



REPUBLIC OF RWANDA
**RWANDA ENVIRONMENT
MANAGEMENT AUTHORITY
(REMA)**



**UPDATED NATIONAL
IMPLEMENTATION PLAN OF THE
STOCKHOLM CONVENTION ON
PERSISTENT ORGANIC
POLLUTANTS**

Kigali, 2016

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LIST OF ACRONOMS

α -HCH	: Alpha hexachlorocyclohexane
β -HCH	: Beta-hexachlorocyclohexane
BAT	: Best Available Techniques
BCF	: Bioconcentration factor
BEP	: Best Environmental Practices
CRTs	: Cathode Ray Tubes
CS	: Capsule Suspension
DDT	: Dichlorodiphenyltrichloroethane
DP	: Data Processing
DRC	: Democratic Republic of Congo
E U	: European Union
EAC	: East African Community
EEE	: Electrical and Electronic Equipment
EPA	: Environmental Protection Agency
ESM	: Environment Sound Management
FAO	: Food and Agriculture Organization
FONERWA	: National Fund of the Environment in Rwanda (FONERWA)
HBB	: Hexabromobiphenyl
HBDE	: Heptabromodiphenyl ether
HCH	: Hexachlorocyclohexane
IARC	: The International Agency for Research on Cancer
ICK	: Institut Catholique de Kabgayi
IEC	: Information Education and Communication
INATEK	: Institute of Agriculture, Technology and Education of Kibungo
INEAC	: Institut National des Etudes Agronomiques du Congo
INES	: Institute of Applied Sciences
IOV	: Indicators objectively verifiable
ISAR	: Institut des Sciences Agronomiques du Rwanda
KBS	: Kigali Bus Services
$\log K_{O/w}$: logarithm of partition Coefficient between Octanol and water
MIFOTRA	: Ministry of Public Services and Labour
MINAGRI	: Ministry of Agricultural and Animal Resources
MINALOC	: Ministry of Local Government
MINECOFIN	: Ministry of Finance and Economic Planning
MINEDUC	: Ministry of Education
MINICOM	: Ministry of Trade and Industry
MINIJUST	: Ministry of Justice
MININFRA	: Ministry of Infrastructure
MINIRENA	: Ministry of Natural Resources
MoH	: Ministry of Health

NAEB	: National Agricultural Export Development Board
NGOs	: Non-Governmental Organizations
NIP	: National Implementation Plan
NIRDA	: National Industrial Research and Development Agency
PBBs	: Polybromobiphenyls
PCBs	: Polychlorinated biphenyl
PCDD	Polychlorinated dibenzo- <i>p</i> -dioxins
PCDF	Polychlorinated dibenzofurans
PeCB	: Pentachlorobenzene
PFOS	: Perfluorooctane sulfonate
PFOSA	: Perfluorooctane sulfonic acid
PIC	: Prior Informed Consent
POPs	: Persistent Organic Pollutants
PP	: Powder to be Powdered
PSF	: Private Sector Federation
RAB	: Rwanda Agricultural Board
REG	: Rwanda Energy Group
REMA	: Rwanda Environmental Management Authority
REU	: Rwanda Economic Update
RGPH	: Rwanda General Population and Housing
RNP	: Rwanda National Police
ROR	: Retinoic Acid Receptor
RRA	: Rwanda Revenue Authority
RSB	: Rwanda Standards Board
RSB	: Rwanda Standards Board
RURA	: Rwanda Utilities Regulatory Agency
SOPYRWA	: Société de Pyrèthre au Rwanda
TV	: Television
ULK	: Université Libre de Kigali
UNEP	: United Nations Environment Programme
UPOPs	Unintentional Persistent Organic Pollutants
UR	: University of Rwanda
WEEE	: Waste Electrical and Electronic Equipment
WHO	: World Health Organization
WP	: Water Powder
WSH	: World Standard Harmonization


FOREWORD

Environmental governance is one area where the Government of Rwanda and her partners have an impressive progress. The national efforts and commitment to promote environmentally sustainable development in Rwanda have received recognition at both regional and international levels. The Rwanda's commitment to the international environmental agreements, especially the Stockholm Convention on Persistent Organic Pollutants (POPs), is reflected through development and implementation of National Implementation Plans and domestication of the Convention into national regulation.

In its efforts to manage and dispose PCBs, Rwanda ratified the Stockholm Convention in 2002. To meet its obligations provided for by article 7 of the Convention, Rwanda deposited his first National Implementation Plan (NIP) of the Stockholm Convention on Persistent Organic Pollutants (POPs) in May 2007. The development of the updated NIP in 2016 constitutes a complementary expression of Rwanda's willingness to bring corrective measures to the process of sustainable development within the framework of the Economic Development and Poverty Reduction Strategy (EDPRS II) as well as country's Vision 2020.

I take the opportunity to thank Rwandan public and private institutions, all those that have agreed to release their valuable staff to participate in the inventory of Persistent Organic Pollutants at national level and finalization of the updated National Implementation Plan of the Stockholm Convention, and I urge them to continue this spirit to achieve our sustainable development goals.

Thanks of Rwanda Environment Management Authority (REMA) are especially intended for the United Nations Industrial Development (UNIDO) and Global Environment Facility (GEF) to have granted necessary funds without which this NIP of the Stockholm Convention could not have come out.


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EXECUTIVE SUMMARY

Rwanda is facing major problems in regards with the environment management where pressures from the growing population on the natural resources such as land, water, flora and fauna and other non-renewable resources (MFEP, 2000). This is most evident in land degradation, soil erosion, decline in soil fertility, deforestation, wetland degradation, loss of biodiversity and pollution (ROR, 2004), therefore, it is in this regards that the Republic of Rwanda established the Institution namely Rwanda Environmental Management Authority (REMA) in April 2006 with the law n^o 016/2006 determining its mission, functioning and responsibilities.

The protection and management of the environment are among pillars of the vision 2020. The objective of the Government of Rwanda is that, by 2020; it will have built a nation in which pressure on natural resources, particularly on land, water, biomass and biodiversity has significantly reduced and the process of environmental pollution and degradation has been reversed; a nation in which the management and the protection of these resources and environment are more rational and well regulated in order to preserve and bequeath to future generations the basic wealth necessary for sustainable development

Indeed, considering the above environmental Challenges, the country wishes to overcome them by a joint-Action policy for a long-term solution by collaborating with other Countries and International Organization. Rwanda is a party to the Stockholm Convention on Persistent Organic Pollutants (the Convention) and as part of its commitment to the Convention; Rwanda government has drafted a National Implementation Plan in 2007 that outlines its programs to meet its obligations under the Convention. The objectives of the plan were to address the specific issues on POPs in the country. From since, the drafted NIP was implemented through intervention of different stakeholders; it is in this regard that an assignment of evaluating, updating as well as considering the 9 new POPs in the country plans was conducted.

During its preparation, four components namely: (a) evaluation of the progress in the implementation of the NIP drafted in 2007 and the current practices toward the convention compliance (b) assessment of the current status of the new POPs in Rwanda and (c) identification of the new POPs key stakeholders, (d) Capacity and Needs Assessment for the Implementation of the Convention

The writing of the National Implementation Plan was founded on the output from the above studies and from relevant comments and inputs received from public consultations and ministries. In addition it is linked to initiatives and convention such as the Basel convention to ensure maximum efficiency and reduce duplication of effort. The entire

draft of National Implementation Plan (NIP) for the Stockholm Convention on POPs will be discussed and presented to the stakeholders before its final approval.

Since the ratification of the convention, the country has realised a good number of activities such as the elaboration of the guidelines for PCBs management, training of secondary school and primary school students, establishment of incinerators across the country, inventory of POPs pesticides in the country, prohibited the entry of plastic bags in the country, stopped the bushfire and other anarchic burning, promoted alternative options to replace the wood fire, a coordination team for the convention implementation as well as a steering committee made of representatives from various government agencies and non-government agencies who have direct and indirect involvement in the management and control of chemicals in Rwanda to address the problem of POPs. All these achievement were guided by the following country action plans

- Institutional and regulatory strengthening measures
- Production, use, stockpile and waste of POPs pesticides
- Production, use, stockpile and waste of DDT
- Production, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs
- Release from unintentional production of PCDDs / PCDFs / PCBs, HCB and PCBs
- Identification of contaminated sites
- Monitoring and research development

Despite these achievements, the confrontation of the current situation to the convention requirements proved that there are more priorities that the country must address for both old and new POP. The following are priorities for old POPs:

- ❖ Conduct yearly national inventory of pesticides used in the agriculture sector, obsolete pesticides included;
- ❖ Evaluation and Popularization of Alternatives to POPs pesticides adapted to the local context;
- ❖ Stockpiles of obsolete pesticides assembled and secured; and evacuated for elimination,
- ❖ Availability of database of identified contaminated sites by Pesticides;
- ❖ Security of identified contaminated sites by pesticides and sensitization of the surrounding communities;
- ❖ Rehabilitation of identified contaminated sites containing POPs pesticides and obsolete pesticides;
- ❖ Institutional arrangements and Inter -Sectoral Collaboration for better monitoring of pesticides management.

And for new POPS the following priorities were identified:

- ❖ Establishment of a data acquisition system that should avail reliable data timely.

- ❖ Lack of understanding and knowledge on NEW POPs
- ❖ Management and disposal of POPs-contaminated articles (NEW POPs containing wastes)
- ❖ Monitoring and surveillance of health status relevant to potential impacts of NEW POPs.
- ❖ Identification of contaminated sites;
- ❖ Setup mechanisms to reduce and control the release of UPOPs
- ❖ Strengthening of the current regulatory and institutions framework
- ❖ Establishment of guidelines for NEW POPs wastes management, including the reuse, recycling

- ❖ Publication of research data of NEW POPs to increase the public awareness

The analysis of the above priorities led to the formulation of country actions plans for the updated NIP that were divided into three categories (common action plans for both old and NEW POPs, action plan specific to old POPs and action plans specific to NEW POPs) as illustrated in the table below.

Categories of Action plans	Number of action plans	Action plan
Common action Plans for both NEW and old POPs	1	Institutional and regulatory strengthening Measures;
	2	Release from unintentional production of PCDDs/PCDFs/PCBDs, HCB AND PCBs (SC Annex C)
	3	awareness
	4	Monitoring and research development
	5	Reporting
Action plans specific to old POPs	6	Production, use, stockpile and waste of POPs pesticides (SC-annex A and annex B)
	7	Production, use, stockpile and waste of DDT (SC annex B)
Action plans specific to NEW POPs	8	Production, use, stockpile and waste of new industrial POPs (SC annex A and annex B)
	9	Production, use, stockpile and waste of new POPs pesticides (SC Annex A and annex B)
	10	Release from unintentional Production of new POPs (SC annex C)

The financial analysis for the implementation of the formulated NIP estimated a total cost of **.Fourteen Million thirty one thousand Dollars (14, 031,000...USD)** equivalent to **Eleven Milliard two hundred twenty four Million eight hundred thousand Rwandan Francs (11,224,800,000 Rwf)**

CHAPTER I: GENERAL INTRODUCTION ABOUT COUNTRY

1.1. Country background

The Republic of Rwanda became a Party to the Stockholm Convention in order to work in liaison with the International Community to tackle problems arising from the persistent organic pollutants (POPs). The Stockholm Convention is a legally binding treaty which Rwanda ratified on 4 June 2002. It constitutes one of the significant answers of the International Community in fighting against harmful effects both for human health and environment. The rejections of POPs are a factor of aggravation of poverty in developing countries and hinder the governments' efforts for a sustainable development.

To meet its obligations provided for by article 7 of the Convention, Rwanda carried out inventories of POPs pesticides, Polychlorinated Biphenyls (PCBs) and dioxins and furans in 2005. The analysis of the situation revealed that except dioxins and furans which are unintentional POPs, Rwanda never produced or reformulated the POP pesticides or industrial products. However, the POPs pesticides have been imported for use in agriculture and public health, potentially contaminating exposed sites and a certain number of storage warehouses. Likewise industrial POPs such as the PCBs were imported in industrial plants of which some are still operational in the sector of electricity production and distribution.

The development and approval of the First National Implementation Plan (NIP) of the Stockholm Convention in 2007, constituted a complementary expression of Rwanda's willingness to bring corrective measures to the process of sustainable development within the framework of Vision 2020. This willingness was also confirmed by the promulgation of the Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda, by the establishment of the Rwandan Environment Management Authority (REMA) in 2006 and the ratification of relevant international conventions.

In 2007, the first NIP has taken into account the twelve chemical substances regulated by the Stockholm Convention on Persistent Organic Pollutants (POPs), and from 2007 to 2012, nine new chemical substances have been added to the list of POPs. Parties of the Stockholm Convention have the obligation to update their National Implementation Plan.

Reference is made to the above mentioned, Rwanda has initiated the project proposal titled **‘Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants’** and submitted it to the Global Environment Facility (GEF) through the United Nations Development Organization (UNIDO), the project have been approved in March 2013. Rwanda Environment Management Authority (REMA) is the National Implementing Agency of

the project and the United Nations Industrial Development Organization is the GEF Executing Agency.

The above project has the following four components:

1. Establishment of a coordination mechanism and awareness raising ;
2. Inventory of POPs (including new POPs) and review of the National Implementation Plan (NIP);
3. Assessment of National capacity and setting of priorities for management of POPs;
4. Formulation of the National Implementation Plan, endorsement and submissions.

Rwanda Country like a nation that abides on the process of accelerating sustainable green economy coupled with green environment establishes different policies about public awareness in order to protect and ensure safe environment. However, the use of chemicals in different activities such as agriculture, medicine, waste disposal, infrastructure contribute significantly in polluting the environment, therefore, a regular monitoring, inventory and update about potential hazardous amongst persistent organic pollutants (POPs) is imperative. It is in this regard that Rwanda Environmental Management Authority (REMA) signed and abided on International policies that stress the Management of POPs through Stockholm convention.

The Stockholm Convention is a multilateral environmental agreement that establishes the commitment of signatory parties to protect human health and the environment from the risks posed by persistent organic pollutants (POPs). Although initially developed for a list of twelve of these chemicals - aldrin, endrin, DDT, dieldrin, chlordane, mirex, toxaphene, heptachlor, hexachlorobenzene, polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDDs/PCDFs), the Convention established long-term objectives, including the possibility of listing additional POPs that would be subject to international obligations to reduce or eliminate production and use. Reason why nowadays other nine (9) NEW POPs were added to the list by the fourth conference of parties that took place on May 2009. Amongst, there are lindane (γ -HCH), α -hexachlorocyclohexane (α -HCH), β -hexachlorocyclohexane (β -HCH), chlordane, pentachlorobenzene, hexabromobiphenyl (HBB), perfluorooctane sulfonic acid (PFOS) and its salts and perfluorooctane sulfonyl fluoride (PFOS), tetrabromodiphenyl ether and pentabromodiphenyl ether hexabromodiphenyl ether and heptabromodiphenyl ether (HBDE). Later, endosulfan was added on the list upon recommendation of the fifth conference parties by May 2011 while hexabromocyclododecane (HBCDD) was added by the sixth conference of parties since May, 2013.

Indeed, gathering information to determine the status of the new POPs at a national level can be a challenge, considering the diversity of information required and the possibility that it might not be readily available. Reason why an inventory is necessary in order to update, therefore a documentation about their structure, physical properties, background, uses and environmental health impact.

Information collected through national surveys will be integrated to create a chemical profile that is an evaluation of the current situation of each of the new POPs. This profile can then be one of the main inputs for NIP update. Such an evaluation includes the following information:

- i. Type of use(s) and name of commercial products
- ii. Production data (quantity and location)
- iii. Import and export data (quantity)
- iv. Main producers and importers including materials that contain POPs.
- v. Main regulations
- vi. Releases to the environment (e.g. inventories)
- vii. Monitoring and exposure data
- viii. Available alternatives

1.2. Rwanda reference data / Country baselines

In order to understand the Rwanda concept in terms of management of persistent organic pollutants (POPs), there is first of all a concern of understanding the country situation in different aspects such as Geography, population, economy and climate change.

1.3. Geography

The country of Rwanda is situated in central Africa in the Great lakes region. It is also located under south Equator between latitude 1° 4' and 2° 51' S and longitude 28° 45' and 31° 15' East. Rwanda has a surface area of 26,338 km² of which land occupies 24,668 km² (about 97%) while water occupies 1,670 km² (about 3%). Rwanda is bordered by Uganda to the North (for 169 km), Tanzania to the East (217km), Burundi to the South (for 290 km) and Democratic republic of Congo to the West (for 217 km).

Rwanda is a landlocked country situated in central Africa. Also known as 'the land of a thousand hills', Rwanda has five volcanoes, twenty-three lakes and numerous rivers, some forming the source of the River Nile. The country lies 75 miles south of the equator in the Tropic of Capricorn, 880 miles 'as the crow flies' west of the Indian Ocean and 1,250 miles east of the Atlantic Ocean - literally in the heart of Africa. The loveliness and variety of the landscapes in this 'green country' is dominated to the north by volcanoes and bordered by Lake Kivu to the west. In Rwanda the great animals of the wild are protected from poachers and roam free in the vast national parks. The Volcanoes National park in the Virunga volcanic mountains with its high altitude forests, are world famous for mountain gorillas while Lake Kivu to the west collects water from different rivers to the Congo basin while rest of water rivers are collected toward Nil Basin.

Rwanda's relief presents varieties. From East to West, the altitude varies from 1000 m to 4500 m with elevation extremes that are remarkable: 950 m at Rusizi River (lowest) and 4519 m at Karisimbi Volcano (highest). The setting of this relief is composed mainly in the eastern by lowlands(1000-1500 m of altitude), in the centre by hills namely central plateau(1500 m-2000m) while the eastern is dominated by high mountains known as Congo-Nile ridge(2500 m-3000m). In the north-western, there is also a set of five volcanoes that attract different biodiversity.

Climate-which is a challenge for most countries since it dictates economical activities, Rwanda experiences a temperate climate which is characterized by two rainy seasons (from February to mid-may and from November to January), mild in mountains with frost and snow possible.

Regarding natural resources, they are not enough but there is exploration trend for prospection of NEW ones though some of the following were identified and exploited: Gold, cassiterite (tin ores), wolframite (wolfram ores), methane, hydropower, and arable land. Regarding management and use: Arable land is (46.32%); permanent crops (9.49%) and others (44.19%) by 2011. Irrigated land (96.25 km²) by 2007 while total renewable water resources was 9.5km³ (2011). Freshwater withdraw (domestic/industrial/agriculture) is 0.15 km³ per year (33%-11%-55% respectively). Based on climate variability for some factors, it is possible to occur natural hazards such as periodic droughts, the volcanic activity and earthquake at low level (volcanoes are in the northwest along the border with DRC) with the only one volcano (Bisoke) which may be active.

1.4. Population

The average annual percent change in the population, resulting from a surplus (or deficit) of births over deaths and the balance of migrants entering and leaving a country. The rate may be positive or negative. The growth rate is a factor in determining how great a burden would be imposed on a country by the changing needs of its people for infrastructure (e.g., schools, hospitals, housing, roads), resources (e.g., food, water, electricity), and jobs. Therefore, in order to accelerate a sustainable "green economy" that should be coupled with "green environment".

According to the fourth Nation population and housing census of 2012 affected by National Institute of Statistics of Rwanda, the population of Rwanda is estimated to be 10,515,933 inhabitants while it was 10,412,820 inhabitants in 2010. The population of Rwanda increased steadily and rapidly, from 4,831,527 to 7,157,551 inhabitants in 1991 and to 8,128,553 inhabitants in 2002. The increase was essentially due to rapid population growth. The 2002 Rwanda General Population and Housing (RGPH) census estimated the natural growth rate at 2.6% and the fertility rate at 5.9%. The rate of increase declined significantly to 1.2% between 1991 and 2002. The decline which resulted from the deaths

of more than one million in the Genocide of Tutsis compared to a 3.1 % decline between 1978 and 1991. The population density is high across the country and has increased steadily to 395 inhabitants per square kilometers in 2010, as compared with 321 in 2002; 283 in 1991 and 191 inhabitants per square kilometers in 1978. The majority of the population is young (42.3%) of all Rwandans are less than 15 years while considering sex-distribution, 51.7% are women while 48.3% are men. Large populations are centred in major cities especially in Kigali city (3 districts: Nyarugenge, Gasabo and Kicukiro) with 1,135,428 people with a density of 1,556 inhabitants per sq.km among them Gasabo is the most populated with 530,907 people. Actually the Rwanda population is estimated to be around 11.2 million by the end of 2015.

1.5. Political and economic Profile

The four geographic regions of the country are administratively subjected to provinces that are Southern Province, Northern Province, Eastern Province and Western Province and Kigali city. The country has 30 districts and 416 sectors; 2,148 cells and 14,387 villages (Imidugudu). The official languages used are Kinyarwanda (national local language), English and French. Executive authority is vested on the President of the Republic of Rwanda. Legislative authority is based on the Parliament, which consist of the Senate and the House of the representative of Deputes, except to the extent reserved to the people by provision on initiative and referendum as it is stipulated in the constitution elected by the population in 2003. The senate is composed of 26 members of which 12 are elected nationwide (province), 8 nominated by the president, 2 representing high learning institutions and Universities (1 for public and 1 for private in ratio) and 4 representing forum of political parties. For the chamber of Deputies, it is composed of 80 sites that are elected nationwide for a 5 years mandate.

In Rwanda, regular efforts have been made to develop the service sector and to stimulate the investment in the industrial sector. These efforts are now bringing positive results, as the service sector has contributed more than the agricultural sector to the economy in recent years and are expected to continue in the coming years as the county prioritizes it and campaigns population to deliver an outstanding service in any sector. Although the agricultural sector appears to have been overtaken by the service sector, it still employs many Rwandans as it was published in 2002 RGPHC-4, about 80% of the population belongs to the agricultural sector. However agriculture sector faces many challenges including production dominated by small farming operations of less than one hectare, rudimentary techniques and a low rate of investment. The introduction of agrarian reforms in agricultural such as land consolidation; regionalize crops, use of fertilizers (organic and industrial) and insecticides in crop improving and protection.

In the Rwanda Economic Update (REU) launched on 28th August 2014, the World Bank forecasts an economic growth rate of 5.7% in 2014 and 6.6% in 2015. Rwanda's growth slowed to 4.7% in 2013, the lowest growth since 2003, due to the aid shortfall in the

second half of 2012 and resulting delays in budget expenditures. In 2014, the expansion of the services sector contributed to a recovery of growth rate to 7.4% in the first quarter of 2014. Growth slowdown in 2013 reveals structural bottlenecks in Rwanda’s economy. The contraction of domestic demand was offset by positive external demand. Investments in mining in the past few years and favorable international commodity prices contributed to the sharp increase in mineral exports, which accounted for 40 percent of the total goods exports in 2013. *“The lagged effect of the aid shortfall to the economy was extended to the second half of 2013, decelerating both public and private sector activities. In addition to GDP growth rates, turnovers of services and industries have been picking up.*

As of 2013, The GDP by sector is heavily dominated by service sector (53.3%), agriculture (31.9%) and industry (14.8%) while in 2010, the service contributed 47% in the GDP, 32% from agriculture, 15% from industries and the reminder(6% from Financial Intermediation Services Indirectly Measured (FISIM) and taxes. Agriculture products are coffee, tea, pyrethrum (an insecticide “pyrethrin” is made from chrysanthemums), bananas, potatoes, sorghum, beans, etc. Regarding industries, the main industries are cement industry, agricultural products processing industry, small and large-scale beverage industries, soap industries, furniture, shoes, plastic industry, textile and cigarettes. Export commodities (coffee, tea and tin, wolfram, COLTA) are few compare to import commodities that are mainly dominated by foodstuffs, machinery and equipment, steel, petroleum products, cement and construction.

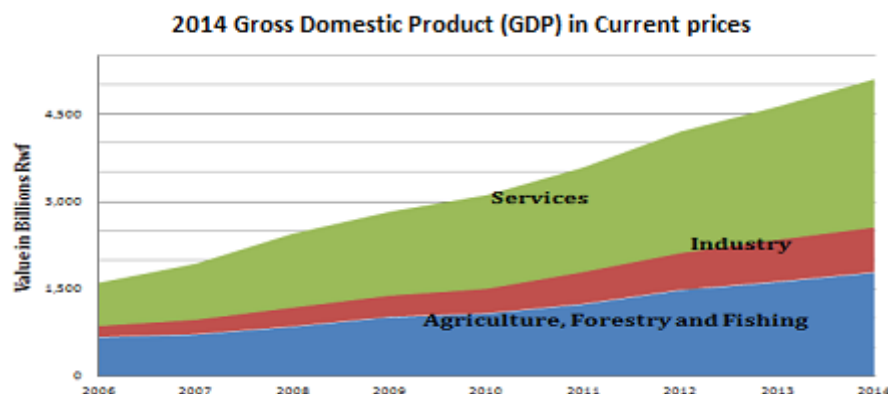


Figure 1: GDP of Rwanda in 2014 (Source: NISR)

As of 2012, the market of Rwanda is composed of the following main export-partners are Kenya 30.5%, Democratic Republic of the Congo 12.2%, China 12.1%, Malaysia 10.7%, US 5.8%, Swaziland 4.9% (2012) while the main import-partners include but not limited Kenya 30.5%, Democratic Republic of Congo 12.2%, China 12.1%, Malaysia 10.7%, US 5.8%, Swaziland 4.9% (www.theodora.com/rwanda_economy). Energy as one of the crucial indicators of economy of the country constitutes a big challenge because of the inadequate and higher costs. Only 47.2% comes from hydropower plants as produced within the country while 52.4% comes from exported fossil fuels and 0.4% is electricity from renewable sources. Rwanda does neither produce nor import nuclear energy, natural

gas. However, natural gases like methane were proved to be available in Kivu lake (about 56.63 billion of m³) and are under processing of exploitation.

