.		

	[]	Prohibition on import.		
	[]	Prohibition on export.		
	[]	Currently being developed.		
	[x]	No legal/administrative measures taken.		

2.2.1.3 Strategies/action plan/measures for polychlorinated biphenyls (PCBs) management

[Placeholder for narrative]

Table 9: . Status of strategies/measures for management of PCBs

Strategy/measure	**Status**	**Year**	**Elements included in the strategy/measure**
strategies for identifying stockpiles consisting of or containing greater than 0.005% (50 ppm) PCB	[] Yes [] Currently being developed [x] No	[] []	[] Media campaign. [] Regulatory and enforcement policies. [] Incentives. [] Partnerships with stakeholders. [] Identification of relevant sectors. [] Database (electronic or paper copy). [] Formal communication. [] Informal communication. [] Door to door search. [] Other :
strategies for identifying products and articles in use and wastes consisting of, containing or contaminated with greater than 0.005% (50 ppm) PCB	[] Yes [] Currently being developed. [x] No		[] Media campaign. [] Regulatory and enforcement policies. [] Incentives. [] Partnerships with stakeholders. [] Identification of relevant sectors. [] Database (electronic or paper copy). [] Formal communication.

			[] Informal communication. [] Door to door search. [] Other :
strategies for identifying products and articles containing more than 0.005% (50 ppm) PCB contaminated through open applications of PCB (e.g., cable-sheaths, cured caulk and painted objects),	[] Yes [] Currently being developed. [x] No	[]	[] Media campaign. [] Regulatory and enforcement policies. [] Incentives. [] Partnerships with stakeholders. [] Identification of relevant sectors. [] Database (electronic or paper copy). [] Formal communication. [] Informal communication. [] Door to door search. [] Other :
measures to ensure PCB or products and articles containing greater than 0.005% (50 ppm) PCB identified as wastes are managed in an environmentally sound manner	[] Yes [] Currently being developed. [] No	[]	[] Handled in an environmentally sound manner. [] Collected in an environmentally sound manner. [] Transported in an environmentally sound manner. [] Stored in an environmentally sound manner. [] Disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed, or otherwise disposed of in an environmentally sound manner, in accordance with paragraph 1 (d) (ii) of Article 6 of the Convention.
strategies for identifying sites contaminated by greater than 0.005% (50 ppm) PCB	[] Yes [] Currently being	[]	

	developed. [x] No		
taking measures to identify and label, where appropriate, equipment in use containing greater than 0.005% (50 ppm) PCB	[] Yes [x] No	[]	[] Constitution of task force. [] Questionnaire survey. [] Legislation/regulation. [] Development of inventory. [] Other:
taking measures to identify and/or label, where appropriate, wastes liable to contain greater than 0.005% (50 ppm) PCB	[] Yes [x] No	[]	[] Use of labels for identification. [] Use of screening test for identification. [] Use of laboratory analysis for identification. [] Other:
taking measures to identify articles containing more than 0.005% (50 ppm) PCB contaminated through open applications of PCB (e.g., cable-sheaths, cured caulk and painted objects)	[] Yes [x] No	[]	[] Constitution of task force. [] Questionnaire survey. [] Legislation/regulation. [] Development of inventory. [] Other :

Table 10: Status of developing a specific plan for the management, phase-out and disposal of PCB

Status of developing a specific plan for the management, phase-out and disposal of PCB	**Year**	**Difficulties encountered in the implementation of the specific plan for the management, phase-out and disposal of PCB**	**Main problem sources**
[x] Yes [] No	[2007]	[x] Yes [] No	[x] Lack of institutional or policy framework. [x] Lack of financial resources. [x] Limited human resources. [x] Insufficient technical capacity. [x] Lack of disposal facilities. [x] Lack of storage facilities. [x] Lack of analytical laboratories. [] Other:

Table 11: . Status of promoting any measures to reduce exposures from the use of PCB

Status of promoting any measures to reduce exposures from the use of PCB	**Year**	**Measures promoted**
[] Yes [x] No	[]	[] Use only in intact and non-leaking equipment and only in areas where the risk of environmental release can be minimized and quickly remedied. [] No use in equipment in areas associated with the production or processing of food or feed. [] When used in populated areas, measures are in place to protect from electrical failure which could result in a fire. [] When used in schools, measures are in place to protect from electrical failure which could result in a fire. [] When used in hospitals, measures are in place to protect from electrical failure which could result in a fire. [] When used in populated areas, regular inspection of equipment is made for leaks.

		[] When used in schools, regular inspection of equipment is made for leaks. [] When used in hospitals, regular inspection of equipment is made for leaks. [] Other :

2.2.1.4 Strategies/action plan/measures for POP-PBDEs management

Table 12: Strategies/action plan/measures for POP-PBDEs management

Strategy/action plan/measure	**Status**	**Chemical**	**Main problem**	**Year**	**Description of actions or control measures**
taking actions or control measures to eliminate brominated diphenyl ethers contained in articles	[] Yes [x] Currently being developed [] No	[x] Hexabromodiphenyl ether and heptabromodiphenyl ether [x] Tetrabromodiphenyl ether and pentabromodiphenyl ether [x] Combined brominated diphenyl ethers	[x] Lack of financial resources [x] Lack of technical capacity [] Other	2014	WEE guidelines and inventory developed

2.2.1.5 Strategies/action plan/measures for DDT

Table 13: Status of development of laws and regulations for DDT purchase and use

Status of development of national laws and regulations governing and restricting the purchase or use of DDT	**National laws and regulations governing and restricting the purchase or use of DDT fully enforced**	**Quality control of DDT produced or imported**
[x] Yes	[x] Yes	[x] Yes

[] No	[] No	[] No [] Not applicable

Table 14: Status of Integrated vector management strategy development and implementation

Integrated vector management (IVM) strategy endorsed at national level	**IVM strategy implemented throughout the country**
[x] Yes **[] No**	[x] Yes [] No

2.2.1.6 Strategies/action plan/measures for PFOS, its salts and PFOSF management

[Placeholder for narrative]

Table 13.

Table 15: Status of developing and implementing an action plan for reduction/eliminating PFOS, its salts and PFOSF

Strategy/action plan/measure	**Status**	**Year**
developing and implementing an action plan with the goal of reducing and ultimately eliminating the production and/or use of PFOS	[x] Yes [X] Currently being developed. [] No	[2014]

Table 16: Strategies/action plan/measures for PFOS, its salts and PFOSF management

Strategy/action plan/measure	**Status**	**Use**	**Description of the alternative substances or methods**	**Main problem sources**

taking any actions to phase out the use of PFOS as safer alternative substances or methods have become available,	[X] Yes [] No	[] Photo-imaging	None Identified	[x] Unavailability of information on alternative substances or methods. [] Lack of financial resources. [] Insufficient technical capacity. [] Other:
		[] Photo-resist and anti-reflective coatings for semi-conductors	Non identified	
		[] Etching agent for compound semiconductors and ceramic filters		
		[] Aviation hydraulic fluids		
		[] Metal plating (hard metal plating) only in closed-loop systems		
		[] Certain medical devices (such as ethylene tetrafluoroethylene copolymer (ETFE) layers and radio-opaque ETFE production, in-vitro diagnostic medical devices, and CCD color filters)		
		[] Fire-fighting foam		
		[] Insect baits for control of leaf-cutting ants from Atta spp. and Acronym spp		
		[] Photo masks in the semiconductor and liquid crystal display (LCD) industries		
		[] Metal plating (hard metal plating)		
		[] Metal plating (decorative plating)		
		[] Electric and electronic parts for some colour printers and colour copy machines		
		[] Insecticides for control of red imported fi re ants and termites		
		[] Chemically driven oil production		
		[] Carpets		
		[] Leather and apparel		

		[] Textiles and upholstery		
		[] Paper and packaging		
		[] Coatings and coating additive		
		[] Rubber and plastics		
		[] Other uses		

Table 15. Status of promoting research and development of alternatives to PFOS, its salts and PFOSF management

Action	**Status**	**Action taken**	**Main problem sources**
Taking action to promote research on and development of safe alternative chemicals and non-chemical products and processes, methods and strategies to the use of PFOS as parties are encouraged to do so in accordance with paragraph 4 (c) of Part III of Annex B	[] Yes [X] No	[]	[X] Unavailability of information on alternative substances or methods. [X] Lack of financial resources. [X] Insufficient technical capacity. [] Other:
taken action to build the capacity of countries to transfer safely to reliance on alternatives to PFOS, its salts and PFOSF in accordance with paragraph 5 (d) of Part III of Annex B	[] Yes [X] No	[]	[] Unavailability of information on alternative substances or methods. [] Lack of financial resources. [] Insufficient technical capacity. [] Other:

2.2.1.7 Strategies/action plan/measures for unintentional POPs management

[Placeholder for narrative]

Table 17: . Status of developing an action plan to identify, characterize and address releases of chemicals listed in Annex C

Action Plan	**Status**	**Year**	**Difficulties in the implementation of the action plan**	**Main problem sources**
Action plan designed to identify, characterize and address the release of the chemicals listed in Annex C	[x] Yes [x] Currently being developed. [] No	Development of the action plan: 2007 Review and updating of the action plan:2014	[x] Yes [] No	[] Lack of institutional or policy framework. [x] Lack of financial resources. [x] Limited human resources. [x] Insufficient technical capacity. [] Insufficient information. [] Other:

Table 18: Status of participating in regional/sub-regional action plan identify, characterize and address releases of chemicals listed in Annex C

Action	**Status**	**Name of regional or sub-regional action plan**	**Starting year**

participating in any regional or sub-regional action plan	[] Yes [x] No	[]	[]

Table 19: Status of evaluating efficacy of the laws and policies adopted to manage releases of unintentionally POPs

Action	**Status**	**Year**
evaluation of the efficacy of the laws and policies adopted to manage releases of unintentionally produced persistent organic pollutants	[x] Yes [X] Currently being developed. [] No	[2014], 2017-2021

Table 20: Status of promoting or introducing requirements for use of best available techniques (BAT) and best environmental practices (BEP) for new sources and existing sources

Measure	**Status**	**New sources**	**Existing sources**
promoted or introduced requirements for use of best available techniques (BAT) and best environmental practices (BEP) for new sources and existing sources	[X] Yes [X] Currently being developed. [] No	[] Require use of BAT for all source categories. Starting year: [] Require use of BAT for identified priority source categories only. Starting year:2022 [X] Promote use of BAT for some source categories. Starting year:2007 and intensify in 2018 [X] Promote use of BAT for identified priority source categories only. Starting year:2007 [X] Promote use of BEP for all source categories. Starting year: 2021-2022	[] Require use of BAT for some source categories 92018-2022. Starting year: 2017 [x] Require use of BAT for identified priority source categories only. Starting year:2022 [X] Promote use of BAT for all source categories. Starting year: [X] Promote use of BAT for identified priority source categories only. Starting year:2014

		[X] Promote use of BEP for identified priority source categories only Starting year:2007, 2014,2022	[] Promote use of BEP for all source categories. Starting year:2021=2022 [X] Promote use of BEP for identified priority source categories only. Starting year:2014, 2022

2.2.1.8 Strategies/measures for POPs stockpiles and waste management

[Placeholder for narrative]

Table 21: Status of developing strategies and taking measure to identify and manage stockpiles consisting of, or containing, chemicals listed in either Annex A or Annex B to the Convention

Strategy/measures	**Status**	**Main problem sources**	**Year**	**Type**	**Year**	**Type**
			Pesticides listed in annexes A or B:		***Industrial chemicals listed in annexes A or B:***	
developing strategies for identifying stockpiles consisting of, or containing, chemicals listed in either Annex A or Annex B to the Convention	[x] Yes [] Currently being developed. [] No	[x] Lack of institutional or policy framework. [x] Limited financial resources. [x]	[2004-2014] 2022		[x] For PCBs For electronic waste For PFOs	[x]

		Limited human resources. [x] Insufficient technical capacity. [] Other:				
taking any measures to manage stockpiles in a safe, efficient and environmentally sound manner	[X] Yes [] No	[X] Lack of institutional or policy framework. [X] Limited financial resources. [X] Limited human resources. [] Insufficient technical capacity. [] Other:	[2004-2014] 2022		[]	[]

Table 21.

Table 22: Status of developing strategies and taking measure to identify and manage products and articles in use and wastes consisting of, containing, or contaminated with chemicals listed in Annex A, B or C, including contaminated sites.

Strategy/measures	**Status**	**Main problem sources**	**Type**	**Year**	**Type**	**Year**	**Type**	**Year**
			Pesticides listed in		***Industrial chemicals listed in***		***Unintentional chemicals***	

			annexes A or B:		***annexes A or B:***		***listed in annex C***	
Developing strategies for identifying products and articles in use and wastes consisting of, containing, or contaminated with chemicals listed in Annex A, B or C	[x] Yes [] Currently being developed. [x] No	[x] Lack of financial resources. [x] Limited human resources. [x] Insufficient technical capacity. [] Other	[x]		[]	[]	[x]	
Taking any measures to manage wastes, including products and articles upon becoming wastes	[x] Yes [] No		[x]		[]	[]	[x]	
Developing strategies for identifying sites contaminated by chemicals listed in Annex A, B or C	[x] Yes [] Currently being developed. [] No	[x] Lack of financial resources. [x] Limited human resources. [] Insufficient technical capacity. [] Other	[x]		[]	[]	[x]	

2.2.2 Institutional framework

[Placeholder for narrative]

2.2.3 Stakeholders roles Annex 7 Table.7 Stakeholders

Placeholder for narrative]

Table 23: POPs management stakeholders and related roles

NO		Institution	Role in pops issue	Role in POPS Activities
1		National Treasury.		
		Ministry of environment and Forestry (MEF).	Develop the policies, legislation And regulations	
		MOLF/Counties	Approve and improve the product proposals Approve work plans Develop the policies Develop the legislation Develop regulations	
		PCPB	Coordinate pesticide and agriculture issue among government departments	
		NEMA HQs	Coordinate development, review and enforcement of regulatory and administrative proposal	
		NEMA Counties	47 Counties taking action	
		Council of Governors	Approve activities at the county level that will participate	
		Ministry of Industrialization and enterprise development	Registration and financing of all groups of Recyclers, informal groups and overall manufacturing	
2	Specialized institutions	HCDA		

		(AAK	Coordination of pesticide and bio pesticide related stakeholders. Organize the EPRO	
		KAM	Coordination of plastic and bio pesticide related stakeholders Be in the EPRO	
		KEBS	Product Standardization	
3	Research	ICIPE	Provide initiative on bio pesticides also a Regional Centre for Stockholm Convention	
4	Producers/manufacturers	Elgon Kenya/ Packaging Integrated Limited	Advise on circularity, marketing, monitoring and fiscal impacts to industry Impact of subsidies for electricity and agro- inputs	
5	Importer	Amiran	Impact of import duties of greenhouse plastics Cost issues of imported products	
6	NGO consumer Organizations	Kenya Organic Agriculture Network	Education, Awareness	

2.3 Assessment of the POPs issue in the country

This subchapter would contain specific information on POPs listed under the three annexes of the Stockholm Convention, including: historical, current, and projected future production, use, import, export and waste management; existing policy and regulatory framework.

[Placeholder for narrative]

2.3.1 Assessment of POPs pesticides (Annex A, Part I)

Pesticide imports were approximately 240,000 tonnes in 2021. Pesticide use has more than tripled since 2000 primarily driven by the shift to zero-tillage agriculture and the extensive use of herbicide, which comprise 75% of pesticides used. 39% of imported pesticides are HHPs, 40% of imported pesticides are prohibited in the EU. China currently supplies 60% of pesticides used the majority of which are generics.

Pesticides classified WHO 1a & 1b, require a prescription from a licensed agronomist.

- Kenya does not manufacture pesticides other than pyrethrum and therefore almost exclusively relies on imports from other countries.
- It may therefore be construed that the import figures will be indicative of amounts used.
- The analysis of import data from 2009/10 to 2020/21 from PCPB show that in general, the volume of imports has been growing steadily over the past 5 years for all the pesticide categories indicating a general increase of pesticide usage
- The general increase in usage of pesticides may be construed as an indication of possible greater exposure to both human health and the environment.
- Information on actual areas/crops where the products are used is not available as there is no such mechanism for monitoring or reporting. It is therefore difficult to report on the distribution of products among farmers and crops.

2.3.1.1 Production

Table 24: . Production of POPs pesticides

Chemicals	**Status**	**Year in which the production started**	**Year in which the production ended**	**Estimated total production [kg]**
Aldrin	[] Yes [x] No [] Information not available	-	-	0
Alpha hexachlorocyclohexane	[] Yes [x] No [] Information not available	-	-	0
Beta hexachlorocyclohexane	[] Yes [x] No [] Information not available	--	-	0
Chlordane	[] Yes [x] No [] Information not available	-	-	0
Chlordecone	[] Yes [x] No	-	-	0

	[] Information not available			
Dicofol	[] Yes [x] No [] Information not available	-	-	0
Dieldrin	[] Yes [x] No [] Information not available	-	-	0
Endrin	[] Yes [x] No [] Information not available	-	-	0
Heptachlor	[] Yes [x] No [] Information not available	-	-	0
Hexachlorobenzene	[] Yes [x] No [] Information not available	-	-	0
Lindane	[] Yes [x] No [] Information not available	-	-	0
Mirex	[] Yes [x] No [] Information not available	-	-	0
Pentachlorobenzene	[] Yes [x] No [] Information not available	-	-	0
Pentachlorophenol and its salts and esters	[] Yes [x] No [] Information not available	-	-	0
Technical endosulfan and its related isomers	[] Yes [x] No	-	-	0

	[] Information not available			
Toxaphene	[] Yes [x] No [] Information not available	-	-	0
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[] Yes [x] No [] Information not available	-	-	0
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[] Yes [x] No [] Information not available	-	-	0

2.3.1.2 Import

Table 25 Quantity of principal imports (in tonnes)

	2017	2018	2019	2020	2021
Chemical fertilisers	853,113.0	632,074.6	768,824.9	836,071.9	758,456.5
Plastics in primary & non-primary forms	453,783.5	471,676.2	501,451.4	569,396.2	576,188.6
Insecticides & fungicides	17,986.0	20,340.1	15,606.0	25,809.7	19,159.2

Source: **Economic Survey 2022**

Figure 3 –

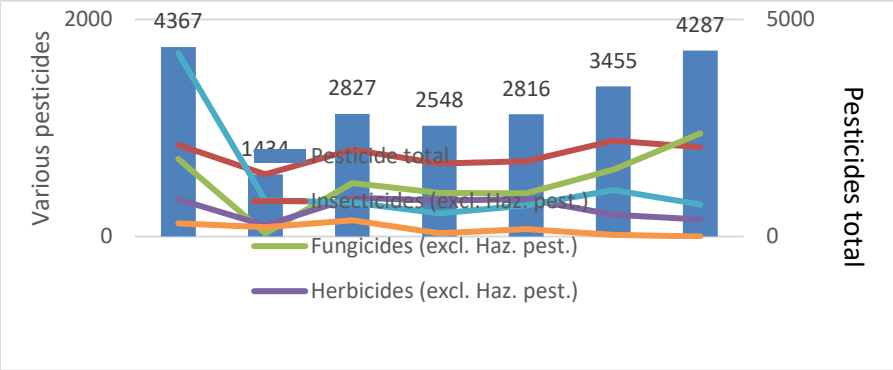

Figure 2: ***Pesticide export quanti Ty (in tonnes)***
Source: FAOSTAT

Table 26: POPs pesticides imports

Chemical	**Status**	**Year**	**Purpose**	**Country of origin**	**Total annual import (kg/year)**
Aldrin	[] Yes [x] No [] Information not available				
Alpha hexachlorocyclohexane	[] Yes [x] No [] Information not available				

Beta hexachlorocyclohexane	[] Yes [] No [] Information not available				
Chlordane	[] Yes [x] No [] Information not available				
Chlordecone	[] Yes [x] No [] Information not available				
Dicofol	[x] Yes [] No [] Information not available				
Dieldrin	[] Yes [x] No [] Information not available				
Endrin	[] Yes [x] No [] Information not available				
Heptachlor	[] Yes [x] No [] Information not available				
Hexachlorobenzene	[] Yes [x] No [] Information not available				
Lindane	[x] Yes [] No [] Information not available				
Mirex	[] Yes [x] No [] Information not available				

Pentachlorobenzene	[] Yes [] No [] Information not available				
Pentachlorophenol and its salts and esters	[] Yes [] No [] Information not available				
Technical endosulfan and its related isomers	[] Yes [x] No [] Information not available				
Toxaphene	[] Yes [] No [] Information not available				
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[] Yes [] No [] Information not available				
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[x] Yes [] No [] Information not available				

Table 27: POPs pesticides containing waste imported for environmental sound disposal

Chemical	**Status**	**Year**	**Country of origin**	**Total annual import (tonnes/year)**
Aldrin	[] Yes [x] No [] Information not available		Waste in transit from Uganda, Sudan and Rwanda for ESM	
Alpha hexachlorocyclohexane	[] Yes [] No		“	

	[] Information not available			
Beta hexachlorocyclohexane	[] Yes [x] No [] Information not available		“	
Chlordane	[] Yes [x] No [] Information not available			
Chlordecone	[] Yes [x] No [] Information not available		“	
Dicofol	[x] Yes [x] No [] Information not available		“	
Dieldrin	[] Yes [] No [] Information not available			
Endrin	[] Yes [x] No [] Information not available			
Heptachlor	[] Yes			
Hexachlorobenzene	[] Yes [] No [] Information not available			
Lindane	[] Yes [] No [] Information not available			
Mirex	[] Yes [] No [] Information not available			

Pentachlorobenzene	[] Yes [] No [] Information not available			
Pentachlorophenol and its salts and esters	[] Yes [] No [] Information not available			
Technical endosulfan and its related isomers	[] Yes [] No [] Information not available			
Toxaphene	[] Yes [] No [] Information not available			
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[] Yes [X] No [] Information not available			
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[] Yes [X] Information not available			

2.3.1.3 Export

[Placeholder for narrative]

Table 28: POPs pesticides exports

Chemical	Status	Year	Purpose	Destination country	Total annual export (kg/year)
Aldrin	[] Yes [] No [X] Information not available				
Alpha hexachlorocyclohexane	[] Yes [] No [X] Information not available				
Beta hexachlorocyclohexane	[] Yes [] No [X] Information not available				
Chlordane	[] Yes [] No [X] Information not available				
Chlordecone	[] Yes [] No [X] Information not available				
Dicofol	[] Yes [] No				

	[X] Information not available				
Dieldrin	[] Yes [X] No [] Information not available				
Endrin	[] Yes [X] No [] Information not available				
Heptachlor	[] Yes [] No [] Information not available				
Hexachlorobenzene	[] Yes [X] No [] Information not available				
Lindane	[] Yes [X] No [] Information not available				
Mirex	[] Yes [X] No [] Information not available				

Pentachlorobenzene	[] Yes [X] No [] Information not available				
Pentachlorophenol and its salts and esters	[] Yes [] No [X] Information not available				
Technical endosulfan and its related isomers	[] Yes [] No [X] Information not available				
Toxaphene	[] Yes [X] No [] Information not available				
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[] Yes [] No [X] Information not available				
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[] Yes [] No [X] Information not available				

The stock exported is assumed to have legacy obsolete POPs pesticides and therefore all are assumed to have been in.