Based on the above mentioned economical activities, the sectors that are potentially considered as sources of POPs chemicals and are therefore deemed as possible beneficiaries of any strategy, that should be included in the NIP. However, some of these sectors are major elements of the national economy while others are activities or even side effects of certain industrial and non-industrial processes. Amongst these, there are farms (POPs pesticides, dioxins and furans during open burning), agriculture (POPs and pesticides), electric utilities (power transmission, transformers, and distribution (PCBs, dioxins and furans), iron and steel industries (dioxin and furans), cement manufacturing industry, wastewater treatment plant, foam industries and furniture industries, hospitals, etc.

1.6. Environmental Rwanda profile

Awareness of environmental issues in Rwanda goes back to the colonial period when actions aimed at the protection and the conservation of the environment was undertaken at different periods. Indeed, reforestation started in 1920; thereafter, there were created Natural forest of Nyungwe as a reserve forest (1933), Volacano National Park and Akagera National Park (1935). These environmental friendly initiatives were also supported by a vast campaign for soil conservation initiated by INEAC (Insitut National des Etudes Agronomiques du Congo) later known as ISAR (Institut des Sciences Agronomiques du Rwanda) since 1937 before with mission of research, then research dissemination to the whole population in order to improve agriculture.

After the independency and particularly since 1977, action programs of an environmental nature were launched under annual themes such as Human Settlements (1977); stockbreeding (1978), soil protection and conservation (1980), water supply in rural areas (1981), erosion control (1982), reforestation (1983). Also, in 1983 a division of Hygiene and Environmental sanitation was created in the Ministry of Health and Social affairs. The first national seminar about Environment was organized in 1985.

The 1994 Genocide of Tutsis brought to a standstill the initiatives that had been launched and they were reviewed by the Government of National Union and were committed to ratify the following Environmental-International conventions and agreements, therefore a party in order to minimize the pollution of water, air and soils and accelerate sustainable green economy coupled with green environment:

- i. Biodiversity (1995),
- ii. United Nations Outline on climatic changes (1998),
- iii. United Nations convention on desertification (1998),
- iv. Endangered species, hazardous waste,
- v. Vienna Convention on ozone layer protection (2001),

- vi. Ramsar convention on wetlands (2003),
- vii. Stockholm convention on Persistent Organic Pollutants (POPs, 2002),
- viii. Convention on the conservation of Migratory species of Wild Animals (2003),
- ix. Convention on the prior Informed procedures for certain hazardous chemicals and pesticides in international trade (2003),
- x. Basel Convention on control of trans-boundary movements of hazardous waste and their disposal (1992)
- xi. Climate change-Kyoto protocol (July 2004)

The major problems facing the environment are pressures from the growing population on the natural resources such as land, water, flora and fauna and other non-renewable resources (MFEP, 2000). This is most evident in land degradation, soil erosion, decline in soil fertility, deforestation, wetland degradation, loss of biodiversity and pollution (ROR, 2004), therefore, it is in this regards that the Republic of Rwanda established the Institution namely Rwanda Environmental Management Authority (REMA) in April 2006 with the law n^o 016/2006 determining its mission, functioning and responsibilities.

The protection and management of the environment are among pillars of the vision 2020. The objective of the Government of Rwanda is that, by 2020; it will have built a nation in which pressure on natural resources, particularly on land, water, biomass and biodiversity has significantly reduced and the process of environmental pollution and degradation has been reversed; a nation in which the management and the protection of these resources and environment are more rational and well regulated in order to preserve and bequeath to future generations the basic wealth necessary for sustainable development. Indeed, it is expected that the rate of diseases related to environmental degradation and pollution would be reduced by 60% and the share of wood in national energy balance reduced from 94% to 50% because Carbon dioxide release from energy consumption is estimated about 865,100Mt in 2011. One of the greatest effects of carbon dioxide is an acid rain deposition, global warming and green house.

This will be achieved by the application of the laws and regulations, the adoption and dissemination of the environment friendly technologies will constitute a high priority for the central and local authorities. However, this cannot be achieved if the management of the POPs with emphasis of the nine new POPs is strengthen by controlling their trade, import, assessment, inventory, identification of contaminated sites if any, evaluate of their environmental health effect.

1.7. Natural resources and biodiversity

In Rwanda, land is a resource of inestimable value. It is amongst the first-place in the national economy since farming employs more than 80 % of the working population and contributes in exports. However, out of 26,338 km², 52% is usable, representing approximately 1,385,000 hectares while marshes suitable for agriculture would add to this about 165,000 hectares, therefore, land is a limited, hence a coveted resource.

Regarding natural resources, they are not enough but there is exploration trend for prospection of new ones though some of the following were identified and exploited: Gold, cassiterite (tin ores), wolframite (wolfram ores), methane gas, hydropower and arable land. For the management and use: Arable land (46.32%); permanent crops (9.49%); others (44.19%) by 2011. Irrigated land (96.25 km²) by 2007 while total renewable water resources was 9.5km³ (2011). Freshwater withdraw (domestic/industrial/agriculture) is 0.15 km³ per year (33%-11%-55% respectively).

Rwanda's wetlands consist of marshes (6.3%), lakes and rivers including other water spring represent 8.6%. In the high altitude regions of the north west are found lakes Burera and Ruhondo and the marshes of Rugezi while in the central and eastern parts of the country, there are big marshes of Nyabarongo that collect water from Nyabugogo (a river that collects water from Kigali city including wastewater disposed of from industries, hostels without being treated), *Akanyaru* and *Akagera*. Several deep lake basins communicate with these rivers and most of them are found in the Akagera National Park. From south-East to North-West, there are lakes such as *Cyohoha(South)*, *Mugesera*, *Rweru*, *Sake*, *Ihema*, *Mihindi*, *Rwanyakizinga*, etc.

Wetlands, have several functions and provide numerous employment and services to people, some of which are food (fishes), flood water control and replenishing groundwater, therefore they constitute a biological diversity reservoirs if they are not polluted. Due to the fact that reservoirs, it is necessary import to control their pollution level with strong emphasis to POPs since they are mostly used in agriculture and farming activity developed within the wetland or around, so they are potentially sources of accumulation of POPs. Not only wetland can accumulate POPs, but also rivers and lakes can contribute significantly in transporting pollutants if they are polluted. The most affected part of the ecosystem is the aquatic living organism that will contaminate others through food web. Therefore, use of chemical fertilizers and pesticides in wetland area should be properly done and monitored, regulated with the purpose of avoiding use of pesticides that are prohibited by the government of Rwanda. Even though, there is no specific proved evidence of wetland or river/lake/spring water that was contaminated by POPs, it is better to start investigation about some rivers in order to raise awareness to the country.

Biodiversity of Rwanda is rich and varied. There is a variety of plant and animal species, some of which appear on the list of internationally protected species by Washington convention commonly known as CITES (Convention on International trade of Endangered Species):

- (i) In the National forest of Nyungwe, there are 1250 plant species, including 50 fodder species, 133 orchids, 275 bird species, 24 of which are endemic.
- (ii) In the Volcanoes National Parks, there are 245 species of plants, 13 of which are internationally protected orchids, 115 species of mammals, including the mountain gorillas estimated at more than 650, 187 species of birds, 27 species of reptiles and amphibians, 33 species of arthropods.
- (iii) In the Akagera National Park, there are 900 species of plants including 6 orchids, 500 species of birds, 9 species of amphibians, 23 species of reptiles.
- (iv) In the gallery forest, there are endemic and rare species, particularly these used in traditional medicine and modern pharmacopeia.
- (v) In wetlands, there are about 104 species of flowers dominated by papyrus, and several species of fauna dominated by invertebrates and reptiles.

The flora and the fauna should be protected from POPs because if ecosystems in which they are living (water, land, soil, wetland, atmosphere) is contaminated some of the species may transport far away from the contaminated area leading to long-rang Trans-boundary contamination while the concerned area is not contaminated by POPs. Recall that the Republic of Rwanda signed and ratified convention that is related to Basel Convention on control of trans-boundary movements of hazardous waste and their disposal.

Based on the economical contribution of the national parks in the tourism sector due to their natural ecosystem (plants and animal species) which is attracting as above mentioned, they constitute national protected area. Rwanda's protected areas are National forest of Nyungwe (929 km²), The Volcanoes National Park and Akagera National Park, while natural reserves are natural forest of Mukura and the forest of Cyamudongo, Busanga and the savannah of east. The natural forest of Gishwati was disappeared and currently is under recreation.

1.8. Environmental issues / Challenges / Problems

Nowadays, Rwanda experiences environmental challenges and issues such as deforestation resulting from uncontrolled cutting of trees for fuel, overgrazing, soil exhaustion, soil erosion, widespread poaching, degradation of natural resources, water resources management, poor mining activity that destroy the environment, biotope destruction, reduction of water resources and water pollution, energy crisis.

Wastewater including liquid waste from hospitals and industries, solid waste (particularly from septic tanks, latrines, manure and animal waste, refuse infest water, electronic

waste) air and soil pollution are the most serious issues that Rwanda is dealing with in order to keep green environment. Apart from that there are disasters and natural hazardous (related to climatic change, or seismic-volcanic disturbances, thunder lightning in western Province: Karongi and Rutsiro). Because the management of waste is big challenge, some should be recycled, then reused. In case, they cannot be recycled and be reused, it is better to reduce them as it can be for example applied to the management of POPs that are may be in stockpiles in order to avoid their entrance in Environment as long as the suitable techniques for disposing of such kind of waste are not yet developed. It could be also noted that incineration and landfill method are not effective methods in the management of POPs.

CHAPTER II: METHODOLOGY

The NIP formulation was based on the inventories of POP-Pesticides (old and new) POP-industrial (PBDES and PFOS) and UPOPs that were conducted across the country in collaboration of with governmental institutions MINIRENA, MINICOM, MININFRA, MINAGRI, REMA, RBS, EWSA, RAB, RRA,etc), private sectors (Agrotech, Africhem,etc) and other stakeholders in POPs management (Kigali City, Nyamagabe District, Kicukiro District, University of Rwanda and other Academic/Research institutions, etc.

And its elaboration took into consideration four steps captured in the guidelines for new NIP elaboration and old NIP update elaborated by UNIDO.

2.1. Step 1 Establishment of Coordinating Mechanism and Organization Process

As successful development, review, or updating of a NIP requires that an effective planning and management structure be put in place, the first step was put in place the coordination teams composed by key stakeholders from governmental and on governmental agencies involved in chemicals management.

These include the representative of research institutions (University of Rwanda, and INATEK) representative of Ministry of agricultural (MINAGRI), representative Rwanda Standard Board, Representative of Rwanda Revenue Authority, Representative of Rwanda National Police, Representative of Ministry of Natural Resources, Representative of REMA, etc.

2.2. Step 2 Establishment of POPs Inventories and Assessment of National Infrastructure and Capacity

After establishment of the coordination teams, the next step was to conduct the inventories of different category of POPs. In this regards, the inventories of POP-pesticides, PCBs, PBDEs, PFOS and U-POPs were conducted. For PBDEs, PFOS and U-POPs the inventories were conducted in concordance with guidelines developed UNIDO and quantifications were done using the toolkit found in these guidelines while the inventory of POP-pesticides was preceded by the development of the inventory tools that were validated before their application.

During the inventory the National Infrastructure and Capacity were also assessed as well as the country regulatory tools to evaluate their efficiency as well as their strengths in respect to Stockholm convention. The outcomes were again supplemented with the data

from previous studies (assessment of the country laboratory capacity, inventory of E-wastes, etc.) and data from Basel convention focal point.

2.3. Step 3 Priority Assessments and Objective Setting

The assessment of Priorities used the approach that was used during the elaboration of the old NIP. The purpose of this was to elaborate a document which does not conflict with the previous and that should illustrate the progress of the country in different aspects covered by the SC.

For the new POPs, after the analysing the inventory data, gaps were putout and then a list of action plans for the country was established and shared to the stakeholders for ranking **using the criteria described in the next paragraph.**

Criteria to be considered in the hierarchy of the action plans. The following criteria are to be considered:

- ❖ Incidences action plan implementation on human health and the environment;
- ❖ Socio-economic impacts of action plan implementation;
- ❖ Urgency of action plan implementation;
- ❖ The cost of action plan implementation;
- ❖ Contribution of the beneficiary in the implementation of action plan.

Questions asked by action plan

- ❖ Will the implementation of the action plan, have important positive impacts on human health and environment?
- ❖ Will the implementation of the action plan have important socio-economic impacts?
- ❖ Is there urgency for implementation of the action plan?
- ❖ Is the cost of implementation of the action plan, accessible?
- ❖ Will the majority of the population, benefit from the implementation of the action plan?

Finally marks by response and by question According to the answer given to each question, a mark varying between 0 and 5 is given to the answer

If the answer is	answer is
Certainly	5
Yes	4
Probably	3
Maybe	2-1
No	0

The total marks were calculated in relation to each plan and classification of plans of action was established.

2.4. Step 4 Formulation of National Implementation Plan

Based on the results of the review carried out in step 2 and 3, gaps were put out and country priorities and objectives were set and then a list of options and measures to address them were elaborated. This review was done based on groups of chemicals concerned by the SC (POPs pesticides, industrial chemicals/PCBs, and unintentionally produced POPs) and then a series of steps with costs, resource needs, implications, and benefits/results evaluation were developed. It is very important to mention that the above activities were conducted by teams with expertise for each category of POPs and a continuous collaboration with focal point maintained to insure the compliance with the guidelines. In addition, the costs of different were estimated using the guidelines elaborated by the Secretariat of the Stockholm Convention.

Furthermore the interconnection as well as the complementarily between SC, Basel and Rotterdam Conventions were taken were taken into consideration during the development of the action plans and strategies for the Stockholm Convention.

CHAPTER III: LEGISLATION ON POPS AND INSTITUTIONAL FRAMEWORK

3.1. International conventions

3.1.1. The Stockholm Convention on Persistent Organic Pollutants (POPs)

The Stockholm Convention on Persistent Organic Pollutants signed in Stockholm on 22 May 2001 and ratified and approved by the Presidential Order n° 78/01 of 08 July 2002; Under the Stockholm Convention on Persistent Organic Pollutants (POPs), countries commit to reduce and/or eliminate release of the 12 POPs of greatest concern (the "dirty dozen") into the environment. With over 150 signatories, the Treaty came into force on May 17, 2004. A mechanism by which other chemicals may be added is included in the Treaty.

3.1.2. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

The Basel Convention is a global agreement which addresses the problems and challenges posed by the movement and management of hazardous wastes, including those consisting of, containing or contaminated with POPs. The Basel Convention uses a Prior Informed Consent (PIC) procedure to control transboundary movements of waste whereby hazardous waste cannot be shipped from one country to another without the consent of those countries involved, including countries of transit. Rwanda ratified on the 24 August 2003 by Presidential Order n° 29/01. Further information may be found at <http://www.basel.int/>

3.1.3. Rotterdam Convention on the Prior Informed Consent for certain hazardous chemicals and pesticides in international trade

The Rotterdam Convention is a global agreement which seeks to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals, in order to protect human health and the environment. It establishes a Prior Informed Consent (PIC) procedure, which seeks agreement from importing countries to accept shipments of certain hazardous chemicals. Most of the POPs listed in the Stockholm Convention are included in the Rotterdam Convention. Rwanda ratified on 24 August 2003 by the Presidential Order n° 28/01. As other environmental convention, its implementation is under REMA.

3.2. Rwanda Legislative and Policy framework on Persistent Organic Pollutants

Action on Persistent Organic Pollutants is delivered at the international and national levels. In order to achieve an environmentally sound management of POPs, the national legal, policy and institutional framework of POPs management constitutes the fundamental basis for sustainable environmentally sound management. The Stockholm Convention provides an internationally agreed framework which many countries use for the development and implementation of national implementation plans related policies and international commitments. The effective environmentally sound management of POPs and implementation of waste management policy depends on the institutional capacity of national and subnational waste management related agencies.

It is in this line that Rwanda is equipped with institutions, laws, regulations, and policies enacted to protect environment. Also Rwanda adhered and ratified international treaties and conventions' aiming at the promotion and the protection of environment either, nationally or internationally

3.2.1. The Constitution of the Republic of Rwanda

Adopted by the Rwandans during the Referendum of 26th March, 2003, Rwandan Constitution (Republic of Rwanda, 2003) clearly states:

- Article 49: Each citizen has the right to healthy and satisfying environment. Each person has the right to protect to conserve and promote the environment. The government will take care of the environment protection. An Act defines the procedures of protecting, conserving and promoting environment;
- Article 190: The treaties and international agreements regularly signed and approved have since their making public within the official magazine, an authority superior to that of the organic laws and those of ordinary laws, under reserve, for each agreement or treaty of its execution by the other part.

3.2.2. Organic Law No 04/2005 of 08/04/2005 on Environment Protection and Management

This is the law that regulates the protection of Environment in Rwanda. The law sets out the general legal framework for environment protection and management in Rwanda. It also constitutes environment as a one of the priority concerns of the Government of Rwanda. Under the fundamental principle on National Environmental Protection Policy, this law develops national strategies, plans and programs, aiming at ensuring the conservation and use of sustainable environmental resources. The law gives right to every natural or legal person in Rwanda to live in a healthy and balanced environment.

The principle of sustainability of environment and equity among generation emphasizes human beings at the core of Sustainable Development. They therefore, have a right to a healthy and productive life in harmony with nature. Chapter IV of the Organic Law Article 65 clearly calls for the need to subject projects to mandatory Environmental Impact Assessment.

Article 3: States that every person has the duty to protect safeguard and promote environment. The State shall protect, conserve and manage the environment. Article 65: Further specifies that every project shall be subjected to environmental impact assessment prior to its commencement. It shall be the same for programs, plans and policies likely to affect the environment. Specific details of projects referred to in this article shall be spelt out by the order of the Minister in charge of environment.

The Organic Law also puts in place the National Fund of the Environment in Rwanda (FONERWA). The article 66 of the Organic Law on the environment specifies that it has created, to the level of the Provinces, of the City of Kigali, of the Districts, the Cities, the Sectors and the Cells, Committees responsible for the conservation and the protection of the environment.

The Article 33 recognizes that some wastes are more dangerous where it is state that: “Any waste, especially from hospitals, dispensaries and clinics, industries and any other dangerous waste, shall be collected, treated and changed in a manner that does not degrade the environment in order to prevent, eliminate or reduce their adverse effects on human health, natural resources, flora and fauna and on the nature of the environment”.

The same law burns some informal wastes treatment and practices in its Article 32 where it states that: “No one is permitted to dispose waste in an inappropriate place, except where it is destroyed from or in a treatment plant and after being approved by competent authorities” in its article Article 34: “Burying toxic waste is only done when there is an authorization and in accordance with special regulations” The law also regulates the imports of chemicals and pays an emphasis to toxic one.

Furthermore in its article24, it prohibits the Burning of garbage, waste or any other object (tyres, plastics, polythene bags and others).

Table 1: Sanctions for Solid and Wastewater Management according to the Organic law on Environmental Protection

Type of violations	Measures of monetary sanctions
Anyone who undertakes illegal research or commercial activities of	A fine ranging from one million (1,000,000) to two million and five hundred thousand (2,500,000) Rwandan francs and an imprisonment ranging from six (6) months to two (2) .
Anyone who dumps in unaccepted manner or without authorization any waste that is subject to prior authorization provided for by this organic law	A fine ranging from one million Rwandan francs (1,000,000) to five million (5,000,000) Rwandan francs and an imprisonment ranging from six (6) months to two (2) years or one of these two penalties
Anyone who pollutes inland water masses by dumping, spilling or depositing chemicals of any nature that may cause or increase water pollution	A fine ranging from two million (2,000,000) to five million (5,000,000) Rwandan francs and an imprisonment ranging from two (2) months to two (2) years or one of these penalties
Any treatment plant which is authorized to treat waste products but which dumps it in inappropriate place	A fine ranging from one million (1,000,000) to ten million (10,000,000) Rwandan francs
Any person who deposits, abandons or dumps waste, materials, or who pours sewage in a public or private place	A fine ranging from ten thousand (10,000) to one hundred thousand (100,000) Rwandan Francs except if such a place has been designated by competent authorities

Source: *Extracted from Rwandan Organic Law (No. 04/2005) determining the modalities of protection, conservation and promotion of environment*

- ✓ **Article 91:** Acts related to purchase, sale, import, export, transit, store and pile chemicals, diversity of chemicals and other polluting or dangerous substances are prohibited in the whole country;
- ✓ **Article 92:** It is prohibited to sell, import, export, store ordinary drugs or chemical substances with intention to sell or distribute even if it is free of charge without authorization or temporary permission is issued by competent authorities

3.3. Laws, policies, strategies governing POPs Pesticides

3.3.1. Law N° 30/2012 of 1/8/2012 governing agrochemicals

- ✓ The Law governs the manufacturing, importing, distribution, use, storage, sale and disposal and burial of agrochemicals for the protection of human and animal health and the environment, to avoid injury and contamination which may result from their use
- ✓ The law elaborates on authorized agrochemical products and on agrochemicals inspection;
- ✓ The law talks about license and certificate of agrochemicals use; agrochemical post-registration control and supervision; storage and transport of agrochemicals

The law has implementing orders including:

- Ministerial Order N° 001/11.30 of 15/02/2013 determining the duties of the registrar of agrochemicals
- Ministerial Order N° 002/11.30 of 15/02/2013 determining powers and responsibilities of an inspector of Agrochemicals;
- Ministerial Order N° 003/11.30 of 15/2/2013 determining confidential data that are not recorded and non -confidential data to be recorded in the register of agrochemicals
- Ministerial Order N° 004/11.30 of 15/02/2013 determining the requirements for obtaining business license of agrochemicals;
- Ministerial Order N° 005/11.30 of 15/02/2013 determining fees for registration of agrochemicals
- Prime Minister's Order N° 92/03 of 07/03/2013 determining the members of the Advisory Council on the use of agrochemicals and their responsibilities
- Two other Ministerial orders, adopted in the Ministerial cabinet of 04 May 2015, are awaited to be published in the official gazette: i) list of registered and prohibited agrochemicals in Rwanda; ii) modalities of disposal of expired and obsolete agrochemicals

3.3.2. Legislative framework governing POPs in general

- Ministerial Order No 003/16.01 of 15/07/2010 preventing activities that pollute the atmosphere.
- Prime minister's order n° 26/03 of 23/10/2008 determining the list of chemicals and other prohibited pollutants;
- Prime minister order n°27/03 of 23/10/2008 determining a list of prohibited drugs unless authorized or temporary permitted Law No 57/2008 of 10/09/2008 relating to the prohibition of manufacturing, importation, use and sale of polythene bags in Rwanda.
- Ministerial Order No 003/2008 of 15/08/2008 relating to the requirements and procedure for Environmental Impact Assessment.
- Ministerial Order establishing modalities of inspecting companies or activities that pollute the Environment.
- Ministerial Order No 006/2008 of 15/08/2008 regulating the importation and exportation of ozone layer depleting substances products and equipment containing such substances.

Two other Ministerial orders, adopted in the Ministerial cabinet of 04 May 2015, are awaited to be published in the official gazette: i) list of registered and prohibited agrochemicals in Rwanda; ii) modalities of disposal of expired and obsolete agrochemicals. The lists of registered and prohibited agrochemicals appear in the Appendix No VI and VII of this report.

One gap to be mentioned in the regulatory framework is the conflict situation of the insecticides used in the public health, when the same insecticides are banned by the Ministry of Agriculture and Animal Resources. This is the case of the organophosphate Pirimiphos methyl (Actellic) used in the control of the vectors of malaria, while it is on the list of prohibited pesticides (except dust). Consultations between MINAGRI and MOH made in December 2014 led to an agreement where MOH will ensure registration of public health pesticides and MINAGRI will continue with Agrochemicals for agriculture use purpose.

The relevant pesticide management laws, regulations and institutional arrangements should be regularly reviewed and updated to provide adequate protection of human health and the environment in vector control operations.

Note:

- There is no legislation covering specifically unintentionally releases persistent organic pollutants (U-POPs),
- The specific regulation covering PCBs is under developing but there is in general the provisions in Organic law No 04/2005 Of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda article in article 26, 81 & 83, 107 &109: prohibited: dumping solid, liquid waste and hazardous substances.

3.4. Laws, policies, strategies related the NEW POPs

3.4.1. Law N° 50/2008 of 09/09/2008 determining the procedure for disposal of state private assets

The law deals with the disposal of state private assets by defining the methods of disposing such assets. Parts of these assets are wastes containing NEW POPs; however it does not include any statement that considers their uniqueness. There are also the following regulations and guidelines of wastes management:

- Regulations on solid waste collection and transportation, 2012;
- Regulations on cleaning services, 2012;
- Guidelines on standards for the management of waste disposal sites/landfills, 2009.

3.4.2. The Ministerial Order No: 1 of 25/10/2011 regarding the importation of used electronics/ICT equipment.

It states that used electronics are banned for importation. However if the imported computers are for education purposes will be allowed and shall meet the provision of article 8, of the Ministerial Order which state that used computers imported for education purposes:

- Shall be less than or equal to two (2) years old if it has been in use, and in good working conditions.
- Shall be less than four (4) years old if it has never been in use
- Shall have a documented commitment of the donor/ supplier that the goods supplied are in good working conditions and meet the requirements of instructions:
 - Refurbished computers shall meet the provision of article 11, in order to comply by ISO/IEC 24700,
 - RAM, hard disk, microprocessors are allowed to be imported for commercial purposes provided that the importer intention is not for computer assembling. But they have to comply with the safety standards (EAS390:2005, ISO/IEC 24700) and must come with other documents mentioned is the ministerial order

- All computers shall be in compliance with EAS 390:2005

The law No 44/2001 of 30/11/2001 governing telecommunications in Rwanda and national Information and Technology was established and cognizant of the imperative to protect human health and safety as the environment from the potential risks related to e-wastes

In addition RSB has developed a good number of standards that show the quality of goods and other products circulating on Rwanda market have to fulfil.

The developed standards are also published in World Standard Harmonization (WSH). RSB updates its publication after six months. It has the responsibilities to develop a list of prohibited and restricted imports and exports available (www.rsb.rw/ www.rra.gov.rw).