Table 29: POPs pesticides containing waste exported for environmental sound disposal

Chemical	**Status**	**Year**	**Destination country**	**Total annual export (tonnes/year)**
Aldrin	[X] Yes [] No [] Information not available	2006 ,2016	UK	216
Alpha hexachlorocyclohexane	[] Yes [] No [] Information not available	2016	UK	216
Beta hexachlorocyclohexane	[X] Yes [] No [] Information not available	2016	UK	216
Chlordane	[X] Yes [] No [] Information not available	2016	UK	216
Chlordecone	[X] Yes [] No [] Information not available	2016	UK	216
Dicofol	[X] Yes [] No [] Information not available			216
Dieldrin	[X] Yes [] No [] Information not available			216
Endrin	[X] Yes [] No [] Information not available			216
Heptachlor	[] Yes			

	[] No [] Information not available			
Hexachlorobenzene	[X] Yes [] No [] Information not available			
Lindane	[] Yes [] No [] Information not available			
Mirex	[X] Yes [] No [] Information not available			
Pentachlorobenzene	[X] Yes [] No [] Information not available			
Pentachlorophenol and its salts and esters	[X] Yes [] No [] Information not available			
Technical endosulfan and its related isomers	[X] Yes [] No [] Information not available			
Toxaphene	[] Yes [] No [] Information not available			
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[X] Yes [] No [] Information not available			
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[X] Yes [] No [] Information not available			

2.3.1.4 Use

[Placeholder for narrative]

Table 30: POPs pesticides use

Chemical	**Status**	**Year**	**Purpose**	**Total annual use (kg/year)**
Aldrin	[X] Yes [] No [] Information not available			
Alpha hexachlorocyclohexane	[] Yes [] No [X] Information not available			
Beta hexachlorocyclohexane	[] Yes [] No [X] Information not available			
Chlordane	[X] Yes [] No [] Information not available			
Chlordecone	[] Yes [] No [X] Information not available			
Dicofol	[] Yes [] No [] Information not available			
Dieldrin	[] Yes [] No [] Information not available			
Endrin	[] Yes [] No [x] Information not available			
Heptachlor	[] Yes [x] No			

	[] Information not available			
Hexachlorobenzene	[] Yes [] No [x] Information not available			
Lindane	[x] Yes [] No [] Information not available			
Mirex	[] Yes [x] No [] Information not available			
Pentachlorobenzene	[] Yes [] No [x] Information not available			
Pentachlorophenol and its salts and esters	[] Yes [] No [x] Information not available			
Technical endosulfan and its related isomers	[x] Yes [] No [] Information not available			
Toxaphene	[] Yes [] No [x] Information not available			
DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)	[x] Yes [] No [] Information not available			
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	[x] Yes [] No [] Information not available			

2.3.1.5 Alternatives

[Placeholder for narrative]

Table 31: Status of using alternatives

Status of alternatives use	Year of introducing the alternative	Type of alternative	Purpose	Total annual use (kg/year)	Risk assessment against POPs criteria listed in Annex D
[] Yes [] No [] Information not available					

2.3.2 Assessment of PCBs (Annex A, Part II)

[Placeholder for narrative]

2.3.2.1 Production

No production. No stated use

Table 32: Production of PCBs in the country

Chemicals	Status	Year in which the production started	Year in which the production ended	Estimated total production [kg]
Polychlorinated biphenyls (PCB)	0	N/ A	N/A	N? A

2.3.2.2 Import for destruction

PCBs used to be imported by the Kenya Power and Lighting but reported no. PCBs are to be found in electrical transformers and capacitors in older factories, especially those built before1985. In 1995, the Swiss government advanced to KPLC 1.2 million Swiss francs for a disposal project that conducted the following activities analytical investigation (site survey); excavation and packaging of contaminated soil and decontamination of sites;

Table 33 Imports for destruction of the PCBs contained in equipment, liquids, or other wastes containing greater than 0.005% (50 ppm

Status	PCBs contained in:	Year	Quantity (Metric Tons):
[x] Yes [] No [] Information not available	Transformers and switches	1995	30

2.3.2.3 Export for destruction

Transport and disposal; and Disposal of buried PCB-containing capacitors to avoid further contamination of soils.

The buried capacitors had leaked and had therefore contaminated the soil. Analyses revealed levels of contamination of up to 300,000 ppm (vs the safe level 50 ppm). To ensure that the environment was fully cleaned, all contaminated soil containing PCBs > 30 ppm was removed for disposal

Table 34: Exports for destruction of the PCBs contained in equipment, liquids, or other wastes containing greater than 0.005% (50 ppm)

Status	PCBs contained in:	Year	Quantity (Metric Tons):
[X] Yes [] No [] Information not available	Transformers and switches	1995	30

No other exports of PCBs have been made

2.3.2.4 Use

Table 35: Status on developing the inventory of PCB in equipment (e.g., transformers, capacitors or other receptacles containing liquid stocks), articles, oils and waste

Status on developing the inventory of PCB in equipment (e.g., transformers, capacitors or other receptacles containing liquid stocks), articles, oils and waste	**Type of inventory**	**Main problem sources**
[] Yes [X] Currently being developed. [] No	[] Complete inventory. [X] Preliminary inventory.	[X] Lack of institutional or policy framework. [X] Lack of financial resources. [] Lack of human resources. [] Lack of technical capacity. [] Other:

Table 36: Inventory of PCB containing equipment

Application	**PCB in equipment (transformers, capacitors, other receptables)**		
PCB in use or unspecified (c)	Total mass of equipment (Casing + liquid) (kg) (a)	Liquid (Liquid not contained in casing) (kg) (b)	Total (kg) (a+b)
	30	30	60
PCB in storage or out of use (d)	Total mass of equipment (Casing + liquid) (kg) (a)	Liquid (Liquid not contained in casing) (kg) (b)	Total (kg) (a+b)
Total (active inventory) (c)+(d)	Total mass of equipment (Casing + liquid) (kg) (a)	Liquid (Liquid not contained in casing) (kg) (b)	Total (kg) (a+b)

2.3.3 Assessment of POP-PBDEs (Annex A, Part IV and Part V), HBB (Annex A, Part I) and HBCD (Annex A, Part I and Part VII)

Polybrominated diphenyl ethers (PBDEs)

i. Polybromodiphenyl ethers (PBDEs) are a group of industrial chemicals which have been widely used as additive flame retardants since 1970s.
ii. PBDEs were produced at three different degrees of bromination: – commercial Pentabromodiphenyl ether (c-PentaBDE), – commercial Octabromodiphenyl ether (c-OctaBDE) – commercial Decabromodiphenyl ether (c-DecaBDE) (still produced) 3 4 POP-PBDEs in the Stockholm Convention (2009)
iii. The COP decided at the 4th meeting 2009 to list in Annex A certain congeners contained in c-PentaBDE and/or c-OctaBDE (POP-PBDEs) including:

- Tetrabromodiphenyl ether,
- pentabromodiphenyl ether,
- Hexabromodiphenyl ether, and
- heptabromodiphenyl ether]

The Convention prohibits the use of POP-PBDEs listed in 2009.But contains a time-limited exemption for the recycling of articles that may contain POP-PBDEs and the use and final disposal of articles manufactured from such recycling.

DecaBDE listed in 2017 has exemptions for a range of uses but has no recycling exemption! Now discussion on low POPs content and on challenge for recycling of e-waste plastic.

2.3.3.1 POP-PBDEs

2.3.3.1.1 Production

Table 37: Production of POP-PBDEs in Kenyan/during 2004-2022

Chemicals	Status	Year in which the production started	Year in which the production ended	Estimated total production [kg]
Hexabromodiphenyl ether and heptabromodiphenyl ether	[] Yes [X] No [] Information not available	N/A	N/A	N/A

Tetrabromodiphenyl ether and pentabromodiphenyl ether	[] Yes [X] No [] Information not available	N/A	N/A	N/A
Decabromodiphenyl ether	[] Yes [X] No [] Information not available	N/A	N/A	N/A

2.3.3.1.2 Import

The Kenyan NIP in 2008 did not include newly listed industrial POPs. Majority stakeholders cannot identify the industrial POPs by their chemical names. The consequence of luck of awareness by stakeholders has resulted in imports of these chemicals, unregulated cross border movements of products containing industrial POPs.

Table 38: POP-PBDEs imports

Status	**Year**	**Chemical**	**Purpose**	**Country of origin**	**Total annual import (kg/year)**
[x] Yes [] No					

Table 39: Total estimated POP-PBDEs in articles/products imported

Status	**Year**	**Type of article/product containing POP-PBDEs**	**Country of origin**	**Total annual import of article/product containing POP-PBDEs (tonnes/year)**	**Total estimated of POP-PBDEs content in the imported articles/products (tonnes/year)**	**Total polymeric fraction containing POP-PBDEs in imported articles/ products (tonnes/year)**
[x] Yes [] No [] Information not available	2014	Fridges Computers Printers Mobile Phones	China Japan UK		1400 2500 500 150	50.4 237 47.3 5.4

The estimates of industrial POPs in products and what was beings being generated annually in Kenya in 2014 was s 677.2 Kg from Motor vehicles, 211.7 kg from CRTs, 520.9 kg from TVs, 780.1 kg from Computers for POP-PBDE

Table 40: POP-PBDE containing waste imported (WEEE and ELVs) for environmental sound disposal

Status	**Year**	**Chemical type in waste**	**Country of origin**	**Total annual import (tonnes/year)**
[] Yes [X] No [] Information not available	N/A	N/A	N/A	N/A

2.3.3.1.3 Export

No recorded export as PBDES but the East Africa community is a strong interregional exchange of small items

Table 41: POP-PBDEs exports

Status	**Year**	**Chemical**	**Purpose**	**Destination country**	**Total annual export (kg/year)**
[] Yes [X] No [] Information not available	N/A	N/A	N/A	N/A	N/A

Table 42: Total estimated POP-PBDE in articles/products exported

Status	Year	Type of article/ product containing POP-PBDEs	Destination country	Total annual export of article/product containing POP-PBDEs (tonnes/year)	Total estimated of POP-PBDEs content in the exported articles/products (tonnes/year)	Total polymeric fraction containing POP-PBDEs in exported articles/ products (tonnes/year)
[] Yes						
[X] No [] Information not available	N/A	N/A	N/A	N/A	N/A	N/A

Table 43: POP-PBDE containing waste exported (WEEE and ELVs) for environmental sound disposal.

Status	Year	Chemical type in waste	Destination country	Total annual export (tonnes/year)
[] Yes [x] No [] Information not available				

2.3.3.1.4 Use

The main manufacturing sectors that have used POP-PBDEs are as follows:

- Organ bromine industry;
- Electrical and electronics industry;
- Transport industry;
- Furniture industry;
- Textiles and carpet industry;
- Construction industry;
- Recycling industry;

In Kenya, PBDEs was used in different resins, polymers, and substrates at levels ranging from 5 to 30 % by weight. The quantities used for each specific application are not publicly available. However, estimates can be calculated as indicated in section 3.

Table 44 shows the use of c-PentaBDE in various materials and applications. The use and application of PBDEs in products in Kenya is heavily dependent on import materials. This is because PBDEs are not manufactured in Kenya. Therefore, the history of production in producing countries where Kenya imports these materials or products is important in order to provide estimates of the amounts of PBDEs in circulation in Kenya. Example, the origin country of import of motor vehicles, their category will vary among global regions of manufacture mainly, Central America, Europe and Japan.

Table 44: use and Application of c-PentaBDE in various materials and applications in Kenya

Materials/polymers/resins	Applications	Commercial commodities for the applications	Main Kenyan Companies/Institutions
Epoxy resins	Circuit boards, protective coatings	Computers, ship interiors, electronic parts.	Cables and Electronic Companies
Polyvinylchloride (PVC)	Cable sheets	Wires, cables, floor mats, industrial sheets.	Cables and Electronic Companies
Polyurethane (PUR)	Cushioning materials, packaging, padding	Furniture, sound insulation packaging, padding panels, wood imitations, transportation.	Mattresses manufacturers
Unsaturated (Thermosetting) polyesters	Circuit boards, coatings	Electrical equipment, coatings for chemical processing plants mouldings, military and marine applications: construction panels.	Electronics importers
Rubber	Transportation	Conveyor belts, foamed pipes for insulation.	Cable companies
Paints/lacquers	Coatings	Marine and industry lacquers for protection of containers	Paint and Ink Companies

Another example is in the imports of polyurethane foam whose ingredients Kenya has been importing for the production of cushioning and other uses

A Electric and electronic equipment (EEE)

Table 45: Total estimated POP-PBDEs content in the EEE articles/products in use

Status	Year	Type of article/product containing POP-PBDEs	Total quantity of articles/products containing POP-PBDEs in use (tonnes/year)	Total estimated polymeric fraction containing POP-PBDEs in the articles/products in use (tonnes/year)	Total estimated POP-PBDEs content in the articles/products in use (tonnes/year)	Main problem sources
[x] Yes [] No [] Information not available	**2014**	**Televisions** **Printers** **Mobile phones**	1,513 tonnes			[] Lack of legal, institutional or policy framework [] Lack of financial resources [] Lack of human resources Lack of technical capacity [] Other

B Transport sector

Information required for the inventory of products that contain PBDEs included the imports and exports data, and information of the source countries. Questioners were used to obtain data and information from various sectors and their stakeholders. The following sectors were categorized and their data obtained,

a) Transport sector

- Buses
- Trucks
- Cars
- Motor cycles

b) C-PentaBDE:

- a major use in flexible PUR foams (automotive seating; head rests; car ceilings, acoustic systems, back-coating of textiles).
  - C-OctaBDE: Minor use in plastics parts (steering wheels; dashboards; door panels, bumpers).
  - C-DecaBDE: Use in plastics (e.g., cables, electronic parts). Still exemption for use of DecaBDE in vehicles.

Most vehicles assembled before 2005 had PBDEs additives in various parts. Kenya assembles motor vehicles but majority of cars in Kenya are imported as ready-made. The major assembler companies in Kenya are the Kenya Vehicle Manufacturers (KVM) which also assembles for Hyundai Motor Corp and is located at Thika town, General Motors East Africa (GMEA), Honda Motorcycle Kenya Ltd, Associated Vehicle Assemblers Ltd (AVA) which also assembles for Toyota (East Africa), Toyota Kenya Ltd (TKL) and TVS Motors Kenya. Major retailers are the Toyota (East Africa)/ Toyota Kenya Ltd (TKL), Cooper Motor Corporation, General Motors East Africa (GMEA), Simba Colt and DT Dobie. The assembling or body building is mainly done for buses and other mini buses. Cars imports from Asia are estimated to take the highest percentage of POP PBDE input in Kenya

Table 46: Total estimated POP-PBDEs content in the transport sector articles/products in use

Status	**Year**	**Type of article/product containing POP-PBDEs**	**Total quantity of articles/products containing POP-PBDEs in use (tonnes/year)**	**Total estimated polymeric fraction containing POP-PBDEs in the articles/products in use (tonnes/year)**	**Total estimated PUR foam containing POP-PBDEs in articles/products in use (tonnes/year)**	**Total estimated POP-PBDEs content in the articles/ products in use (tonnes/ year)**	**Main problem sources**
[X] Yes [] No [] Information not available							[x] Lack of legal, institutional or

							policy framework [x] Lack of financial resources [x] Lack of human resources Lack of technical capacity [] Other

2.3.3.1.5 Recycling

Poly urethane Disposal of products containing industrial POPs in Kenya

Luck of information by all sectors stakeholders has led to in proper disposal of waste containing PFOS and related substances. Proper disposal and handling of E-waste in Kenya goes hand in hand in reduction of PBDE in the environment. For E-waste, Kenya has a number of projects geared towards recycling and disposal. They include the following;

- Computer for Schools through their refurbishment programme
- WEEE compliant recycling at Athi river, Nairobi (the HP project. See Figure 5-1)
- Support of individual companies in their projects. Examples are the Nokia Company through their recycling scheme. Companies such as IBM and XP have a program where e-waste from their products are transported back to their homeland.

At the East African compliant recycling, 6000 kg per day of CRTs and 6000 kg per day of LCDs are sorted out, different plastic polymer types separated for either recycling or disposal. Hazardous parts are sent back to the UK for disposal. Apart from the CRTs and LCDs, 30000kg of other electronics are sorted per year. Collection centers that feed the facilities within Nairobi are at Mukuru, Ngara, Dandora, Eastlands, Kibera. The Hazardous waste is sealed in containers and transported back to the UK for further treatment and disposal.

foams in furniture, transport, end-of-life vehicles and mattresses are partly recycled into new articles by processes such as carpet rebound and regrinding. In Kenya, there is informal and formal recycling of matrasses and foams to make new products for the market. The resulting new articles need to be captured by an inventory.

No recycling recorded though a lot of recycling does take place

Table 47 Status of recycling articles that contain or may contain brominated diphenyl ethers and

actions or control measure taken to ensure that recycling is carried out in an environmentally sound manner

Status of recycling articles that contain or may contain brominated diphenyl ethers	**Year**	**Description of actions or control measures taken to ensure that recycling is carried out in an environmentally sound manner**	**Type of articles that have been recycled**	**Main problem sources**
[x] Yes [] No [] Information not available	**2022**			[] Lack of legal, institutional or policy framework [] Lack of financial resources [] Lack of human resources [] Lack of technical capacity [] Other
Status of putting in place measures to separate articles containing brominated diphenyl ethers before recycling	**Year**	**Chemical**	**Description of the measure**	**Main problem sources**
[] Yes [x] Currently being developed [] No		[X] Hexabromodiphenyl ether and heptabromodiphenyl ether [x] Tetrabromodiphenyl ether and pentabromodiphenyl ether [] Combined brominated diphenyl ethers	Legislation Setting up a standard for products	[x] Lack of financial resources [x] Lack of technical capacity [] Other

Table 48: Status of using articles manufactured from recycled materials that contain or may contain brominated diphenyl ethers

Status of using articles manufactured from recycled materials that contain or may contain brominated diphenyl ethers	**Year**	**Information available on the articles**
[x] Yes [] No [] Other	**2002-2022**	Recycling facilities on request only. It is not enforced

Table 49: Status of taking steps to prevent the export of articles manufactured from recycled materials that contain levels or concentrations of brominated diphenyl ethers exceeding those permitted for the sale, use, import or manufacture of those articles

Status of taking steps to prevent the export of articles manufactured from recycled materials that contain levels or concentrations of brominated diphenyl ethers exceeding those permitted for the sale, use, import or manufacture of those articles	**Chemical**	**Year**	**Description of the measures**	**Limitations**
[] Yes [] Currently being developed [X] No	[X] Hexabromodiphenyl ether and heptabromodiphenyl ether [X] Tetrabromodiphenyl ether and pentabromodiphenyl ether [X] Combined brominated diphenyl ethers		X	[X] Lack of financial resources [X] Lack of technical capacity [X] Lack of legal, institutional or policy framework

				[] Other

An Electric and electronic equipment (EEE)

Table 50: Total estimated POP-PBDEs content in the EEE articles/products recycled

Status	Year	Type of article/product containing POP-PBDEs recycled	Total quantity of articles/products containing POP-PBDEs recycled (tonnes/year)	Total estimated POP-PBDEs content in the articles/products recycled (tonnes/year)	Total estimated polymeric fraction containing POP-PBDEs in the recycled articles/products (tonnes/year)
[X] Yes [] No [] Information not available	**2014**	**Pc monitors Printers, mobile phones**	**7350**	**2.4729**	**41.04**

B Transport sector

Table 48. Total estimated POP-PBDEs content in the transport sector articles/products recycled

Status	Year	Type of article/product containing POP-PBDEs recycled	Total quantity of articles/products containing POP-PBDEs recycled (tonnes/year)	Total estimated POP-PBDEs content in the articles/products recycled (tonnes/year)	Total estimated polymeric fraction containing POP-PBDEs of recycled articles/products (tonnes/year)	Total estimated PUR foam containing POP-PBDEs in the recycled articles/products (tonnes/year)
[] Yes						
[] No						

[] Information not available						

2.3.3.2 HBCD

- HBCD use in polystyrene (EPS/XPS) polymers – Largest amount used in construction (>90% of total HBCD) –
- Minor amount in EPS packaging (also from recycling Rani et al 2014)
- Minor HBCD use in electronic polymers (High Impact Polystyrene)
- HBCD use in textile coating applications – Performance textiles (e.g., upholstery transport/furniture, curtains). – Specific clothing (e.g., fire fighters; military; children sleepwear).