3.4.3. Rwanda E-wastes Regulation

The purpose of these regulations is to establish measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste from electrical and electronic equipment and by promoting resource efficient through reuse, recycling and other forms of recovery of e-waste in environmental friendly manner.

These regulations are applied to every producer/retailer/importer, collector, dismantler, recycler, refurbisher, consumer or bulk consumer involved in the manufacture/ assembly, sale, and purchase and processing of electronic and electrical equipment or e-waste in Rwanda. In its article 8, the regulation highlights five types of e-waste management licenses that will be guaranteed by the Regulatory Authority: Collection service license, transport service license, dismantling service license, Refurbishment service license, recycling service license.

The articles 9-12 gathers the Specific requirements for license application in E-waste management services (collection, transportation, dismantling, refurbishment, recycling).

The regulation does not highlight anything regarding the existence as well as management of POP-PBDEs that are present in a good number of e-wastes.

3.4.4. E-wastes technical guidelines

The country has also developed e-wastes technical guidelines with a sole purpose of assisting the key actors like the government, private sector, learning institutions among others to manage e-waste in a manner that enhances environmental conservation and promotes good health and a clean environment to the population.

The guidelines provide a technical guidance to enable proper collection, recycling and to set the required standards for e-waste management by the e-waste management actors. However it does not address POP-PBDEs that are among the components of a good number of e-wastes.

3.4.5. Industry Strategy 2009-2012

Evaluate infrastructure needs of NEW industries and how they can be combined with existing policy on infrastructure. The strategy lack of a system addressing the aftermath of change in technology that will result in e-waste and other wastes generation, therefore PBDEs, PFOS and U-POPs that may originate from the industrial activities or from the change of technology.

3.4.6. Transport sector policy and laws

the country has developed policies and law related to the transport sector such law n° 26/2006 of 27/05/2006 determining and establishing consumption tax on some imported and locally manufactured products, ministerial, instructions no 05/MOS/trans/014 determining monthly lump sum and other fringe for government officials and people's representatives under the fleet policy of the government of Rwanda, public transport policy and strategy for Rwanda, Kigali: October, 2012, transport sector policy, December 2008, transport sector strategic plan for edprs2, Kigali, June,2013.

However all of them are silent towards the managements of wastes from the transport sector. In addition none of them ban vehicles based on the manufacturing year.

3.5. Institution Framework

Rwanda has already established the institution framework that is used to manage the agrochemicals and other chemicals within the country which is supported by the existing laws, policies and international conventions ratified by the country.

The establishment of national policy of protection, conservation and promotion of the environment is the responsibility of the Government of Rwanda. The national institutional framework of chemical management is determined by the working relationship of various ministries and public institutions. Since the environmental degradation is such a pervasive problem, a wide reaching and comprehensive enforcement apparatus is required to cope with it. Different institutions having impact, being direct or indirect, on environment protection have due regard to the preservation and protection of the environment, the conservation of natural resources and the health and safety of environment beneficiaries. It is in this context: MINAGRI, MoH, MINICOM, MINALOC, REMA, RAB, RALIS,

RSB, RURA, RNP and RRA are collaborating in order to avoid in interference of their respective role and responsibilities.

3.5.1. The Roles and responsibilities of the Ministries and public institutions contributing to management of POPs

a) Ministries

1. Ministry of Natural Resources (MINIRENA)

In Rwanda the national authority regarding environmental issues is the Ministry of Natural Resources. This Ministry is in charge of coordinating the development and the implementation of the government policy on natural resources and environment. It has partially a mission of working out the legislation concerning the environment protection and the prevention of risks on pollution.

2. Ministry of Agriculture and Animal Resources (MINAGRI)

Regarding the issue of chemicals, this Ministry intervenes in the management of the pesticides, artificial fertilizers, food for cattle and veterinary products. It manages the national policy concerning agro-breeding and coordinates all activities in connection with the protection of plants by ensuring the follow-up of imports and the use of artificial fertilizers, pesticides and veterinary products. Unfortunately, the ministry does not have appropriate logistics to enable it eliminate the outdated products and derived products. The Ministry of Agriculture and Animal Resources is responsible for publishing the List of registered and prohibited Pesticides in Rwanda.

3. Ministry of Youth and Information, Communication and Technology (MYICT)

The Ministry of Information and Communication Technology is responsible to guide the importation, distributing of used electronic equipment, computers and computer parts in Rwanda. It is in this context, the law No 44/2001 of 30/11/2001 governing telecommunications in Rwanda and national Information and Technology was established and cognizant of the imperative to protect human health and safety as the environment from the potential risks related to e-wastes.

4. Ministry of Health (MINISANTE)

The ministry is the principal importer of the drugs and the reagents for its laboratories. The Kigali University Hospital is equipped with an incinerator intended to incinerate all expired wastes and pharmaceutical products. At the provincial level, health issues are supervised by a provincial director of health, social affairs and gender promotion. On the level of the districts, the district hospitals lead and support the dispensaries, rural health centers as well as hygiene services. The latter are in charge of ensuring the standards in

the field of prevention on the quality of water and food as well as the control of some chemicals. The drainage of used water, refuse and wastes is the responsibility of the municipal services. Religious Organizations and some NGOs intervene in the fields of medical care, sensitizing the population on hygienic and public health.

5. Ministry of trading and industry (MINICOM)

This ministry is in charge of two major responsibilities: one as the principal importer and distributor of chemicals. Secondly it grants the authorization of importation of chemicals. It defines the standards of the use of chemicals.

6. Ministry of Local Government (MINALOC)

As a major authority of the decentralized organs, the ministry is used as a spring board of all governmental and non-governmental activities at the level of Provinces and Districts. For this reason, it is involved in management of medico pharmaceutical products, manures, pesticides and veterinary products

7. Ministry of Public Service and Labor (MIFOTRA)

This ministry organizes workshops of sensitization for the prevention of professional hazards and establishes health and safety committees at work.

8. Ministry of Education (MINEDUC)

As a major authority in charge of research in Universities, Institutes and Research centers, this ministry is involved in the importation and the use of chemicals.

Moreover, having under its responsibility, secondary and technical education, it imports products and materials of chemical nature.

9. Ministry of Infrastructures (MININFRA)

This ministry has in its mission the creation of conducive conditions allowing the equitable and durable access of the population to transport infrastructure, communication, viable settlement and energy, while protecting the environment.

Work involved in the production of electrical energy, transport infrastructure generates chemical wastes which are later found in the environment. In its strategic policy, the ministry needs appropriate logistics for purification of the areas contaminated or threatened by contamination. There is a need to ensure environment protection by the control of installations and management of the infrastructures.

10. Ministry of Foreign Affairs and Cooperation (MINAFFET)

The involvement of this Ministry in chemical products is due to its competence to sign and ratify international agreements and conventions.

11. Ministry of Finance and Economy Planning (MINECOFIN)

This ministry is involved in the management of chemicals due to its attributions of State finance and national planning.

b) Public institutions

1. Rwanda Environment Management Authority (REMA)

Rwanda Environment Management Authority (REMA) is the Authority in Rwanda in charge of supervision, following up and ensuring that issues relating to environment receive attention in all national development plans. It is governed by the law No 16/2006 of 03/04/2006 determining the organization, functioning and responsibilities of Rwanda Environment Management Authority (REMA).

The following responsibilities related to environment protection against chemical substances:

- Prepare and publish technical guidelines for the inspection of waste management.
- In collaboration with the key stakeholders, the regulatory authority and other competent authorities shall identify suitable sites for waste disposal, inspections and provide the necessary equipments for that purpose.
- Coordinate the environmental impact assessment process of waste management.
- Coordinate inspection, monitoring and follow up activities to ensure compliance with applicable air environmental standards and regulations in place.
- Preparing rules and regulations aiming at the improvement of the ambient air which shall be approved by the minister in charge of environment.

2. Rwanda Utilities Regulatory Agency (RURA)

RURA mandate in the sanitation sub-sector is to promote sanitation through regulation of sanitation services. The responsibility of the sanitation regulation is to establish regulatory tools necessary for the sound regulation of sanitation services in Rwanda, licensing sanitation service provision, monitor compliance by licensees with license terms and conditions through audits and inspections conducted to sanitation service providers and analyze reports from sanitation service providers. Currently, the Rwanda Utilities Regulatory Authority (RURA) regulates three main sanitation services:

- **Solid waste collection and transportation services:**
These are services provided to households and institutions as well as public areas such as markets, hospitals, etc. Operators in this domain are composed of companies, cooperatives and individuals providing solid waste collection and transportation services. See the list of licensed operators.
- **Wastewater treatment services:**
These are services provided in regards to wastewater treatment services. The regulation targets mainly decentralized wastewater installers and operators providing services of decentralized wastewater treatment plants installations and operations.
- **Cleaning services:**
These are services related to general cleaning of buildings, gardens and public places.

2.1. Regulatory tools of RURA

- Ministerial Order N°4/DC/04 of 07/06/2004 prescribing annual fees payable by public utilities
- Regulations on solid waste collection and transportation, 2012;
- Regulations on decentralized wastewater treatment systems, 2012;
- Regulations on cleaning services, 2012;
- Guidelines on liquid waste disposal and treatment, 2009;
- Guidelines on standards for the management of waste disposal sites/Landfills, 2009.

3. Rwanda resource efficiency and Cleaner Production Center (RRECPC)

The Government of Rwanda created a Resource Efficiency and Cleaner Production Center (RECPC) in 2008 to support the industrial sector productivity, competitiveness and environmental performance by using fewer resources to produce more products and less waste. The Resource Efficiency and Cleaner Production Center (RECPC) is mandated to spearhead the Resource Efficiency and Cleaner Production program being promoted through the Ministry of Trade and Industry in collaboration especially with Rwanda Environment Management Authority (REMA) and Rwanda Private Sector Federation (PSF).

So far, over 70 industries in Rwanda are implementing the RECP program and have increased their productivity and environmental benefits such as pollution reduction and savings in energy, water and raw material resources.

4. Rwanda Agriculture Board (RAB)

The RAB's mission is to develop agriculture and animal husbandry through their reform, and using modern methods in crop and animal production, research, agricultural extension, education and training of farmers in new technologies. These technologies include among others, the sustainable use of pesticides to limit the introduction and the spread of pests in crop production and animal husbandry.

5. Rwanda Agriculture and Livestock Inspection and Certification Services (RALIS)

RALIS is a public institution working under MINAGRI with the objective of enhancing safe trade by limiting the introduction and the spread of new pests, and to improve the quality of agricultural and livestock products for export and also resolution and management of trade issues related to animal or plant health in order to meet the IPPC and WTO-SPS agreements.

This department is responsible of the overall coordination of all the functions that the National Plant protection Services (NPPS) is supposed to fulfil such as the enforcement of the Rwanda plant health law and regulations for phytosanitary measures necessary for trade, Plant pest/disease monitoring, surveillance and diagnosis, conducting Pest Risk Analysis, and conduct inspection and certification. It will also deliver animal products certification services including enforcement of sanitary laws, monitoring and surveillance of animal diseases, and animal inspection and certification. In addition to this, it contributes to the preparation and the implementation of agrochemical law.

6. National Agricultural Export Development Board (NAEB)

NAEB is a National Agricultural Export Development Board registered Under Ministry of Agriculture and Animal Resources. The Formation of NAEB is aimed to improve the balance of payment of Rwanda Economy through increased agricultural exports. The NAEB was set up by bringing together three government agencies responsible for the entire Agriculture Export and cash crop base under one management. These agencies are the former Rwanda tea Authority (OCIR THE), Rwanda Coffee Authority (OCIR CAFE) and Rwanda Horticulture (RHODA).

These three sub sectors, namely tea, coffee and horticulture use urge quantities of pesticides and for this reason NAEB is considered as a key stakeholder in the management of pesticides.

7. Rwanda Revenue Authority (RRA)

RRA shall have the main responsibilities:

- in accordance with taxation incentives for participating in fixing , collecting, controlling and managing tax incentives measures for green technologies and materials in accordance with the law and modalities pertaining thereto established by the regulatory authority,
- granting tax waivers or incentives measures as provided for by relevant policy legal provisions according to the procedures it prescribes,
- exercising judicial police powers to investigate any air pollutant,
- carrying out any other activity related to the protection of environment upon request by regulatory authority as far potential cross border pollutants as concerned.

8. Rwanda Standards Board (RSB)

The main responsibilities of the RSB as the body with powers to define national standards are as follow:

- to undertake all activities pertaining to the development of standards, quality and metrology in the country,
- granting car environment standards certificates in collaboration with the police, in collaboration with RRA, ensure that all new equipments entering the country (imported) meet the established environment standards,
- promoting and coordinating all the activities in relation to the definition of environment standards,
- in collaboration with REMA, providing facilities or making arrangements for the examination or inspection and testing.

9. Rwanda National Police (RNP)

In implementing of the organic Law No 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda, the Rwanda National Police shall have responsibility to

- impose sanctions to anyone who didn't bring his/her car for inspection test,
- facilitate the process by conducting the air pollution inspection

Table 2: Roles and responsibilities of institutions contributing to management of POPs

Institutions	Roles and responsibilities
MINIRENA / REMA	<p>Awareness: Coordination and elaboration of awareness programs about POPs; Use the media and its website to rise people community awareness</p> <p>Prevention: Coordination and elaboration of necessary guidelines, policies, laws. Supervise the compliance with those guidelines, policies, laws...</p> <p>Collaborate with RRA, RSB, RNP, and RALIS in prevention of POPs entry in Rwanda.</p> <p>Prosecution: Reporting on non-compliance and s courts/tribunals; Applying app</p>
RRA	<p>Prosecution: Reporting on non-compliance and ceasing the courts/tribunals; Applying appropriate fines; Witnessing illegal business of POPs and in courts/tribunals, REMA and RSB</p> <p>Control: Controls the entry of goods within the country</p>
RSB	<p>Prevention: Elaborate and publish the standards for goods accepted in the country, the lists of prohibited imports; Use the media and its website to rise people community awareness</p> <p>Control: Setting up control measures; conduct controls at country border</p> <p>Prosecution: Reporting on non-compliance and ceasing the courts/tribunals; Applying appropriate fines; Witnessing illegal business of POPs in courts/tribunals in collaboration with RNP, REMA and RRA</p>
MINAGRI (RAB, RALIS, NAEB)	<p>Awareness: Collaborates with RSB, RRA and REMA to set Standards for agricultural products; Publish the prohibited agricultural chemicals on their websites</p> <p>Prevention: Preparation of drafts laws and draft implementing orders on agrochemicals management</p> <p>Prosecution: Reporting on non compliance and ceasing the courts/tribunals; Witnessing illegal cases in courts/tribunals; Setting up control measures; conduct controls at country border</p>
MINIJUST / Tribunals	<p>Prevention: Revising drafts laws and draft implementing orders on agrochemicals management submitted by the technical Ministries</p> <p>Prosecution: Through tribunals applying applicable laws and regulations; Sitting and deciding on cases of illegal traffic of hazardous and other wastes</p> <p>Control: Supporting in control at border and within the country; Securing control activities</p>
Parliament	Adoption of draft laws submitted by MINIJUST; ratification of the

Institutions	Roles and responsibilities
	international conventions on agrochemicals management
RNP	Prosecution: Investigating on suspect illegal detention of prohibited agrochemicals and on illegal practices leading to affect human health or environmental deterioration, apprehending POPs illegal movements; Securing all the prosecution process
MINALOC / Provinces / District / Sector / Cell	Awareness: Use the media and public talks to rise people community awareness in POPs Control: Control the misuses of agrochemicals and wastes management practices in the communities
Private Sector and General public	Prevention: accommodate with required standards in the pesticides management chain Prosecution: Facilitating the prosecution process when needed
MINECOFI N	Availing budget and Financing the prosecution process
MINICOM	Prevention: Sets standards and regulate the imports and exports

CHAPTER IV: POPs MANAGEMENT COUNTRY PROFILE

This chapter is providing general information about the distribution, the export, the importation, the manufacture the use and the management of POPs chemicals in Rwanda. It is also providing gaps identified for each category and it ended by a paragraph describing the status of contaminated for each category.

4.1. Pesticides MANAGEMENT

41.1. Supply chain of pesticides

Most of the pesticides used in Rwanda are imported from different countries. However, the country has established the listed of allowed and forbidden importation that is published and regularly updated by Rwanda Standard Board (RSB).

At their arrival at the port, pesticides are inspected and when required samples are taken by RSB for laboratory quality control (QC). According to the guidelines the products that are out of specifications or forbidden are re-exported (sent to the country of origin) following the established guidelines. Later on, the Law N° 30/2012 of 1/8/2012 governing agrochemicals was promulgated, followed by appropriate implementing orders. The Law governs the manufacturing, importing, distribution, use, storage, sale and disposal and burial of agrochemicals for the protection of human and animal health and the environment, to avoid injury and contamination which may result from their use.

Furthermore the management of pesticides is again founded on the following laws and orders/

- Law N° 30/2012 of 1/8/2012 governing agrochemicals
- The Law governs the manufacturing, importing, distribution, use, storage, sale and disposal and burial of agrochemicals for the protection of human and animal health and the environment, to avoid injury and contamination which may result from their use
- The law elaborates on authorized agrochemical products and on agrochemicals inspection;
- The law talks about license and certificate of agrochemicals use; agrochemical post-registration control and supervision; storage and transport of agrochemicals

The law is implementing orders including:

- Prime Minister's order n° 26/03 of 23/10/2008 determining the list of chemicals and other prohibited pollutants
- Ministerial Order N° 001/11.30 of 15/02/2013 determining the duties of the registrar of agrochemicals

- Ministerial Order N° 002/11.30 of 15/02/2013 determining powers and responsibilities of an inspector of Agrochemicals;
- Ministerial Order N° 003/11.30 of 15/2/2013 determining confidential data that are not recorded and non-confidential data to be recorded in the register of agrochemicals
- Ministerial Order N° 004/11.30 of 15/02/2013 determining the requirements for obtaining business license of agrochemicals;
- Ministerial Order N° 005/11.30 of 15/02/2013 determining fees for registration of agrochemicals
- Prime Minister’s Order N° 92/03 of 07/03/2013 determining the members of the Advisory Council on the use of agrochemicals and their responsibilities

Note: Two other Ministerial orders, adopted in the Ministerial cabinet of 04 May 2015, are awaited to be published in the official gazette: i) list of registered and prohibited agrochemicals in Rwanda; ii) modalities of disposal of expired and obsolete agrochemicals

The figure below summarizes the supply chain for pesticides in Rwanda.

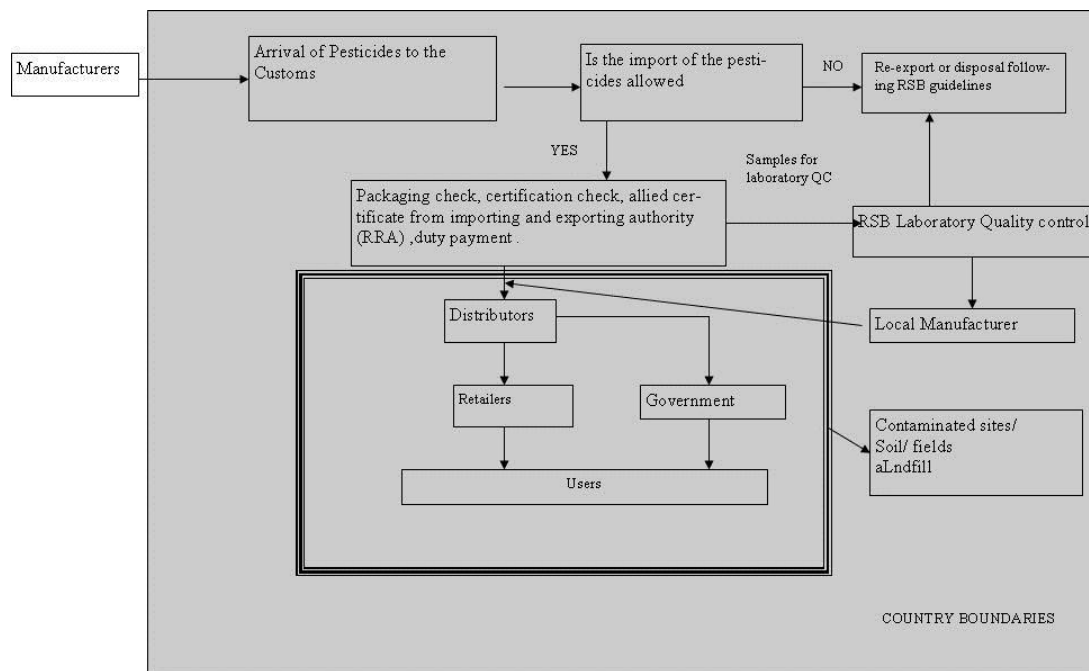


Figure 2: Import mechanism of pesticides and supply chain of pesticides in Rwanda

Besides the imports, there is one manufacturer of pesticide in the country, namely Agropy Ltd which is a factory that is producing insecticide from pyrethrum flowers grown by local farmers on volcanic soils of Northern and Western Provinces. The factory is located in Musanze City. Agropy Ltd products are in different formulations like water emulsified concentrates Pyrethrum 5EW and Pyrethrum EWC, Inkuyo Tick Grease and Agrothrin

Dust, used to control pest crops. These products are produced from refined top quality pyrethrum pale extract.

Although, everything seems to be control and regulated, it is believed that some illegal importation may exist. In fact the experts who conducted the national inventory of pesticides in November 2013 - February 2015 report that one agrodealer of Kinazi market center (Ruhango District) said that the insecticide Dichlorvos 100% EC is used against pests' storage of cereal grains. The product is officially banned for use and causes serious intoxications by inhalation, and in contact with skin or yet with contaminated grains.

4.1.2. Import

The importation system is dominated by private sector which also import for public sector through procurement system. The importation of pesticides requires an official permit from the Director General of Agriculture and Livestock Inspection and Certification Services (RALIS)/MINAGRI upon filling in an appropriate application form. The importers of pesticides are playing a double role: as wholesalers and distributors.

Most of the pesticide products are imported from China, India, Germany, Italy, Switzerland, South Africa and East African countries like Uganda and Kenya. The main local importers identified are Agrotech, Africhem, SODIACO, Safari center, Green age and Uzabakiriho John.

4.1.3. Export

As stated above, Agropy Ltd is a new factory operating in Musanze District, Northern Province. The factory in partnership with Agropy UK is producing and export local insecticide products. Currently the whole production is exported mainly to USA, Italy, New Zealand, South Korea and South Africa. The domestic production of Pyrethrum Insecticide (data collected from SOPYRWA) exported from 2010 to 2014 is shown in the table below:

Table 3: Domestic production of Pyrethrum Insecticide

Y e a r	Quantity of pale extract (50% concentration) produced and exported (tons)					
2 0 1 0	6	.	2	5	2	
2 0 1 1	1	7	.	0	5	6
2 0 1 2	2	4	.	9	6	5
2 0 1 3	1	4	.	2	7	5
2 0 1 4	8	.	1	0		1

4.1.4. Distribution and retailing

During the national inventory of pesticides done by REMA/MINAGRI in November 2013 - February 2015, it was observed that the main pesticide shops, especially in Kigali town, are playing double role of distribution and retailing. They buy pesticides products from importers for retailing and distributing to rural agrodealers (agro-veterinary pharmacies) including cooperatives. It was observed that almost all pesticides are packed in original containers (metallic, plastic, paper or aluminum form), which makes secure to any users. The labeling is written in Kiswahili, English, French, etc., and very few of them are in Kinyarwanda (very few products from Agrotech Ltd). This packaging size helps also to meet the demand of the majority of Rwandan farmers.

Unfortunately, the repackaging practice without personal protective equipment (PPE) was often observed to agrodealers visited. The repackaged containers (empty bottles of drinking water, Gin or Waragi alcohol,) were found unsecure for further use because they were not well sealed, with no labeling and risk of leakages or spills.

4.1.5. Handling and use of pesticides

POPs pesticides, such as Aldrin, Dieldrin and the Endrin were used in horticulture and in forestry to control the ground insects like white worms, gray Worms, termites, and weevils in banana stems, etc. In 1990s, the first ministerial directives were made public to prohibit the importation and the use of POPs pesticides hitherto used in Rwanda such as DDT, Aldrin, Dieldrine and Endrin. These were replaced by the organophosphorous compounds and synthesized pyrethrinoids.

The preliminary inventory conducted in 2005, showed that a good number of diversified pesticides were in various warehouses and common sales agencies. The quantity found at the sites was 76.793 liters (88% made up of chloropyriphos ethyl against the bug of coffee-tree) and 29.704 kg (copper oxychloride 71%. The deposits are scattered everywhere especially in shopping centres. Nearly 50% of stocks and up to 90% of the quantities are in Kigali Town.

This inventory carried out in the sector of Agriculture showed that the quantity of outdated pesticides reached a total of 2 865 liters and 28 523 kg including 2 948 kg of persistent organic polluting substances, namely two NEW POPs (**Lindane** 25% and **Endosulfan** 3%Dust). No old POPs pesticides was recorded in the 2005 inventory. In addition, 40 000 kg of damaged manure were recorded during this inventory. The bulk of all these chemicals were temporally dumped in the Nyanza /Kicukiro wastes site in 2008. A recent inventory conducted in January 2015 of pesticides used in Rwanda among agrodealers for 2013 and 2014, by the Ministry of Agriculture and Animal Resources didn't show existence of any old or NEW POP pesticides.

Contacts made in May 2015 with the Statistics Unit of Rwanda Revenue Authority in the framework of this NIP update revealed that there is no POP pesticide under SC imported since 2007.

Furthermore, according to various categories of pesticides users, there is no evidence of obsolete stockpile of POPs pesticides in Rwanda.

However, obsolete pesticides are frequently recorded in public institutions (example of MINAGRI/RAB) as well as in agrodealers's storages. An inventory at national level of these obsolete pesticides at yearly basis and their environmental sound disposal are strongly recommended.

The three following tables, extracted from the POPs pesticides inventory report, show respectively the quantity of the identified new POPs pesticides in Rwanda; Identified Stockpile of prohibited pesticides (Sarura Agro-Vet Services) and the identified quantities of obsolete Pesticides (June 2015).

Table ...: Quantity of the identified POPs Pesticides in Rwanda

Common names	Quantity, kg	Importation year	Country of origin
Endosulfan 3% Dust	1,748	1992	Japan
Lindane +Thiram (Fernasan) 45 % WP	1,280	1990-1992	Japan
TOTAL	3,028		

Table 4: Identified Stockpile of prohibited pesticides, Sarura Agro-Vet Services

No	Product name	Unit	Quantity	Expiry date
	Dimethoate 40% EC (Tafgor)	L	3	NA
	Dichlorvos 100% EC (Lava)	L	0.5	NA
	Dimethoate 40% EC (Agrithoate)	L	0.4	NA
	Glyphosate 48% EC (Willosate)	L	13.25	NA
	Glyphosate 48% EC (Willosate)	L	50	NA
	TOTAL (liter)	L	67.15	

Table .5: List and quantities of obsolete Pesticides (June 2015)

RAB (Rwanda Agriculture Board) / MINAGRI					
No.	Product Name	Unit	Quantity	Expiry date	Location
	Copper oxychloride 500 WP	Kg	138	2014	Rubilizi
	Tricyclazole 75%	Kg	64	2014	Rubilizi
	Ridomil 72 WP	Kg	5	2014	Rubilizi
	Malathion 2% + Permethrin 0.3% Dust	Kg	473	2014	Rubilizi
	Funguran 50 WP	Kg	5	2012	Mulindi
	Ridomil 72 WP	Kg	78	2012	Mulindi
	Ridomil 72 WP	Kg	130	2014	Western Agricultural Zone
	Micronized sulphur 80% WP	Kg	7	2011	Northern Agricultural Zone
	TOTAL solid pesticides (kg)		900		
	Chloropyrifos ethyl 48%EC	L	425	2014	Rubilizi
	Imidachlorpid 200 SL	L	2	2014	Rubilizi
	Dimethoate 40%EC	L	88	2013	Mulindi
	Pirimiphos methyl 50%EC	L	5	2013	Mulindi
	Tebuconazole 25EW	L	24	2014	Western Agricultural Zone
	Cloropyrifos 48% EC	L	6	2014	Western Agricultural Zone
	Tebuconazole 25% EC	L	118	2014	Northern Agricultural Zone
	TOTAL liquid pesticides (litres)		668		
	Methamidophos 50% EC	L	200	NA	Kabuye, Gasabo District



Figure 3: *Drum hermetically closed containing the pesticide Methamidophos 50% EC at Kabuye*

4.1.6. Some gaps

The Pesticide management concerns individuals or companies that sell, distribute, use, or supervise the use of pesticides. In each country, this management is an overall responsibility of the public entities. It concerns the observance of related international Conventions and tools signed between parties. More particularly, the International Code of Conduct on Pesticide Management, approved in June 2013, is a framework which provides standards of conduct in relation to sound pesticide life cycle management practices, in particular for government authorities and the pesticide industry. The practices mentioned above on local pesticides handling, sell, distribution, use, repacking, misuse of empty containers and their disposal, demonstrate that tremendous efforts need to be done by the Government of Rwanda and partners (private sector, civil society, farmers cooperatives, donors, ..) in order to improve the management of pesticides across the pesticides trade chain from their import to the final user.

The areas showing gaps where the Ministry of Agriculture and Animal Resources, in charge of pesticides management should focus more attention for improvement are the following:

1. Ensure public awareness and appropriate measures concerning the best practices recommended by the International Code of Conduct on Pesticide Management as regards to handling, sell, distribution, use, transport, and in particular the aspects related to personal protective equipment and health surveillance for workers exposed to pesticides, repackaging (Articles 8.1.2; 10.3.2; 10.4 of the code), labelling, storage and disposal;
2. Strengthen capacity building in inspection services in terms of quality and quantity of technicians;

3. Strengthen, in collaboration with the private sector, the capacity building of agrochemical dealers and specifically pesticides traders on pesticides handling, distribution, use, transport, personal protective equipment, health surveillance for workers at risk, repackaging, labelling, storage and obsolete pesticides disposal;
4. Conduct yearly national inventory of pesticides, which provides obsolete pesticides stockpiles and prohibited pesticides among information collected;
5. Partner with private sector for establishment of adequate infrastructure for sound environmental disposal of obsolete pesticides stockpiles, new identified POPs included, as well as contaminated materials and pesticides containers;
6. Ensure information sharing among stakeholders institutions related to the pesticides management, including regulation and disposal of obsolete pesticides.

4.2. PCBs MANAGEMENT

PCBs are used in a multitude application including dielectric fluids, in transformers and capacitors, in heat transfer and hydraulic systems and as ink solvents in carbonless copy paper. Other uses of PCBs are the formulation of lubricating and cutting oils, as plasticizers in paints, in adhesives, in sealants, as flame retardants and in plastics and insulating materials. Generally closed and partially closed systems contain PCB oils or fluids (Guidelines for the identification of PCBs and materials containing PCBs, August 1999). The management of PCB is discussed at a number of stages like in use stage, storage, transportation and disposal.

4.2.1. Manufacturing

There is not any manufacturer of PCBs in Rwanda or PCBs recycling company

3.2.2. Importation of PCBs and equipment containing PCBs

PCBs are produced on an industrial scale for more than fifty years and have been exported as chemicals and in products. France and Belgium were the most important suppliers of transformers to Rwanda (inventory of 2005). As it appears today the situation has changed and it looks like new suppliers are coming in the market.

Since 2010, SACHEM (Tunisia) has supplied 478 transformers, this being 20 % of the total number of existing transformers. For more illustration about this new trend, a various number of other manufacturers share 34.10% of the market.

In fact, during the inventory a total number of 2,344 transformers were inventoried in the 23 different REG branches. They include those on service and out of service.

Table 6: Estimated amount of PCBs

<i>Branch</i>	<i>Inventoried equipment</i>	<i>Equipment supposed with PCB</i>	<i>%</i>	<i>Equipment leaking</i>		<i>Quantity of PCBs</i>		<i>Without nameplate or non-readable</i>	
				<i>PCB</i>	<i>Non PCB</i>	<i>Liquid</i>	<i>Waste</i>	<i>Total</i>	<i>Dielectric</i>
<i>Remera</i>	118	20	17	0	0	118.893	20.419	139.402	6
<i>Kacyiru</i>	96	15	16	0	0	102.376	2.0439	104.420	3
<i>Kanombe</i>	97	15	15	0	0	95.175	6.5405	101.716	3
<i>Gikondo</i>	102	11	11	0	0	132.816	9.973	142.789	1
<i>Muhima</i>	119	11	9	1	0	178.448	12.445	190.893	1
<i>Nyarugenge</i>	75	18	24	0	0	34.935	59.715	94.650	4
<i>Nyamirambo</i>	39	3	8	0	0	30.937	13.914	44.851	1
<i>Ngoma</i>	252	5	2	0	2	144.979	32.310	177.289	7
<i>Nyagatare</i>	335	7	2	0	11	44.081	76.081	120.162	3
<i>Bugesera</i>	79	2	3	0	0	39.202	14.999	54.201	1
<i>Rwamagana</i>	106	1	1	0	0	37.725	13.914	51.639	1
<i>Nyamagabe</i>	127	1	1	0	0	56.25	20.634	76.884	1
<i>Huye</i>	88	11	13	2	0	57.837	20.439	78.276	1
<i>Nyanza</i>	45	6	13	0	0	3.619	6.5405	10.160	0
<i>Ruhango</i>	48	3	6	0	0	24.064	9.973	34.037	1
<i>Muhanga</i>	72	2	3	0	0	49.149	12.445	61.594	4
<i>Karongi</i>	58	18	31	1	1	150.46	59.715	210.175	3
<i>Ngorero</i>	60	9	15	0	0	33.46	13.914	47.374	3
<i>Rubavu</i>	85	26	31	2	0	76.045	32.310	108.355	4
<i>Rusizi</i>	102	18	18	0	0	182.638	76.081	258.719	3
<i>Musanze</i>	108	17	16	0	0	151.901	75.245	227.146	4
<i>Rulindo</i>	86	6	7	0	0	33.46	13.914	47.374	3
<i>Gicumbi</i>	46	4	9	0	0	43.807	20.634	64.441	1
Total	2344	229	10	6	14	1780.907	665.64	2446.547	59

Source: REMA, 2014

Since the manufacturing of PCB equipment was banned in 1982 and assuming that the elimination of stored manufactured transformers continued until 1985, we start from the assumption that all transformers manufactured before 1986 are supposed to contain PCBs.

Table 7: Estimated amount of PCBs according to year of manufacturing

<i>Period</i>	<i>Number of transformers</i>	<i>Dielectric oil (tones)</i>	<i>Waste(tones)</i>	<i>Total(tones)</i>
<i>≤ 1960</i>	2	570	230	800
<i>1961-1965</i>	4	1,325	1,741	3,066
<i>1966-1970</i>	8	1,198	3,374	4,572
<i>1971-1975</i>	51	23,009	71,155	94,164
<i>1976-1980</i>	63	71,975.4	171,290	243,265.4
<i>1981-1985</i>	96	26,608	8,7661.5	114,269.5
<i>No indication of year of manufacturing</i>	12	10,720	21,215	31,935
<i>Without name plate or the nameplate cannot be read</i>	47	-	-	-
Total	283	135,405.4	356,666.5	492,071.9

3.2.3. The uses of PCBs and equipment containing PCBs

Transformers and capacitors are owned by the Rwanda Energy Group (REG) a public company producing and distributing electric power. The updated inventory conducted in 2013 (REMA, 2013), revealed the presence of 2,344 identified transformers with a total weigh in tons of 2,446.547 for containers and 665.640 tons of dielectric total weigh. In general transformers present in Rwanda were introduced after the country independence in 1962; however, it is important to stress here that the large number of them were introduced in Rwanda after 2011 with the introduction of the electrification of the country as a development factor.

4.2.4. In-Use Management of PCBs.

The PCB storage and disposal management are done following a guidelines or a code of practice. These guidelines / code of practice has been developed so that holders of PCBs and PCB contaminated equipment can minimise the risk to the environment from PCB holdings and avoid potential liabilities associated with holding and managing PCBs. The guidelines contain practical information / guidelines for holders of PCBs:

- 1) on the appropriate storage of PCBs,
- 2) labelling of PCB holdings,
- 3) notifying the REMA of PCB holdings and
- 4) disposing of PCBs.

The guidelines also contain information on the potential, Transportation, Disposal of Large PCB Holdings, Disposal of Small PCB Holdings, Storage of PCBs, its characteristics and health effects associated with PCBs and how to react to emergency situations associated with PCBs.

4.2.5. Transportation

All transportation shall be undertaken in accordance with the relevant environmental and road ordinances for the transportation of hazardous substances. PCB waste should be transported by vehicles in good condition under the supervision of experienced personnel and in compliance with the following conditions: All loading and unloading operations should be carried out with care to avoid any damage which results in leakage and spillage.

- The drums or the unwanted equipment must be clearly marked DANGER CHEMICAL (PCB) WASTE, together with a chemical waste label. The drums or the unwanted equipment must be loaded and fastened securely so that they are in an upright position and do not move about or fall off the vehicle. Drain spouts, cooling tubes and the bushings of the transformers should be adequately protected to avoid damage during transport.
- Vehicles should have high fencing on both sides, and preferably have a canopy.
- Vehicles should have hazard warning panels clearly marked with black indelible ink against yellow retro-reflective background DANGER CHEMICAL (PCB) WASTE. The panels should be displayed at the front and rear of the vehicle in a position that does not conceal any lights, licence plates or other legally required signs or markings.
- Vehicles must be equipped with safety equipment, including an appropriate fire extinguisher for emergency use, and a spill cleanup kit consisting of a shovel, absorbent material and spare drums.
- The complete load should be covered with a tarpaulin to prevent rainwater from contact with the drums or the equipment. Suitable bunding could be provided by placing sand bags around the cargoes.
- Vehicles should not carry any passenger or any flammable dangerous goods in the cargo compartment.

4.2.6. Disposal of Large PCB Holdings

- as soon as possible in the case of PCBs or used PCBs; or
- by 2025 in the case of equipment contaminated by or containing more than 5 litres of PCBs.

Large holdings are most likely to be in the possession of large organisations which should have little difficulty in arranging for a waste contractor to collect and dispose of PCBs. From an economic point of view, holders of PCBs should endeavour to take the

opportunity, where possible, to investigate and dispose of all PCBs as part of the same exercise. As the size of a job increases, the unit charge for disposal is likely to be less.

The 2025 deadline is considered adequate for PCB holders to investigate their requirements in terms of equipment replacement and PCB disposal. However, earlier disposal will ensure that a holder is removed from the national PCB inventory and that ongoing annual registration fees are not incurred.

4.2.7. Disposal of Small PCB Holdings

Small holdings are not always so attractive commercially for waste contractors to collect and consequently proportionately larger charges are likely to apply. In addition, small holders may be unable or unwilling to pay the costs associated with hazardous waste disposal. As mentioned above, the small holdings are most likely to be capacitors contained in everyday electrical equipment. Each capacitor may contain 20-30 ml of PCBs and some items of equipment may contain more than one capacitor. Some of the most significant sources are relatively easily identified and are may include; fluorescent lighting ballasts, including street lights, and capacitors. Such items are often likely to come to light only upon replacement or during building refurbishment. Electricians, electrical and demolition engineers, building managers, waste contractors and other target groups will be provided with relevant information for awareness purposes so that:

- They can identify known or suspected PCB containing equipment; and
- They can safely organise the removal and management of that equipment.

There is currently no prescribed timetable for the disposal of small PCB holdings. This means that PCBs may continue to arise as waste for the next decade or more. The generation of small holdings will be kept under review by the REMA. Where progress on the disposal of small holdings is not deemed to be adequate further instruments or incentives may be required. Such instruments might include;

- A national contract for the disposal of small PCB holdings.
- An absolute deadline for the removal of small PCB holdings. This would require legislative amendments incorporating specific legal requirements and timelines for PCB disposal by REMA.
- Consideration of drop off facilities at civic amenity sites and other suitable locations for small businesses which may possess small PCB holdings.

3.2.7. Storage of PCBs

PCBs can include any or all of the following categories of material:

- PCB-contaminated equipment such as; capacitors and transformers (in-use equipment);
- PCB liquid wastes drained from equipment and collected from drip trays;
- PCB contaminated materials such as soil, absorbent material, clothing, rags and handling equipment.

The following sections provide guidance on safe storage options for the above categories. Figures 2 and 3 are showing the transformers at BCM-Gikondo in the repairing workshop and out of the workshop used as a temporary storage area. It can be seen from these pictures that the actual way of handling transformers is causing a pollution problem. Therefore a new area for storage complying with all requirements for PCBs equipments and oil handling and storage has been identified and very soon construction work will start.



Figure 2: Is showing malfunctioning transformers at REG repairing workshop at Gikondo central store.



Figure 3: Is showing malfunctioning transformers stored at REG repairing workshop also used as temporary storage area at Gikondo central store.

4.2.8. Storage of In-Use Equipment

In-use PCB-contaminated equipment such as transformers should be stored in a bund made from a material impervious to PCBs such as steel.

The bunding used for in-use PCB-contaminated equipment should, as a minimum, be banded locally or remotely to a volume not less than the greater of the following:

- 1) 110 % of the capacity of the largest tank or drum within the banded area; or
- 2) 25 % of the total volume of substances which could be stored within the banded area.

The PCB contaminated equipment should be listed on an inspection schedule so that any potential leaks can be prevented through appropriate maintenance. To prevent leaks or spills from in-use equipment the following additional measures should be adopted:

- A **monthly inspection schedule** should be devised to ensure that PCB-contaminated equipment is inspected regularly and maintained so that any potential leaks are prevented.
- **Drain valves** on PCB-contaminated equipment should be securely closed in a way that will prevent inadvertent or unauthorised opening. Valves should be labelled “Risk of PCB spillage –Do not open”; In addition to bund provision.
- **Spill containment measures** such as metal drip trays or absorbent mats should be fitted to installations where possible. Spill kits should be provided

near installations and procedures should be in place for the management of used spill abatement materials that may contain PCBs.

- **PCB spillages** should not be able to reach floor drains. Where there is a risk of this occurring, and the risk cannot be avoided, drains should be capable of diversion to suitable containment or temporarily sealed by using appropriate drain seals or drain protectors.
- As part of the recommended written procedure 'Management of PCB Holdings', an **Accident Prevention and Emergency Response Plan** should be prepared and should incorporate the steps to be taken in the event of a spill of PCBs. This plan should be known and available to all staff.

4.2.9. Storage of Decommissioned / Waste PCBs

Decommissioned PCB-contaminated equipment or PCB waste should be transferred to a secure and well labelled store as it is removed from service or as waste is generated. Between the time of generation of the waste and its placement in storage, all due care should be taken to prevent accidental release of PCBs.

Waste PCBs and small items of decommissioned PCB-contaminated equipment should be moved and stored in appropriate sealed containers (e.g. UN approved hazardous waste containers) made of steel or other metals that provide sufficient durability and strength to resist any chemical action by liquid PCBs. Containers should have close fitting lids, which can be hermetically sealed.

Waste PCBs and decommissioned PCB-contaminated equipment should be stored on a floor or surface that is PCB resistant and that is appropriately banded.

4.2.10. Design of Storage Areas

Storage areas for decommissioned PCB-contaminated equipment and PCB wastes should have the following characteristics:

- **Security** – The PCB storage area should be securely locked and access should be restricted to authorised personnel.
- **Fire protection** – PCBs and PCB-contaminated equipment must be kept separate from flammable materials and holders should take all necessary precautions to avoid any risk of fire involving PCBs.
- **Spill containment** - All floor drains, sumps or other openings in the floor of the storage facility should be closed and sealed to prevent the release of liquids.

- **Segregation of PCBs** - No other waste should be stored within the area and no manufacturing or other activity should be undertaken. Solids and liquids should be stored in separate drums.
- **Weatherproofing** – Where possible, it is recommended that the PCB store be located indoors. If this is not possible an outside storage area should be covered with a waterproof barrier that protects the PCB containing equipment or containers and prevents moisture from entering the bunded storage area.
- **Adequate ventilation** – The store should have a fresh air inlet and an air exhaust to the outside.
- A **copy of the Accident Prevention and Emergency Response Plan** should be posted in the store.
- A **first aid kit** should also be located inside the store.

Large capacity PCB storage facilities should have a central receiving area where PCB equipment and wastes are loaded and unloaded from transport vehicles. This area should have an impervious floor and a containment system to control any spills during loading and unloading of PCBs.

4.2.11. Gaps The identified gaps

- 1) The mismanagement of PCBs containing materials.
- 2) The existing policies, Legal, and Regulatory Frameworks in Rwanda do not highlight anything regarding the PCBs management and their uniqueness.
 - 1) The country does not have any policy banning the entry of PCBs containing materials in Rwanda.
 - 2) There are not national strategies and technical guidelines specific to new PCBs management.

4.3. Management of POP-PBDEs

The POP-PBDEs in transport sector and in electrical and electronic equipment EEE/WEEE are considered to be the main sources of PDBEs on Rwanda as other uses of POP-PBDEs (e.g. furniture, mattresses, rebound materials, textiles, construction materials, rubber, and drilling operations, recycling of plastics and WEEE) are thought to be of minor relevance. The non-relevance in this case of Rwanda is supported by the fact that most of the industries of this sector are not present in Rwanda or started after the ban of the production of PBDEs.

As identified during the inventory, Rwanda does not have any facility producing POP-PBDEs or using them as raw materials nor a facility recycling or reusing polymers from used articles. However a good number of articles in which the use of POP-PBDEs was reported by research were identified. These include mainly electronic equipment (computer CRT, TV-CRT, etc.,) and vehicles manufactured before 2004.

In fact, the articles containing these chemical were identified during the inventory and the tables below are summarizing the findings for each category.

Table 8: Recalculation of POP-PBDEs present in the transport sector (data from tables above) to the listed POP-PBDEs homologues (tetraBDE, pentaBDE, hexaBDE and heptaBDE) for the relevant life cycle stages

	Distribution homologues c-PentaBDE	POP-PBDEs in vehicles currently in use in inventory year 2014 (in kg)	POP-PBDEs imported in vehicles in the inventory year 2014 (in kg)*	POP-PBDEs in end-of-life vehicles in the inventory year 2014 (in kg)*	POP-PBDEs disposed off in the past from the transport sector (in kg)
Inventoried POP-PBDE		Σ PentaBDE =935.9 kg	Σ PentaBDE=20 .5 kg	NA*	Σ PentaBDE=3.9 kg
tetraBDE	33%	308.8	6.8	NA*	1.3
PentaBDE	58%	542.8	11.9	NA*	2.3
hexaBDE	8%	74.9	1.6	NA*	0.3
HeptaBDE	0.5%	4.7	0.1	NA*	0.02

** The records available are not allowing making an estimate for this category (for more details see the methodology).*

Table : HexaBDE and heptaBDE present in EEE, WEEE

Homologues	Distribution homologues c-OctaBDE	POP-PBDEs in import for inventory year 2014(kg)	POP-PBDEs in stocks for inventory year 2014(kg)	POP-PBDEs entering the waste stream 2014(Kg)	POP-PBDEs in recycled polymers for inventory year 2014(kg)
Inventoried c-OctaBDE		Σ c-OctaBDE= 4,625.01	NA*	Σ c-OctaBDE =966.1	NA*
HexaBDE	11%	508.75	NA*	106.3	NA*
HeptaBDE	43%	1,988.8	NA*	415.4	NA*
OctaBDE	35%	1,618.8	NA*	338.1	NA*

* There is not a facility recycling polymers containing POP-PBDEs.

In the context of these surveys, the country contains around 1,905.9 kg of PBDEs and both transport sector and electronic sector had almost the same contribution as their contents are around 935.9kg and 966.1 kg respectively.

The inventory did not manage to quantify PBDEs in other uses as their records and other relevant information were missing.

Although gaps were identified during the inventory efforts in PBDEs and PFOs (which are discussed later), the country has key policies regulations and law that help in the minimization / elimination of risks associated to these chemicals. These include for example

- 1) Organic law No 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda, article 26, 81 & 83: the following are prohibited: dumping solid, liquid waste and hazardous substances, article 107 & 109.
- 1) The law relating to the probation of manufacturing, importation, use and sale of polythene bags in Rwanda, the regulations of Kigali city.

- 2) Prime Minister's Instructions No 005/03 of 27/12/2007 preventing air pollution caused by vehicular Emissions and Machines using Petroleum Products in Rwanda.
- 3) Ministerial Order N°4/DC/04 of 07/06/2004 prescribing annual fees payable by public utilities.
- 4) Regulations on solid waste collection and transportation, 2012.
- 5) The Law No° 50/2008 of 09/09/2008 determining the procedure For disposal of state private assets.
- 6) The law deals with the disposal of state private assets by defining the methods of disposing such assets. Parts of these assets are wastes containing new POPs; however it does not include any statement that considers their uniqueness.
- 7) The Ministerial Order No: 1 of 25/10/2011 regarding the importation of used electronics/ICT equipment.
- 8) It states that used electronics are banned for importation.

4.3.1. Mass flow of EE and their wastes concerned by SC

The key stakeholders of management of EEE and their wastes are the importers, distributors and retailers, consumers, repair workshops/technicians (refurbishers), collectors and disposal facilities. The movement of computers and other e-equipments among the various stakeholders is illustrated in figure below

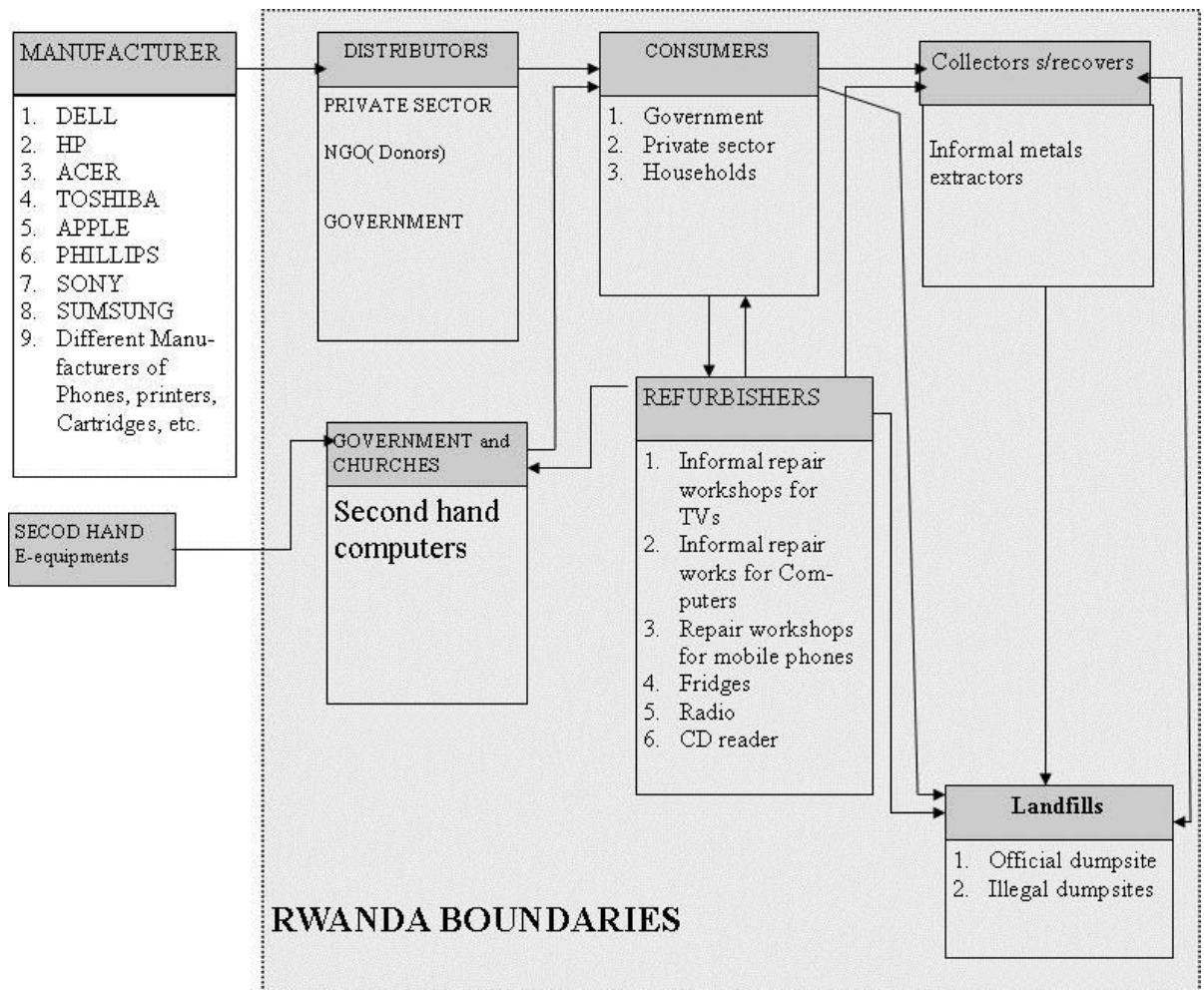


Figure 4: Mass flow of electronic equipments in Rwanda(Source: REMA , 2013)

4.3.4. Manufacturer

Up to now, the country does not have any facility manufacturing EEE from their raw material. However recently there is a facility established that resembles new spare parts of laptop computers to make new laptop computers; therefore all CRT computers as well as CRT-TV and other IT equipment in Rwanda are imported.