2.3.3.2.1 Production

No production in Kenya but all the uses of HCBD prevalent in Kenya

Table 51: Production of HBCD

Chemical	**Status**	**Year in which the production started**	**Year in which the production ended**	**Estimated total production [kg]**
Hexabromocyclododecane	[] Yes [X] No [] Information not available	N/A	N/A	N/A

2.3.3.2.2 Import

No data Await Survey by KRA

Table 52: HBCD imports

Status	**Year**	**Purpose**	**Country of origin**	**Total annual import (kg/year)**
[] Yes				
[] No				

[] Information not available				

Table 53: Total estimated HBCD content in articles/products imported

Status	Year	Type of article/product containing HBCD	Country of origin	Total annual import of articles/products containing HBCD (tonnes/year)	Total estimated of HBCD content in the imported articles/products (tonnes/year)
[] Yes					
[] No [] Information not available					

Table 54: HBCD containing waste imported for environmental sound disposal

Status	Year	Country of origin	Total annual import (tonnes/year)
[X] Yes [] No [] Information not available	2014		

2.3.3.2.3 Export

Table 55: HBCD exports

Status	Year	Purpose	Destination country	Total annual export (kg/year)
[] Yes	N/A	N/A	N/A	
[X] No [] Information not available				

Table 56: Total estimated HBCD containing articles/products exported

Status	Year	Type of article/product containing HBCD	Destination country	Total annual export of article/product containing HBCD (tonnes/year)	Total estimated of HBCD content in the exported articles/products (tonnes/year)
[] Yes					
[X] No [] Information not available	N/A	N/A	N/A	N/A	N/A

Table 57: HBCD containing waste exported for environmental sound disposal

Status	Year	Destination country	Total annual export (tonnes/year)
[] Yes [x] No [] Information not available	N/A	N/A	N/A

2.3.3.2.4 Use

Table 58: HBCD used

Status	Year	Purpose	Total annual use (tonnes/year)
[x] Yes [] No [] Information not available			

Table 59: Total estimated HBCD content in articles/products in use

Status	Year	Type of article/product containing HBCD	Total quantity of articles/products containing HBCD in use (tonnes/year)	Total estimated HBCD content in the articles/products in use (tonnes/year)
[] Yes [] No [] Information not available				

2.3.3.2.5 Recycling

Table 60: Status of recycling articles that contain or may contain HBCD

Status	Year	Type of article/product containing HBCD recycled	Total quantity of articles/products containing HBCD recycled (tonnes/year)	Articles/products made from recycled HBCD containing materials	Content of HBCD in articles/products made from recycled materials (Mg/Kg)
[x] Yes [] No [] Information not available	**2002-2022**				

2.3.3.2.6 Alternatives

Alternatives have not been assessed

Table 61: Status of using alternatives

Status of alternatives use	Year of introducing the alternative	Type of alternative	Purpose	Total annual use (tonnes/year)	Risk assessment against POPs criteria listed in Annex D
[] Yes [] No					

[] Information not available					

2.3.4 Assessment of HCBD (Annex A, Part I)

2.3.4.1 Production

Table 62: Production of HCBD

Chemicals	**Status**	**Year in which the production started**	**Year in which the production ended**	**Estimated total production [kg]**
Hexachlorobutadiene	[] Yes [] No [] Information not available			

2.3.4.2 Import

[Placeholder for narrative]

Table 63: HCBD imports

Status	**Year**	**Purpose**	**Country of origin**	**Total annual import (kg/year)**
[] Yes [] No [] Information not available				

Table 64: Total estimated HCBD containing articles/products imported

Status	Year	Type of article/product containing HCBD	Country of origin	Total annual import of articles/products containing HCBD (tonnes/year)	Total estimated of HCBD content in the imported articles/products (tonnes/year)
[] Yes					
[] No [] Information not available					

Table 65: HCBD containing waste imported for environmental sound disposal

Status	Year	Country of origin	Total annual import (tonnes/year)
[] Yes [] No [] Information not available			

2.3.4.3 Export

Table 64. HCBD exports

Status	Year	Purpose	Destination country	Total annual export (kg/year)
[] Yes				
[] No [] Information not available				

Table 66: Total estimated HCBD containing articles/products exported

Status	Year	Type of article/product containing HCBD	Destination country	Total annual export of article/product containing HCBD (tonnes/year)	Total estimated of HCBD content in the exported articles/products (tonnes/year)
[] Yes [] No [] Information not available					

Table 67: HCBD containing waste exported for environmental sound disposal

Status	Year	Destination country	Total annual export (tonnes/year)
[] Yes [] No [] Information not available			

2.3.4.4 Use

No uses of HCBD recorded

Table 68: HCBD use

Status	Year	Purpose	Total annual use (tonnes/year)
[] Yes [] No [] Information not available			

Table 69: Total estimated HCBD content in articles/products in use

Status	Year	Type of article/product containing HCBD	Total quantity of articles/products containing HCBD in use (tonnes/year)	Total estimated HCBD content in the articles/products in use (tonnes/year)
[] Yes [x] No [] Information not available	**N/A**	**N/A**	**N/A**	**N/A**

2.3.5 Assessment of PCNs (Annex A, Part I)

No data on use of PCNs

2.3.5.1 Production

There is no production of PCN in Kenya

Table 69. Production of PCNs

Chemicals	Status	Year in which the production started	Year in which the production ended	Estimated total production [kg]
	[] Yes [x] No [] Information not available	N/A	N/A	N/A

2.3.5.2 Import

Table 70: PCNs imports

Status	Year	Chemical	Purpose	Country of origin	Total annual import (kg/year)
[X] Yes [] No [x] Information not available	N/A	N/A	N/A	N/A	

Table 71: Total estimated PCN containing articles/products imported

Status	Year	Type of article/product containing PCN	Country of origin	Total annual import of articles/products containing PCN (tonnes/year)	Total estimated of PCN content in the imported articles/products (tonnes/year)
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A	N/A

Table 72: PCNs containing waste imported for environmental sound disposal

Status	Year	Country of origin	Total annual import (tonnes/year)
[] Yes [] No [x] Information not available	N/A	N/A	N/A

2.3.5.3 Export

Table 73: PCNs exports

Status	Year	Chemical	Purpose	Destination country	Total annual export (kg/year)
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A	N/A

Table 74. Total estimated PCN containing articles/products exported

Status	Year	Type of article/product containing PCN	Destination country	Total annual export of article/product containing PCN (tonnes/year)	Total estimated of PCN content in the exported articles/products (tonnes/year)
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A	N/A

Table 74: PCNs containing waste exported for environmental sound disposal

Status	Year	Destination country	Total annual export (tonnes/year)
[] Yes [] No [X] Information not available	N/A	N/A	N/A

2.3.5.4 Use

Table 75: PCNs use

Status	Year	Chemical	Purpose	Total annual use (tonnes/year)
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A

Table 76: Total estimated PCN content in articles/products in use

Status	Year	Type of article/product containing PCN	Total quantity of articles/products containing PCN in use (tonnes/year)	Total estimated PCN content in the articles/products in use (tonnes/year)
[] Yes [] No [X] Information not available	**N/A**	**N/A**	**N/A**	**N/A**

2.3.5.5 Alternatives

Table 77: Status of using alternatives

Status of alternatives use	Year of introducing the alternative	Type of alternative	Purpose	Total annual use (kg/year)	Risk assessment against POPs criteria listed in Annex D
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A	N/A

2.3.6 Assessment of SCCP (Annex A, Part I)

2.3.6.1 Production

Table 78: Production of SCCPs

Chemicals	Status	Year in which the production started	Year in which the production ended	Estimated total production [kg]
	[] Yes [x] No [] Information not available	N/A	N/A	N/A

2.3.6.2 Import

Table 79: SCCPs imports

Status	Year	Chemical	Purpose	Country of origin	Total annual import (kg/year)
[] Yes [] No [x] Information not available	N/A	N/A	N/A	N/A	N/A

Table 81.

Table 80: Total estimated SCCPs containing articles/products imported

Status	Year	Type of article/product containing SCCPs	Country of origin	Total annual import of articles/products containing SCCPs (tonnes/year)	Total estimated of SCCPs content in the imported articles/products (tonnes/year)
[] Yes [] No [x] Information not available	N/A	N/A	N/A	N/A	N/A

Table 81: SCCPs containing waste imported for environmental sound disposal

Status	Year	Country of origin	Total annual import (tonnes/year)
[] Yes [] No [x] Information not available	N/A	N/A	N/A

2.3.6.3 Export

Table 82: . SCCPs exports

Status	Year	Chemical	Purpose	Destination country	Total annual export (kg/year)
[] Yes					
[] No [x] Information not available	N/A	N/A	N/A	N/A	N/A

Table 83: Total estimated SCCP containing articles/products exported

Status	Year	Type of article/product containing SCCP	Destination country	Total annual export of article/product containing SCCP (tonnes/year)	Total estimated of SCCP content in the exported articles/products (tonnes/year)
[] Yes					
[] No [x] Information not available					

Table 84: SCCPs containing waste exported for environmental sound disposal

Status	Year	Destination country	Total annual export (tonnes/year)
[] Yes [] No [X] Information not available			

2.3.6.4 Use

Table 85: SCCPs use

Status	Year	Chemical	Purpose	Total annual use (tonnes/year)
[] Yes [] No [] Information not available	**N/A**	**N/A**	**N/A**	**N/A**

Table 86: Total estimated SCCP content in articles/products in use

Status	Year	Type of article/product containing SCCP	Total quantity of articles/products containing SCCP in use (tonnes/year)	Total estimated SCCP content in the articles/products in use (tonnes/year)
[] Yes [] No [x] Information not available	**N/A**	**N/A**	**N/A**	**N/A**

2.3.6.5 Alternatives

Table 87: Status of using alternatives

Status of alternatives use	Year of introducing the alternative	Type of alternative	Purpose	Total annual use (kg/year)	Risk assessment against POPs criteria listed in Annex D
[] Yes [] No [x] Information not available					

2.3.7 Assessment of PFOA, its salts and PFOA-related compounds (Annex A, Part I and Part X)

Perfluorooctane sulfonic acid (PFOS) is both intentionally produced and an unintended degradation product of related anthropogenic chemicals. PFOS is used as a surfactant in a number of firefighting foams and many other industrial applications (Kissa 2001). In Kenya, it comes in the formulations called fluoro protein foam and aqueous firefighting Foams (AFFF). Firefighting forms could be a significant source of PFOS in the Kenyan environment. The other significant source of PFOS is the use domestic market products, particularly as a stain repellent in furniture and other furnishing items. These items, which are still being used, are likely to remain a source of PFOS emissions for an extended period

Nairobi County's total stockpiles of PFOS-based foam are estimated at 40000 litres and it is in open storage facility at the premises in industrial area of Nairobi (See figure 4-1). Most fire and rescue services reported that they had no stockpiles of PFOS-based foams, while a few had small quantities. The inventory did not include all Kenya's fire and rescue services, but the information received is believed to be representative of this category as a whole. The Kenyan Armed Forces also have considerable remaining stocks of PFOS-based foam. It is estimated that the total content of PFOS-related substances in foam stockpiles in all municipal councils in Kenya is approximately 80 tonnes.

There are no requirements for new stocks

2.3.7.1 Production

No production in Kenya

Table 89

Table 88: . Production of PFOA, its salts and PFOA-related compounds

Chemicals	Status	Year in which the production started	Year in which the production ended	Estimated total production [kg]
	[] Yes [x] No [] Information not available	N/A	N/A	N/A

2.3.7.2 Import

The leading source of PFOS and related substances is the imports of AFFF used for firefighting. A significant amount may also be through imports and use of domestic appliances in Kenya as observed through environmental matrices (sediments, water and even fish) analyzed for PFOS. Hazardous waste disposal in Kenya is still a big challenge. For example, there are inadequate incineration facilities in the country in general

Between 2005 to 2012, Kenya imported a total of 15462304 containers of firefighting foams

Table 90.

Table 89: PFOA, its salts and PFOA-related compounds imports

Status	Year	Chemical	Purpose	Country of origin	Total annual import (kg/year)
[x] Yes [] No [] Information not available	2012	PFOS	Firefighting		1701403

Table 90: Total estimated PFOA, its salts and PFOA-related compounds containing articles/products imported

Status	Year	Type of article/product containing PFOA, its salts and PFOA-related compounds	Country of origin	Total annual import of articles/products containing PFOA, its salts and PFOA-related compounds (tonnes/year)	Total estimated of PFOA, its salts and PFOA-related compounds content in the imported articles/products (tonnes/year)
[X] Yes [] No [] Information not available		current use of PFOS includes metal plating activities in the chrome industry Applications in the photographic industry		100	60

Table 91 PFOA, its salts and PFOA-related compounds containing waste imported for environmental sound disposal

Status	Year	Country of origin	Total annual import (tonnes/year)
[] Yes [x] No [] Information not available	N/A	N/A	N/A

2.3.7.3 Export

There is extensive transit traffic on PFOS

Table 92: PFOA, its salts and PFOA-related compounds exports

Status	Year	Chemical	Purpose	Destination country	Total annual export (kg/year)
[X] Yes [] No [] Information not available	2014		Firefighting	Uganda. Rwanda, DRC	760871.6

Table 93: Total estimated PFOA, its salts and PFOA-related compounds containing articles/products exported

Status	Year	Type of article/product containing PFOA, its salts and PFOA-related compounds	Destination country	Total annual export of article/product containing PFOA, its salts and PFOA-related compounds (tonnes/year)	Total estimated of PFOA, its salts and PFOA-related compounds content in the exported articles/products (tonnes/year)
[X] Yes [] No [] Information not available		• Carpets, • Paper and packaging Textiles and upholstery, • Leather and apparel, • Other coating additives	Uganda Tanzania Southern Sudan	82354	82354

Table 94: PFOA, its salts and PFOA-related compounds containing waste exported for environmental sound disposal

Status	Year	Destination country	Total annual export (tonnes/year)
[] Yes [X] No [] Information not available	N/A	N/A	N/A

2.3.7.4 Use

Table 96. PFOA, its salts and PFOA-related compounds use

Status	Year	Chemical	Purpose	Total annual use (tonnes/year)
[] Yes [] No [] Information not available	1701403	PFOA	Firefighting, hospital products	1701403

Table 95: Total estimated PFOA, its salts and PFOA-related compounds content in articles/products in use

Status	Year	Type of article/product containing PFOA, its salts and PFOA-related compounds	Total quantity of articles/products containing PFOA, its salts and PFOA-related compounds in use (tonnes/year)	Total estimated PFOA, its salts and PFOA-related compounds content in the articles/products in use (tonnes/year)
[] Yes [] No [x] Information not available	**N/A**	**N/A**	**N/A**	**N/A**

2.3.7.5 Alternatives

Chemical alternatives to POPs are being addressed in collaboration with the following organizations: Ministry of health, Ministry of agriculture, Ministry of Environment, Kenya Agricultural Research Institute, Universities, Research organizations; CIAT-international, the private sector such as Real IPM, and institutions promoting organic farming.

Table 96 Status of using alternatives

Status of alternatives use	Year of introducing the alternative	Type of alternative	Purpose	Total annual use (kg/year)	Risk assessment against POPs criteria listed in Annex D
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A	N/A

2.3.8 Assessment with respect to DDT (Annex B, Part II)

Since 2007 there have been initiatives to reintroduce DDT to address the frustrations posed by malaria. In 2012 the DDT expert group under SC, having recognized the continued need for DDT for disease vector control, recommended, among other things, that the use of DDT in indoor residual spray should be limited only to the most appropriate situations based on operational feasibility, epidemiological impact of disease transmission, entomological data and insecticide resistance management. It also recommended that countries should undertake further research on and implementation of non-chemical methods and strategies for disease vector control to supplement a reduced reliance on DDT. Pyrethroid based alternatives have been used for Indoor Residual Spraying in malaria endemic areas such as Kisii with positive results. No need to apply DDT has been found. This has catalyzed Kenya to search for alternatives to DDT.

2.3.8.1 Production

Kenya does not produce DDT

Table 97 Production of DDT

Chemicals	Status	Year in which the production started	Year in which the production ended	Estimated total production [kg]
DDT	[] Yes [x] No [] Information not available	N/A	N/A	N/A

Table 98: Production of DDT per facility

No	Production facility and location	Total production capacity (kg)	Net output per year	Formulation (type and % of active ingredient)	% of in-country use
	N/A	N/A	N/A	N/A	

Table 99: Status of reformulating/repackaging DDT in the country

Status of reformulating/repackaging DDT in the country	Origin of active ingredient & repackaging/reformulation facility	Formulation (type & % active ingredient)	Quantity per year (kg)
[] Yes [X] No [] Information not available	N/A	N/A	N/A

2.3.8.2 Import

Table 100: DDT imports

Status	Year	Purpose	Country of origin	Total annual import (kg/year)	Name of manufacturer	Formulation (type and % of active ingredient)
[X] Yes [] No [] Information not available	Before 1986	Agriculture pesticides and malaria control	India	1000	Not known	

2.3.8.3 Export

Only transit goods to Uganda, DRC and Southern Sudan

Table 101: . DDT exports

Status	Year	Purpose	Destination country	Total annual export (kg/year)	Facility	Formulation (type and % of active ingredient)
[] Yes [X] No	N/A	N/A	N/A	N/A	N/A	N/A

[] Information not available						

2.3.8.4 Use

Now not in use

2.3.8.4.1 Use in agriculture

Prohibited by law.

Table 102: DDT uses in agriculture

Status	Year	Purpose	Total annual use (tonnes/year)
[] Yes [X] No [] Information not available	N/A	N/A	N/A

2.3.8.4.2 Use for disease vector control

Public Health Officer has not authorized

Table 103: DDT use for disease vector control

Status of use for disease vector control	Planning to introduce the use of DDT in the future	Status of use for other purpose besides disease vector control	Formulation type	% of active ingredient	Amount (kg)/year	Non-government agencies (e.g., private agencies, NGOs) involved in using DDT for disease vector control purposes
[] Yes [X] No [] Informati	[] Yes [] No [X] Informatio	[] Yes [] No				[] Yes [] No

on not available	n not available	X [] Information not available				[] Information not available

Table 104: Disease, main vector species targeted and percent of population at risk that is covered by DDT

Disease	**Main vector species targeted**	**% total national population at risk that is covered by DDT use per year**

Table 105 Status of training facilities and training conducted on insecticide use for disease vector control, and entomology laboratories used for vector resistance testing

Existence of training facilities on insecticide use for disease vector control	**Training being conducted on insecticide use for vector control**	**Existence of formal mechanisms for inter-sectoral collaboration for disease vector control and collaboration being implemented**	**Entomology laboratory used for vector resistance testing**	**Entomology laboratory recognized internationally**
[X] Yes [] No	[X] Yes [] No	[X] Yes [] No	[X] Yes [] No	[X] Yes [] No

2.3.8.5 Alternatives

Table 106: Status of research into the development or testing of locally appropriate alternative interventions to DDT and type of research/testing

Status of research into the development or testing of locally appropriate alternative interventions to DDT	**Type of research/testing**
[X] Yes [] No [] Information not available	[X] Microbial insecticides [X] Residual chemical insecticide(s) [X] Chemical larvicides [X] Larvivores fish [X] Other

Table 107: DDT alternatives currently used

Alternative control interventions	**Disease targeted**	**Product formulation, % active ingredient, quantity per year**	**Source (country) (import/local)**	**Resistance management strategy implemented**
Microbial larvicides & biological control				[] Yes [] No
Indoor residual spraying with insecticides other than DDT				
Insecticide-treated nets				
Others				

Table 108 DDT alternatives used but no longer in use

Alternative control interventions	Disease targeted	Year of last use	Quantity	Reason why the use was stopped (import/local)
Microbial larvicides & biological control				
Chemical larvicides				
Indoor residual spraying with insecticides other than DDT				
Insecticide-treated nets				
Environmental management				

2.3.9 Assessment of PFOS, its salts and PFOSF (Annex B, Part III)

2.3.9.1 Production

No production in Kenya. No intention to produce

2.3.9.1.1 Acceptable purposes

Table 109 Production of PFOS, its salts and PFOSF for the acceptable purposes listed in Annex B of the Convention

Acceptable purposes	Year	Estimated total production (kg)
None	N/A	0

2.3.9.1.2 Specific exemptions

Specific exemptions have not been identified yet

Table 110: Production of PFOS, its salts and PFOSF for the specific exemptions listed in Annex B of the Convention

Specific exemptions	Year	Estimated total production (kg)
All allowed	N/A	N/A

2.3.9.2 Import

[Placeholder for narrative]

Table 111 PFOS, its salts and PFOSF imports

Status	Year	Chemical	Purpose	Country of origin	Total annual import (kg/year)
[X] Yes [] No [] Information not available	2012-2022		Fire extinguisher	Not known	

Table 112 Total estimated PFOS, its salts and PFOSF containing articles/products imported

Status	Year	Type of article/product containing PFOS, its salts and PFOSF	Country of origin	Total annual import of articles/products containing PFOS, its salts and PFOSF (tonnes/year)	Total estimated of PFOS, its salts and PFOSF content in the imported articles/products (tonnes/year)
[] Yes [] No [x] Information not available	2022	N/A	N/A	N/A	N/A

Table 113: PFOS, its salts and PFOSF containing waste imported for environmental sound disposal

Status	Year	Destination country	Total annual import (tonnes/year)
[] Yes [] No [X] Information not available	N/A	N/A	N/A

2.3.9.3 Export

There is extensive export of firefighting equipment to Uganda, Democratic republic of the Democratic Republic of the Congo, Southern Sudan but the types are not desegregated.

Table 114: PFOS, its salts and PFOSF exports

Status	Year	Chemical	Purpose	Destination country	Total annual export (kg/year)
[] Yes [X] No [] Information not available	N/A	N/A	N/A	N/A	N/A

Table 115: Total estimated PFOS, its salts and PFOSF containing articles/products exported

Status	Year	Type of article/product containing PFOS, its salts and PFOSF	Country of origin	Total annual export of articles/products containing PFOS, its salts and PFOSF (tonnes/year)	Total estimated of PFOS, its salts and PFOSF content in the exported articles/products (tonnes/year)
[] Yes [] No [X] Information not available					

Table 116 PFOS, its salts and PFOSF containing waste exported for environmental sound disposal

Status	Year	Destination country	Total annual export (tonnes/year)
[] Yes [X] No	N/A	N/A	N/A

[] Information not available			

2.3.9.4 Use

2.3.9.4.1 Acceptable purposes

Table 119.

Table 117: Use of PFOS, its salts and PFOSF for the acceptable purposes listed in Annex B of the Convention

Acceptable purposes	Year	Estimated total use (kg)

Table 118: Total estimated PFOS, its salts and PFOSF content in articles/products in use for acceptable purposes

Status	Year	Type of article/product containing PFOS, its salts and PFOSF	Total quantity of articles/products containing PFOS, its salts and PFOSF in use (tonnes/year)	Total estimated PFOS, its salts and PFOSF content in the articles/products in use (tonnes/year)
[] Yes [] No [x] Information not available				

2.3.9.4.2 Specific exemptions

Table 119: Use of PFOS, its salts and PFOSF for the specific exemptions listed in Annex B of the Convention

Specific exemptions	Year	Estimated total use (kg)

Table 120: Total estimated PFOS, its salts and PFOSF content in articles/products in use for specific exemptions

Status	Year	Type of article/product containing PFOS, its salts and PFOSF	Total quantity of articles/products containing PFOS, its salts and PFOSF in use (tonnes/year)	Total estimated PFOS, its salts and PFOSF content in the articles/products in use (tonnes/year)
[] Yes [] No [] Information not available				

2.3.9.5 Alternatives

Table 121 Information on progress in building the capacity of countries to transfer safely to reliance on alternatives and research/development of safe alternatives

Measure to support to safely transfer to reliance on alternatives	Information on the progress
1. Building the capacity to transfer safely to reliance on alternatives	Not started
2. Research/development of safe alternatives	Ongoing but not translated into action

Table 122 Information on alternatives to PFOS, its salts, PFOSF and their related chemicals (chemical/non-chemical alternatives or processes)

Use	**Description of the alternative substances or methods**
Photo-imaging	Not information
Photo-resist and anti-reflective coatings for semi-conductors.	@ Not information
Etching agent for compound semiconductors and ceramic filters.	Not information
Aviation hydraulic fluids.	Not information
Metal plating (hard metal plating) only in closed-loop systems.	Not information
Certain medical devices (such as ethylene tetrafl uoroethylene copolymer (ETFE) layers and radio-opaque ETFE production, in-vitro diagnostic medical devices, and CCD color filters).	Not information
Fire-fighting foam.	Carbon dioxide
Insect baits for control of leaf-cutting ants from Atta spp. and Acromyrmex spp.	Not information
Photo masks in the semiconductor and liquid crystal display (LCD) industries.	Not information
Metal plating (decorative plating).	Not information
Electric and electronic parts for some colour printers and colour copy machines.	Not information
Insecticides for control of red imported fi re ants and termites.	Not information
Chemically driven oil production.	Not information
Carpets	Not information
Leather and apparel.	Not information
Textiles and upholstery.	Not information
Paper and packaging.	Not information
Coatings and coating additive	Not information
Rubber and plastics.	Not information
Other uses.	Not information

2.3.10 Assessment of releases of unintentional produced chemicals (Annex C)

Table 125. Status of developing source inventories and release estimates of the chemicals listed in Annex C

Action	Status	Main problem sources
developing source inventories and release estimates of the chemicals listed in Annex C to the Convention taking into consideration the source categories identified in Annex	[X] Yes [] No	[X] Lack of financial resources. [X] Limited human resources. [X] Insufficient technical capacity. [X] Insufficient information. [] Other:

2.3.10.1 PCDD/PCDF

The 2007 NIP indicated that Kenya releases 4,000TEQ g/year mainly from open burning of waste and recommended a range of actions to reduce the emission including. In 2014 the revised UNEP Toolkit established that Kenya releases a total of 2872 g TEQ/a. That is there is a decrease in emissions. Waste Incineration, Heat and Power Generation, Disposal and Open burning processes are the major UPOs emitters with a combined total of 95% of the total national releases. It was also established that 76% of these releases end up in Air the remaining 24 % being found in residues. Table2.42 below shows the total releases from the ten source groups.

Table 123 Status of developing an inventory of polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)

Action	Status	Reference year	Information source	Other published sources
developing an inventory of polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)	[x] Yes [] No	2007	NIP inventory	Report by NEMA and MOH NIP update 2014 UPOPs Project

Table 124 PCDD/PCDF release estimates

Source group	**Inventory**						
1 - Waste Incineration	**Year2014**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		837-1	0.0	0.0	0.0	170.9
2 - Ferrous and Non-Ferrous Metal Production	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		125.4	0.0	0.0	0.0	15.9
3 - Heat and Power Generation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		964	0.0	0.0	0.0	2.1
4 - Production of mineral products	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		5.3	0.0	0.0	0.9	0.3
5 - Transportation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.3	0.0	0.0	0.0	0.0
	Year	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						

6 - Open Burning Processes	Annual Releases (g TEQ/a)		241	0.0	0.0	0.0	11.1
7 - Production of Chemicals and Consumer Goods	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.5	0.0	0.0	11.1	0.0
8 - Disposal	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
9 - Miscellaneous	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.1	0.1	0.0	0.o	492.7
10 - Identification of Potential Hot-Spots	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
Total							

2.3.10.2 PCBs.

Currently in Kenya a national comprehensive strategy for the environmentally sound management and disposal of PCBs and POPs pesticide stockpiles is missing and this sector is still generally unregulated which results in the continuous minimal level of attention to the PCB issues and their mishandling practices which lead to PCB spillages, ongoing cross-contamination of non-PCB equipment in case it is repaired with same tools/infrastructure and personnel exposure to PCBs.

A limited number of PCBs has been identified in the Kenya NIP (2007) with support of UNEP (GEF ID 1474): 49 in-use Askarel transformers and 42 phased-out Askarel transformers were inventoried. However, it is only after the completion of the NIP Update (2014, GEF ID 4596) with direct implementation with the GEF that the Kenya Power Generation (KenGen) company started to analyze transformer oil (by means of Clor-n-oil fast kits) in the search of PCB pure or contaminated equipment in its networks. This quite recent testing of transformers (mostly distribution transformers) provided evidence that 7 out of the 39 tested resulted positive at the chlor-n-oil test, which, considering that this test brings usually a significant number of false positives, supports the assumption of a 5% to 10% percentage of PCB contaminated transformers are present in the overall available online stock.

Table 125: Status of developing an inventory of polychlorinated biphenyls (PCB)

Action	**Status**	**Reference year**	**Information source**	**Other published sources**
developing an inventory of polychlorinated biphenyls (PCBs) (kg/year)	[X] Yes [] No	2004 -2014 and 2021	PCB Inventory	Policy document by KPLC 2nd Global Monitoring Plan

Table 126: PCBs release estimates

Source group	**Inventory**						
1 - Waste Incineration	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)	0.1		0	0	0	0
2 - Ferrous and Non-Ferrous Metal Production	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)	16.1		0			
	Year	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**

3 - Heat and Power Generation	Inventory year						
	Annual Releases (g TEQ/a)	6.7		0	0	0	0
4 - Production of mineral products	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)	0	0	0	0	0	0
5 - Transportation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
6 - Open Burning Processes	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)	0.7	0	0	0	0	0
7 - Production of Chemicals and Consumer Goods	**Year**	2014	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)	0	0	0	0	0	0
8 - Disposal	**Year**		**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
	Year		**Air**	**Water**	**Land**	**Product**	**Residue**

9 - Miscellaneous	Inventory year						
	Annual Releases (g TEQ/a)	0	0	0	0	0	0.1
10 - Identification of Potential Hot-Spots	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)	0	0	0	0	0	0
			23.6	0.0	0.1	0.0	0.1

2.3.10.3 PeCB

Not ever monitored. No data

Table 127: Status of developing an inventory of pentachlorobenzene (PeCB)

Action	Status	Reference year	Information source	Other published sources
developing an inventory of pentachlorobenzene (PeCB) (kg/year)	[x] Yes [] No	2014	NIP inventory report and updates	

Table 128: PeCB release estimates

Source group	Inventory						
1 - Waste Incineration	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)			0	0	0	0
2 - Ferrous and Non-Ferrous Metal Production	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)			0	0	0	0
	Year	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**

3 - Heat and Power Generation	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
4 - Production of mineral products	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
5 - Transportation	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
6 - Open Burning Processes	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
7 - Production of Chemicals and Consumer Goods	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
8 - Disposal	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
9 - Miscellaneous	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0
10 - Identification of Potential Hot-Spots	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0	0	0	0	0

2.3.10.4 HCB

Not regularly done

Table 129: . Status of developing an inventory of hexachlorobenzene (HCB)

Action	Status	Reference year	Information source	Other published sources
developing an inventory of hexachlorobenzene (HCB) (kg/year) 15050	[x] Yes [] No	2014	NIP update 2014	

Table 130: HCB release estimates

Source group	Inventory						
1 - Waste Incineration	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.1	0.0	0.0	0.0	0.0
2 - Ferrous and Non-Ferrous Metal Production	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		4.6	0.0	0.0	0.0	0.0
3 - Heat and Power Generation	**Year**	2014	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		536.4	0.0	0.0	0.0	0.0
4 - Production of mineral products	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		7.1	0.0	0.0	1.5	0.0
5 - Transportation	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						

	Annual Releases (g TEQ/a)		300.0	0.0	0.0	0.0	0.0
6 - Open Burning Processes	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		10000	0.0	0.0	0.0	0.0
7 - Production of Chemicals and Consumer Goods	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.0	0.0	0.0	0.0	0.0
8 - Disposal	**Year**	**2914**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.1	0.0	0.0	0.0	0.0
9 - Miscellaneous	**Year**	**2014**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)		0.0	0.0	0.0	0.0	4200
10 - Identification of Potential Hot-Spots	**Year**	2014	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)			0.0	0.0	0.0	0.0
			10848.4	0.0	0.0	1.5	4200.0
Grand	15050						

2.3.10.5 PCN

polychlorinated naphthalenes has not been studied

Table 131: Status of developing an inventory of polychlorinated naphthalenes (PCN)

Action	Status	Reference year	Information source	Other published sources
developing an inventory of polychlorinated naphthalenes (PCN) (kg/year)	[X] Yes [] No			

Table 132 PCNs release estimates in/during [insert year/period]

Source group	Inventory						
1 - Waste Incineration	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
2 - Ferrous and Non-Ferrous Metal Production	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
3 - Heat and Power Generation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
4 - Production of mineral products	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
5 - Transportation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						

	Annual Releases (g TEQ/a)						
6 - Open Burning Processes	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
7 - Production of Chemicals and Consumer Goods	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
8 - Disposal	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
9 - Miscellaneous	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
10 - Identification of Potential Hot-Spots	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						

2.3.10.5 HCBD

Table 133: Status of developing an inventory of hexachlorobutadiene (HCBD)

Action	**Status**	**Reference year**	**Information source**	**Other published sources**
developing an inventory of Hexachlorobutadiene (HCBD) (kg/year)	[] Yes [x] No	N/A	GMP 3 Report	No other

Table 134: HCBD release estimates

Source group	Inventory						
1 - Waste Incineration	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
2 - Ferrous and Non-Ferrous Metal Production	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
3 - Heat and Power Generation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
4 - Production of mineral products	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
5 - Transportation	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
6 - Open Burning Processes	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
7 - Production of Chemicals and Consumer Goods	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
8 - Disposal	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						
9 - Miscellaneous	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						

	Annual Releases (g TEQ/a)						
10 - Identification of Potential Hot-Spots	**Year**	**NR**	**Air**	**Water**	**Land**	**Product**	**Residue**
	Inventory year						
	Annual Releases (g TEQ/a)						

2.3.11 Information on the state of knowledge on stockpiles, contaminated sites and wastes, identification, likely numbers, relevant regulations, guidance, remediation measures, and data on releases from sites

During the NIP 2007 and 2014 stockpiles, contaminated sites and waste were identified, 2 sites are in process of remediation. One site the pesticides were collected to one site and transported for disposal.

2.3.11.1 Stockpiles

Figure 3: Contaminated site in Kitengela

Figure 4: *A site in Kabete with stockpiles and waste*

Table 135: Status of the identification and quantification of stockpiles consisting of, or containing, chemicals listed in Annex A or Annex B to the Convention

Action	**Status**	***Pesticides listed in annexes A or B:***		***Industrial chemicals listed in annexes A or B:***	
		Type	**Year**	**Type**	**Year**
identified stockpiles consisting of, or containing, chemicals listed in Annex A or Annex B to the Convention	X Yes [] No [] Information not available	[X]	2014	[X]	[2014]
quantified the stockpiles consisting of, or containing, chemicals listed in Annex A or Annex B to the Convention	[X] Yes [] No [] Information not available	[X]		[X]	[X]

Figure 5

2.3.11.1.1 POPs pesticides

Table 136: Status of POPs pesticides stockpiles

Status on stockpiles existence	Year	Pesticide	Total amount stockpiled (tonnes)	State of the storage place (short description)	Location of the stockpile
[X] Yes [] No [] Information not available	2016	ye	216 300	Well stored In farms	Kabete Vetlab PCPB stores

2.3.11.1.2 PCBs

Currently there are around 40,000 transformers in use in the utility sector, and, based on the assumption that of 1% of the total fleet of transformers are pure PCB (like Askarel, Arochlor, Chlofen) transformers, and of 10% of the total fleet are PCB cross contaminated equipment, a reasonable estimate can be that around 400 transformers are pure PCB originally manufactured and installed, and around 4,000 are cross contaminated by PCBs due to mismanagement practices.

The amount of PCB contaminated transformers currently in use or phased out in the manufacturing or mining industry in Kenya is unknown, and needs to be assessed to understand the national situation. And, as part of initial efforts, KPLC has budgeted a considerable amount of investment of around USD 27.4 million for the replacement of 80 old transformers in the next 4 years.

Table 137: Status of PCB containing equipment stockpiled

Status on stockpiles existence	Year	PeCB	Total amount stockpiled (tonnes)	State of the storage place (short description)	Location of the stockpile
[X] Yes [] No [] Information not available	2014	transformers	100	transformers	In the open

These are distributed over the country as old and rusty. They need to be checked

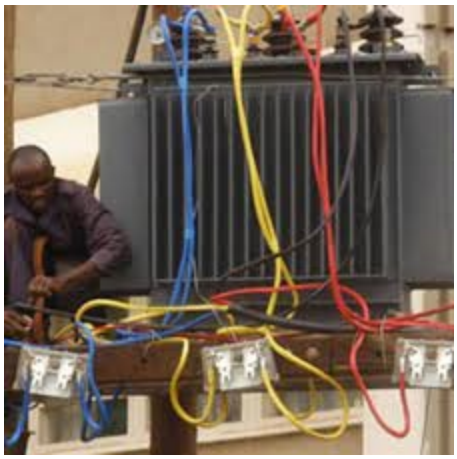

Table 138 Status of identifying articles and materials containing more than 0.005% (50 ppm) PCB contaminated through open applications

Action	**Status**	**Application**	**PCB in open applications**				
identifying articles and materials containing more than 0.005% (50 ppm) PCB contaminated through open applications	[X] Yes [] No [] Information not available	In use (e)	Cable Sheaths (kg) (a)	Cured caulk (kg) (b)	Painted objects (kg) (c)	Others (kg) (d)	Total (kg) (a)+(b)+(c)+(d)
			Yes	Yes	Yes	Yes	41000
		In storage our out of use (f)	Cable Sheaths (kg) (a)	Cured caulk (kg) (b)	Painted objects (kg) (c)	Others (kg) (d)	Total (kg) (a)+(b)+(c)+(d)
		Total (active inventory) (e)+(f)	Cable Sheaths (kg) (a)	Cured caulk (kg) (b)	Painted objects (kg) (c)	Others (kg) (d)	Total (kg) (a)+(b)+(c)+(d)

2.3.11.1.3 POP-PBDEs

Table 139: Total estimated POP-PBDEs content in the EEE articles/products stockpiled

Status on stockpiles existence	Year	Type of article/product containing POP-PBDEs stockpiled	Total amount of articles/products containing POP-PBDEs stockpiled (tonnes)	Total estimated POP-PBDEs content in stockpiled articles/products (tonnes)	Total estimated polymeric fraction containing POP-PBDEs of stockpiled articles/products (tonnes)
[X] Yes [] No [] Information not available	2014	Electronic waste			

2.3.11.1.4 HBCD

Table 140: Status of HBCD stockpiles

Status on stockpiles existence	Year	Total amount of HBCD stockpiled (tonnes)
[] Yes [] No [X] Information not available	NR	N/A

Table 141: Total estimated HBCD content in articles/products stockpiled

Status on stockpiles existence	Year	Type of article/product containing HBCD stockpiled	Total amount of articles/products containing HBCD stockpiled (tonnes)	Total estimated HBCD content in the articles/products stockpiled (tonnes)
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A

2.3.11.1.5 HCBD

Table 142: Total estimated HCBD content in articles/products stockpiled

Status on stockpiles existence	Year	Type of article/product containing HCBD stockpiled	Total amount of articles/products containing HCBD stockpiled (tonnes)	Total estimated HCBD content in the articles/products stockpiled (tonnes)
[] Yes [] No [x] Information not available	N/A	N/A	N/A	N/A

2.3.11.1.6 PCN

Table 143: Status of PCN stockpiles

Status on stockpiles existence	Year	Total amount of PCN stockpiled (tonnes)
[] Yes [] No [X] Information not available	N/R	N/A

Table 144: Total estimated PCN content in articles/products stockpiled

Status on stockpiles existence	Year	Type of article/product containing PCN stockpiled	Total amount of articles/products containing PCN stockpiled (tonnes)	Total estimated PCN content in the articles/products stockpiled (tonnes)
[] Yes [] No [X] Information not available	N/A	N/A	N/A	N/A

2.3.11.1.7 SCCPs

Table 145: Status of SCCPs stockpiles

Status on stockpiles existence	Year	Total amount of SCCPs stockpiled (tonnes)
[] Yes [] No [X] Information not available	N/A	N/A

Table 146: Total estimated SCCPs content in articles/products stockpiled

Status on stockpiles existence	Year	Type of article/product containing SCCPs stockpiled	Total amount of articles/products containing SCCPs stockpiled (tonnes)	Total estimated SCCPs content in the articles/products stockpiled (tonnes)
[] Yes [] No [x] Information not available	N/A	N/A	N/A	N/A

2.3.11.1.8 PFOA, its salts and PFOA-related compounds

Nairobi County's total stockpiles of PFOS-based foam are estimated at 40000 liters and it is in open storage facility at the premises in industrial area of Nairobi (See figure 4-1). Most fire and rescue services reported that they had no stockpiles of PFOS-based foams, while a few had small quantities. The inventory did not include all Kenya's fire and rescue services, but the information received is believed to be representative of this category as a whole. The Kenyan Armed Forces also have considerable remaining stocks of PFOS-based foam. It is estimated that the total content of PFOS-related substances in foam stockpiles in all municipal councils in Kenya is approximately 80 tonnes. Figure 4-2 show open storage of AFFF at a Nairobi`s industrial area facility.

Table 147: Status of PFOA, its salts and PFOA-related compounds stockpiles

Status on stockpiles existence	**Year**	**Total amount of PFOA, its salts and PFOA-related compounds stockpiled (tonnes)**
[X] Yes [] No [] Information not available	2014	

Kenya imports large quantities of near end of life items that contain PFOS. The attended waste is categorized as domestic waste. It is important that policies restricting imports of End-of-Life goods like textiles (locally known as Mitumba) adhered to.

Table 148: Total estimated PFOA, its salts and PFOA-related compounds content in articles/products stockpiled

Status on stockpiles existence	**Year**	**Type of article/product containing PFOA, its salts and PFOA-related compounds stockpiled**	**Total amount of articles/products containing PFOA, its salts and PFOA-related compounds stockpiled (tonnes)**	**Total estimated PFOA, its salts and PFOA-related compounds content in the articles/products stockpiled (tonnes)**
[] Yes [] No [] Information not available				

2.3.11.1.9 DDT

Table 149: Status of DDT stockpiles

Status on stockpiles existence	Year	Location	Total amount in storage (kg)	Formulation type	% of active ingredient	Conditions of storage (e.g., storage capacity, access)
[X] Yes [] No [] Information not available	2014	Various				

2.3.11.1.10 PFOS, its salts and PFOSF

Table 150: Status of PFOS, its salts and PFOSF stockpiles

Status on stockpiles existence	Year	Total amount stockpiled (tonnes)	State of the storage place (short description)
[] Yes [] No [] Information not available			

Table 151: . Total estimated PFOS, its salts and PFOSF content in articles/products stockpiled

Status on stockpiles existence	Year	Type of article/product containing PFOS, its salts and PFOSF stockpiled	Total amount of articles/products containing PFOS, its salts and PFOSF stockpiled (tonnes)	Total estimated PFOS, its salts and PFOSF content in the articles/products stockpiled (tonnes)
[] Yes [] No				

[] Information not available				

2.3.11.2 Wastes

Table 155. Status of disposing of wastes consisting of or containing chemicals listed in Annex A, B, or C to the Convention in an environmentally sound manner

Measure	**Status**	**Main problem sources**	***Pesticides listed in annexes A or B:***		***Industrial chemicals listed in annexes A or B:***			***Unintentional chemicals listed in annex C***		
			Type	**Year**	**Type**	**Year**	**Total quantity of disposal (tonnes)**	**Type**	**Year**	**Total quantity of disposal (tonnes)**
disposing of wastes consisting of or containing chemicals listed in Annex A, B, or C to the Conve	[X] Yes [] Currently being implemented. [] No [] Information not available.	[X] Wastes consisting of or containing chemicals listed in Annex A,	[X]		[X]	[X]	[]	[]		

ntion in an environmentally sound manner		B, or C have not been identified. [] Lack of financial resources. [] Limited human resources. [] Insufficient technical capacity.								