4.3.5. Distributors

E-equipments that are found in Rwanda are distributed by the government through its procurements plan, private operators while another good fraction of e-equipments is from different donors which are generally NGOs.

4.3.6. Consumers

Like in other countries, the consumers of e-equipments in Rwanda can be divided into three categories: Government, Private sector and Households. According to the study conducted by REMA in 2011, UN system, NGOs and the government in ICT sector are the major consumer of electrical and electronic equipment in Rwanda.

4.3.7. Collection of e-wastes

Old EE collected from governmental institutions are stored at GIKONDO under the supervision of Rwanda Housing Authority (RHA) which will plan how to auction them. Others are still in store of those institutions. All those e-wastes stored at GIKONDO are mixed with other waste including waste from office furniture (tables, chairs) (REMA, 2011). The visit to different institution either public or private revealed that E-wastes are stored in specific stores waiting to be auctioned, the practice that end up by handing the e-wastes and old e-equipment to the refurbishers.



Photo 1: Computer at INES

According to COPED, sometimes the e-wastes generated at household are included in other wastes in the wastes collection sites.

4.3.8. Refurbishers

The refurbishment system of computers in Rwanda is mainly informal. Few refurbishment initiatives also exist in formal private companies. With regard to the informal system, many computer, phone, TV and fledge workshops exist in Kigali and other main cities of the country.

The workshops buy old EE which are auctioned by government and private companies as well as those sold by individuals then after, the repairable computers and other EE are repaired and sold again.

In addition, normal repair works of computers in various consumers is done at the site of consumers using technicians who are either employees of the distributors/retailers or freelance technicians. Some of the distributors/ retailers provide technical support to their customers including repair works and most of the consumers interviewed prefer to have their computers repaired at their own premises.

4.3.9. Management of POP-PBDEs in transport sector

The POP-PBDEs in transport sector concerned the categories of vehicles cars, trucks and buses manufactured before 2004.

Because many of the country vehicles were manufactured before the phase-out of these chemicals, there is higher probability that wastes from the vehicles are containing these types of POPs.

A. Wastes from garages

The wastes from vehicles are generally found in private garages and institutions garages. The survey revealed that all generated combustible solids waste are in some cases air open burned in their compound as shown by figure 4.

In different garages across the country, the scraps metals and replaced spare parts are collected and stored. When the stock is big, SteelRwanda scraps dealers buy and take them to the plant for recycling. However, sometimes the clients like to take the replaced spare parts to their homes. Furthermore, in Kigali City wastes which are not taken to SteelRwanda Ltd are collected by the wastes collection companies and end up also by entering in Nduba dumpsite.



Photo2: RWANDAMOTOR garage.

The picture is showing cars under repairing and the right picture is showing a dumpsite within the compound where solid wastes are burned in a metallic box.

Other types of wastes

These wastes are managed at household level and are mixed with other wastes and therefore transported in the dumpsites or landfills

4.3.10. Identified gaps in policies and regulations

- 3) The existing policies, Legal, and Regulatory Frameworks in Rwanda do not highlight anything regarding the NEW POP management and their uniqueness.
 - 3) The country does not have any policy banning the entry of vehicles and EEE manufactured before 2004 in Rwanda
 - 4) There are not national strategies and technical guidelines specific to new POPs management
 - 5) The ministerial order allowing the entry of used computers should be removed as in now days computer are affordable compared the period of its establishment
 - 6) The organic law the governs the environmental management must be reviewed to include the new threat of the environmental among others NEW POPS, e-wastes
- Some laboratories present in Rwanda with the capability of analysing POPs don't have competent personnel.

4.4. Management of PFOS

Although PFOS and its derivatives are used in numerous manufacturing processes such electronics industry, semiconductor industry, photographic industry, metal plating industry, chemically driven oil and gas production, mining industry, and in manufacture of plastic and rubber product; these industries are yet developed in Rwanda. In addition their application in manufacturing of articles (compounders, manufacture of articles, recycling and reuse of synthetic carpets) is inexistent in Rwanda.

However consumer articles containing PFOS, its salts, PFOS and its related substances such as industrial and household surfactants, paper and packaging (plates, food containers, popcorn bags, pizza boxes and wraps, baking paper, disposable plates) uses in non-food contact applications (folding cartons, containers, carbonless forms and masking papers, table clothes, wall paper, paint and varnishes, toner and printing ink, sealants and adhesive products, medical devices, are present in Rwanda even if their statistics are not available or available in the manner that does not allow PFOS quantification.

4.4.1. Importation

The importation of PFOS as raw materials does not exist in Rwanda as the country does not have any facility using them. However the articles suspected to contain PFOS were/ are imported to Rwanda territory although their quantification is a problem.

4.4.2. Fire fighting foams

The main stocks of fire fighting available in Rwanda are managed by RNP. However up to now there is not a clear study that was conducted in the place of application to assess the extent of contamination.

4.4.3. Aviation Hydraulic fluids

Rwanda does not import the Aviation Hydraulic fluids as all maintenances practices took place out of the country

4.4.4. Wastes managements

As PFOS and PBDES are sometimes found in the same articles, added to the fact that the wastes from same city are collected by the same companies, the wastes management process described for PBDEs containing articles as the same as for PFOS containing articles.

4.4.5. Identified gaps

The gaps identified for POP-PBDEs and pesticides are applicable also to POP-PFOS as they share a good number of articles. In addition to that the data collection was also hindered by the lack of data in some sectors due to the fact that these articles share the importation code with many other articles. In addition to this, there not studies that were conducted to confirm the contamination of the sited contaminated sites as well the extent of their effect to the environment.

4.5. Status of UPOPs in Rwanda

Some of the PCDDs/PCDFs have never been used as commercial products, nor were intentionally manufactured for any reason other than laboratory purposes. PCB, HCB and PeCBz are unintentionally formed, usually from the same sources that produce PCDDs/PCDFs. However, unlike PCDDs/PCDFs, they have also been manufactured and used for specific purposes, their intentional production and use being by far higher than the unintentional formation and release. PCDDs/PCDFs releases are accompanied by releases of other unintentional POPs, which can be minimized or eliminated by the same measures that are used to address PCDDs/PCDFs releases.

Table 9: The current situation of new U-POPs in Rwanda

No	Common name and CAS No	Production and use	Alternatives	Current status in Rwanda
1	α-Hexachlorocyclohexane (α -HCH), CAS No 319-84-6, Annex A	Use of alpha- and beta-HCH as insecticides was phased out years ago, but these chemicals have been produced as <i>byproducts of Lindane</i>	As there is no intentional use of alpha- and beta-HCH, it is not required to identify alternatives	Not found but present in the bulk of insecticides temporally stored in Nyanza site
2	β-Hexachlorocyclohexane (β -HCH), CAS No 319-85-7, Annex A			
3	Pentachlorobenzene (PeCB) , CAS No 608-93-5, Annex A	Previously, PeCB was used in PCB products, in dyestuff carriers, as a fungicide and a flame retardant. Also produced unintentionally during combustion, thermal and industrial processes, and present under the form of impurities, in products such as solvents or pesticides	Efficient and cost-effective alternatives are available and Best Environmental Practices need to be applied	Not found and no importation known since longtime

The table below is summarizing the country situation

Table 10: Results of PCDD / PCDF key source categories at national level (2015)

Group	Source Groups	Annual Releases (g TEQ/a)				
		Air	Water	Land	Products	Residues
1	Waste Incineration	8.560	0.000	0.000	0.000	0.0
2	Ferrous and Non-Ferrous Metal Production	0.320	0.000	0.000	0.000	0.0
3	Heat and Power Generation	8700.154	0.000	0.000	0.000	0.0
4	Production of Mineral Products	6.988	0.000	0.000	0.000	0.6
5	Transportation	0.138	0.000	0.000	0.000	0.0
6	Open Burning Processes	0.582	0.000	0.006	0.000	0.0
7	Production of Chemicals and Consumer Goods	0.000	0.000	0.000	0.088	0.0
8	Miscellaneous	0.025	0.000	0.000	0.025	0.0
9	Disposal	0.000	4.939	0.000	0.000	42.0
10	Identification of Potential Hot-Spots				0.0	0.0
1-9	Total	8716.8	4.9	0.0	0.1	42.7

The U-POPs are not manufactured in Rwanda and therefore they are released unintentionally during combustion, thermal and industrial processes. The U-POPs management is improved continuously, starting from the first inventory in 2004 with the establishment of regulations.

In fact the Environment Committees responsible for the conservation and the protection of the environment were established at Province, the City of Kigali, District, the Sector and the Cell levels.

The Article 33 of the organic law No 04/2005 of 08/04/2005, recognizes that some wastes are more dangerous where it is state that: “Any waste, especially from hospitals, dispensaries and clinics, industries and any other dangerous waste, shall be collected, treated and changed in a manner that does not degrade the environment in order to prevent, eliminate or reduce their adverse effects on human health, natural resources, flora and fauna and on the nature of the environment.

The same law bans some informal wastes treatment and practices in its Article 32 where it states that: “No one is permitted to dispose waste in an inappropriate place, except where it is destroyed from or in a treatment plant and after being approved by competent authorities” in its article Article 34: “Burying toxic waste is only done when there is an authorization and in accordance with special regulations” The law also regulates the imports of chemicals and pays an emphasis to toxic one.

Furthermore in its article24, it prohibits the Burning of garbage, waste or any other object (tyres, plastics, polythene bags and others). This led to the installation of 35 incinerators used to incinerate medical wastes.

The law has implementing orders including:

- Prime minister’s order n° 26/03 of 23/10/2008 determining the list of chemicals and other prohibited pollutants.
- Prime minister order n°27/03 of 23/10/2008 determining a list of prohibited drugs unless authorized or temporary permitted.
- Ministerial order n°004/2008 of 15/08/2008 establishing the list of works, activities and projects that have to undertake an environment impact assessment.
- The Ministerial order prohibits purchase, sell, import, export, transit, store and pile chemicals, diversity of chemicals and other pollutants.
- The order establishes the list of restricted pollutants.
- The order establishes the requirements in the application file for authorization and modalities of issuing authorization.
- Regulations on decentralized wastewater treatment systems, 2012.
- Regulations on cleaning services, 2012.
- Guidelines on liquid waste disposal and treatment, 2009.

The Toolkit addresses direct releases and transfers of PCDDs/PCDFs to the following five routes:

- Air
- Water (fresh, ocean, estuarine; then subsequently into sediments)
- Land (soil)
- Waste (including liquid, sludge, and solid residues, which are handled and disposed of as waste or mainly recycled)
- Products (such as chemical formulations or consumer goods such as paper, textiles, etc.).

To assist Parties in identifying PCDDs/PCDFs sources at the national level, the Toolkit includes source categories as described in Annex C of the Stockholm Convention.

- c) Waste Incineration
- d) Ferrous and Non-Ferrous Metal Production
- e) Power Generation and Heating
- f) Mineral Products
- g) Transport
- h) Uncontrolled Combustion Processes
- i) Production of Chemicals and Consumer Goods
- j) Miscellaneous
- k) Disposal/Landfill

The source categories listed in the Toolkit are divided into ten source groups each of the divided in several sub categories.

A country or region can begin identifying its PCDDs/PCDFs sources by determining the presence or absence within its borders of the PCDDs/PCDFs sources currently listed in the Toolkit. The application of the toolkit during the inventory gave an estimated quantity of U-POPs in the country. The summary of the results are presented in the next chapters.

4.6. Contaminated sites

This paragraph presents a summary of the inventory findings for contaminated sites for each category of POPs (for more details contact the inventory reports).

4.6.1. Sites contaminated by POP-Pesticides

The whole bulk of the obsolete pesticides identified in the national inventory of 2005, including lindane and endosulfan is summarized in the following table:

Table 11: Potential contaminated sites and stock of obsolete pesticides POPs included

Site location	Bulk of pesticides	Estimated Quantities	Comments	Potential Impacts
Nyanza former public wastes sites (photos 5 to 12)	Bulk of solid products, including lindane and endosulfan	28,823 kg in plastic drums fertilizers wastes	(1)The site is lacking maintenance; (2) not well fenced; (3) currently covered with grass and shrubs, therefore not possible to see the status of 3 concrete pits where the pesticides are temporarily stored; (4) Agriculture developed in the sites; (5) runoff crossing the site and draining in Kicukiro drainage system; (6) site not labelled or lack the warning signs	(1)Risks of forgetting its boundary; (2) Risk of development of human activities (agriculture, construction, etc.) that may exposure their life to the danger; (3) Damage of concrete by trees roots, therefore to wastes release; (4) introduction of hazardous wastes in food chain through their bioaccumulation in crops; (5) Risk of spread of contaminant offsite by runoff water; (6) Local people underestimate the danger from the site.
	Bulk of liquid products	3,030 liters contained in metallic drums	(5) runoff crossing the site and draining in Kicukiro drainage system(6) site not labelled or lack the warning signs	
	Mancozeb	250 tons	definitively disposed by immobilization and landfill (Photo 11) as recommended by a FAO/EU joint mission of experts	No negative impact
Kabuye / Riziculture / JABANA Sector	Methamidophos 50% EC	200 litres	Drum hermetically closed (see photo 13.) to prevent risks of use while waiting the elimination but it is not protected against rains and sunrise and therefore, the drum package is rusting	As it is, there isn't a direct effect to human life or to the environment. However, rusting combined with the internal pressure that may rise due to the unwanted reaction and solar radiations may lead to the

Site location	Bulk of pesticides	Estimated Quantities	Comments	Potential Impacts
				drum busting.
Nyamagabe (photos 14 & 15)	Mancozeb and Pyrimiphos methyl	Average of 14 tons	(1) Not fenced; (2) not labeled (no warning symbol); (3) Eucalyptus tree next to the site.	(1) Accessible to everybody and risk of developing human activities that may damage the site in neighborhood areas (3) Potential destruction of the concrete by eucalyptus roots, (3) Local people underestimate the danger from the site.
Rubirizi stock of obsolete pesticides	Small quantities of different type of pesticides	not known	The wastes of pesticides was eliminated by Military company authorized by REMA by using Kanombe - incinerator	No identified impact, as they have been incinerated

Source: MINITEREE, Rapport d'inventaire national préliminaire des pesticides Polluants Organiques Persistants au Rwanda, Août 2015

The following two tables, extracted from the POPs inventory report (May 2015) indicate the quantities of pesticides temporarily stored in the Nyanza-Kicukiro site, including two new POPs, Lindane and Endosulfan.

Table: Composition and quantity of the solid waste temporarily stored in Nyanza-Kicukiro site

Name of active ingredient	Formulation	Quantity (kg)	Importation year	Country of origin
Lindane +Thiram (Fernasan) 45 % WP	PP (*)	1,280	1990-1992	Japan
Endosulfan 3% Dust	PP	1,748	1992	Japan
Pyrimiphos methyl	PP	11,931	1995	European Union
Thiophanate+Diazinon+Thiram	WP (**)	6,806	1990-1994	Japan
Mancozeb	WP	1,875	Not found	Japan
Benomyl	WP	1,900	1994-1995	Japan
Chlorothalonyl + copper oxychloride	WP	3,000	1994-1995	Japan
Other formulation	WP	283	NA	
TOTAL		28,823		

Source: POP pesticides inventory report, REMA May 2005

(*): Poudrable Powder; (**): Wettable Powder

Table.: Content and quantity of the solid waste temporarily stored in Nyanza-Kicukiro site

Name of active ingredient ¹	Formulation	Quantity (l)	Importation year	Country of origin
Chlopyriphos-ethyl	EC (*)	155	Not found	NA
Diazinon	EC	200	1990-1991	Japan
Dimethoate	EC	75	Not found	Japan
Fenthion	EC	175	1991	Japan
Glyphosate	EC	5	1990-1994	Japan
Methamidophos	EC	200	1995	China
Paraquat+diquat	EC	5	1991	Japan
Parathion methyl	EC	1.000	1995	China
Pendimethaline	EC	900	1993-1995	Japan
Propiconazole	EC	100	1991	Japan
Satunil	EC	100	1990-1991	Japan
Other formulation	EC	115	NA	NA
TOTAL		3.030		

Source: POP pesticides inventory report, REMA / May 2005

(*): Emulsifiable Concentrate

¹ Concentration not available



Figure: *Disposal site for an average of 14 tons of an obsolete insecticide Pirimiphos methyl and obsolete fungicide Manconzeb*

Although the Prime Minister's Order No. 26/03 Of 23/10/2008, has classified DDT among other chemicals and other pollutants that are prohibited in Rwanda to purchase, sell, import, export, transit and store; there were some historical use of DDT that are known.

In fact The use of DDT in Rwanda started in 1940 with a campaign against mosquitoes which cause malaria by using three formula of DDT such as the DDT 5% PP (powder to be powdered) or DDT 10% PP for the treatment of the marshes and DDT 50% WP (water powder) for spraying in their breeding places. Until 1986 and on top of fighting against insects vectors of the malaria, DDT was used in agriculture to fight against bugs on coffee-trees and the notorious insects in food stores.

Due to the long-term utilization of DDT, exposure and its persistent properties actions should be taken to undertake laboratory quality control tests to assess its level of concentration in soils, fish, water in the following districts/Bugesera, Kamonyi, Ruhango, Nyanza, Rubavu, Rutsiro, Karongi, Nyamasheke and Rusizi

Furthermore, according to FAO, in Rwanda tsetse control by chemical means took place for the first time in the Bugesera region (S.E. Rwanda) in 1960. From August 1960 till March 1961 an area of 190 km² (3 568 ha tsetse biotope) was reclaimed by discriminative aerial spraying of dieldrin (Buyckx, 1965).

Finally, in 1963/1964 dieldrin was applied during the first half of the campaign and later replaced by Telodrin within the same area. Thus 500 km² of flybelt (13 240 ha biotope) were reclaimed of tsetse eventually (Buyckx, 1965). In the first season series of 8 successive applications with 28 day intervals were usual, but this was changed to 24 day intervals in the '61/62 and '63/64 campaign due to shorter duration of pupal life.

4.6.2. Contaminated sites of PCBs

Around 20 transformers on the network are currently leaking. 14 of them are new transformers made in 2010, 2011 and 2012. These transformers have been added to the existing list of transformers that have been analysed for PCB detection to make sure they are PCB free and they are not polluting the environment. The sites of old transformers manufactured before 1986 with high leaks have been considered as hot spots and contaminated sites. In addition to the oil, water and soil samples will be collected and analysed. 6 sites have been so far identified they include 2 sites of Muhima, one of Rubavu (a cabin within Rubavu hydropower plant), one of Karongi, one of Huye and another of Rubavu.

4.6.3. Contaminated sites PFOS and PBDES

It is very important to mention that many of the materials suspected to contain the industrial POPs (PBDEs and PFOS) such as electronic wastes (CRT computer casing, keyboard), wastes from vehicles, plastics etc, were found in Nduba dumpsite. The site is not completely fenced and the rain water management is very poor where the absence of runoff diverting channels as well as the mismanagement of the site, is responsible of the runoff that drains water from the site downstream areas where it interferes with human activities with a higher probability of entering in the food chain. The potential possibilities of POPs entry in food chain include bioaccumulation in living organism (plant and animal), contamination of both surface water and groundwater through leaching process.



Photo 3: Vehicle interior made of plastic (left), computer keyboard with empty printer cartridge (right) at Nduba dumpsite GPS position Z: 1712 m; X: 512259; Y:04793666



Photo 4: Empty cartridges (left) and computer screen with CRT (right) at Nduba dumpsite GPS position Z: 1712 m; X: 512259; Y:04793666

Currently, the site employs 90 workers who separate plastic wastes to be recycled from other wastes and dump the latter in appropriate pits. As the wastes management practice in the country is almost the same even other dumpsites of big cities are considered as contaminated sites until scientific results showing their status are generated.

Table 12 :List of landfill of big cities

CITY	Landfills sites
RUBAVU	RUTAGARA
Kigali city	NDUBA
HUYE	RWABAYANGA MUKURA
NYAMAGABE	AKABACUZI
MUHANGA	MUSHUBATI
RUSIZI	RUHIMBI RUDASOMWA
MUSANZE	RUGESHI

4.6.4. Other potential contaminated sites

Besides the enumerated dumpsites there other places such where activities that involved articles containing the PFOS took place for long period that need to be subjected to laboratory test for confusion removing. These include for example Agakinjiro and other places in Kigali where furniture manufacturing took place in the past years, Kigali international airport, areas where firefighting were used and their surroundings.

4.7. Overview of technical infrastructure for POPs assessment in Rwanda

Overview of technical infrastructure for POPs assessment was conducted.

National institutions which have laboratories for chemical analysis were identified and the capacity of their laboratories to analyze POPs was assessed. The assessment regarded laboratory equipments and consumables, capacity of human resources available, level of collaboration of the assessed laboratories, their capacity of analysis and interpretation of results and POPs disposal capacity. Due to the requirements of POPs analysis, only academic and research laboratories and Quality assurance and quality control laboratories were visited and assessed through observation and interview to people involved in laboratory daily management. Assessed laboratories include RSB laboratories, UR laboratories, NAEB laboratories, RAB laboratories, EWSA laboratories.

The outcomes of the assessment compiled in the present report show that currently most of national laboratories do not meet POPs analysis requirements. Upgrading strategies have been recommended taking into consideration POPs analysis requirements such as staff training, availability of laboratory equipment and consumables and laboratory housing.

4.8. Wastes incineration

The MoH has so far inventoried 34 incinerators within the country in the following health facilities: Bushenge, Byumba, CHUK, Gahini, Gihundwe, Gisenyi, Kabaya, Kabutare, Kibirizi, King Faisal Hospital, Kinihira, Masaka, Muhima, Munini, Nyanza, Ruhango, Rwanda Military Hospital, Murunda, Butaro, Kibagabaga, CHUB, Ruhengeri, Gitwe, Kabgayi, Kibogora, Kibungo, Kibuye, Kirehe, Nemba, Ngarama, Nyagatare, Nyamata, Rwamagana and Shyira.

During the visit, it was noted that the chimneys and the outer parts on the incinerators of different hospitals are black which shows that there are black fumes that escape from the system. It was also found that the incinerators used in Rwanda don't have filters to trap toxic substances. In addition to this, their chimneys are short

CHAPTER V: THE IDENTIFIED KEY PRIORITIES AND NATIONAL OBJECTIVES ON POPs MANAGEMENT

5.1. The assessment of National Implementation Plan

In order to have the baseline data for updating the National Implementation Plan, the National Implementation Plan of the Stockholm Convention on Persistent organic Pollutants (POPs) in Rwanda: 2007-2025 established in 2006, was assessed and analyzed to identify and evaluate the achievements, and challenges encountered during the implementation. The first NIP particularly focused on:

- Improving the knowledge about the POPs in order to be able to eliminate/reduce their local resources and wastes in quantities;
- Enacting adequate national legislation policies aiming specifically at POPs and ensure its implementation;
- Reinforcing the institutional capacities of the parties involved in the rational ecologic management of POPs and coordinate their activities;
- Ensuring exchange of information in terms of implementation and participate with international cooperation in the fight against POPs.
- Enabling activities project (AH POP-MINITERE) leading to among other things the preparation of NIP, begun on 1 November 2003 and its activities have been carried out through several phases in conformity with the recommended

Its implementation was guided by the following action plans:

1. Information, sensitization and training the public about the POPs.
2. Reinforcement of institutions and regulations.
3. Rational ecologic management of wastes resulting from unintentional production of POPs.
4. Management of polychlorinated biphenyls (PCBS: Annex A) and their packaging materials.
5. Supervision and research-development.
6. Management of stocks and wastes from POPs containing pesticides.
7. Sound ecologic management of contaminated sites.
8. System of information exchange and participation with international cooperation.

5.1.1. The results of the assessment of NIP I

The assessment of the achievement of NIP I conducted in the focal point found that the following activities were achieved but continuous improvement should be considered for effective and sustainable management of POPs in compliance with Stockholm convention.

- ❖ The institutional focal point of Stockholm and Basel conventions:
 - ✓ The Ministry of Natural Resources (MINIRENA)
 - ✓ REMA
- ❖ Update of the Coordination mechanism:
 - ✓ Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants”
- ❖ Identification of the main stakeholders and other parties regarding the issue of POPs management,
- ❖ Establishment of a national steering committee,
- ❖ Preparation of the national profile for the management of chemical products,
- ❖ Training workshops on POPs- PBDEs, PFOS, PCBs and pesticides identification, production, use and management
- ❖ Inventory of pesticides and contaminated sites by POPs.
- ❖ Inventory of PCBs in electrical equipment and sites contaminated by the PCBs;
- ❖ Inventory of dioxins and furans ;
- ❖ The legal, regulatory and institutional framework of the management of POPs.
- ❖ Training (2008) on POPs trade and imports, update of Ministerial Orders on agrochemicals
- ❖ Domestication of international conventions in National law and regulation

In this regards, various Governmental institutions are involved in inspections to ensure compliance with laws. Those include: MINIRENA, MINAGRI, MYICT, MINICOM and MINISANTE, REMA, RURA, RAB, RRECPC, RRA and RSB. Rwanda is part of:

- ✓ the ROTTERDAM International Convention on commercial transactions of agricultural pesticides and other poisonous products, ratified in 2003;
- ✓ The Basel convention on control of transboundary movements of hazardous wastes, ratified in 2003.

5.2. Issues to address in the area of POPs management

5.2.1. The issues identified for the all categories of Persistent organic Pollutants during the inventory

- The key stakeholders are not systematically involved in POPs management: participation and partnerships are becoming increasingly important for successful management of POPs (Inadequate involvement of major stakeholders (e.g: local community, NGOs, the private sector, industries) in addressing the environmental and health problems has been noticed.
- Skills in POPs production, use, identification, and management are often insufficient: NIP aims to provide for the development of the whole range of scientific, technical and managerial skills necessary for planning and management of POPs, as well as stakeholder participatory processes and skills for joint planning and community participation (strengthening training opportunities). Very limited information is another challenge as there is no systematic quantitative assessment of POPs
- Rehabilitation of contaminated sites: urgent and major task, requiring the commitment of significant resources.
- Cross- sectoral linkages: POPs challenges are cross- sectoral and the only way in which management and monitoring can be tackled effectively is by a collective endeavor which pulls together the seemingly diverse institutions characterizing the various sectors. The NIP establishes a framework for cross-sectoral coordination. Inadequate institutional coordination and collaboration between government institutions can lead to lack of common strategies
- The level of public awareness on the POPs effects and associated adverse to human health and environment is still low.

Note: the regulatory regime on POPs control and reduction still has to be improved and reinforced

5.2.2. issues for old POPs

The Pesticides inventory realized in May 2015 has determined main gaps / issues in the whole management of pesticides and potential contaminated to be addressed in the updated NIP. These issues are listed below:

- ✓ conflict situations for registration of some pesticides in agriculture and health sectors
- ✓ Clarification of roles and responsibilities in the pesticides management in the Ministry of Agriculture and Animal Resources
- ✓ Poor best practices in distribution, handling, use, and management of pesticides
- ✓ Poor data entry system of pesticides imports and pesticides inventory at dealers' level and public services level
- ✓ Poor management and monitoring of contaminated sites

Limited institutional capacity, technical skills and human resources in pesticides management.

5.2.3. Issues for Industrial POPs (PFOS and PBDEs)

During the inventory of conducted in 2015(REMA, 2015) the following issues were identified for PBDEs and PFOS management.

➤ **Lack of reliable data**

During the inventory, the institutions that were expected to have the reliable raw data such RRA, NISR, RURA, Basel convention focal point had them in format that was not allowing the application of the guidelines provided by UNEP (please check if it UNEP, 2014) . In fact, in RRA and NISR many items (products) share the same code and this hindered the usage of their data during the quantification of POP-PBDEs.

➤ **Monitoring and surveillance of health status relevant to potential impacts of NEW POPs.**

As for the old POPs, there is not health studies conducted in Rwanda to assess at least the level of bioaccumulation of POPs in people dealing with POPs in their daily life. For this case the target should include but not limited to, the people involved in garages activities, refurbisher of Electronic equipments (TV, Radio, Computer, etc.), people involved in landfill and dumpsites activities, people working in textile industry and paints industries, people using carpets, etc.

➤ **Management and disposal of POPs-contaminated articles (NEW POPs containing wastes)**

There is not a clear policy or law defining where, how, when and who has the responsibilities of the disposal of wastes containing the new POPs. Such guidance need to direct the management of contaminated articles.

This is illustrated by the following gaps identified during the inventory:

- ❖ The existing policies, Legal, and Regulatory Frameworks in Rwanda do not highlight anything regarding the NEW POP management and their uniqueness.
- ❖ The country does not have any policy banning the entry of vehicles and EEE manufactured before 2004 in Rwanda and other NEW POP containing articles
- ❖ There are not national strategies and technical guidelines specific to new POPs management
- ❖ The ministerial order allowing the entry of used computers should be removed as in now days computer are affordable compared the period of its establishment

❖ The organic law governing the environmental management must be reviewed to include the new threat of the environmental among others NEW POPs, E-wastes

❖ **Establishment of refurbisher working places in different cities**

Currently repair of WEE is done informally and scattered in different places of the country cities. The establishment of refurbishes working place should help in monitoring of the mass flow of E-wastes. Such working place could have a central warehouse where wastes waiting for the final disposal could be stored.

❖ **Lack of understanding and knowledge on PBDEs and PFOS**

There is an urgent need of educating the key stakeholders of NEW POPs on their existence, consequences as well as management for both environmental and health protection. It should be better this education is incorporate in a postgraduate program. This can trigger the integration of POPs monitoring in academic researches. Furthermore the education should include the obligation of Stockholm convention for the nine NEW POPs.

5.2.4. The issues for Unintentionally Persistent organic pollutants (U-POPs)

Like in the previous cases, the following were identified: for U-POPs

- Waste management (collection, separation, transportation and disposal) are not done in ESM
- Uncontrolled combustion processes and disposal / landfill solid and liquids.
- Emission and pollution in various types during the incineration systems, waste disposal (furnaces, low technological condition)
- Limited institutional capacity, technical skills and human resources in UPOPs management
- Limited knowledge of dioxin and furans formation mechanisms and furans in industrial systems production of metals and minerals (cement)
- Low level of awareness in UPOPs
- No data collection system of a reliable database and regular monitoring for all major categories of sources PCDD/PCDF.
- Statistical data are lacking for open burning and domestic UPOPs production

5.2.5. Identified issues for PCBs management

According to the inventory of 2015 (REMA, 2015), the followings issues were identified for PCBs management.

- ❖ the mismanagement of PCBs containing materials
- ❖ The existing policies, Legal, and Regulatory Frameworks in Rwanda do not highlight anything regarding the PCBs management and their uniqueness.
- ❖ The country does not have any policy banning the entry of PCBs containing materials in Rwanda
- ❖ There are not national strategies and technical guidelines specific to new PCBs management

5.3. Country priorities and action plans

After analysis the above issues, key priorities were formulated in collaboration with the stakeholders and the focal point as indicated in chapter II. Then after the indentified priorities were grouped into action plans that were ranked according to their priority order applying the methodology described in chapter II. In the next paragraph priorities and action plans arranged to their order of priority are given while the actions plans are developed in chapter VI following the methodology in Chapter II.

5.3.1. Key Priorities for old POPs

- ❖ Conduct yearly national inventory of pesticides used in the agriculture sector, obsolete pesticides included;
- ❖ Evaluation and Popularization of Alternatives to POPs pesticides adapted to the local context;
- ❖ Stockpiles of obsolete pesticides assembled and secured; and evacuated for elimination
- ❖ Availability of database of identified contaminated sites by Pesticides;
- ❖ Security of identified contaminated sites by pesticides and sensitization of the surrounding communities;
- ❖ Rehabilitation of identified contaminated sites containing POPs pesticides and obsolete pesticides;
- ❖ Institutional arrangements and Inter -Sectoral Collaboration for better monitoring of pesticides management

5.3.2. Priorities for New POPs

- ❖ Establishment of a data acquisition system that should avail reliable data timely.
- ❖ Lack of understanding and knowledge on NEW POPs
- ❖ Management and disposal of POPs-contaminated articles (NEW POPs containing wastes)
- ❖ Monitoring and surveillance of health status relevant to potential impacts of NEW POPs.
- ❖ Identification of contaminated sites;
- ❖ Setup mechanisms to reduce and control the release of UPOPs
- ❖ Strengthening of the current regulatory and institutions framework
- ❖ Establishment of guidelines for NEW POPs wastes management, including the reuse, recycling

Publication of research data of NEW POPs to increase the public awareness

5.3.3. National Action plans

The analysis of the above priorities led to the formulation of country actions plans. These action plans were divided into three categories. The first is composed by the action plans common for both new and old POPs, the second category is composed by the action plans specific to old POPs while the last category gathers the specific actions for new POPs management.

Categories of Action plans	Number of action plans	Action plan	Awarded marks
Common action Plans for both NEW and old POPs	1	Institutional and regulatory strengthening Measures;	52
	2	Release from unintentional production of PCDDs/PCDFs/PCBDs, HCB AND PCBs (SC Annex C)	50
	3	Public awareness	48
	4	Monitoring and research development	46
	5	Reporting	40
Action plans specific to old POPs	6	Production, use, stockpile and waste of POPs pesticides (SC-annex A and annex B)	39
	7	Production, use, stockpile and waste of DDT (SC annex B) ;	39
Action plans specific to NEW POPs	8	Production, use, stockpile and waste of new industrial POPs (SC annex A and annex B)	48
	9	Production, use, stockpile and waste of new POPs pesticides (SC Annex A and annex B)	44

	10	Release from unintentional Production of new POPs (SC annex C)	42
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--CHAPTER VI. ACTION PLAN AND STRATEGIES OF POPs MANAGEMENT

6.1. COMMON ACTION PLANS FOR OLD AND NEW POPs

6.1.1. ACTION PLAN N°1: Institutional and regulatory strengthening measures

Objectives

1. Adaptation of infrastructure and institutions to a rational management of new pops
 - Revise and include the new POPs in the missions/mandates of concerned, Institutions
 - Train the personnel for the institution framework.
 - Set up an operational reference laboratory with the capacity of analyzing qualitatively and quantitatively, modelling and simulation and fate transport of POPs and their residues from different samples and media (atmosphere/air, water, soil and sediments).
 - Publish the results from the analysis
2. Preparation and implementation of a post graduate program in wastes management including the new POPs containing materials;Elaboration of the curriculum;
Validation of the program by UR senate and HEC Start the program
3. Adaptation of the national legislation in order to respect the Stockholm convention's obligations and other relevant conventions such as Basel and Bmako convetions
 - Provide the institutions and concerned services with sufficient human and material resources to prepare the texts
 - Inventory of legislative and regulatory texts to update and/ or complete.
 - Prepare and validate new legislative and regulatory texts to address the problem of new POPs (entry and management)
 - Advertise and popularize legislative and regulatory texts.
 - Organize workshops for dissemination and public awareness of the legislative and regulatory texts
 - Train the personnel in the concerned sectors for the implementation of legislative and regulatory texts
 - Provide institutions/services with appropriate human and material resources.
 - Publish and broadcast the texts
 - Prepare the legislative and regulatory texts for the country's adaptation and domestication of international norms
 - Organize workshops/debates about these texts
 - Disseminate legislative and regulatory texts

ACTION PLAN n° 1: INSTITUTIONAL AND REGULATORY STRENGTHENING MEASURES						
TARGET : REINFORCEMENT OF INSTITUTIONAL CAPACITIES, INFRASTRUCTURE AND REGULATION FOR A RATIONAL MANAGEMENT OF NEW POPs						
SPECIFIC OBJECTIVE 1: ADAPTATION OF INFRASTRUCTURE AND INSTITUTIONS TO A RATIONAL MANAGEMENT OF NEW POPs						
Result1: The missions/mandates of institutions are adapted to the Stockholm Convention obligations and other relevant conventions						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget(USD)
1) Revise, update and include the new POPs in the missions/mandates of institutions concerned by POPs.	Texts establishing the missions/mandates of the revised institutions.	Texts establishing reorganisation of concerned institutions.	MINIRENA/REMA, BASEL CONVENTION FOCAL POINT, MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB MINIJUSTE, MINALOC-RNP, PRIVATE SECTOR, MININFRA.	Political commitment	2016- 2017	120,000
2) Train the personnel for that particular institution framework.	Number of involved entities; Quantity of material resources availed.	Reports of these institutions' activities.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB MINIJUSTE, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA.	Available budget of the State; Financial support by donors	2016 - 2017	60,000

Result 2: A National laboratory of POPs and resulting wastes analysis is operational						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (U\$D)
1) Set up an operational reference laboratory with the capacity of analyzing qualitatively and quantitatively, modelling and simulation and fate transport of POPs and their residues from different samples and media (atmosphere/air, water, soil and sediments, food, livings and materials and chemicals).	Presence of an operational reference laboratory	Reports of the laboratory's activities	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RALIS- RAB-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR MININFRA, MINICOM-NIRDA.	Political commitment; financial support by donors.	2016 - 2018	600,000
2) Publish the results from the analysis	Results from analysis collected and published Reports of analysis Information Bulletin	Reports of analysis	MoH, MINEDUC/UR. REMA.	Competent staff available	2016 – 2025	70,000

SPECIFIC OBJECTIVE 2: PREPARATION AND IMPLEMENTATION OF A POST GRADUATE PROGRAM IN WASTES MANAGEMENT INCLUDING THE NEW POPs CONTAINING MATERIALS						
Result 1: Staff with outstanding skills in wastes management						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Elaboration of a masters curriculum on POPs management	Availability of the curriculum in UR	UR/ Quality unity	MINEDUC/UR, MINIRENA/REMA MININFRA, MINICOM/RSB/NIRDA	Political commitment; Competent; Financial support from donors.	2016 – 2018	10,000
2) Validation of the program by UR senate and HEC	Approved program.	UR/ quality unit.	MINEDUC/UR MINEDUC/HEC	Availability of trainers/Lecturers Financial support from donors.	End 2017	5,000
3) Start the program	Number of trained Staff.	UR/ College of Science and Technology	MINEDUC/UR MINEDUC/HEC	Availability of trainers/Lecturers Financial support from donors.	2019	15,000
SPECIFIC OBJECTIVE 3: ADAPTATION OF THE NATIONAL LEGISLATION IN ORDER TO RESPECT THE STOCKHOLM CONVENTION'S OBLIGATIONS AND OTHER RELEVANT CONVENTIONS SUCH AS BASEL AND BAMAKO CONVENTIONS						
Result1 :Legislative and regulatory texts relating to NEW POPs are updated and completed						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Provide the institutions	Number of trained	Reports	MINECOFIN,	Available budget	2016- 2019	30,000

and concerned services with sufficient human and material resources to prepare the texts	personnel hired; Quantity of material available.	Archives of Ministries of Civil Service and of Finances	BASEL CONVETION FOCAL POINT, BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR MININFRA	of the State		
2) Inventory of legislative and regulatory texts to update and/ or complete.	Number of checked texts	Inventory reports	MINECOFIN, BASEL CONVETION FOCAL POINT, BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR MININFRA	Sufficient qualified human resources; financial means available	2016 - 2019	50,000
3) Prepare and validate new	Number of prepared	validation reports	MINECOFIN,	Sufficient	2016 -	15,000

legislative and regulatory texts to address the problem of POPs (entry and management)	and validated texts; voted and promulgated texts; Orders of application;	of workshop Official Gazette	BASEL CONVENTION FOCAL POINT, BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR MININFRA	qualified human resources; financial means available	2017	
4) Advertise and popularize legislative and regulatory texts.	Number of new texts published	Reports of organized forums	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR MININFRA	Sufficient qualified human resources; financial means available	2016 - 2019	70,000
Result 2: National legislation in regards to the management of NEW POPs is Published						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)

<p>1) Translate into KINYARWANDA legislative and regulatory texts</p>	<p>Number of translated texts</p>	<p>Final reports Contracts for recruitment of specialized translators.</p>	<p>MINECOFIN, BASEL CONVENTION FOCAL POINT, BAMA KO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA.</p>	<p>Financial means; Competent human resources.</p>	<p>2019</p>	<p>14,000</p>
<p>2) Validate the translation in KINYARWANDA of legislative and regulatory texts</p>	<p>Number of validated texts</p>	<p>Validation reports</p>	<p>MINECOFIN, BASEL CONVENTION FOCAL POINT, BAMA KO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA.</p>	<p>Available financial means</p>	<p>2019</p>	<p>5,000</p>
<p>3) Organize workshops for public awareness of the legislative and</p>	<p>Number of workshops organized</p>	<p>Workshop reports</p>	<p>MINECOFIN, BASEL CONVENTION FOCAL POINT,</p>	<p>Available financial means</p>	<p>2019</p>	<p>10,000</p>

regulatory texts			BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA.			
Result 3: Applying legislative and regulation texts						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (U\$D)
1) Train the personnel in the concerned sectors for the implementation of legislative and regulatory texts	Number of training sessions; Number of trained persons	Reports on the training Observed problems Inflicted Sanctions	MINECOFIN, BASEL CONVENTION FOCAL POINT, BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- RALIS-NAEB MINIJUST, MoH, MINALOC-RNP,	Financial means; Competent human resources for the training.	2019 - 2025	90,000

			MINEDUC, PRIVATE SECTOR MININFRA			
2) Provide institutions/services with appropriate human and material resources.	Number of competent people recruited ; Quantity of appropriate materials availed	Reports on the training Observed faults Sanctions given	MINECOFIN, BASEL CONVETION FOCAL POINT, BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR MININFRA	Financial means	2019 - 2025	70,000
Publish and broadcast the texts	Number of published and broadcasted texts	Reports on advertisement and publication Official Gazette	MINECOFIN, BASEL CONVETION FOCAL POINT, BAMAKO CONVENTION FOCAL POINT, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP,	Available financial means; Competent personnel	2019 - 2025	25,000

			MINEDUC, PRIVATE SECTOR, MININFRA.			
Result 4: A legislation/regulation in conformity with international norms as regards the new POPs is prepared						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Prepare the legislative and regulatory texts for the country's adaptation and domestication of international norms	Number of prepared and validated texts	Reports J.O.R.R. Mechanisms of control of norms (laboratories, environmental policy, etc)	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB MINIJUSTE, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA	Available financial means; Competent personnel	2016 - 2020	30,000
2) Organize workshops/debates about these texts	Number of workshops organized	Workshop reports	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-RALIS-NAEB MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA.	Available financial means; Competent personnel	2016- 2020	15,000
3) Disseminate legislative and regulatory texts	Number of legislative and regulatory texts publicised	Reports of the organized forums, J.O.R .R., Web Site, Toxicological	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB RALIS-	Avail financial means; Competent personnel	2016 - 2020	30,000

		centre of documentation and information on NEW POPs.	NAEB,MINIJUSTE, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA			
TOTAL ACTION PLAN I						1,554,000

6.1.2. ACTION PLAN No 2: Release from unintentional production of PCDDs/PCDFs/PCBDs, HCB AND PCBs (SC Annex C)

Aim (overall objective): Progressive use of the best available techniques and the best environmental practices and application of other measures to reduce in the long term the national contribution to the emission unintentional POPs.

Objectives (specific objectives)

- ❖ Improvement of the identification and characterization of the national sources of dioxins discharges and furans :
 - Coordinating capacity building in POPs management to acquire the best available technology and develop processes for its application in U-POPs management;
 - Build human and technical capacity to POPs production, use, manufacturing, identification and management;
- ❖ Green industry and private sector development
 - Promote green technologies:the GoR will identify priority sectors and technologies specific to Rwanda
- ❖ Data, information and knowledge management
 - Enhance POPs data collection by developing a national POPs information system to enhance the collection, analysis, sharing and distribution of data).
 - Collect periodical statistical data and prepare the updated inventory report;
 - Popularize the inventory report and hand it over to the Convention's Secretariat;
 - Carry out case studies on national activities possible sources of dioxins and furans not registered in the Toolkit of UNEP (ex. fabrication and combustion of charcoal, wilderness fires, handcraft activities, informal activities,...);
- ❖ Promoting the public awareness and education (
 - educate the future generation of the county on the POPs effects on public health and environment;
 - sensitizing the population and decision makers on unintentional POPs and the issue of the best techniques available and the best environmental practices (Organize television forums);
 - disseminate a national user guide on the best available techniques and best environmental practices;
- ❖ Improvement of the management of biomedical wastes and municipal solid wastes (
 - Support hospitals so as to acquire improved industrial incinerators ovens, continued; to arrange controlled discharges for the urban centres.
- ❖ Progressive reduction of the unintentional emissions of POPs from combustion of biomass and fossil fuels (
 - conduct regular control measures on the adopted importation of lead free fuel, within EAC framework,
 - prevent bush fires,

- Promote the utilization of improved cooking techniques;
- intensify tree planting and regulate deforestation;
- support centres of hand craft production (tilery, brickyard, etc.) to get improved technologies and equipment).

ACTION PLAN n° 2: RELEASE FROM UNINTENTIONAL PRODUCTION OF PCDDs/PCDFs/PCBDs, HCB AND PCBs:						
TARGET: PROGRESSIVE USE OF THE BEST AVAILABLE TECHNIQUES AND THE BEST ENVIRONMENTAL PRACTICES AND APPLY OTHER MEASURES TO REDUCE NATIONAL CONTRIBUTION TO UNINTENTIONAL WASTES OF POPs						
SPECIFIC OBJECTIVE 1: IMPROVEMENT OF IDENTIFICATION AND CHARACTERISATION OF NATIONAL SOURCES OF DIOXINS AND FURAN WASTES UNDER THE RESPONSIBILITY OF MINIRENA						
Result 1: Update the inventory of dioxins and furans						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget(USD)
1) Coordinating capacity building in U-POPs management to acquire the best available technology and develop processes for its application in U-POPs management	List of updated technical team members , including additional pertinent institutions	Texts in the official Gazette Minutes of meetings of the technical Team.	MINIRENA /REMA, NIP technical team	Available budget of the State	2016	7,000
2) Update appropriate and harmonized formats for collecting statistical data, in collaboration with technical services of concerned parties	Available and usable Formats	Users having the formats	MINIRENA /REMA	Available budget of the State	2016	85,000
3) Collect periodical statistical data and prepare the updated inventory report	Validated report of inventory available	Inventory report; Reports of the technical Team activities	REMA; NIP technical team	Available budget of the State	once a year from 2016	90,000
4) to enhance U-POPs	Number of	Reports	REMA; NIP technical		Once year	80,000

	data collection by developing a national U-POPs information system to enhance the collection, analysis, sharing and distribution of data	trained personnel to use the formats and data collection		team		from 2016	
5)	Popularize the inventory report and hand it over to the Convention's Secretariat	Number of broadcasted reports	Technical Services having received the report ; Secretariat of the Convention	REMA	Available budget of the State	each year from 2016	25,000
6)	Carry out case studies on national activities possible sources of dioxins and furans not registered in the Toolkit of UNEP (ex. fabrication and combustion of charcoal, wilderness fires, handcraft activities, informal activities,...)	Reports of validated studies available	Reports of studies Reports of the technical Team's activities	MINIRENA; REMA all concerned and other services	Technical assistance Financial support by bankers	2016-2019	70,000

SPECIFIC OBJECTIVE 2: SENSITISATION OF THE POPULATION AND DECISION MAKERS ON UNINTENTIONAL POPs AND THE ISSUE OF THE BEST AVAILABLE TECHNIQUES AND BEST ENVIRONMENTAL PRACTICES							
Result 1: The Population and decision makers are aware of the issue of dioxins and furans							
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline s	Budget (USD)	
1) Organize television forums, continued	Number of forums organised; Number of programs organised	Medias archives; Reports; Leaflets distributed; Posters distributed;	Medias and concerned public and private services	Financial support by bankers	From January 2016	45,000	
2) Disseminate a national user guide on the best available techniques and best environmental practices.	Number of the guide distributed	NEW users having the guide	MINIRENA / REMA and concerned private services	Financial support by bankers	From January 2016	48,000	
SPECIFIC OBJECTIVE 3: IMPROVEMENT IN THE MANAGEMENT OF BIOMEDICAL WASTES AND SOLID MUNICIPAL WASTES							
Result 1: Wastes of unintentional POPs resulting from elimination of solid wastes are reduced							
Activities							
1) Support hospitals so as to acquire improved incinerators , continued	Number of hospitals having functioning incinerators.	Technical reports; Financial reports	MINISTRY OF HEALTH	Technical assistance Financial support by donors	from 2016	335,000	
2) To arrange controlled discharges for the urban centres.	Number of controlled, arranged and functioning discharges;	Technical reports; Financial reports	MINIRENA / REMA, municipal technical services	Political will , Financial support by donors	from January 2016	650,000	
SPECIFIC OBJECTIVE 4: PROGRESSIVE REDUCTION UNINTENTIONAL POPs WASTES RESULTING FROM THE COMBUSTION OF BIOMAS							

AND FOSSIL FUELS						
Result 1: Wastes of unintentional POPs from the combustion of biomass and fossil fuels are progressively reduced						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Conduct regular control measures on the adopted importation of lead free fuel, within EAC framework.	Administrative instructions validated	Reports from authorized institutions	MINICOM, RURA, MINIRENA, REMA, RRA; RSB	Political commitment	from 2016	72,000
2) Prevent bush fires, continued	Number of campaign messages produced per year for radio and television	Reports by the concerned authorities.	MINIRENA /REMA; RDB , Local administration,	Community participation	from 2016	45,000
3) Promote the utilization of improved cooking techniques.	Number of NEW installations of alternative energies (at level of households and collectivities)	Reports of investigations.	MININFRA, MINIRENA, REMA, Local administration, Private sector, etc...	Political commitment	from 2016	90,000
4) Intensify tree planting and regulate deforestation.	Number of hectares of NEW trees planted	MINIRENA reports	MINIRENA, Local administration,	Political commitment Financial support	from 2016	75,000
5) Support centers of hand craft production (tilery, brickyard, etc.) to get improved technologies and equipment.	Number of NEW centers of hand craft production with improved technologies and equipment.	Technical reports; Financial reports	MINICOM, MINIRENA, Local administration,	Technical support by financial donors	from 2016	155,000
TOTAL ACTION PLAN 2						1,792,000