		[] Other								

2.3.11.2.1 POPs pesticides

Table 152: Status of POPs pesticides waste disposed

Status on the waste disposal	Year	Chemical	Total disposed amount (tonnes)
[x] Yes [] No [] Information not available	2016	DDT/Aldrin and dicofol	200tonnes

2.3.11.2.2 PCBs

Table 153: Status of PCB containing waste disposed

Action	Status	PCBs contained in:	Year	Quantity (Metric Tons)
locally destroyed, in an environmentally sound manner, equipment, liquids, or other wastes containing greater than	[x] Yes [] No	[transformers and]	[X2022]	[100]

0.005% (50 ppm) PCB (e.g., transformers, capacitors or other receptacles containing liquid stocks) identified				
destroyed abroad, in an environmentally sound manner, equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB (e.g., transformers, capacitors or other receptacles containing liquid stocks) identified	[X] Yes [] No	Transformers and switched	1996	100

Table 154: Proportion of waste containing greater than 0.005% (50 ppm) PCB identified managed in an environmentally sound manner

Proportion of waste containing greater than 0.005% (50 ppm) PCB identified managed in an environmentally sound manner	**Year in which the environmentally sound management was completed**	**Approximate proportion**
[] All (100%). [x] Partially [] None [X] Information not available.	[2007]	[X] Most of the waste (greater than 50% and less than 100%) [] Limited amount of waste (greater than 0% and less than or equal to 50%)

2.3.11.2.3 POP-PBDEs

- **Polymers containing c-OctaBDE.** Largest amount used in plastic electrical and electronic equipment (EEE) and now in related wastes (WEEE), Minor amount in e.g., polymers in transport sector.
- **Polyurethane (PUR) foam containing c-PentaBDE** – Approx. 90% of c-PentaBDE used in PUR-foam
- Large share in transport (car. bus, truck, train etc.). In countries with flame retardant standards also used in furniture and construction and minor use in mattresses, Minor use c-PentaBDE: e.g., in textiles and rubber
- **DecaBDE used in all these applications.**

Data on e-Waste stockpiles in Kenya were reported elsewhere as 11,400 tonnes are generated from refrigerators, 2,800 tonnes from TVs, 2,500 tonnes from personal computers, 500 tonnes from printers and 150 tonnes from mobile phones (UNEP & UNU, 2009). The same report (UNEP & UNU, 2009) showed that 1,513 tonnes of electronics entered the market. The consumer in addition to receiving 1489.4 tons also received 151.3 tons from the second-hand market. It was also revealed that consumers are likely to dispose 1,210.4 tonnes in the second-hard market, and 18.6 tons to collectors or as general waste which is sent to refurbishes. The consumer disposes a further 18.6 tons directly to recyclers. Refurbishes and recyclers then send 605.2 tons for disposal. Alternatives for flame retardants in electronic products exist, though imports from other countries that have not affected the PBDE ban is a major pathway to PBDE in Kenya. The report gives an insight of how industrial POPs management is a challenge and calls for interventions. The PBDE

released from these estimates can be calculated. The following table 4-1-3 shows the amount of E-waste and the respective
POP-PBDEs in stocks of EEE in Kenya

Table 155: Status of POP-PBDEs containing waste disposed

Status of taking measures to dispose of articles that contain or may contain brominated diphenyl ethers in an environmentally sound manner	**Description of measures**	**Year**	**Type of article/product containing POP-PBDEs disposed**	**Total amount of waste containing POP-PBDEs disposed (tonnes/year)**	**Total estimated POP-PBDEs content in wastes (tonnes)**	**Main problem sources**
[X] Yes [] No	Inventory Recycling Disposal		Electronics Computers and monitors Printers Mobile phones photocopiers			[X] Lack of financial resources [X] Lack of technical capacity [] Other

Table 156: Status of disposing of articles manufactured from recycled materials that contain or may contain brominated diphenyl ethers

Status of disposing of articles manufactured from recycled materials that contain or may contain	**Status of taking actions or control measures to ensure that disposal is carried out in an environmentally sound manner**	**Description of the action control measures**	**Main problems**

brominated diphenyl ethers			
[X] Yes [] No [] Information not available	[X] Yes [] Currently being implemented [] No	There is a registered incinerator EECL in Migori county and 5 registered incinerators	[] Lack of legal, institutional or policy framework [x] Lack of financial resources [x] Lack of human resources [x] Lack of technical capacity [] Other

2.3.11.2.4 HBCD

HBCD major use areas and materials to be addressed by inventory & BAT/BEP

- HBCD use in polystyrene (EPS/XPS) polymers largest amount used in construction (>90% of total HBCD) a minor amount in EPS packaging (also from recycling Rani et al 2014). No assessment has been made in Kenya products. **Minor HBCD use in electronic polymers** (High Impact Polystyrene)

- **HBCD use in textile coating applications**

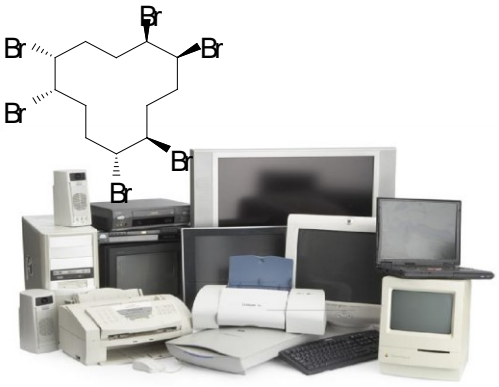

Table 157: Status of HBCD containing waste disposed

Status on the waste disposal	Year	Type of article/product containing HBCD disposed	Total amount of waste containing HBCD disposed (tonnes/year)
[] Yes [] No [x] Information not available	2014	E-waste and vehicle plastics in Kirinyaga Road and many garages	
	N/A	N/A	N/A

2.3.11.2.5 HCBD

Table 158: Status of HCBD containing waste disposed

Status on the waste disposal	Year	Total amount of waste containing HCBD disposed (tonnes/year)
[X] Yes [] No [X] Information not available	NR	N/A

2.3.11.2.6 PCN

Table 159: . Status of PCN containing waste disposed

Status on the waste disposal	Year	Total amount of waste containing PCN disposed (tonnes/year)
[] Yes [] No [X] Information not available	N/A	N/A

2.3.11.2.7 SCCPs

Table 160: Status of SCCP containing waste disposed

Status on the waste disposal	Year	Total amount of waste containing SCCP disposed (tonnes/year)
[] Yes [] No [x] Information not available	N/A	N/A

2.3.11.2.8 PFOA, its salts and PFOA-related compounds

Table 161: Status of PFOA, its salts and PFOA-related compounds containing waste disposed

Status on the waste disposal	Year	Total amount of waste containing PFOA, its salts and PFOA-related compounds disposed (tonnes/year)
[x] Yes [] No [] Information not available	2014	Over 1000 tonnes

2.3.11.2.9 DDT

Table 162: Status of DDT containing waste disposed

Status on the waste disposal	Year	Total amount of waste containing DDT disposed (tonnes/year)
[X] Yes [] No [] Information not available	2014	60

2.3.11.2.10 PFOS, its salts and PFOSF

Table 163: Status of PFOS, its salts and PFOSF containing waste disposed

Status on the waste disposal	Year	Type of article/product containing PFOS, its salts and PFOSF disposed	Total amount of waste containing PFOS, its salts and PFOSF disposed (tonnes/year)
[] Yes [X] No [] Information not available			

2.3.11.2.11 Unintentional POPs

Table 164: Status of uPOPs containing waste disposed

Status on the waste disposal	Year	Total amount of waste containing unintentional POPs disposed (tonnes/year)
[] Yes [] No [] Information not available	2014	Over 1000 tons of incinerator residue, open burning sites and stored in foundries, sewage treatment plants

2.3.11.3 Contaminated sites

Table 169. Status of identifying sites contaminated by chemicals listed in Annex A, B or C

Action	Status	*Pesticides listed in annexes A or B:*		*Industrial chemicals listed in annexes A or B:*		*Unintentional chemicals listed in annex C*	
		Type	Year	Type	Year	Type	Year
identifying sites contaminated by chemicals listed in Annex A, B or C	[X] Yes [X] Currently being identified. [] No [] Information not available.	[abandoned]	2022	[abandoned sites]	[2022]	[Residues]	2022

Table 165: Status of taking steps to remediate the sites contaminated by chemicals listed in Annex A, B or C

Action	Status	Phase	Main problem sources
taking steps to remediate the sites contaminated by chemicals listed in Annex A, B or C	[X] Yes [] No	[x] Remediation plan is currently being prepared. [x] Remediation is in progress since: Year: [] Remediation has been completed in: Year:	[] Have not yet identified sites contaminated by chemicals listed in Annex A, B or C. [] Lack of institutional or policy framework. [] Lack of financial resources. [x] Limited human resources. [] Insufficient technical capacity. [] Other:

2.3.11.3.1 POPs pesticides

Table 171.

Table 166: Status of identification and remediation of POPs pesticides contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by POPs pesticides	[x] Yes [] No [] Currently being developed	[2004,2014,2021]	
remediating sites contaminated by POPs pesticides	[x] Yes [] No [] Currently being developed	2021`	Kitengela, Wajir Mandera

2.3.11.3.2 PCBs

Many substations have old and vandalized transformers. Old transformers with PGBS might be there

Table 167: . Status of identification and remediation of PCB contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by greater than 0.005% (50 ppm) PCB	[X] Yes [] No	[2007-2022]	The transformers are still there at Juja substation
remediating sites contaminated by greater than 0.005% (50 ppm) PCB	[] Yes [X] No [] Currently being developed	2007-2022	Awaiting action from KPLC

2.3.11.3.3 POP-PBDEs

Sites with construction materials, where fire accidents have occurred, e waste sites and most dumping grounds are contaminated by PBDES.

Table 168: Status of identification and remediation of POP-PBDE contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by POP-PBDE	[X] Yes [] No [] Currently being developed	[2004, 2014 2022]	In all e-waste recycle facilities Construction sites
remediating sites contaminated by POP-PBDEs	[] Yes [x] No [] Currently being developed	No action was taken	No effort to remediate the sites

2.3.11.3.4 HBCD

In all sites where demolition has occurred is likely to be contaminated by HCBDs.

Table 174. Status of identification and remediation of HBCD contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by HBCD	[] Yes [x] No [] Currently being developed	[2022]	N/A
remediating sites contaminated by HBCD	[] Yes x No [] Currently being developed	N/A	N/A

2.3.11.3.5 HCBD

Table 175. Status of identification and remediation of HCBD contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by HCBD	[] Yes [X] No [] Currently being developed	[N/A]	N/A
remediating sites contaminated by HCBD	[] Yes [X] No [] Currently being developed	N/A	N/A

2.3.11.3.6 PCN

Table 169: Status of identification and remediation of PCN contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by PCN	[] Yes [x] No [] Currently being developed	[N/A]	N/A
remediating sites contaminated by PCN	[] Yes x [] No [] Currently being developed	N/A	N/A

2.3.11.3.7 SCCPs

Table 170: Status of identification and remediation of SCCP contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by SCCP	[] Yes [x] No [] Currently being developed	[N/A]	N/A
remediating sites contaminated by SCCP	[] Yes [x] No [] Currently being developed	N/A	N/A

2.3.11.3.8 PFOA, its salts and PFOA-related compounds

Table 171: Status of identification and remediation of PFOA, its salts and PFOA-related compounds contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by PFOA, its salts and PFOA-related compounds	[X] Yes [] No [] Currently being developed	[]	
remediating sites contaminated by PFOA, its salts and PFOA-related compounds	[] Yes [X] No [] Currently being developed		

2.3.11.3.9 DDT

Sites have been identified in the county of Wajir where DDT contaminated
Table 179.

Table 172: Status of identification and remediation of DDT contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by DDT	[X] Yes [] No [] Currently being developed	[2004-2022]	The sites are under the Pest Control products Board
remediating sites contaminated by DDT	[X] Yes [] No [] Currently being developed	2022	Bioremediation

2.3.11.3.10 PFOS, its salts and PFOSF

Table 180.

Table 173: Status of identification and remediation of PFOS, its salts and PFOSF contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by PFOS, its salt and PFOSF	[X] Yes [] No [] Currently being developed	[2022]	Problem is that they are articles with PFOS
remediating sites contaminated by PFOS, its salts and PFOSF	[] Yes [X] No [] Currently being developed		

2.3.11.3.11 Unintentional POPs

Médical faste If medical waste is incinerated in conditions that do not constitute best available techniques or best environmental practices, there is potential for the release of PCDD and PCDF in relatively high concentrations. For small medical waste incinerators, application of best available techniques is often difficult, given the high costs associated with building, operating, maintaining and monitoring such facilities.

. However, it has been shown that incineration of medical waste in small and poorly controlled incinerators was a major practice and a potential source of PCDD/PCDF (UNEP 1999). The various equipment's normally operate in a batch-type mode. In one of two, cases, the larger centralized medical waste incineration facilities to operate for eight hours a day, five days a week. The mode of operation involves manually feeding the waste into the incinerators followed by manual removal and disposal of residues.

Residential Combustion involves combustion of Wood, Coal, Gas, other organic matters for residential heating and cooking in hand-fired stoves/fireplaces, automatically fired installations.

For Open Brüning it is introduction BAT&BEP in waste minimization, dry/homogeneous or well blended or of low density (avoid non-combustible materials, with high chlorine content :

These are largely sites with residues from open burning of waste. The ones that have been easily identified are those in health care facilities are using low grade and high-grade incinerators in which as pits are constructed next to incinerators

Table 174: Status of identification and remediation of uPOPs contaminated sites

Action	Status	Years in which the contaminated sites were identified/remediated	Remarks
identifying sites contaminated by uPOPs	[X] Yes [X] No [] Currently being developed	[2004-2022]	Open burning sites in hospital Battery recycling facilities Plastic Tile Making facilities
remediating sites contaminated by uPOPs	[] Yes [X] No [] Currently being developed	2004-2022	Specifications for incinerator waste ashpits designed but not constructed

2.3.12 Summary of future production, use, and releases of POPs – requirements for exemptions

There will definitely be need to request for exemptions especially for a DDT, PBDEA PFOS and PFOAS

Table 182.

Table 175: Status of notifying the Secretariat to register for specific exemptions listed in Annex A or Annex B or for acceptable purposes listed in Annex B

Action	Status
notified the Secretariat to register for specific exemptions listed in Annex A or Annex B	[] Yes [] No [X] In preparation for notification
notified the Secretariat to register for acceptable purposes listed in Annex B	[] Yes [] No [] In preparation for notification

2.3.12.1 POPs pesticides

The Pesticides that may need exemption are DDT, Lindane and endosulfan

Table 176: Status of registering for POPs pesticides specific exemptions

Chemical	Specific exemption	Activity (production/use)	Expiry date	Estimated quantity of production / use	Purpose(s) of production / u
	DDT	Use for indoor residual spraying	Not applied yet	100tons for use	Malarial epider

2.3.12.2 POP-PBDEs

Not identified yet

Table 184.

Table 177: Status of registering for POP-PBDEs specific exemptions

Status of registering for a specific exemption	Year	Status of undertaking a review of the continuing need for registration for a specific exemption for hexabromodiphenyl ether and heptabromodiphenyl ether and/or tetrabromodiphenyl ether and pentabromodiphenyl ether	Main problem sources
[x] Yes [X] No		(a) Specific exemption for hexabromodiphenyl ether and heptabromodiphenyl ether [] Yes [X] No (b) Specific exemption for tetrabromodiphenyl ether and pentabromodiphenyl ether [x] Yes [] No	[] Not needed [x] Not assessed [X] Lack of financial resources [x] Lack of technical capacity [x] Assessed but lack of technical capacity [] Assessed but lack of financial capacity [x] Assessed but lack of human resources [] Other

2.3.12.3 HBCD

Not identified yet

Table 178: Status of registering for HBCD specific exemptions

Chemical	Specific exemption	Activity (production/use)	Expiry date	Estimated quantity of production / use	Purpose(s) of production / use	Reason for exemption	Remarks

2.3.12.4 PCN

Not identified yet

Table 186.

Table 179: Status of registering for PCN specific exemptions

Chemical	Specific exemption	Activity (production/use)	Expiry date	Estimated quantity of production / use	Purpose(s) of production / use	Reason for exemption	Remarks

2.3.12.5 SCCPs

Not identified yet

Table 180: Status of registering for SCCPs specific exemptions

Chemical	Specific exemption	Activity (production/use)	Expiry date	Estimated quantity of production / use	Purpose(s) of production / use	Reason for exemption	Remarks

2.3.12.6 PFOA, its salts and PFOA-related compounds

Table 181: Status of registering for PFOA, its salts and PFOA-related compounds specific exemptions

Chemical	Specific exemption	Activity (production/use)	Expiry date	Estimated quantity of production / use	Purpose(s) of production / use	Reason for exemption	Remarks
	Not registered	Use	N/A	N/A	Multiple	No action plan	Awaiting full inventory

2.3.12.7 DDT

Table 182: Status of registering for DDT acceptable purpose

Production notification	Use notification	Date of notification	Remarks
No	No	N/A	N/A

2.3.12.8 PFOS, its salts and PFOSF

Although Kenya has done the preliminary inventory, the allowed for uses are too many for Kenya to track down and is studying the inventory with a view to making it manageable

Table 190.

Table 183: Status of registering for any of the specific exemptions related to PFOS, its salts and PFOSF

Action	Status	Specific exemption
registering for any of the specific exemptions related to PFOS listed in Annex B to the Convention	[X] Yes [] No	[X] Kenya will register in 2023

Table 184: Status of registering for any of the acceptable purposes related to PFOS, its salts and PFOSF

Action	Status	Acceptable purpose
registering for any of the acceptable purposes related to PFOS listed in Annex B	[] Yes [X] No	[] Will register in 2023

Table 185: Status of reviewing the continued need for the specific exemption(s) and/or acceptable purpose(s) for PFOS, its salts and PFOSF

Action	Status	Information on the review
reviewing the continued need for the specific exemption(s) and/or acceptable purpose(s) for PFOS, its salts and PFOSF	[X] Yes [] No	[] Will review in 2023

2.3.13 Existing programmes for monitoring releases and environmental and human health impacts, including findings

The Ministry of Environment and Forestry resources is the national entity for guiding on monitoring for toxic chemicals of priority to human health and the environment present in air, water, products and soil. The chemicals currently being focused on are those listed by World Health Organization as 10 priority chemicals and those listed in the conventions that Kenya is party or signatory to. These include persistent Organic Pollutants (POPS) and unintentionally produced POPS9UPOPS which include inorganic substances and POPS (pesticides, industrial chemicals, toxic wastes.

Table 193. Status of undertaking any research, development, and monitoring and cooperation pertaining to persistent organic pollutants, and where relevant, to their alternatives and to candidate persistent organic pollutants.

POPS Global Monitoring Program

Under the Stockholm convention, there is an ongoing Global Monitoring Program GMP. Its objective is to protect human health and the environment by reducing or eliminating releases to the environment. The monitoring considers the matrices of Air, human mother's milk, human blood and water. Though water is limited because POPs in their nature are hydrophobic and non-polar. The Monitoring program is necessitated because of the Trans boundary (migratory) nature of POPS and Kenya being a part of the Stockholm convention is required to monitor it. The program is already monitoring for POPs in water and welcomed WRA to join so as to strengthen it.

Current Monitoring sites for POPs for GMP

- For Air: There are three sites that are being monitored in Chiromo, Mount Kenya and one in Upper Kabete.
- For Water: There are two sampling points, one is at Athi River at Mbagathi river at the intake of Mavoko Water and Sewerage Company and at the mouth of Sabaki River as it offloads to the ocean.
- They carry out some analysis for POPs locally.

Action	**Status**	**Type of action(s)**	**Year(s) in which started the research, development, and monitoring and cooperation pertaining to persistent organic pollutants**	**Subject for research and development/monitoring/cooperation**	**Main problem sources**
undertaking any research, development, and monitoring and cooperation pertaining to persistent organic pollutants, and where relevant, to their alternatives and to candidate persistent organic pollutants	[X] Yes [] No	[X] Research and development [X] Monitoring [X] Cooperation	**[2004 to date]**	[x] Sources and releases into the environment. [x] Presence, levels and trends in human health and the environment. [x] Environmental transport, fate and transformation. [x] Socio economic and cultural impacts. [x] Effects on human health and the environment. [] Release reduction and/or	[x] Lack of institutional or policy framework. [x] Lack of financial capacity. [x] Lack of human resources. [x] Lack of technical capacity. [] Other:

				elimination. [x] Harmonized methodologies for making inventories of generating sources. [x] Analytical techniques for the measurement of releases. [] Other:	

2.3.13.1 POPs pesticides

is an export requirement and it is done for agricultural products for export, Monitoring in water is done but not frequently, in water and soil going on under KEPHIS.

Table 194. POPs pesticides monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[X] Research and development [X] Monitoring [X] Cooperation	The results of analysis of environmental samples reveal the presence of POPs pesticides such as aldrin and dieldrin in fish and sediments, DDT and DDE in soil samples, whereas ambient air reveal high levels of aldrin, DDE and DDT in samples from Kabete. However, *o,p*-DDT is considerably lower than their p,p'-DDT counterparts for most of the air samples. Other OCPs detected, but in low levels, are chlordane's, heptachlors and endrin. Based on	

		the observed levels across the seasons, the residues measured in air could be attributed to local air circulations rather than point source contamination (Table 2.1). Soils from contaminated site in Kitengela has revealed high concentrations of dieldrin, endrin, *p,p'*-DDT, *p,p'*-DDE, *p,p'*-DDD, *o,p'*-DDT, *o,p'*-DDE and *o,p'*-DDD. The presence of large stocks of contaminated soil in the country is of concern and appropriate decontamination strategies need to be employed to restore the soils.	

2.3.13.2 PCBs

Most of monitoring is under the GMP programme.