ACTION PLAN n°3: IDENTIFICATION OF CONTAMINATED SITES						
TARGET: AVAIL AN OPERATIONAL STRATEGY OF ECOLOGICALLY RATIONAL MANAGEMENT OF CONTAMINATED SITES BY POPs AND THEIR WASTES						
SPECIFIC OBJECTIVE 1: PROGRESSIVE IDENTIFICATION OF SITES CONTAMINATED BY POPs						
Result 1: A geographic map or a data base of contaminated sites is available						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadline	Budget (USD)
1) Strengthen the coordination team and supervision committee for the action plan	Orders establishing the composition and attributions of the supervision committee and the coordination team updated and NEW ones initiated if necessarily -Existence of individual mandates of members	-Minutes of the supervision committee meetings -Activity reports of the technical Coordination Teams	Ministry in charge of Environment, health, agriculture, commerce and industries, infrastructure; REMA, RSB, NIRDA, Involved Parties of private sector and the civil society.	Political commitment, Available State's budget 2007	From 2016	15,000
2) Set up a technical team in charge of inspection, evaluation and management of contaminated sites	- Orders establishing the creation, composition and attributions of the technical Team - Individual contracts signed by the technical Team members, -Report of the training workshop on contaminated sites -Contract/Protocol of agreement of the trainer	Minutes of the supervision committee meetings, Technical Team's report, The coordination team's activities reports, Reports on the implementation of the Convention	MINIRENA /REMA; MOH, MINAGRI, Kigali city Districts ;MINICOM/RSB/NIRDA; MININFRA; REG; Involved Parties of private sector and the civil society.	Political commitment Available State's budget	June 2016	35,000

3) Establish criteria for the identification of contaminated sites by the end of year 1	Documents is available	Focal point reports	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MININFRA, MINALOC	Availability of the resources(financial resources and human resources ^o Financial support by donors or state	2016 - 2025	10,000
4) Consolidate the inventory of contaminated sites by finalising the physical inspection according to their geographic localisation (GPS), as done for PCBs and to be extended to other POPs	Exhaustive identification report of contaminated sites validated and available	Reports of the technical team Reports on the implementation of the Convention	MINIRENA /REMA; MOH, MINAGRI, City of Kigali, Districts; MINICOM/RSB/NIRDA; MININFRA; REG; Involved Parties of private sector and the civil society,	Political commitment Technical assistance Financial support by donors	2016	30,000
5) Disseminate the inventory report.	Validation workshop report, Number of copies of reports disseminated	Archives of stakeholders, Reports on implementation of the Convention, Internet Site of the Ministry in charge of Environment	MINIRENA /REMA; MoH, MINAGRI, City of Kigali, Districts; MINICOM/RSB/NIRDA; MININFRA; REG; Involved Parties of private sector and the civil society,	State budget, Financial support by donors	Starting in 2016	62,000

OBJECTIVE SPECIFIC 2: PRIORITISATION OF CONTAMINATED SITES REGARDING THE HEALTH AND ENVIRONMENTAL RISKS						
Result 1: The contaminated sites are prioritised according to health and environmental risks						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadline	Budget (U\$D)
1) .Analyse/Evaluate the contamination and health and environmental risks, including tests on potential in NEW POPs content in different matrices including the living organisms;	Analysis/evaluation report , Results from a reference laboratory	Technical Team's activity report, Reports on implementation of the Convention	Ministry in charge of Environment	Technical assistance available , Financial support by donors	From 2016	68,000
2) Validate and disseminate the analysis/evaluation report	Report validated and disseminated to stakeholders Number of forums organised for the population Validated report available for all the concerned actors	Validated report for the stakeholders Reports to the Secretariat of the Convention	Ministry in charge of Environment, health, agriculture, commerce and industries, infrastructures; REMA; City of Kigali; Districts, Concerned private companies,	Available State's budget Full participation and collaboration among the concerned actors Technical assistance available	from 2017	15,000
TOTAL ACTION PLAN NO 3						435,000

6.1.3. ACTION PLAN No 4: Awareness

Aim overall objective: Progressive rise in the level of knowledge and consciousness about the issue of POPs in different categories of the Public.

Specific Objectives

1. Running the national programme of Information, Education and Communication
 - update the coordination team and supervision committee for the action plan;
 - Update, among the general public, the list of main target groups at risk;
 - produce appropriate documentation and didactic materials;
 - inform professionals from the medias on POPs;
 - sensitize and inform target groups /groups at risk from the harmful POPs effects on health and environment;
 - sensitize and inform the target groups on alternatives to POPs;
 - publish, in the local language (Kinyarwanda), periodical review chemical security, with a particular attention on POPs and other persistent toxic substances;
2. put in place a national network of information and data exchange through internet (REIC); organize training workshop for legislators, public and private decision makers of the concerned services on POPs). Providing the country with a toxicological information centre (**Partner with the National Forensic Laboratory**).
3. Development and implementation of informal training schemes on chemical safety (
 - produce appropriate documentation and didactic material;
 - organize formal training sessions for actual or potential users and workers concerned;
 - Plead with administrative, political and judicial authorities about the issue of POPs; train public and private media professionals on POPs).
4. Preparation and implementation of formal training programmes on chemical security
 - expand environment clubs in primary, secondary and higher learning institutions and universities;
 - organize specialization training session on tracing, standardisation, labelling of dangerous chemical and products, including POPs for the technical staff of the Rwandan Standards Board.

ACTION PLAN n°4: AWARENESS						
TARGET: PROGRESSIVE EVALUATION OF THE KNOWLEDGE AND AWARENESS LEVEL ABOUT THE ISSUE OF POPS IN GENERAL AND DIFFERENT TYPES OF STAKEHOLDERS IN PARTICULAR						
SPECIFIC OBJECTIVE 1: RUNNING THE NATIONAL PROGRAM OF INFORMATION, EDUCATION AND COMMUNICATION (IEC) ON NEW POPS						
Result 1: A national IEC program on NEW POPS is operationally improved starting in 2016						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Update the coordination team and supervision committee for the action plan.	Orders on NEW composition and attributions of the technical committee, Existence of individual mandates of members	Minutes of the supervision committee meetings Activity reports of the technical coordination teams	MINIRENA /REMA MINICOM, MINECOFIN, MININFRA NIRDA NGOs, Local Communities	Political commitment, State's budget available by 2016	March 2016	10,000
2) Update, among the general public, the list of main target groups at risk.	Updated validated inventory of the target groups and the population at risk	Minutes of the supervision committee meetings, Activity reports of the technical coordination teams	Steering and Coordination Committee	State's budget available, Qualified human resources, Financial support by donors	June 2016	5,000

Activities/ Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
3) Produce appropriate documentation and didactic materials.	Number of documents produced per didactic theme,	Minutes of the supervision committee meetings, Activity reports of the technical teams (technical service in charge of IEC), media archives, Report to the secretariat of the Convention	MINIRENA/REMA, MINECOFIN, MINICOM/RSB, MINEDUC, MIFOTRA, NIRDA, Universities	Qualified human resources, Financial support by Government, donors, Technical assistance available.	From March 2016	45,000
4) Inform professionals from the medias on POPs, with emphasis to the most common ones.	Number of information sessions organised, Report of information sessions	Minutes of the supervision committee meetings Activity reports of the technical Teams of coordination, media archives, NGOs' and partners archives, Report to the secretariat of the Convention, audio-visual programs, Advertisement spots Articles in newspapers Articles of Internet sites	MINIRENA/REMA, MINECOFIN, MINAGRI ; MINICOM/RSB NIRDA, NGOs, Associations	Qualified human resources, Financial support by donors, Technical assistance available	From January 2016	15,000

Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
5) Sensitize and inform target groups /groups at risk on POPs effects on health and Environment.	Number of sensitization meetings, Number of programs broadcast on radios and televisions, Number of posters, leaflets, and brochures produced	Minutes of the supervision committee meetings Activity reports of the technical teams of coordination, media archives, NGOs' and partners archives, Projects of research-development on the issue of POPs	MINIRENA/REMA, MINICOM/RSB NGOs, MINALOC, MINAGRI/RAB/ NAEB/RALIS, MoH/RBC, NIRDA	Qualified human resources, Financial support by donors, Technical assistance available	From January 2016	25,000
6) Sensitize and inform the target groups on alternatives to POPs.	Number of sensitization meetings, Number of programs broadcast on radios and televisions, Documentation	Minutes of the supervision committee meetings Activity reports of the technical Teams of coordination, media archives,	MINIRENA/REMA, MINICOM/RSB, MININFRA, MINAGRI/RAB/NAEB/RALIS ; NIRDA NGOs and partners	Qualified human resources, Financial support by donors, Technical assistance available ,	From January 2016	45,000

	on alternatives available	NGOs' and partners archives, Projects of research-development on the issue of POPs					
7)	Publish, in the local language (Kinyarwanda), periodical review on chemical security, with a particular attention on POPs and other persistent toxic Substances	Recognition by Ministries in charge of IEC, Number of periodical review published in Kinyarwanda, Editorial committee set up	Minutes of the supervision committee meetings Activity reports of the technical Teams of coordination, Archives of REMA Libraries and other newspapers' distributors, Libraries in the country	MINIRENA/REMA, MINICOM/RSB, MINAGRI/ RAB/NAEB/RALIS, MINEDUC NIRDA, Universities	State's budget available, Qualified human resources, Financial support by donors, Technical assistance available .	From June 2016	20,000
8)	Put in place a national network of information and data exchange	Report of the workshop for the creation of the network, Members of the network	Minutes of the supervision committee meetings Activity reports of the technical	MINIRENA/REMA, MINECOFIN, MINICOM/RSB, MINAGRI/RAB/NAEB/RALIS, NIRDA, Ministry in charge of ICT, Private sector, MININFRA	State's budget available, Financial support by donors, Technical assistance available .	June 2016	45,000

which is a computer based.	identified, Report on the training of members of the network ; Contract of service of a Webmaster,	Teams of coordination, Activity report of the network.				
9) Organize training workshop for legislators and public and private decision makers of the concerned services on POPs.	Number of training workshops, Lists of services having benefited from the training, Categories and number of decision makers trained	Minutes of the supervision committee meetings Activity reports of the technical Teams of coordination, Workshops reports Trainers' contracts, didactic material used	MINIRENA/REMA, MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI/RAB/NAEB/RALIS, NIRDA MINIJUST, MINALOC, RNP, Private sector, MININFRA	Financial support by donors, Technical assistance available, Qualified human resources	From June 2016	125,000

SPECIFIC OBJECTIVE 2 : AVAIL THE COUNTRY WITH A TOXICOLOGICAL INFORMATION CENTER						
Result 1: Toxicological information on POPs, alternatives to POPs and dangerous chemical products in general are available and accessible to those in need						
Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget
1) Partner with the foreseen FORENSIC Laboratory to include toxicological parameters in order to get information on dangerous chemical products.	MoU between MINIJUST and MINIRENA signed ; Regularity of data on toxicologic information	Activity reports of the technical Teams of coordination of the center Reports of independent studies	Ministries in charge of Justice, Environment, health, agriculture, infrastructure, REMA, RNP, NIRDA, RSB	State's budget available, Financial support by donors, Technical assistance available	Starting in 2017	30,000

SPECIFIC OBJECTIVE3: PREPARATION AND IMPLEMENTATION OF INFORMAL TRAINING PROGRAMS ON CHEMICAL SECURITY

Result 1: Targeted programs of informal training are elaborated and carried out

Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Produce appropriate documentation and didactic Material.	Type of Documents produced, Number of didactic materials produced by theme	Minutes of the supervision committee meetings, Activity reports of the technical Teams of coordination, Reports of implementation to the secretariat of the Convention	Ministry in charge of Environment, REMA, Ministry in charge of health, Ministry in charge of labour and Employment, Ministry in charge of Agriculture, NIRDA, Private sector, NGOs and partners, Associations	State's budget available, Financial support by donors, Technical assistance accessible, Qualified human resources	From 2016	100,000
2) Organize informal training sessions for actual or potential users and workers concerned.	Number of training sessions organised, Report on training sessions	Minutes of the supervision committee meetings, Activity reports of the technical Teams of coordination, Reports of implementation to the secretariat of the Convention, Reports of workshops	Ministry in charge of Environment, REMA, Ministry in charge of health, Ministry in charge of labour and Employment, Ministry in charge of Agriculture, NIRDA, Private sector, NGOs and partners, Associations	State's budget available, Financial support by donors, Qualified human resources	From January 2016	75,000
3) Plead with administrative, political and judicial authorities about the issue of POPs.	Number of sessions organised ; Number of NEW	Minutes of the supervision committee meetings, Activity reports of the technical Teams of coordination,	Ministry in charge of Environment, Ministry of health, Ministry of agriculture, MINIJUST, NIRDA, RSB,	Political commitment, State's budget available, Qualified human resources, Financial support by	From January 2016	18,000

4)	Ministerial orders and Ministerial Instructions on POPs products and potential contaminated areas management	Official Gazette, Reports of implementation to the secretariat of the Convention, Focal points designated and mandated by the technical services to participate in the supervision Committee or the coordinating Team of the plan	NGOs and partners, Associations	donors		
5) Train public and private media professionals on POPs.	Number of sessions organised, Number of people trained	Minutes of the supervision committee meetings, Activity reports of the technical Teams of coordination, Reports of implementation to the secretariat of the Convention	REMA, Universities, NGOs and partners, Associations	Political commitment, State's budget available, Qualified human resources Financial support by donors	From January 2016	42,000

SPECIFIC OBJECTIVE 4: PREPARATION AND IMPLEMENTATION OF FORMAL TRAINING PROGRAMS ON CHEMICAL SECURITY

Result 1: The country has operational programs of formal training on POPs adapted to the local conditions

Activities /Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Expand Environment clubs in primary, secondary and higher institutions.	Programs integrating different aspects of chemical security including the issue of NEW POPs NEW environment clubs in at least 50 primary schools, 20 secondary schools and 5 higher Institutions per year	Curricula Trainer's file, Activity reports of the Coordination technical Teams	MINIRENA/REMA, MINEDUC, Ministry of health, MINAGRI/RAB/NAEB/ RALIS, RSB, RRA, NIRDA, RNP,.	Political commitment, State's budget available, Qualified human resources, Financial support by donors	From 2016	80,000
2) Organize specialization training session on tracing, standardisation, labelling as regards, dangerous chemical, products, including POPs for the technical staff of the Rwandan Bureau of standards,	Number of sessions organised, Number of people trained	Reports on the training, Qualified technical staff in place	MINIRENA/REMA, Ministry of health, MINAGRI/RAB/ NAEB/RALIS ; RSB , Universities, RRA, NIRDA, RNP, Private sector.	Qualified human resources available, Financial support by donors, State's budget available	From 2016	75,000
TOTAL ACTION PLAN 4						725,000

6.1.4. ACTION PLAN No 5: Monitoring and research development

Overall objective: Establishment of a national programme for the monitoring and research - development in the field of chemical safety, with a particular emphasis on POPs

Specific Objectives

1. Knowledge of the evolution in time of the level of contamination of human beings and the environment (
 - monitor the sources and wastes containing old and NEW POPs in the environment,
 - monitor transboundary movements of POPs;
 - monitor sources wastes of POPs and their impacts)
2. Promotion of alternatives to POPs (
 - Identify, evaluate alternatives to pesticides with a particular emphasis on natural pesticides of plant origin (pyrethroids), biologic fight and improvement in varieties for an integrated fight against vectors;
 - Intensify research on improved cooking techniques and promote their use
3. Promotion of the methods locally adapted for ecologically rational elimination of POPs and their sources (
 - carry out research to ecologically eliminate plastic bags;
 - promote techniques of reduction or elimination of POPs wastes;
 - undertake research to improve the thermal performances and proper management of the hospital incinerators waste and artisanal furnaces of manufacture building materials (tiles, bricks, lime) and bakery;
 - improve techniques of making wood charcoal in order to upgrade its calorific power;
 - carry out regular inspection on the infrastructure which constitute sources of wastes and emissions of POPs;
 - organize workshops on restitution of the results of the inspection visits;
 - regularly publish the results of the inspections;
 - train the stakeholders in public and private sector for the adoption of the alternatives and new technologies.
4. Undertake epidemiologic studies on the exposure of certain groups and set a system of taking care of different cases
 - regularly carry out inspections at place of work, mostly those at risk;
 - organize periodical medical visits to people particularly those exposed to POPs;
 - equip the workers at risk with personal protection equipment and sensitize them on their proper use while on duty

ACTION PLAN n° 5: MONITORING AND RESEARCH-DEVELOPMENT						
TARGET: SETTING UP A NATIONAL PROGRAM FOR MONITORING AND RESEARCH-DEVELOPMENT IN THE FIELD OF CHEMICAL SECURITY, WITH A PARTICULAR ACCENT ON POPs						
SPECIFIC OBJECTIVE 1 : KNOWLEDGE IN TIME OF THE EVOLUTION OF THE LEVEL OF HUMAN AND ENVIRONMENT CONTAMINATION BY POPs						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget(USD)
1) Monitor the sources and wastes containing old and NEW POPs in the environment.	List of sources of wastes containing old and NEW POPs Results published	Reports produced	MINIRENA/REMA, research, Universities	State's budget available; Qualified human resources available, Financial support by bankers	from 2016	65,000
2) Monitor transboundary movements of POPs.	Nature and quantity of daily registered products at entering posts in Rwanda.	Registry of imported and exported products; Activities' reports;	Custom Services, Ministry in charge of Environment, Commerce and Industry	Qualified human resources available	from 2016	50,000
3) Monitoring sources wastes of POPs and their impacts.	Minutes of periodical sampling campaigns	Minutes of periodical sampling campaigns, Publications of scientific results in international magazines and in the national periodical review	Ministry in charge of Labour, Health, Environment and Agriculture.	Political commitment; Material and financial means available Qualified human resources available. Financial support by bankers	Beginning of 2017	80,000

SPECIFIC OBJECTIVE 2: PROMOTION OF ALTERNATIVES TO POPs						
Result 1: Alternatives to POPs adapted to the local context are evaluated and Popularized						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget(USD)
1) Identify, evaluate alternatives to pesticides with a particular emphasis on natural pesticides of plant origin such as biocides (pyrethroids), biologic fight and improvement in varieties for an integrated fight against vectors.	Current research program Research results Popularized	Publications of scientific results in international magazines and in the national periodical review, Users' alternatives established	Ministries in charge, of Commerce and Industry and research, Health, Agriculture and SOPYRWA.	Political commitment, Financial support by bankers, technical Assistance.	from 2016	50,000
2) Intensify research on improved cooking techniques and promote their use.	Research Programs financed Prototypes of improved cooking techniques are produced Results of investigation on cooking techniques improved	Reports on improved cooking techniques disseminated	Ministries in charge of Energy, Research and Environment	Political commitment, Financial support by bankers	from 2016	100,000

SPECIFIC OBJECTIVE 3: PROMOTION OF LOCALLY ADAPTED METHODS FOR ECOLOGICAL RATIONAL ELIMINATION/REDUCTION OF POPs AND OF THEIR SOURCES

Result 1: Methods to locally eliminating POPs and their sources exist and are operational

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
1) Carry out research to ecologically eliminate plastic bags.	Research program financed, Technologies patented	Publications	Ministries in charge of Environment, Commerce Industry, Research, REMA and Donors' Private Companies	Political commitment, Financial support by donors' Assistance technique	from 2016	120,000
2) Promote techniques of reduction or elimination of POPs wastes.	Technologies and techniques designed are broadcasted.	Reports	Ministry in charge of Environment / REMA	Political commitment Financial and technical support by donors	From 2016	50,000
3) Undertake research to improve the thermal performances and proper management of the hospital incinerators waste and artisanal furnaces of manufacture building materials (tiles, bricks, lime) and bakery.	Research program financed Prototypes oven exist and are functional Maintenance of incinerators improved	Results published Improved and functional oven are made public	Research centres and universities	Political commitment financial support by donors Technical Assistance	from 2016	120,000
4) Improve techniques of making wood charcoal in order to upgrade its calorific power.	Research program financed Prototypes of furnaces of carbonization exist and are functional	Artisanal entities using NEW technology	MINIRENA, MININFRA, NGOs and partners, Private companies, Artisans	Political commitment, Financial support by donors Technical Assistance	Starting by 2017	75,000

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
5) Carry out regular inspection on the infrastructure which constitutes sources of wastes and emissions of POPs.	Number of inspection reports per year Lists of identified users of polluting services / equipment	Inspection reports Records of sanctions inflicted according to the principle polluters/ pay	Ministries in charge of Environment, Labour, Internal Security, commerce and industries.	State's financial means; Qualified human resources	from 2016	400,000
6) Organize workshops on restitution of the results of the inspection visits.	Numbers of workshops organized.	Workshops' reports.	Ministries in charge Environment, labour, agriculture, commerce and industries, REMA, Private sector	State's financial means	from 2016	70,000
7) Regularly publish the results of the inspections.	Number of publications.	Published reports	Ministries in charge of Labour, Social Security, Health, Environment , agriculture, REMA	State's financial means	from 2016	50,000
8) Train the stakeholders in public and private sector for the adoption of the alternatives and NEW technologies.	Number of people trained Number of users of NEW alternatives and NEW technologies	Training reports	Ministries in charge of Labour Social Security, Health, Environment , agriculture, REMA NGOs and partners, Public and private companies.	Political commitment ; Qualified human resources available Financial support by donors	from 2016	120,000

SPECIFIC OBJECTIVE 4: UNDERTAKE EPIDEMIOLOGICAL STUDIES ON SOME TARGET GROUPS AND PUT IN PLACE A SYSTEM OF TAKING CARE OF CASES

Result 1 : Professional diseases linked to POPs are found out and the caring system is operational

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (U\$D)
1) Regularly carry out inspections at place of work, mostly those at risk	Yearly number of inspection missions organized.	Inspection reports	Ministries in charge of Labour, Social Security, Public Health, Agriculture and Environment, REG	Collaboration of those in charge of infrastructures ; State's financial means.	2016	100,000
2) Organize periodical medical visits to people particularly those exposed to POPs.	Number of consulted workers; numbers and types of medical examinations carried out;	Reports of medical consultations	Ministries in charge of Labour, Social Security, Concerned companies	Existence of appropriate laboratory; Political will to apply the law	from 2016	100,000
3) Equip the workers at risk with personal protection equipment and sensitize them on their proper use while on duty.	Percentage of concerned companies with workers equipped with protective clothing	Reports of visits at the place of work.	Ministries in charge of Labour, Social Security, industries, agriculture, REG, private and public companies.	Political commitment	From 2016	135,000
4) Conduct regular laboratory checking on both health and environmental status.	National laboratory constructed	REMA Reports	Ministries of Public Health, Agriculture and Environment, and Infrastructure	Political commitment and Financial support	From 2017	300,000
TOTAL ACTION PLAN 5						1,805,000

6.1.5. ACTION PLAN No 6: Reporting

Overall objective:

To produce and share information related to the fight against POPs and produce the periodic reports and all other relevant information to the Secretariat of the Convention and the Conference of Parties.

Specific Objectives:

1. Reinforcement of a national system of information exchange on chemicals and POPs in particular, under the responsibility of MINIRENA and REMA.
2. Periodic information to the Secretariat of the Convention on the progress of NIP implementation progress.