In ambient air, light PCBs have been detected at higher levels than the heavier congeners. Figure below illustrates the levels of PCBs measured in the ambient air from the background site and gradient site. In addition, the results of pilot study comparing PCBs in the ambient air from waste disposal sites have revealed much higher concentrations in the waste disposal sites compared to the concentrations measured in the background sites away from the disposal sites Indicator PCBs in human milk have been reported in levels ranging from 0.167-1.29 ng/g lipid, whereas the sum indicator PCBs was 4.32 ng/g lipid. Mono-ortho PCBs have been detected at significantly high concentration compared to the non-ortho congeners.

Table 186: PCBs in mothers' milk

PCB Congeners	Concentration in mothers' milk
Indicator PCBs	**(ng/g lipid weight)**
PCB 28	0.842
PCB 52	0.430

PCB 101	0.167
PCB 138	0.992
PCB 153	1.29
PCB 180	0.602
Sum PCBs	**4.32**
Mono-ortho PCBs	
PCB	0.252
WHO mono-ortho PCB TEQ	0.22
WHO non-ortho PCB TEQ	0.66
WHO PCB-TEQ (upper bound)	0.88 ± 0.16
WHO PCB TEQ (Medium bound)	0.88 ±0.16
WHO PCB TEQ (Lower bound)	0.88 ±0.16

Table 187: PCB monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[X] Research and development [X] Monitoring [X] Cooperation		

2.3.13.3 POP-PBDEs

Assessment of PBDEs in Kenyan Environment has been done under the International POPS elimination Network for PBDES in plastics and published.

Limited work has been done on the levels of PBDEs in environmental samples in the country. Preliminary data on PBDEs has been established in ambient air in Kenya through the MONET monitoring programme. Figure 15 below show the concentration of PBDEs in ambient air from a background and hotspot sites in the country. The results reveal that hotspot sites are releasing high concentrations of PBDEs into the national environment and hence there is need to put in place mitigation measures to control these releases.

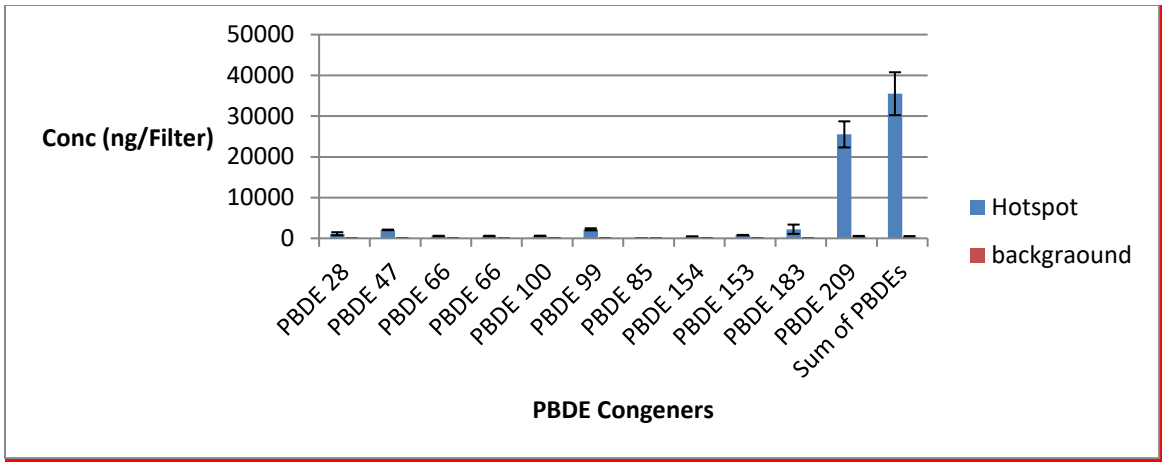

Figure 6: *Comparison of PBDEs concentrations in dumpsite and background site*
Preliminary data has been established on PBDE levels in ambient air in Kenya through the MONET monitoring programme.

Table 188: POP-PBDE monitoring findings/results

Chemical	**Type of programme**	**Monitoring findings/results**	**Remarks**
	[x] Research and development [x] Monitoring x [] Cooperation	No Monitoring	No results

2.3.13.4 HBCD

HCBD is not monitored except under GMP programme
Table 197.

Table 189: HBCD monitoring findings/results

Chemical	**Type of programme**	**Monitoring findings/results**	**Remarks**
	[] Research and development [] Monitoring [] Cooperation	HCBD detected	Low levels

2.3.13.5 HCBD

Table 190: HCBD monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[] Research and development [] Monitoring [] Cooperation		

2.3.13.6 PCN

PCN not monitored

Table 191: PCN monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[] Research and development [] Monitoring [] Cooperation		

2.3.13.7 SCCPs

Table 200. SCCPs monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[] Research and development [] Monitoring [] Cooperation		

2.3.13.8 PFOA, its salts and PFOA-related compounds

Assessment of PFOs and its salts and PFOSF

- Limited data exist on PFOS and PFOSF from research activities on these compounds in fish, water and sediments collected from Lake Victoria (Orata*et al.,* 2008, 2009, 2011).
- In a study screening perfluorooctanoic acid and perfluorooctanesulfonate in Lake Victoria Gulf and in its source rivers, levels of perfluorinated alkylated substances were detected. The concentration of perfluorooctanoic acid or perfluorooctanesulfonate in river waters

ranged 400-96,400 for perfluorooctanoic acid and <400-13,230 pg/L for perfluorooctanesulfonate.

- The levels in the river samplers were found to be higher than those detected in the lake water samples for which the perfluorooctanoic acid ranged from 400-11,650 and perfluorooctanesulfonate from<400-2,530 pg/L. The measured levels and trends suggested generalized point sources such as domestic and industrial waste (Orata, *et al.,* 2009).

Table 192: PFOA, its salts and PFOA-related compounds monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[X] Research and development [X] Monitoring [X] Cooperation		

2.3.13.9 Assessment of DDTs

Assessment of DDT in gradient site and background site has revealed elevated concentrations in the gradient site.

The Figure 2.2 below illustrates the concentrations measured in the two representative sites for background and national hotspot.

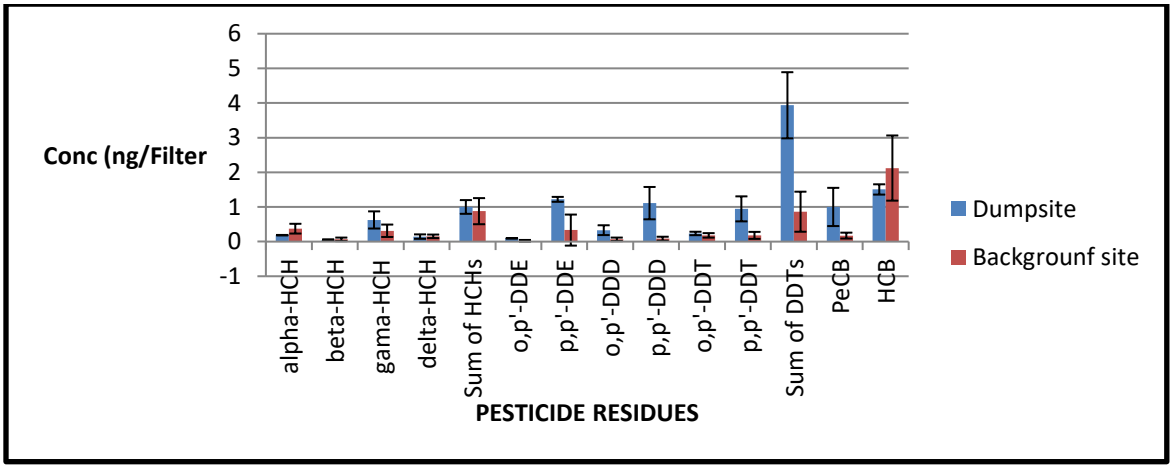

Figure 7: Comparison of pesticide levels in background and hotspot site

Table 202.

Table 193: Status of DDT resistance monitoring

Existence of surveillance mechanism for monitoring DDT resistance	**Description of bioassay test procedures used for detecting DDT resistance**
[] Yes [x] No [] Not applicable	N/A

Table 194: Vector susceptibility to DDT according to the WHO susceptibility test

Vector species	**DDT concentration**	**Exposure time (mins.)**	**% mortality**	**Year last tested**	**Geographical areas concerned within country**

Table 195: Resistance observed for other insecticides used in disease vector control

Chemicals	**Resistance observed for other insecticides used in disease vector control**	**Description of vector**
Pyrethroids	[] Yes [] No	
Organophosphates	[] Yes [] No	
Carbamates	[] Yes [] No	
Other	[] Yes [] No	

2.3.13.10 PFOS, its salts and PFOSF

Table 196: PFOS, its salt and PFOSF monitoring findings/results

Chemical	**Type of programme**	**Monitoring findings/results**	**Remarks**
	[X] Research and development [X] Monitoring [X] Cooperation		

2.3.13.11 Unintentional POPs

Assessment of UPOPs

Polychlorinated dibenzo-p-dioxins and dibenzofurans have been reported in mothers' milk from the rural areas at picogram levels. Furan's concentration varied from 0.045-1.4 pg/g lipid, whereas dioxin concentrations ranged from 0.268-52.3 pg/g lipid. Table 28shows the concentrations of different congeners of dioxins and furans measured in mothers' milk samples.
samples compared to national background sites used in the Global Monitoring Plan. This is illustrated in the Figure below.

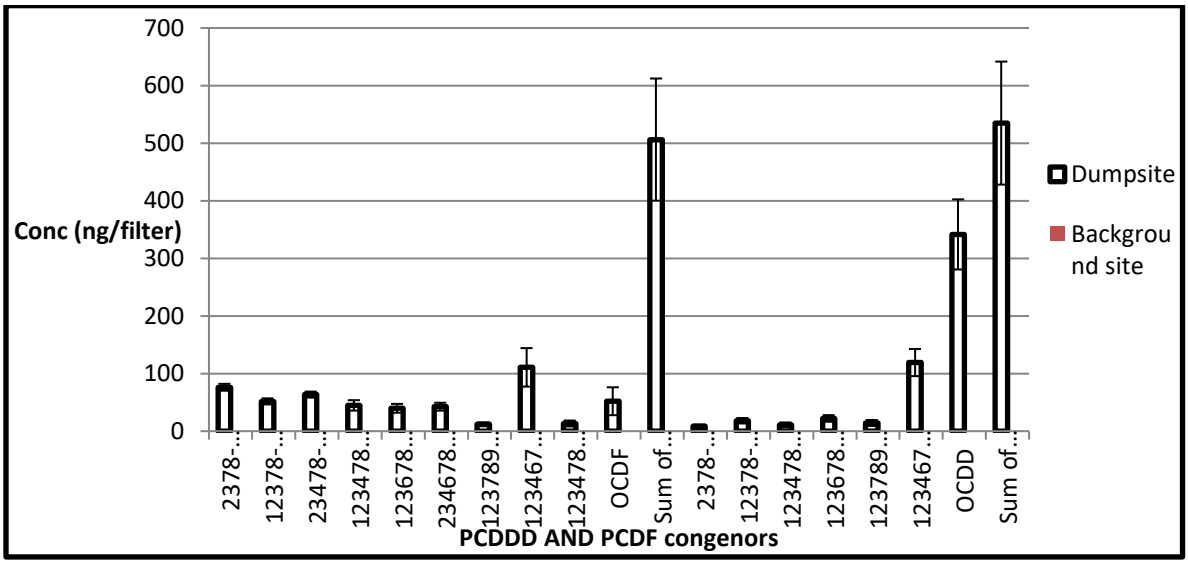

Figure 8: Comparison of dioxin concentrations in gradient and background sites

From the data illustrated, it is apparent that the country needs to control the releases of dioxins into the national environment. Although the various sources of dioxins have been documented, it is important to identify the national priority hot spots in the country followed by control measures and continuous monitoring to assess the impact of the employed strategies.

Table 197: uPOPs monitoring findings/results

Chemical	Type of programme	Monitoring findings/results	Remarks
	[X] Research and development [X] Monitoring [X] Cooperation		

2.3.14 Current level of information, awareness, and education among target groups; existing systems to communicate such information to the various groups

Over 200l training workshops, meetings and symposia have been held such as:

- Meetings of the interministerial coordinating committee
- Many meetings with the PCPB to review and revised the list of banned and listed chemicals.
- Many workshops organized by Greenbelt Movement in Nairobi, Nakuru, Thika, Mombasa and Kisumu to promote minimization of open burning of plastic waste
- Many workshops with the counties of Nairobi, Mombasa, Kisumu, Nakuru on sustainable solid waste management and reduction s of UPOPS
- Specific programmes on solid waste
- Specific programmes on UPOPS

Table 207. Status of taking any measures to implement Article 10 of the Convention

Action/measure	Status	Year	Type of measure	Main problem sources
taking any measures to implement Article 10 of the Convention	[x] Yes [] No	[]	[x] Awareness on persistent organic pollutants among policy and decision makers. [x] Provision to the public of all available information on persistent organic pollutants. [x] Development and implementation of educational programmes especially for women, children and the least educated on persistent organic pollutants, as well	[] Lack of institutional or policy framework. [x] Lack of financial capacity. [x] Limited human resources. [x] Insufficient technical capacity. [] Other:

			as on their health and environmental effects and on their alternatives. [x] Public participation in addressing persistent organic pollutants and their health and environmental effects. [x] Training of workers, scientists, educators and technical and managerial personnel. [x] Development and exchange of educational and public awareness materials at the national and international level. [x] Development and implementation of education and training programmes at the national and international level. [] Other :	

2.3.15 Mechanism to report under Article 15 on measures taken to implement the provisions of the Convention and for information exchange with other Parties to the Convention

Kenya reported in 1st and 2nd cycle. It has also reported in the 4th cycle but with gaps.
The government of Kenya was invited to the United Nations Environment Chemicals and Health to participate in a the GEF-funded project "Integrated SC toolkit to improve the transmission of information under Articles 07 and 15" (GEF ID 9884).
This project was undertaken in Kenya from February 2022 to April 2023.
It contained the following:

- Training on the Reporting requirement Kenya
- Identifying Kenya's reporting Gaps
- Training on electronic reporting
- Testing on the Reporting Toolkit

- Developing an Institutional framework on reporting
- Hold a national Workshop for the SSFA

The participation in the project has facilitated the mechanism for reporting to be streamlines and gaps identified.

Table 198: Mechanism to report under Article 15 and submission status

Mechanism/arrangements in place to prepare and submit the report under Article 15	**Submission status**	**Main problems encountered**	**Remarks**
[x] Yes [] No [] Currently under development	[] 1st Report [] 2nd Report [x] 3rd Report [] 4th Report [x] 5th Report	Not developed Not developed	Kenya is better preprepared to do the 5th reporting

2.3.16 Relevant activities of non-governmental stakeholders

NGOs play a key role in the realization of the goals of the Stockholm Convention and other chemical safety agreements. In order to ensure success in the implementation of these Conventions the role that NGOs play is vital especially with regard to advocacy and introduction.

In Kenya there are a number of CBOs (Community Based Organizations) which are already operating in the field of waste recycling; however, the limit of these activities is that most of the waste is recycled only after being dumped in landfills, therefore the quality is very low.

The key initiatives identified are for paper, plastics and organic materials.
The project focused on compost. There was training on compost for various groups. There was need for a training module which has been developed.
The stakeholder's consultation, the training needs assessment and the training module are uploaded into the library
The Most active are Centre for Justice and Development and the Greenbelt movement.
of which cover nearly all aspects of the convention. Many other specific CBOS are in place
CEJAD was involved in the imports

Table 199: Relevant activities of non-governmental stakeholders

Non-governmental stakeholder	POPs related activities
Centre for Justice and Environmental Development Kenya Greenbelt Movement	Monitoring and advocacy Plastics and Advocacy

2.3.17 Overview of technical infrastructure for POPs assessment, measurement, analysis, alternatives and prevention measures, research and development – linkage to international programmes and projects.

Table 200: . Overview of technical infrastructure for POPs assessment, measurement, analysis, alternatives and prevention measures, research and development

Overview of technical infrastructure for POPs	POPs assessment	POPs measurement	POPs analysis	POP alternatives	POPs prevention measures	POPs research and development	Ma pro enc
assessment, measurement, analysis, alternatives and prevention measures, research and development	[X] Yes [] No [X] Currently under development	[X] Yes [] No [X] Currently under development	[X] Yes [] No [X] Currently under development	[x] Yes [] No [x] Currently under development	[x] Yes [] No [x] Currently under development	[x] Yes [] No [x] Currently under development	

2.3.18 Overview of technical infrastructure for POPs management and destruction

There exist a number of national and international research and higher education research institutions that conduct research in various areas of POPs. Research on chemicals in the country is mainly conducted by the national research institutions and universities for specific purposes but the facilities are low.

Universities

All public universities in the country have chemistry departments that spearhead the training and research on chemical management. The research activities are diverse ranging from environmental risk assessment, chemical fate and transport studies, soil and water decontamination to monitoring and capacity building activities in POPs and general chemical management.

University of Nairobi

The Department of Chemistry University of Nairobi is at the forefront of coordinating the capacity building of national and regional institutions to monitor POPs under the Global Monitoring Plan (GMP) under the SC. In collaboration with UNEP SC and the RECETOX in Masaryk University Czech Republic the Department has been coordinating the ambient air POPs monitoring programme called Monitoring Network for Africa (MONET Africa). Currently the Department of Chemistry in collaboration with RECETOX under the MONET Africa monitoring programme is participating in testing of passive water samplers for trapping POPs chemicals in water using Semi-Permeable Membrane Devices using Silicon Rubber, and XAD polymer.

The Department of Chemistry has recently acquired a Low Volume active air sampler for calibration of the passive air samplers used in the Region. The active sampler will be used to air monitoring of POPs in ambient air .

Figure 9: Training of POPs analysis at the University of Nairobi

Department of public Health and Pharmacology, University of Nairobi which is located in the College of Agriculture and Veterinary Sciences undertakes research on DDT and metabolites in human breast milk. In 2009, the institution carried out human breast milk sampling for analysis of POPs in collaboration with WHO and UNEP. Since 1978 the department together with other international and national collaborators has also undertaken research and training to advanced knowledge and capacity building in analysis of chemical residues in the environment including foods of animal origin and other environmental studies. It is also one of the departments with the capacity to carry out toxicity studies and the impact of these POPs in human/animal health and in various ecosystems.

Masinde University of Science and Technology (MUST)

Masinde University of Science and Technology undertakes research on organo-chlorine pesticides and PFOS and PFOSF in water, sediments, fish and wastewater treatment plants effluents. The University is in possession of GC-ECD and GC-MS equipment for research.

Maseno University

The Department of Chemistry, Maseno University is conducting research on organo-chlorine pesticide residues in soil, water and sediments and decontamination of contaminated soils. The Department is in possession of GC-ECD, HPLC, and greenhouse gas measuring equipment to facilitate research activities in this area.

Jomo Kenyatta University of Agriculture and Technology

Through Pan African Chemistry Network (PACN) the Royal Society of Chemistry identified JKUAT through the department has hosted international training workshops on GC-MS. The training workshops have attracted participants drawn from different parts of Africa.

The main national research institutions that address chemical issues include Kenya Medical Research Institute (KEMRI), Kenya Agricultural Research Institute (KARI), and Kenya Industrial Research Development Institute (KIRDI).

Kenya Medical Research Institute (KEMRI)

KEMRI conducts research on effects of pesticides among formulators/store-men and farm workers (Wanja, 2007). It also has pesticide inventories for the work carried out in 1990's (Mbakayaet al., 1994). Other research activities at KEMRI include effectiveness of malaria vector control such as bed nets, larvicide, IRS, and other insecticides of public health importance. The institution is also KEMRI is working with Pyrethrum Board of Kenya to evaluate the quality of their products for vector control. In collaboration with ICIPE, KEMRI is working on research to use biological agents for Malaria control.

International Centre for Insect Physiology and Ecology (ICIPE)ICIPE was established in 1970, to develop and transfer technology on alternatives to chemicals. It has trained 600 PhDs & 700 M.Sc. students in 29 African countries. It conducts research on eco-friendly methods for controlling disease vectors and crop pests, and for preservation and use of beneficial insects. Most of the work related to POPs has been on development of alternatives to POPs for human disease vector control, especially developing alternatives for DDT for malaria control. It was nominated in 2010 and endorsed 2011 as a Regional Centre for the Stockholm Convention. Currently there are 15 regional centers globally, and an additional center has been proposed in Jakarta, Indonesia. At the moment there are four regional centers in Africa. These are: the SC regional Centre in Algiers-Algeria, ICIPE in Nairobi-Kenya; the Centre in Dakar-Senegal, and the regional Centre in Pretoria-South Africa.

Table 201: Overview of technical infrastructure for POPs management and destruction

Overview of technical infrastructure for POPs management and destruction	POPs management	POPs destruction	Main problems encountered	Remarks
	[X] Yes [] No [X] Currently under development	[X] Yes [] No X [] Currently under development	• Lack of coordination • Budget for POPS does not exist • Most are adhoc	

2.3.19 Identification of impacted populations or environments, estimated scale and magnitude of threats to public health and environmental quality, and social implications for workers and local communities

Persistent Organic Pollutants (POPs) are also highly persistent in the environment, resist microbial degradation and tend to strongly adsorb on carbon rich materials such as plastics and sediments, which also act as transport media in aquatic systems. The main POPs chemical categories include organochlorine pesticides (OCPs) for which several studies and complaints exist, polychlorinated biphenyls (PCBs), polybrominated diethyl ethers (PBDEs), polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzo furans (PCDFs) commonly represented as (PCDD/Fs), Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF), Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds, short chain paraffins (SCCPs) and polychlorinated naphthalenes (PCNs) (Stockholm Convention, 2021). One of the mediums through which people can get exposed to hazardous chemicals is through contaminated sites.

Data on the levels of POPs pesticides at the Kitengela Obsolete pesticide site have also revealed levels of POPs in soil and air as shown in the table below.

Table 202: Levels of POPs detected at the Kitengela Obsolete Pesticide Store contaminated site

POP	Soil Concentration (ug/kg)	Soil Concentration (mg/kg)	Air (ng/m^3)
PCBS	0.7	0.0007	0.05
Alpha- HCH	202.5	0.2025	12.5
Beta HCH	359.8	0.3598	2
Gamma HCH	489.2	0.4892	2.1
Delta HCH	856.8	0.8568	32.6
Sum HCHs	**1,908.40**	1.9084	**58.3**

Op-DDT	2,960.20	2.9602	6.1
PP-DDE	11,085.50	11.0855	23.7
Op-DDD	417.1	0.4171	1.05
pp-DDD	1,239.10	1.2391	1.38
OpDDT	19,473.20	19.4732	16.4
PpDDT	142,527.70	142.5277	31.48
Sum DDTs	**174,742.60**	174.7426	**80.09**
PeCB	3.2	0.0032	0.12
HCB	2.4	0.0024	0.05

Table 203. Identification of impacted populations or environments, estimated scale and magnitude of threats to public health and environmental quality, and social implications for workers and local communities

POPs	Impacted populations or environments	Estimated scale and magnitude of threats to public health and environmental quality	Social implications for workers and local communities

2.3.20 Details of any relevant system for the assessment and listing of new chemicals

None in place. but Kenya continues continue to participate in the conventions regional and global initiatives to support POPs management activities.

Table 204: . Details of any relevant system for the assessment and listing of new chemicals

Action	Status	Year	Measure
taking measures to regulate new pesticides or new industrial chemicals (i.e., chemicals that have not yet been introduced in the market or registered in your country), with the aim of preventing the production and use of new chemicals	[] Yes [x] Currently being developed [] No [] Other	[2022]	[] no regulatory and assessment schemes for new pesticides or industrial chemicals in place [x] regulatory and assessment schemes for new pesticides or new industrial chemicals in place, but it does not take into consideration the

that exhibit the characteristics of persistent organic pollutants			criteria in paragraph 1 of Annex D.

2.3.21 Details of any relevant system for the assessment and regulation of chemicals already in the market

Only for pesticides but product standards are there specific for items such as plastic and transformer oils which states that the oil should not contain PCB. But it is silent in other alternatives to PCPs. For PFOS there is no control.

Table 214. Details of any relevant system for the assessment and regulation of chemicals already in the market

Action	Status	Year	Measure
taking into consideration the criteria in paragraph 1 of Annex D when conducting assessments of pesticides or industrial chemicals currently in use	[] Yes [x] Currently being developed [] No [] Other	[2021]	[] no regulatory and assessment schemes for existing pesticides or industrial chemicals in place [x] regulatory and assessment schemes for existing pesticides or industrial chemicals in place, but it does not take into consideration the criteria in paragraph 1 of Annex D.

In the case of NIP review and updating, this subchapter would summarize progress to date in implementing the initial and, where relevant, subsequent versions of the NIP. Two NIPs have been done; the 2nd NIP update is about to start any time now coordinated by the Basel Regional Centre in Pretoria.

Table 205: Previous NIP action plans implementation status

Previous NIP Action	Previous NIP Action Plan Component	Implementation status
NIP Update 2014	All POPS reviewed	Various aspects implemented mainly on Banning and restricting the Pesticides Coordination Development of relevant regulations for the industrial POPs Resource mobilization from JICA and bilaterally Technology upgrade Participation in the GMB programme

3. STRATEGY AND ACTION PLAN ELEMENTS OF THE NATIONAL IMPLEMENTATION PLAN

3.1 Policy statement

The Ministry of Environment, Water and Natural Resources (MEWNR) is honored to play the lead role on behalf of Kenya in the review of policy, legal, regulatory and institutional frameworks to ensure compliance to the convention. Through its Kenya will put more effort to increased efficiency in adoption of new technologies and best practices in environmental management to eliminate use of intentionally produced persistent organic pollutants and to minimize the release of unintentionally produced ones.

It is important to note that the preparation of this NIP has been through a consultative and participatory process that gained valuable inputs from several stakeholders in the government institutions and the private sector. As the focal point for the Stockholm Convention the ministry will continue performing the leading role in the devolved system of government as provided in the Constitution 2010.

The updated National Implementation Plan shows the priority activities and strategies that Kenya will use to implement the Stockholm Convention on POPs including the new additional POP chemicals listed in the Convention annexes A, B and C, revised emission factors, and the provisions of the Kenya constitution 2010.The ministry will continue to provide for a for engagement of all the stakeholders in implementing the NIP

Principal Secretary, Ministry of Environment, Climate Chane and Forestry
Kenya Convention Focal Point
Eng Festus K. Ngeno

3.2 Implementation strategy

The NIP outlines several strategies and action plans that Kenya seeks to employ for effective management of POPs in the country. It recognises the fact that there are a number initiatives on public education, awareness creation, monitoring and research. Assessment indicates, they are all underfunded and new funding approaches should be put in place to accelerate these activities. There is also a lot of information available on the convention website that need to be synthesized for local consumption and transmitted to the stakeholders.

The NIP update shows that Kenya lacks established national POPs monitoring programme. Most of the POPs monitoring data in the country has been produced through Global Monitoring Program (GMP) activities.

Kenya has several pieces of legislations and regulatory frameworks addressing chemical management. The draft regulations on electronic waste should be updated to include the related

newly listed POPs. To comply the updated NIP addresses the following convention obligations and has revived the need for others

a. **Awareness creation, Public Education, Research, Technical and Financial Assistance**
The assessment of existing infrastructure revealed commendable initiatives by universities, research institutions and the private sector. However, there is a need to build capacity for assessment, evaluation of socio-economic aspect of alternatives to POPs chemicals as well as the introduction of BAT and BEP. This should be promoted through better networking arrangements especially between the institutions in the implementation matrix.

b. **Capacity building**
Because of lack of institutional mechanism that addresses POPs, Kenya will need to build on existing programs to create awareness and education of the general public. The threat of POPs requires coordinated action at national, regional and county levels. This will involve working with government institutions, nongovernmental organizations and the international agencies to develop and implement appropriate interventions.

d. **Financing the NIP**
The total cost of the NIP is estimated at Kshs 5.8 billion Kenya Shillings equivalent to US$670 million. It will be funded by the National Government, county governments, bilateral programmes and the Global Environment Facility. The detailed budget lines are detailed in the Appendix.

Lack of funding was the greatest impediments to the implementation of the first NIP. This NIP proposes an objectively organized resource mobilization strategy that will see the establishment of the national coordination structure for POPs management activities, establishment of thematic groups for development of project proposals and streamlining of the NIP activities in the national and county development agenda.

e. **Coordination Mechanism**
The updated NIP will be implemented over a 5-year period from 2014 to 2019 by diverse of institutions specialized in POPs. The coordination office will be in the Directorate of Environment. A NIP implementation committee will be composed of Ministries of Environment Water and Natural Resources, Health, Energy, Devolution and Planning. National Environment Management Authority, Pest Control products Board, Kenya Medical Research Institute, universities and ICIPE. Non-government organizations will be invited to participate. The counties of Nairobi, Mombasa Kisumu and Garissa will be members to represent the devolved government.

5 Endorsement and Implementation

The NIP was endorsed on 21st May 2014, by stakeholders. By endorsing this NIP Kenya commits to address each of the action plans. This role may be specific to institutions, but

also cross-sectoral. The implementation matrix in Annex 1 shows details of institutions specific actions.

Subchapter 3.2 would detail the actions included in the NIP to meet the obligations of the Stockholm Convention. (It would include updated action plans to reflect progress made in implementation and to include additional newly listed POPs where relevant, and new additional action plans, objectives and priorities for newly listed POPs as necessary.) It would also outline a framework mechanism to coordinate discrete NIP activities including review, reporting, evaluation, revision, and updating of the NIP.

3.3 Action plans, including respective activities and strategies

Subchapter 3.3 lists country-specific activities, action plans, and strategies, including those required by the Convention, designed to meet Convention obligations. Each would identify aims, actions, and needs (updated as appropriate). A logical framework matrix could be used to indicate steps in each area and clearly identify where work is needed. Additional measures beyond the minimum requirements would also be presented. The process for periodic review and updating would be explained.

- Endorsed with amendments the matrix on Pesticide POPs, Industrial POPs, and unintentional POPs, Monitoring and Public awareness. The legal and policy matrix would be reviewed further by legal experts in order to get the actual current position on legislation and policy. The amended and endorsed matrix tables are Annex 1 below.

- Stakeholders emphasized the need to have the NIP and Policy document sent to all stakeholders.

- The need to institutionalize the chemicals management through a memorandum of understanding with all relevant sectors was recommended.

- It was emphasized on the need to have periodical meetings to assess the progress on implementation of the NIP by different sectors.

The endorsed NIP will be submitted to the COP as required

3.3.1 Activity: Institutional and regulatory strengthening measures

	Strategic objective	Activities	Performance indicators	Responsibilities	Budget (Mi Kshs)	Action So far
1	Establish a NIP activities Coordination Mechanism at National and County levels as appropriate	-Prepare necessary policy and legal documentation for consideration approval -Recruit staff	- Cabinet approval Budgets allocation Staff in position	SDE[6], AG	50	
2	Build capacity for developing and promotion of additional POPs alternatives	Strengthen training of researchers in POPs alternatives.	POPs research activities Number of POPs alternatives developed.	Universities[7], (UoN taking lead role), PCPB, KEMRI, ICIPE, KARI, AAK	30	
3	Build and strengthen knowledge management	-Support a center for online access publications -Develop and operationalize information networks within the partner institutions	Chemicals Database and information network established and equipped Networks operationalized POPs website Networking arrangement	SDE NEMA, PCPB GCD Universities,	20	
4	Ensure timely response to Convention Secrett	Facilitate Reporting	Number and variety of project	SDE, NEMA, Universities	30	

[6] State Department of Environment in the MEWNR
[7]Dpt PHPT,Kabete, UoN

	Build capacity of zonal laboratories as centers of excellence in training and monitoring POPs	Facilitate access to technical assistance Facilitate access to Financial Mechanism (GEF)	that cover all POPs Amount of funds mobilized Counterpart funds			
5	A Chemicals communication Strategy developed and implemented	Selection and distribution of convention materials, information and resources	Communication Strategy Developed Number of institutions using the strategy.	SDE, NEMA	5	
6	Monitoring and evaluation of the NIP					

Table 206 Activity: Institutional and regulatory strengthening measures

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.2 Activity: Measures to reduce or eliminate releases from intentional production and use

Table 217. Activity: Measures to reduce or eliminate releases from intentional production and use

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.3 Activity: Production, import and export, use, stockpiles, and wastes of Annex A POPs pesticides (Annex A, Part I chemicals)

Table 207: Pesticides POPS

	Strategic Objectives	Activities	Performance indicators	Responsibility	Budget Kshs M
1	Collection and disposal of POPs stockpiles	Dispose current 200 tons POPs stockpiles	Disposal of already collected stockpiles of approximately 200 tons by 2015. Disposal certificates	NEMA. PCPB, MoA, AAK, KARI, Veterinary	30
2	Public awareness on current situation of pesticide POPs in the country and their alternatives.	Workshop for all stakeholders and county reps on POPs pesticide	Mainstreaming pesticide issues in institutional strategies completed	NEMA, PCPB, KARI, AAK, Livestock and Fisheries ICIPE, MOH, KRA Customs Stockholm Convention Region Centre	10
3	To strengthen the national capacity and capability to perform POPS analysis.	Invest and sustain resources both in human and financial terms – training, acquisition of equipment, transfer of technology at each of 5 key institutions etc. Establish partnerships.	Procure High performance analytical equipment for POPs and the same be availed in regional centers	MEW&NR, KARI, PCPB, Government Chemist, NEMA, Universities and Private Sector Partnership with donor countries. All the counties	100[8]

[8] 1 HPLC/GC Ksh Ksh 10M approximately

4	Complying with Article8	Collaborative studies and analyses among laboratories, both at national and international levels. Create for a for exchange of research and data	Routine analysis for POPs Pesticides in KARI, Universities, ICIPE	Selected universities, IGO and private sectors participating	50
5	Research, development implementation and programme	Review continuing activities on research, application promotion and capacity support to institutions. Ensure sharing of results after every 2-4 years through bulletins, questionnaires and workshops/seminars /training etc.	Research work and findings documented annually workshops and seminars Bulletins every 2 years Questionnaires	MEW&NR, National Treasury, NEMA, ICIPE Private sector, Universities KEMRI	150
6	Development and promotion of alternatives to POPs	✓ Continued research on IVM and BEP Promoting IVM / IPM, BATS programmes in Kenya. ✓ Hold regional training at all counties ICIPE	✓ Complete replacement of all banned and listed POPs by 2016	✓ Involving all relevant government agencies ✓ Synergy with PIC Convention ✓ KARI	300
7	Enforcement of law and regulation	Border surveillance will be enhanced to minimize illegal	Regular surveillance of POPs pesticide starting 2014	NEMA, MoA MoH, KARI, PCPB KEMRI, ICIPE,	200

		imports of banned and restricted POPs		Private sector, KEBS, PCPB, Customs, Radiation board Pharmacy and Poisons.	
	TOTAL				**700**

Table 208: Activity: Production, import and export, use, stockpiles, and wastes of Annex A POPs pesticides (Annex A, Part I chemicals)

Objectives	**Activities**	**Key performance indicators**	**Time Frame**	**Implementers**	**Resources / Needs**
Not any produce any of the POPS	Administrative statement.	No production	2014	Government of Kenya	None
Import /use/stockpiles only the exempted POPs or allowed uses	Implement relevant legislation	Import declarations	2014 on wards	All stakeholders	See Budget
Waste	Develop guidelines where none exist	All waste transporters register with NEMA	2014	All stakeholders	See budget

3.3.4 Activity: Production, import and export, use, identification, labelling, removal, storage, and disposal of PCBs and equipment containing PCBs (Annex A, Part II chemicals)

Table 209: Activity: Production, import and export, use, identification, labelling, removal, storage, and disposal of PCBs and equipment containing PCBs (Annex A, Part II chemicals)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.5 Activity: Production, import and export, use, stockpiles, and wastes of hexaBDE and heptaBDE (Annex A, Part IV chemicals) and tetraBDE and pentaBDE (Annex A, Part V chemicals) (and HBB, where applicable (Annex A, Part I chemicals))

The following activities have been agreed to with stakeholders

Industrial POPs

Table 210 **Industrial POPs**

	Objective	Activity	Performance Indicator	Action	Cost (Kshs) M)
1	Develop Policy framework for management of industrial POPs	• Develop Policy and implementation on industrial POPs • Develop Regulatory standards for industrial POPs. • Strengthen enforcement of standards for industrial POPs • Regulation/ban of second-hand products containing banned industrial POPs	• Policy • KEBs Standards • Gazette regulations • Number of compliant industries • Regulated second hands goods	NEMA, AG office, KEBS, KAM, Moiled	50

2	To put in place material and raw products analysis and monitoring program.	Establish quality control and quality assurance laboratory systems in industries	Number of laboratories and quality assurance systems in industries	NEMA, KEBS, Universities, KAM	120
3	Minimize industrial POPs emissions in industries to meet the BAT & BEP guidelines	Include industrial-POPs emissions as part of industrial annual audits Train industry personnel on alternatives Enhance BEP and BAT	Number of industries that have carried out industrial POPs analysis Number of industries using alternatives Number of industries upholding BEP and BAT	NEMA; Ministry of Industry, KAM	**50**
4	To use alternatives to industrial POPs.	Educate manufacturers on available alternatives Encourage importation of alternatives	Number of industries using the alternatives to POPs Number of imported alternatives for industrial use	NEMA/Ministry of commerce and industry, KIRDI, KAM	100
5	Eradication of banned industrial POPs	To introduce alternatives to industrial POPs Ban importations from non-compliant import countries Educate users	Number of alternatives in use increase No imports of banned industrial POPs allowed Number of complying stakeholders	NEMA, KIRDI,	40
6	Educating stakeholders on industrial POPs	Establish data bank for users Regulate findings and publications	Databank houses and operational	NEMA, Ministry of education, Ministry of information	30

		Networking and information sharing for stakeholders	Number of publications and ICT materials Number of institutions and industries networking on industrials POPs information		
7	Research and monitoring	To research on the levels of industrial POPs in industrial materials and products including food stuffs Establish Research on alternatives	Data on industrial POPs in products Number of produced alternatives	KIRDI, Universities	50
8	Destruction of Stockpiles	To destroy existing stockpiles	No know stockpiles of industrial POPs	NEMA, (Universities)	10
					450

Table 220.

Table 211: Activity: Production, import and export, use, stockpiles, and wastes of hexaBDE and heptaBDE (Annex A, Part IV chemicals) and tetraBDE and pentaBDE (Annex A, Part V chemicals) (and HBB, where applicable (Annex A, Part I chemicals))

Objectives	**Activities**	**Key performance indicators**	**Time Frame**	**Implementers**	**Resources / Needs**

3.3.6 Activity: Production, import and export, use, stockpiles, and wastes of HCBD (Annex A, Part I chemicals)

No arrangement to produce, import stockpile or use this compound.

Table 212: Activity: Production, import and export, use, stockpiles, and wastes of HCBD (Annex A, Part I chemicals).

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.7 Activity: Production, import and export, use, stockpiles, and wastes of PCNs (Annex A, Part I chemicals)

Table 213: Activity: Production, import and export, use, stockpiles, and wastes of PCNs (Annex A, Part I chemicals)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.8 Activity: Production, import and export, use, stockpiles, and wastes of SCCPs (Annex A, Part I chemicals)

Table 214 Activity: Production, import and export, use, stockpiles, and wastes of SCCPs (Annex A, Part I chemicals)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.9 Activity: Production, import and export, use, stockpiles, and wastes of PFOA, its salts and PFOA-related compounds (Annex A, Part I and Part X chemicals)

Industrial POPs

Table 215: industrial POPs

	Objective	Activity	Performance Indicator	Action
1	Develop Policy framework for management of industrial POPs	Develop Policy and implementation on industrial POPs Develop Regulatory standards for industrial POPs. Strengthen enforcement of standards for industrial POPs Regulation/ban of second-hand products containing banned industrial POPs	Policy KEBs Standards Gazeted regulations Number of compliant industries Regulated second hands goods	NEMA, AG office, KEBS, KAM, MoIED
2	To put in place material and raw products analysis and monitoring program	Establish quality control and quality assurance laboratory systems in industries	Number of laboratories and quality assurance systems in industries	NEMA, KEBS, Universities, KAM
3	Minimize industrial POPs emissions in industries to meet the BAT & BEP guidelines	Include industrial-POPs emissions as part of industrial annual audits Train industry personnel on alternatives Enhance BEP and BAT	Number of industries that have carried out industrial POPs analysis Number of industries using alternatives Number of industries upholding BEP and BAT.	NEMA; Ministry of Industry, KAM
4	To use alternatives to industrial POPs.	Educate manufacturers on available alternatives Encourage importation of alternatives	Number of industries using the alternatives to POPs Number of imported alternatives for industrial use	NEMA/Ministry of commerce and industry, KIRDI, KAM

5	Eradication of banned industrial POPs	To introduce alternatives to industrial POPs Ban importations from non-compliant import countries Educate users	Number of alternatives in use increase No imports of banned industrial POPs allowed Number of complying stakeholders	NEMA, KIRDI,
6	Educating stakeholders on industrial POPs	✓ Establish data bank for users ✓ Regulate findings and publications ✓ Networking and information sharing for stakeholders	✓ Databank houses and operational ✓ Number of publications and ICT materials ✓ Number of institutions and industries networking on industrials POPs information	✓ NEMA, Ministry of education, Ministry of information
7	Research and monitoring	To research on the levels of industrial POPs in industrial materials and products including food stuffs Establish Research on alternatives	Data on industrial POPs in products Number of produced alternatives	KIRDI, Universities
8	Destruction of Stockpiles	To destroy existing stockpiles	No know stockpiles of industrial POPs	NEMA, (Universities)

Table 216 Activity: Production, import and export, use, stockpiles, and wastes of PFOA, its salts and PFOA-related compounds (Annex A, Part I and Part X chemicals)

Objectives	**Activities**	**Key performance indicators**	**Time Frame**	**Implementers**	**Resources / Needs**

3.3.10 Activity: Production, import and export, use, stockpiles, and wastes of DDT (Annex B, Part II chemicals) if used in the country

The below activities are for DDT and its alternatives

Table 217: DDT and its alternatives

	Objectives	Activities	Performance Indicators	Responsibility	Budget Kshs
13	Update knowledge on extent of use of DDT alternatives	Identify the alternatives used especially in malaria prone areas effectiveness, social and health impacts	List of alternatives developed	ICIPE KEMRI MOH , PCPB PBK, KARI	5
14	Development and promotion of alternatives to DDT	Identify socially acceptable and efficacious alternatives to DDT and other Pesticide POPs Carry out institutional and stakeholder financing needs assessment	No of alternatives successful. No in use	MOH, NEMA, WHO, UNEP ICIPE/ KEMRI, MOA PCPB	
15	To strengthen malaria control performance monitoring and evaluation system	Build partnerships between MOH and DDT alliance Enhance capacities at grassroots levels for sustainable non chemical alternatives Sensitize policy makers on the need for allocation of financial and technical resources for alternatives	No. of activities with partners. Funds mobilized from Global malaria Forums organized	NEMA, MENR, WHO Treasury, KEMRI, ICIPE, MOH, PBK MOH Malaria Rollback programme	
16	Capacity building for planning and,	Development of adequate human resources,	Number of trained	MOH, DOMC KEMRI, ICIPE, NEMA, MEWNR Universities	

	monitoring performance of chemical/ non chemical alternative Environmental monitoring	training and career structures at national and local level to manage IVM programmes, development of essential physical infrastructure, provision of financial resources to market alternatives.	level of residue POPs in different media	Research institutions Private Sector	
17	Strengthen research development and monitoring illegal imports.	Development of appropriate monitoring tools s and a clear monitoring system incorporated into the program, with budgets allocated. Monitoring on health and environmental impacts.	Monitoring Clear monitoring system Reports of health impacts	ICIPE, KEMRI, MOH NEMA Universities Research institutions -Private Sector KPA and Customs PCPB	30
18	Information Exchange and creation of public awareness	Update of existing database Develop modalities for inform nation exchange programs.	No of forums organized. No of articles published internationally	NEMA, MOH, MOA, ICIPE Universities Research institutions -Private Sector	50
19	Policy and regulatory framework.	Harmonize the existing regulations and legislation.	Draft regulations	MEWNR, NEMA, MOH, WHO, UNEP, MOA, KEMRI, PCPB.	7
	Subtotal				**692**

Table 218: Activity: Production, import and export, use, stockpiles, and wastes of DDT (Annex B, Part II chemicals) if used in the country

Objectives	**Activities**	**Key performance indicators**	**Time Frame**	**Implementers**	**Resources / Needs**

3.3.11 Activity: Production, import and export, use, stockpiles, and wastes of PFOS, its salts and PFOSF (Annex B, Part III chemicals)

Industrial POPs

Table 219:Industrial POPs

	Objective	Activity	Performance Indicator	Action	Cost (Kshs) M)
1	Develop Policy framework for management of industrial POPs	Develop Policy and implementation on industrial POPs Develop Regulatory standards for industrial POPs. Strengthen enforcement of standards for industrial POPs Regulation/ban of second-hand products containing banned industrial POPs	Policy ✓ KEBs Standards ✓ Gazetted regulations ✓ Number of compliant industries ✓ Regulated second hands goods	NEMA, AG office, KEBS, KAM, MoIED	50
2	To put in place material and raw products analysis and monitoring program	Establish quality control and quality assurance laboratory systems in industries	Number of laboratories and quality assurance systems in industries	NEMA, KEBS, Universities, KAM	120
3	Minimize industrial POPs emissions in industries to meet the BAT & BEP guidelines	Include industrial-POPs emissions as part of industrial annual audits Train industry personnel on alternatives Enhance BEP and BAT	Number of industries that have carried out industrial POPs analysis Number of industries using alternatives Number of industries upholding BEP and BAT	NEMA; Ministry of Industry, KAM	**50**
4					100

	To use alternatives to industrial POPs.	Educate manufacturers on available alternatives Encourage importation of alternatives	Number of industries using the alternatives to POPs Number of imported alternatives for industrial use.	NEMA/Ministry of commerce and industry, KIRDI, KAM	
5	Eradication of banned industrial POPs	To introduce alternatives to industrial POPs Ban importations from non-compliant import countries Educate users	Number of alternatives in use increase No imports of banned industrial POPs allowed Number of complying stakeholders	NEMA, KIRDI,	40
6	Educating stakeholders on industrial POPs	Establish data bank for users Regulate findings and publications Networking and information sharing for stakeholders	Databank houses and operational Number of publications and ICT materials Number of institutions and industries networking on industrials POPs information	NEMA, Ministry of education, Ministry of information	30
7	Research and monitoring	To research on the levels of industrial POPs in industrial materials and products including food stuffs Establish Research on alternatives	Data on industrial POPs in products Number of produced alternatives	KIRDI, Universities	50
8	Destruction of Stockpiles	To destroy existing stockpiles	No know stockpiles of industrial POPs	NEMA, (Universities)	10
					450

Table 220 Activity: Production, import and export, use, stockpiles, and wastes of PFOS, its salts

and PFOSF (Annex B, Part III chemicals)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.12 Activity: Register for specific exemptions and the continuing need for exemptions (Article 4)

Table 221 Activity: Register for specific exemptions and the continuing need for exemptions (Article 4)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.13 Action plan: Measures to reduce releases from unintentional production (Article 5)

Table 228.

Table 222 Action plan: Measures to reduce releases from unintentional production (Article 5)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

	Strategic Objectives	Activity	Performance indicators	Responsibility		Estimated Cost
1	Increase the efficiency of heat and power Generation systems for industry and household systems.	1. Create awareness on benefits of increased efficacy of heat and power generation systems.	1. Number of industries and institutions trained on increased efficacy of heat and power	MoE, MOH Counties Governments, NEMA, DOHSS, KCPC		**50**

		2. Upscale the introduction of energy saving stoves. 3. Promote the use of alternative cleaner energy sources in industry.	generation systems. 2. Number of industries compliant with reduced emissions. 3. Increased number of households with improved energy saving stoves.			
2	Minimize releases from waste incineration	1. Ensure incinerators meet NEMA guidelines. 2. Training on proper management of incinerators in all sectors. 3. Encourage development of locally manufactured incinerators at county levels. 4. Promote uptake of BEP.	Number of incinerators that meet NEMA standards Number of trainees on incinerator management. Number of locally manufactured incinerators that meet NEMA standards. Number of enterprises applying BEPs	NEMA KIRDI Moi University (At county governments)		**120**

3	Sludge Disposal: Achieve good environmental practices in the management of sewage sludge	1. Introduce BEPs in the management of sludge. 2. Ensure industries install wastewater treatment facilities. 3. Ensure industrial compliance to NEMA effluent standards. 4. Conduct assessment of contaminants in sludge.	No of Sewage treatment plants not burning sludge Number of wastewater treatment facilities meeting standards No of analyses carried out	KIRDI, SDW r, WRMA, GCD, UON.		**50**
4	Eliminate open burning of solid wastes	1. Introduction of Interrogated solid waste management systems 2. Awareness raising and education on proper waste management methods 3. Enforcement of waste disposal regulations	ISWM plans put in Place in all counties in solid waste generating facilities Training sessions on ISWM Air Quality regulations and Standards in place	NEMA, MoH, County Governments		**100**

		4. Enforcement of air quality regulations				
5	Minimize UPOPs emissions in industries	1. Include U-POPs emissions as part of industrial annual audits 2. Train industry personnel on how to use the UNEP UPOPs Toolkit	Number of industries that have carried out UPOPs analysis Number of personnel trained in application of UPOPs Toolkit	NEMA; Universities		**50**
		1.				**370**

3.3.14 Activity: Identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal (Article 6)

Nairobi County's total stockpiles of PFOS-based foam are estimated at 40000 liters and it is in open storage facility at the premises in industrial area of Nairobi (See figure 4-1). Most fire and rescue services reported that they had no stockpiles of PFOS-based foams, while a few had small quantities. The inventory did not include all Kenya's fire and rescue services, but the information received is believed to be representative of this category as a whole. The Kenyan Armed Forces also have considerable remaining stocks of PFOS-based foam. It is estimated that the total content of PFOS-related substances in foam stockpiles in all municipal councils in Kenya is approximately 80 tonnes.

There are no requirements for new stocks.

Table 223 Activity: Identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal (Article 6)

Objectives	**Activities**	**Key performance indicators**	**Time Frame**	**Implementers**	**Resources / Needs**

3.3.15 Activity: Identification of contaminated sites (Annex A, B, and C Chemicals) and, where feasible, remediation in an environmentally sound manner

Several Hot spot areas were identified. These sites have the potential of becoming sources of PCDD/PCDF releases in future. They include

Lindane had the highest frequency of detection in all samples analyzed. This is an indication that some farmers might be illegally using lindane. Lindane was initially used for seed dressing to protect crops against termites.

Residue levels are given on wet weight basis. Mean calculated for the positive samples only.
Positive samples are given as a reciprocal. (-) Below detection limit. Source: Mwangi, 2001

The mean level of β-BHC found in the liver was about two times higher than in the muscle. β-BHC is the environmentally most persistent isomer and may have higher ability to accumulate in liver tissue than γ-BHC. However, γ-BHC has also been used as an insecticide in Kenya both in agriculture and livestock as a cattle dip and this may be the reason of its detection in more samples than β-BHC

5.1.3 Presence in human Milk

Endosulfan

Baseline data on levels of endosulfan and its isomers obtained from published research reports. Water bodies are the main repositories of most pollutants and rivers are their mode of dispersal. Lake Naivasha lies in a fertile semiarid basin and is the only freshwater Rift Valley Lake in Kenya; the Lake has no surface outlet. Over 50% of Kenya's horticultural industry is located around the Lake. Its main catchment area is located in the Nyandoro and Kananga Ranges (1,730km^2).

Inventory of future production, use, and releases of POPs – requirements for exemptions

Table 224 Activity: Identification of contaminated sites (Annex A, B, and C Chemicals) and, where feasible, remediation in an environmentally sound manner

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs
Identify areas where waste is dumped	GIS mapping	Documented	2024-2029	County	Budget

3.3.16 Activity: Facilitating or undertaking information exchange and stakeholder involvement

i. The Ministry website www.environment.go.keand NEMA website www.NEMA.go.ke contains a wide range of information on what the Government is doing to protect the environment in a range of areas such as chemicals, air quality, soil and contamination and water quality. It includes news on national, and international chemicals policy, Government position statements, advisory committee papers and reports, and developments in research.
ii. NEMA's state of Environment Report is an annual record of pollution in Kenya. One of its main objectives is to provide the public with easily accessible information about pollution from industrial and other sources in their local area and nationally. It records pollution that is released into air, discharged into rivers or the sewerage network, or is transferred off site as waste. It will ensure that every year contains the report for that year.
iii. Multi-media source inventories will be established to provide a more comprehensive assessment of dioxin, PCB and HCB emissions to air, water and land. Kenya Government will to reduce the frequency of monitoring for these pollutants.
iv. The Mount Kenya, baseline station will be included in the monitoring network.

Table 225: . Activity: Facilitating or undertaking information exchange and stakeholder involvement

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.17 Activity: Public and stakeholder awareness, information and education (Article 10)

During the development of the NIP

The Kenya NIP established the following priorities related to the sound management of chemicals:

- Promoting Technology Transfer, Cleaner Production, industry, and civil society participation in POPs management;
- Enhancing Laboratory services, research for monitoring of POPs pollutants and assessment of alternatives to toxic POPs;
- Promoting safer POPs alternatives as suggested by the National Implementation Plan (mostly concerning the use of non-POPs or non-chemical pesticides, alternatives to PBDE flame retardants and alternatives to these processes which are generating POPs)

Despite such important effort being carried out, there were difficulties in the completion of the related activities with special reference to the establishment and enforcement of an integrated chemicals and waste regulation, in particular: guidance on waste classification based on their chemical composition; standards on substances recovered from waste; and sound management of chemical waste.

The Implementation Plan for Kenya (2011-2014) under the Strategic Approach to International Chemicals Management (SAICM) framework had the goal of reducing the identified risks to human health and the environment due to exposure to chemicals. The plan listed specific priority risks and hazardous activities and provided a framework with themes and actions required for addressing risks posed by chemicals. The plan proposed to strengthen national mechanisms such as policies, legislations, commissions, education programs, information networks, etc. to facilitate the implementation of specific chemicals management activities at the national, county and enterprise levels. The SAICM implementation plan recognized that all interventions on chemicals production, import, export, use, transport and disposal as priorities for Kenya.

Efforts towards generating and availing information to stakeholders were hindered by limited cooperation between the information holders and those who needed the information for decision making. Although there were data on chemicals for pollution monitoring and protection of health available to public as well as private sector entities involved in various aspects of chemical risks management, access to the data and its application in chemical management was poor due to their modality of storage and retrieval.

Although basic technical training in various aspects of chemicals risk management and hazard mitigation was available locally at universities and specialized training institutions, a specialized training was missing on chemicals of global concern and related technical infrastructure which require support from the government, development partners, private sector and the civil society.

Table 226: Activity: Public and stakeholder awareness, information and education (Article 10)

Objectives	**Activities**	**Key performance indicators**	**Time Frame**	**Implementers**	**Resources / Needs**

3.3.18 Activity: Effectiveness evaluation (Article 16)

In the period 2017-2023 the UPOPS project has supported development and review of several draft policies, bills and regulations on sound chemicals management and helping Kenya endeavor to reach the SAICM goal that by 2020 chemicals are produced and used in ways that protect human health and the environment. All the draft documents are at advanced stages of enactment, but subject to political processes that are not within the control of the project. The project has managed

to set ground for a multi -stakeholder, multi sectoral approach to managing issues of chemicals and waste management. The project has supported development of a POPS monitoring Protocol and PRTR under outcome 1.2 to enhance monitoring activities for chemicals and creation of PRTR database. The PRTR is in place but not yet operationalized, awaiting gazettement of the draft Kenya toxic and hazardous chemicals and materials management regulations 2018.

Table 227: Activity: Effectiveness evaluation (Article 16)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.19 Activity: Reporting (Article 15)

The National Gap Analysis represents potential shortcomings in existed national Persistent Organic Pollutants (POPs) legislation and initiatives and it has been elaborated to assess the need for further measures for Kenya to ensure its reporting obligations under Articles 07 and 15 under the Convention, as well to improve and correlate it with the information presented in the National Implementation Plan of the Convention.

Since the first National Gap Analysis on POPs issues were done in 2003-2007 during preparing the NIP, requirements set out in the international agreements have changed. The current legislation covers all 24 POPs pesticides, no industrial chemicals, dioxins and furans and partially the new ones. The following have been concluded as priority issues in order to assist Kenya in complying with its updated international obligations:

- All the POPs pesticides are prohibited to be used in Kenya. Additional data shall be collected to seek for alternatives to POPs pesticides used.
- The following chemicals are not yet covered by legislation: Decabromodiphenyl ether (BDE-209) present in commercial decabromodiphenyl ether, Hexabromocyclododecane, Pentachlorophenol and its salts and esters.
- Almost all industrial POPs, except of PCBs, need to be assessed from perspective of use in products and waste of such products. Additional import/export information must be requested, filtered and analyzed.
- WEEE and EEE data is needed to assess using available data in statistics database and in other open sources, such as international trade statistics https://comtrade.un.org.

- Inventory of uPOPs was conducted for PCDD/ PCDF and HCB for the reporting years: 2001, 2004, 2008, 2012, 2016, 2018.
- The inventory of PCBs in transformers and capacitors need to be updated. Proper handling, labeling storage and disposal of PCB containing oil and equipment must be ensured.

Additional knowledge and capacity building for testing, monitoring and promoting of alternatives is needed for the country.

Table 228: Activity: Reporting (Article 15)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.3.20 Activity: Research, development and monitoring (Article 11)

Table 235. Activity: Research, development and monitoring (Article 11)

Table 229: **Monitoring Research and Public Awareness**

	Strategic objective	Activities	Performance indicators	Responsibilities	Budget	
1	Develop capacity for POPs research and monitoring in the country	Procure laboratory equipment for analysis of POPs Train Technical staff to analyses POPs chemicals in environmental and industrials samples. Develop POPs monitoring programme for food	Number of laboratories well equipped to monitor POPs. Number of technicians trained to analyzed POPs. High quality monitoring data on POPs generated.	KEBS, Government Chemist, Universities, KEMFRI, KARI, PCPB, KRA, LVEMP, KEPHIS	5 years	500

		stuff, water, air and biota samples	Number of priority sites and matrices being monitored			
2	Build research capacity for POPs and POPs alternatives	Training of researchers in POPs alternatives. Conduct research on environmentally friendly alternatives for POPs. Commercialize POPs alternatives in the country.	Number of trained POPs experts in the country. POPs research activities on POPs alternatives. Number of POPs alternatives developed	Universities, KEMRI, ICIPE, KARI, NACOST, KIRD	5 years	300
3	Build capacity for information exchange on POPs	✓ Establish POPs information exchange and coordination center. ✓ Provide infrastructure for information exchange. ✓ Establish POPs thematic groups for information exchange. ✓ Conduct POPs awareness workshops.	✓ Information exchange structures in place. ✓ POPs thematic group established. ✓ Information exchange activities on POPs.	NEMA, PCPB, KARI, KEMRI, Universities, Civil society, KIRDI, KEPHIS	2 years	200

4	Build capacity for POPs awareness creation	✓ Develop communication strategy for POPs awareness creation ✓ Develop and disseminate POPs awareness materials. ✓ Develop POPs awareness programmes.	✓ Number of awareness creation activities ✓ Programmes and materials developed ✓ Level of POPs understanding among special groups	NEMA, PCPB, KARI, KEPHIS, DOSH, KIRDI, NGOs, Civil Society,	2 years	100
						1100

3.3.21 Activity: Technical and financial assistance (Articles 12 and 13)

Kenya will continue to participate in international assessments of POPs and plays an active role to input into the work of technical committees under both the Stockholm Convention

i. Article 12 requires Parties to recognize that rendering timely and appropriate technical assistance in response to requests from developing country Parties and Parties with economies in transition is essential to the successful implementation of the Convention.

ii. Much of Kenya's regional and bilateral development assistance is focused on helping developing countries to mainstream sound management of chemicals including POPs in poverty reduction strategies and development assistance. The principal routes for providing assistance to developing countries and countries with economies in transition.

Table 230: Activity: Technical and financial assistance (Articles 12 and 13)

Objectives	Activities	Key performance indicators	Time Frame	Implementers	Resources / Needs

3.4 Development and capacity-building proposals and priorities

Subchapter 3.4 would detail the priority areas where current capacity and capability need to be strengthened to achieve the objectives of the NIP. Priorities based on the need to meet Convention obligations and country priority issues would be highlighted.

- Awareness created through workshops and seminars immediately after ratification
- Training and research need done during the development of the NIP
- Training materials for chemicals developed
- Training material for organic waste developed
- Training materials for sound management of organic waste developed
- Training done for water quality analysis
- Training with new GC MS equipment
- Training done for incinerators, for Stockholm Convention Compliant Incinerators
- Many training workshops and seminar's
- Many officers trained in the universities, waste Institute Pretoria, Basel Convention Nigeria, Sweden, Geneva, Japan etc.
- Curriculum developed

Table 231: Development and capacity-building proposals and priorities

Priority area	Capacity building proposal	Remarks

3.5 Timetable for implementation strategy and measures of success

This subchapter would summarize the principal targets contained in the detailed strategy, outlining specific targets, milestones, and performance indicators to allow progress to be reviewed and monitored.

Identified priority action plans included:

- Disposal of contaminated soils in an ESM;
- Promotion of awareness of pyrethrum alternatives to DDT;
- Commercial development of alternatives to DDT;

- Identification and labelling equipment with PCBs higher than 50 ppm;
- Introduction of BAT/BEP to minimize U-POPs emissions;
- Education and awareness on all POPs;
- Capacity building at ENR, MOH, NEMA, PCPB, GC;
- Mobilizing resources to prepare and implement the NIP; and
- Dissemination of research findings through sector specific symposia, workshops and seminars.

The following actions are included in the NIP in respect to DDT to be achieved in the first 3 years:

- Conducting of pilot projects using alternatives to DDT in specific areas and subsequent assessments;
- Applying non-chemical methods for eradicating mosquitoes, such as biological control, in some areas for several seasons followed by assessments of efficacy;
- Improving of socio-economic conditions in malaria prone areas to obviate environmental circumstances that encourage mosquitoes to breed;
- Strengthening research on pesticides with lower persistence;
- Improving/strengthening Kenya's farming and public health practices with administrative/legal enforcement mechanisms for the management of DDT and its alternatives. vi) Monitoring DDT presence in biological samples and assessing the health impact on the population;
- Looking into ways of coping with adaptation mechanisms of malaria vectors to avoid the use of DDT;
- Promoting environmental management alongside the introduction of alternatives;
- Promoting IVM, while taking account of the fact that mosquitoes have synchronized habits with preventive measures; and
- Considering the economic and other effects of DDT reintroduction in Kenya.

Table 232: Timetable for implementation strategy and measures of success

Objective	**Action/activity**	**Key performance indicators**	**Time frame**	**Remarks**

Resource requirements

Subchapter 3.6 would detail the projected costs of measures included in the NIP. Incremental costs for measures would be identified and potential sources of funding for both incremental costs and baseline costs would be noted. In accordance with Article 13 of the Convention, alternate sources of funding would be considered, as appropriate, by countries that are seeking development assistance.

As the MEF implements the strategic plan, it recognizes the critical role that the communities and the CBOs play in joint natural resource management. The Ministry will intensify public awareness and sensitization on the projects and services it is providing in the country. The ministry will develop stronger environmental indicators with real assessment, to show contribution of environmental resource base to overall GDP, the funding Sources to be utilized for NIP will include;

- National public budgets;
- Bilateral development assistance agencies;
- Multilateral dev. assistance agencies including specific environment funds;
- Basel Convention Technical Coop. Trust Fund;
- Funds, foundations, NGOs, charities;
- Corporate sector participation

Resources

Article	***Nature of provision***			***Resources needed for 2022–2019 (000US$)***			***Grand total***
				Baseline	*Incremental*	*Total*	
3 and 4	Intentionally produced POPs	Pesticides	Annex	0	1400	7006	700
			Annex	0	574	574	574
		Industrial chemicals	Annex	0	27	27	54
			Annex	0	20	20	40
5	Unintentionally		Annex	70	300	370	740
6	Stockpiles and wastes			0	10	10	20
6.1 (e)	Contaminated sites			10	30	40	80
7	Implementation plans			0.5	50	50.5	107
8	Listing of new chemicals in			0.5	0.5	1.0	2
9	Information exchange			0.5	200	200.5	401
10	Public information, awareness			5	200	225	430
11	Research, development and			0	800	900	1700
12	Technical assistance			0	150	150	300
13	Financial assistance			0	0.1	0.1	2
15	Reporting			0	10	10	20
16	Effectiveness evaluation			10	90	100	200
Total					**3221.6**	**3438.1**	**5849**

Table 233: Resource requirements for NIP implementation

Objective	**Action/activity**	**Source of funding**	**Baseline costs**	**Incremental costs**	**Remarks**

ANNEXES

Annexes could be used to provide detailed background data and information, specific action plans, and other relevant information to meet the objectives of the NIP while keeping the main document clear and simple in structure. Such annexes might include:

A1: Government and key stakeholder endorsement documents
A2: Record of stakeholder and public consultation is the workshop report
A3: Representative public information materials
A4: Supporting information on chemicals
A5: Details of relevant international and regional treaties
A6: Country history in addressing the POPs issue/status of Convention implementation to date