ACTION PLAN n° 6:REPORTING						
TARGET: PRODUCTION AND SHARING INFORMATION RELATING TO THE FIGHT AGAINST POPS AND COMMUNICATION OF THE PERIODIC REPORTS AND ALL OTHER RELEVANT INFORMATION WITH THE SECRETARIAT OF THE CONVENTION						
SPECIFIC OBJECTIVE 1: REINFORCEMENT OF A NATIONAL SYSTEM OF INFORMATION EXCHANGE ON CHEMICALS AND POPs IN PARTICULAR, UNDER The RESPONSIBILITY OF MINERAAND REMA						
Result 1: A reliable and operational system of data-collection is reinforced and the involved parties have access to information on chemicals and POPs at the national and international level						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
4) To reinforce the Mechanism of supervision of the implementation of the NIP.	Text establishing national mechanism of supervision of NIP implementation updated	Minutes of meetings Supervision mechanisms	PRIMATURE, MINIJUST MINIRENA, REMA, , MINAFFET, MINICOM/NIRDA/RSB; Private sector, NGOs.	Political commitment	June 2016	20,000
5) To facilitate the focal point in his/her activities.	Fixed and movable means, technical means, Operational Budget, Support staff; available	Archives and activity reports of MINIRENA and REMA technical services.	MINIRENA, REMA, MINECOFIN; supervision committee.	Political commitment, State's budget available, Financial support and technical assistance accessible	from 2016	60,000
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
6) To centralize information on the effective installation of various supervision committees, coordination teams and other specialized teams	Repertory of the orders establishing the creation, composition and functioning of the supervision committee and the coordination team, Reports of	Activity report of the focal point Files of the technical departments serving as chief guide of the committees and team activities reports of	MINIRENA, REMA, Operational Focal point, supervision committee	State's budget available	from 2016	40,000

for the implementation of the action plans.	inventories and evaluation update validated	the focal point serving as office of the Secretariat of the Mechanism of report to the Convention				
7) To update at yearly basis, national inventories and evaluations on POPs.	Report of inventories available each end year	Minutes of meetings of the coordination mechanism for NIP implementation	MINIRENA, REMA, RRA, NIS, Coordinating committee NIP implementation, Supervision of the action plans' committee, Coordination Team of action plans, Specialized team for the action plans	Qualified human resources available State's budget available Financial support from donors Technical assistance available	each end year	30,000
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
8) To produce within the sector/service concerned a biannual report on POPs.	Validated official reports of the services/sectors transmitted to the focal point of the Convention	Minutes of meetings of the coordination mechanism of action plans, Activity reports of the coordination Teams, Activity reports of the specialised Teams , Activity report of the operational focal point	MINIRENA, REMA, RRA, NIS, REG, supervision committee Operational focal point, Sectors /Concerned Services	Qualified human resources available, State's budget available, financial support from donors technical assistance accessible	June end December / year	60,000

<p>9) To create a national Data Bank on all POPs, as done for PCBs</p>	<p>Existence and operationalism of the Data Bank on POPs, Existence of a qualified personnel in charge of keeping the data bank.</p>	<p>Minutes of the supervision Committees meeting on the Action plans, Activity report of the operational focal point, Reports to the Secretariat of the Convention on the NIP implementation</p>	<p>MINIRENA, REMA, RRA, NIS, REG, Operational Focal Point, concerned Sectors / Services, Mechanism for supervision of the implementation of the Convention, Mechanism of reporting to the Convention, Supervision Committees of the action plans, Coordination Teams of the action plans, Specialised Teams of the action plans</p>	<p>Qualified human resources available, State's budget available Financial support and Technical assistance accessible.</p>	<p>2016</p>	<p>100,000</p>
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Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
10) To organize information and training sessions for the involved parties on the mechanism of data-collection on the POPs	Reports on sessions organized	Minutes of the supervision Committees meeting on the Action plans , Activity reports of the coordination Teams , Activity reports of the specialised Teams , Activity report of the operational focal point	RRA, NIS, REG, Mechanism for supervision of the implementation of the Convention , Mechanism for reporting to the Convention , Supervision Committees on the Action plans , Theme Group REIC, Action plans coordination Teams Specialised Teams for the action plans	Qualified human resources available State's budget available	From 2016	80,000
11) To periodically evaluate if the involved parties are knowledgeable to the mechanism of data-collection	Number of evaluation missions	Follow up reports Activity report of the focal point	Supervision Committees on the Action plans Action plans coordination Teams Specialised Teams for action plans	Qualified human resources available State's budget available	From 2016	200,000
TOTAL ACTION PLAN 6						590,000
TOTAL						6,901,000

6.2. ACTION PLANS SPECIFIC TO POP PESTICIDES

6.2.1. ACTION PLAN N° 1: Production, use, stockpile and waste of POPs pesticides (SC-annex A and annex B)

Overall objective:

Collect and secure as soon as possible various stocks and obsolete wastes of pesticides and consider their safely elimination

Specific Objectives:

1. Update of the national inventory of the obsolete pesticides (POPs among others) and their wastes that the country uses in Agriculture
 - train every 2 years, the personnel from public and private sectors on pesticides inventory
 - conduct at national level and at yearly basis, an overall obsolete pesticides inventory including POPs in the agricultural sector,
 - monitoring of the identified site where POPs obsolete pesticides have been dumped (Nyanza/Kicukiro); visualise on the country's geographic map the use and pesticides fate transport;
2. Insurance of protected storage of the obsolete pesticides (including the POPs) and their waste
 - train and sensitize storekeepers from public and private sector, in pesticides stock piling;
 - disseminate norms and standards for the infrastructure of pesticides stockpiles;
 - organise a yearly basis campaign for thorough inspection of the location of infrastructure and pesticides stockpile;
 - provide a technical and financial support if needed, to improve stockpiling infrastructures of pesticides;
3. Preparation of a Project Document for safely eliminate stockpiles of obsolete pesticides, POPs pesticides included
 - Create a project coordination team;
 - promote a public and private partnership to invest in infrastructure for adequate disposal of obsolete pesticides, including POPs;
 - prepare a Project Document for technical and financial assistance to safely eliminate stockpiles of obsolete pesticides, POPs pesticides include;
 - submit requests of the project support to potential donors.

ACTION PLAN n° 1: PRODUCTION, USE, STOCKPILE AND WASTE OF POPs PESTICIDES (SC Annex A and Annex B) AND OTHER PESTICIDES						
TARGET: COLLECT AND SECURE AS QUICKLY AS POSSIBLE THE DIFFERENT STOCKS AND WASTES FROM OBSOLETE PESTICIDES (POPs included) AND PLAN THEIR SAFELY ELIMINATION						
SPECIFIC OBJECTIVE 1: UPDATING THE NATIONAL INVENTORY OF OBSOLETE PESTICIDES (INCLUDING NEW POPs) AND THEIR WASTES WHICH THE COUNTRY HAS IN AGRICULTURAL SECTOR						
Result 1.1: The total quantity of obsolete pesticides (including NEW POPs) and their wastes which the country has in the agricultural sector is Known						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
1) Train every year, the personnel from public and private sectors on pesticides inventory.	Numbers of trained persons per category.	Training reports	REMA, MINAGRI/RAB/NAEB, RRA, NISR, agrochemical dealers,	Collaboration of all concerned services; Financial support by donors	2016 - 2025	230,000
2) Conduct at national level and at yearly basis, an overall obsolete pesticides inventory including POPs in the agricultural sector and health.	Updated list of obsolete pesticides , with particular mention of potential POPs pesticides	Report of inventories.	MINAGRI/RAB/NAEB/ RALIS;, REMA, agrochemical dealers, MoH, RBC	Collaboration of all concerned services. Financial means of the State	2016 - 2025	20,000
3) Visualise on the country's geographic map the use and movement of pesticides	Map available	Map of use and circulation of pesticides	MINAGRI/RAB/NAEB/ RALIS;, REMA, Farmers cooperatives, agrochemical dealers	Collaboration of all concerned services. Financial means of the State	2016	200,000

SPECIFIC OBJECTIVE 2: INSURANCE OF SECURED STORAGE OF OBSOLETE PESTICIDES (INCLUDING POPs) AND THEIR WASTES

Result 1 : Stockpiles of obsolete pesticides are assembled and secured

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
1) Train and sensitize storekeepers from public and private sector, in pesticides stock piling.	Number of NEW trainees per category Number of training sessions Number of sensitisation meetings organised Number of publications in media	Reports of training by the Expert trainers Follow up reports and feed-back on the training given Reports of sensitisation meetings Media archives	MINAGRI/RAB/NAEB/RALIS; REMA, NGOs and partners, agrochemical dealers, Media	Financial means of the State Financial support by donors	from 2016	75,000
2) Disseminate norms and standards for the infrastructure of pesticides stockpiles.	A design and models of infrastructure are elaborated; Number of leaflets published; Number of media reports	Media archives	RSB; MINAGRI/RAB/NAEB/RALIS; MININFRA; REMA, NGOs and partners, agrochemical dealers, Media	Financial means of the State Financial support by donors	From 2016	20,000
3) Organise a yearly	Number of	Inspection	MINIRENA,	Financial means of the	From 2016	80,000

basis campaign for thorough inspection of the location of infrastructure and pesticides stockpile.	stock piles sites inspected per year.	technical Reports.	MINAGRI/RAB/NAEB/RALIS, REMA	State Financial support by donors		
4) Provide a technical and financial support if needed, to improve stock piling infrastructures of pesticides	At least 1 working adequate stockpile infrastructure of pesticides	Inspection technical Reports. Contracts for tenders	RSB; MINAGRI/RAB/NAEB/RALIS, REMA; agrochemical dealers	Financial means of the State Financial support by donors	2017	50,000

SPECIFIC OBJECTIVE 3: PREPARATION OF A PROJECT DOCUMENT TO SAFELY ELIMINATE STOCKPILES OF OBSOLETE PESTICIDES

Result expected 1: Stockpiles of obsolete pesticides are evacuated for elimination

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/important suppositions	Deadlines	Budget (USD)
B. Create a project coordination team	Text establishing the coordination team	Training reports The coordination team functional Official Gazette	REMA, MINAGRI/RAB/NAEB /RALIS; agrochemical dealers	Political commitment State's budget available	From 2016	10,000
C. Promote a Public and Private Partnership to invest in infrastructure for adequate disposal obsolete pesticides, including POPs	Disposal technology available At least 2 incinerators completed by 2017 Obsolete	MoU of the partnership Reports of disposal	REMA, MINAGRI/RAB/NAEB/ RALIS, MoH, agrochemical dealers, Private sector, MININFRA	Collaboration of all concerned services	From 2016	35,000

	pesticides and POPs safely eliminated					
D. Prepare a Project Document for technical and financial assistance to safely eliminate stockpiles of obsolete pesticides, POPs pesticides included	Project Document prepared	Coordination team reports and meeting minutes	Coordination team	Financial and technical support by donors	2016	60,000
E. Submit requests of the project support to potential donors	Requests addressed to donors	Financial Agreements from donors	MINIRENA / REMA	Involvement of authorities of the Ministry in charge of Environment	2017	5,000
TOTAL ACTION PLAN 1						1,900,000

**6.2.3. ACTION PLAN No 2: Production, use, stockpile and waste of DDT
(SC annex B)**

Overall objective: Progressive halt and total prohibition from 2025 of any use of electric equipment with PCBs and setting up operational national infrastructure for an ecological management of stocks and waste of PCBs before 2028.

Specific Objectives:

1. Update of the inventory of the PCBs and their wastes in the electric energy sector.
2. Insurance of an ecologically rational management of the PCBs and electric equipment with PCBs as well as other contaminated wastes by the PCBs.
3. Security of electric equipment with PCBs at the end of their lifetime which started in .2005 under the supervision of the Ministry having environment in its attributions.
4. Immediate security of the electric equipment with PCBs still functioning, presenting dielectric leaks under the responsibility of REG

ACTION PLAN n° 2: PRODUCTION, USE, IDENTIFICATION, LABELLING, REMOVAL, STORAGE AND DISPOSAL OF PCBS AND EQUIPMENT CONTAINING PCBS

TARGET: PROGRESSIVE HALT AND, STARTING FROM 2025, INTERDICTION OF ANY UTILIZATION OF ELECTRIC EQUIPMENT WITH PCBS AND AVAIL AN OPERATIONAL NATIONAL STRATEGY FOR AN ECOLOGICAL MANAGEMENT OF STOCKPILES AND PCBS WASTES BEFORE 2025.

SPECIFIC OBJECTIVE1: ACCOMPLISHMENT OF THE NATIONAL INVENTORY OF PCBS FROM NOW TO 2025 UNDER THE SUPERVISION OF THE MINISTRY HAVING ENVIRONMENT IN ITS ATTRIBUTIONS

Result 1: The total quantity of PCBs and of their wastes in the country is known

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) To complete the inventory of the PCBs in the electric components on the entire country	Report of national inventory of the electric component validated and available at the end of 2017	Report of national inventory validated, The MINIRENA and REIC Web page, Report to the Secretariat of the Convention on the implementation	Ministry having Environment in its attributions, Ministry having Energy in its attributions, Ministry having economy and finance in its attributions, REMA, REG	Financial support accessible	2016 - 2017	72,000
2) Carry out an inventory of other applications of PCBs	Report of national inventory validated and available	Report of national inventory validated and available , MINIRENA and REIC RWANDA web page, Report to the Secretariat of the Convention on the implementation	Ministry having Environment in its attributions, Ministry having Energy in its attributions, Ministry having economy and finance in its attributions, REMA, REG.	Methodology recommended available, Technical assistance Financial support by donors	before 2025	65,000

SPECIFIC OBJECTIVE 2: SECURISATION OF ELECTRIC EQUIPMENT WITH PCBs AT THE END OF THEIR LIFESPAN STARTING FROM 2016 UNDER THE SUPERVISION OF THE MINISTRY HAVING ENVIRONMENT IN ITS ATTRIBUTIONS

Result 1: Electric equipment with PCBs at the end of life, rightly labelled, are secured

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget(USD)
1) Arrange a temporary platform of storage of the equipment with PCBs at the end of the lifetime	Survey of REMA, Platform arranged and delivered officially, Report of independent investigation	Report to the Secretariat of the Convention on the implementation , Report of independent investigation	Ministry having Environment in its attributions, Ministry having Energy in its attributions, Ministry having economy and finance in its attributions, REMA, REG	Technical assistance Financial support by donors	2016-2018	120,000
2) Take the equipment at the end of the lifetime labelled with PCBs on the platform of temporary storage	Numbers of equipment with PCBs at the end of the lifetime still functioning, Numbers equipment with PCBs at the end of the lifetime abandoned, Number of equipment with	Monitoring report of REMA, Report of an independent investigation, Data Base of the REG, minutes of meetings of the committee of supervision, management Reports of the team of coordination	Ministry having Environment in its attributions, Ministry having Energy and transport in its attributions, Ministry having economy and finance in its attributions,	Technical assistance available Financial support by bankers Financial participation of REG.	Started in 2008	10,000

	PCBs at the end of the lifetime made safe on the platform, Contract of services with an approved transport company		REMA, REG			
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Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget(USD)
3) Prepare a national project of ecologically rational elimination of the PCBs and decontamination of the equipment	Project document validated and endorsed by the government, Accord Protocol with donors	Project document validated and endorsed by the government, Minutes of meetings of the committee of supervision, Activity Reports of the team of coordination	Ministry having Environment in its attributions, Ministry having Energy and transport in its attributions, Ministry having economy and finance in its attributions, REMA, REG	Technical assistance available, State's budget available	Started in 2008	200,000

SPECIFIC OBJECTIVE 3 : IMMEDIATE SECURISATION OF ELECTRIC EQUIPMENT WITH PCBs STILL IN FUNCTION, INDICATING DIELECTRIC LEAKAGES UNDER THE RESPONSIBILITY OF REG.

Result 1: Defective equipment with PCBs and likely to remain in function are put in conformity

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
1) Confine the fluids coming from the leakages in vats of retention	Number of transformers with PCBs with leakages and equipped with vats with retention	Report of REMA investigation, independent study Investigation of the environment cabinet, Independent study.	Ministry having Environment in its attributions, Ministry having Energy and transport in its attributions, Ministry having economy and finance in its attributions, REMA, REG	Technical assistance Effective commitment of REG	Started in 2008	150,000
2) Repair leakages on the defective electric transformers with PCBs	Numbers of electric transformers with PCBs presenting leakages	Report of REMA investigation, independent study Investigation of the environment cabinet, Independent study	Ministry having Environment in its attributions, Ministry having Energy and transport in its attributions, Ministry having economy and finance in its attributions, REMA, REG	Effective commitment of REG	Started in 2008	180,000

3) Periodically monitor the electric transformers with suspected PCBs	Monitoring calendar validated, REMA inspection	Investigation reports of the environment cabinet, Independent study	Ministry having Environment in its attributions, Ministry having Energy and transport in its attributions, Ministry having economy and finance in its attributions, REMA, REG	Owners of electric transformers sensitised and committed	Started in 2008	180,000
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SPECIFIC OBJECTIVE 4 : HALT THE UTILISATION OF ELECTRIC EQUIPMENT WITH PCBs AT THE END OF LIFETIME FROM 2010 UNDER THE RESPONSIBILITY OF THE MINISTRY HAVING ENVIRONMENT IN ITS ATTRIBUTIONS

Result 1: The national program of replacement of electric equipment with PCBs is operational

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget (USD)
1) Replace the electric equipment with PCBs by equipment of standards	Number of Equipment with PCBs at the end of lifetime still in service after 2010	Inspection report of the cabinet of the environment, Reports of independent investigations	Ministry having Environment in its attributions, Ministry having Energy and transport in its attributions, Ministry having Industry in its attributions ; REG	Financial incentives by the State Financial support by donors	2010-2025	200,000
2) Prohibit the importation of electric equipment with PCBs	Numbers of equipment with PCBs seized, Legal Disposition of prohibition	Reports of customs, Reports of inventories periodically updated validated	Ministry having Environment in its attributions, Ministry having Energy in its attributions, REG.	Qualified staff operational at the borders	Started since 2008	100,000
3) Periodic update of the national inventory of the electric equipment	Update calendar of update validated, Reports of inventory validated	Validated inventory reports, Reports of independent investigations	Ministry having Environment in its attributions, Ministry having Energy in its attributions REG.	State's budget available, Financial support donors	Starting from 2016	200,000
TOTAL ACTION PLAN 2						977,000
TOTAL						2, 877,000

6.3. ACTION PLANS SPECIFIC TO New POPs

As indicated in the previous paragraphs, these action plans concern the industrial POPS as well as their U-POPs. The key issues and priorities it will be addressing were founded on the inventory conducted by REMA in 2015.

6.3.1. ACTION PLAN No 1: Production, use, stockpile and waste of new POPs pesticides (SC Annex A and annex B)

Objective:

Keep prohibiting the entry of the NEW POPs pesticides in Rwanda territory

- Reinforce local capacities as regards to prohibition of NEW POPs in Rwanda;
- Formulate methodologies and guidelines for inspection, retrieval, and proper disposal of POPs pesticides;
- Keep Prohibiting and controlling illegal traffic of the NEW POPs pesticides;

ACTION PLAN 1: PRODUCTION, USE, STOCKPILE AND WASTE OF NEW POPs PESTICIDES						
TARGET: HAVE A COUNTRY WITHOUT STOCKPILES OF THE NEW POPs PESTICIDES						
SPECIFIC1 OBJECTIVE: Keep prohibiting the entry of the NEW POPs pesticides in Rwanda territory						
Result 1: the quantity of new POPs pesticide in Rwanda is still zero						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/s oppositions (Financing and others)	Deadlines	Budget (USD)
1) Reinforce local capacities as regards to prohibition of new POPs in Rwanda	Number of trained people on new POPs pesticides	Minutes of activity reports to the focal point	MINAGRI-RAB, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Political commitment, State's budget available	2016 - 2018	35,000
2) Formulate methodologies and guidelines for inspection, retrieval, and proper disposal of NEW POPs	Guidelines are available	Focal point of the convention	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Financial support available	2016 - 2018	90,000
3) Keep Prohibiting and controlling illegal traffic of the new POPs pesticides and their articles	Report on strategies for controlling and prohibiting illegal traffic of new POPs pesticides.	Focal point of the convention	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Financial support available	2016 - 2018	100,000
TOTAL ACTION PLAN 1						1,900,000

6.3.2. ACTION PLAN No 2: Production, use, stockpile and waste of new industrial POPs (SC annex A and annex B)

The main goal of this action plan is to limit the entry NEW POPs articles and to initiate the ESM practices that can be achieved by making the necessary regulatory adjustments to existing Regulations formalize the restricted and acceptable use as permitted under the Convention.

Objectives

1. Accomplishment of the national inventory of articles containing the new POPs from now under the supervision of MINIRENA/REMA
 - Reinforce local capacities as regards inventory of new POPs;
 - complete the inventory of the new POPs in different articles,
 - Label the materials/equipment or store room according to the type of the new POPs;
 - Equip the workers with personal protection equipments and oblige them to use them while on duty;
 - Encourage the investors to invest in wastes management
2. Immediate safeguarding of wastes containing the new POPs (
 - Elaborate technical guidelines for managing each types of new POPs;
 - Periodically monitor the stores as well as other managements practices for the new POPs
3. Stop the entry of articles containing the new POPs in the country (
 - Ban the entry of all vehicles manufactured before 2004,
 - Prohibit the importation of equipment/ articles with the industrials POPs except the exempted by the convention; monitor the mass flow of the exempted articles,
 - Periodic update of the national inventory of wastes containing the new POPs.

ACTION PLAN n°2. PRODUCTION, USE, STOCKPILE AND WASTE OF NEW INDUSTRIAL POPs						
TARGET: PROGRESSIVE HALTS AND INTERDICTION OF ANY ENTRY OF ARTICLES CONTAINING THE NEW POPs IN THE COUNTRY.						
SPECIFIC OBJECTIVE1: ACCOMPLISHMENT OF THE NATIONAL INVENTORY OF ARTICLES CONTAINING THE NEW INDUSTRIAL POPs UNDER THE SUPERVISION OF MINIRENA/REMA						
Result 1: The total quantity of articles containing the NEW POPs is put out.						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget(U\$D)
1) Reinforce local capacities as regards inventory of new POPs	Number of trained people on new POPs inventory	Minutes of activity reports to the focal point	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Political commitment, State's budget or financial support from donors available	2016-2018	35,000
2) To complete the inventory of the new POPs in different articles	Report of national inventory	Report of national inventory validated in focal point office.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Financial support accessible	2016 - 2018	80,000

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
3) Label the materials/equipment or store room according to the type of the new POPs	Numbers of articles with new POPs at the end of the lifetime still functioning, Number of articles in use containing the new POPs	Monitoring report of REMA, report to the focal point.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Technical assistance available as well as Financial support by .	2016 - 2018	30,000
4) Equip the workers with personal protection equipment and oblige them to use them while on duty.	A number of availed materials.	Reports of visits at the place of work.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	Political commitment	2016 – 2018	180,000
5) Encourage the investors to invest in wastes management	Number of industries or companies managing the wastes containing the new POPs in ESM	Project document validated and endorsed by the government, Minutes of meetings of the committee of supervision, Activity Reports of the team of coordination	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS , MoH, PRIVATE SECTOR, MINALOC, MININFRA	Technical assistance available, State's budget available	2016 - 2025	40,000

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadlines	Budget (USD)
SPECIFIC OBJECTIVE 2 : IMMEDIATE SECURISATION OF WASTES CONTAINING THE NEW POPs						
Result 1: Articles containing the NEW POPs are not increasing and are managed in ESM manner						
1) Elaborate technical guidelines for managing each types of new POPs containing article	Number of guidelines specific to each type of new POPs	Report of REMA investigation, independent study Investigation of the environment cabinet, Independent study	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS , MoH, PRIVATE SECTOR, MINALOC, MININFRA	Technical assistance from local or external experts as well as the effective commitment of key stakeholders all available.	2016 - 2018	6,000
2) Periodically monitor the stores as well as other managements practices for the new POPs	Monitoring calendar validated, REMA inspection	Investigation reports of the environment cabinet, Independent study	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS , MoH, PRIVATE SECTOR, MINALOC, MININFRA	Owners of electrical transformers sensitised and committed	2016 – 2018	180,000

SPECIFIC OBJECTIVE 3 : STOP THE ENTRY OF ARTICLES CONTAINING THE NEW POPs IN THE COUNTRY						
Result 1: The national program of replacement of electric equipment with PCBs is operational						
1) Ban the entry of all vehicles; CRT TV, CRT computer manufactured before 2004	Number of vehicles manufactured remains constant	Inspection report of the cabinet of the environment, Reports of independent investigations	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS , MoH, PRIVATE SECTOR, MINALOC, MININFRA	Financial incentives by the State Financial support by donors	2016 – 20 17	25,000
2) Prohibit the importation of non exempted equipment/ articles with the industrials POPs	Availability of the lists of prohibited articles	Websites of RSB, RRA, MINAGRI, REMA	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA REG.	Qualified staff operational at the borders	2016 - 2017	100,000
3) Periodic update of the national inventory of wastes containing the new POPs	Update calendar of update validated, Reports of inventory validated	Validated inventory reports,	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-NAEB-RALIS, MoH, PRIVATE SECTOR, MINALOC, MININFRA	State’s budget available or Financial support from donors	2016 - 2025	200,000
TOTAL ACTION PLAN 2						876,000

6.3.3. ACTION PLAN No 3: Release from unintentional Production of new POPs (SC annex C)

Objectives

1. Identification and characterisation of unintentional sources of production of new POPs
 - set up a technical Team of Experts in charge of updating the national inventory;
 - prepare appropriate formats for collecting statistic data as well as the data transmission network
2. Sensitisation of the population and decision makers on unintentional release and on environmental sound management of new POPs (
 - organize television forums;
 - prepare a national user guide on the best available techniques and best environmental practices
3. Improvement in the management of health care wastes and municipal solid wastes (
 - installation of industrial incinerators with filter to trap toxic substances;
 - establishment of e-equipments reparation workshop center in different cities of the country;
 - establishment of public stores for used electronic and electrical equipments in different cities)
4. Progressive reduction unintentional new POPs wastes resulting from anarchic managements of new POPs containing wastes (
 - promote importation of new POPs free materials specially cars;
 - fight against illegal entry of materials containing new POPs or new POPs themselves;
 - fight against the anarchic management of materials containing new POPs (dismantling of e-equipments, vehicle oil in stoves, break making, etc);
 - collect vehicles wastes from garages and Gikondo industrial park and store them in a well-managed store).

ACTION PLAN n°3: : RELEASE FROM UNINTENTIONAL PRODUCTION OF NEW POPs						
TARGET: PROGRESSIVE USE OF THE BEST AVAILABLE TECHNIQUES AND THE BEST ENVIRONMENTAL PRACTICES AND APPLY OTHER MEASURES TO REDUCE NATIONAL CONTRIBUTION TO UNINTENTIONAL WASTES OF POPs						
SPECIFIC OBJECTIVE 1: IDENTIFICATION AND CHARACTERISATION OF NATIONAL UNINTENTIONAL PRODUCTION OF POPs						
Result1: Update the inventory of hotspot sources of the NEW POPs in the environment						
Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget (USD)
1) Set up a technical Team of Experts in charge of updating the national inventory.	Texts establishing creation, composition and attribution of the technical Team	Texts in the official Gazette Minutes of meetings of the technical Team.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MINIJUST, NISR, MoH, PRIVATE SECTOR, MININFRA	Available budget of the State or support from donors	2016 - 2017	12,000
2) Prepare appropriate formats for collecting statistic data as well as the data transmission network	✓ Available and usable Formats ✓ Availability of data transmission network	Users having the formats	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA	Available budget of the State or support from donors	2016	90,000
3) Collect statistical data and make an	Validated report of inventory available	Inventory report; Reports of the	MINECOFIN, MINICOM-RSB,	Available budget of the State or support	2016	110,000

exhaustive inventory report new POPs		technical Team activities	MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA	from donors		
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Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget (USD)
4) Popularize the inventory report and hand it over to the Convention's Secretariat	Number of broadcasted reports Letters and reception acknowledgement	Technical Services having received the report ; Secretariat of the Convention	MINIRENA	Available budget of the State or support from donors	206	30,000
5) Carry out case studies on national activities possible sources of dioxins and furans not registered in the Toolkit of UNEP (ex. fabrication and combustion of charcoal, wilderness fires, handcraft activities, informal activities...)	Reports of validated studies available	Reports of studies Reports of the technical Team's activities	MINIRENA; REMA all concerned and other services	Availability of competent human resources and the budget	2017	80,000

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget (USD)
SPECIFIC OBJECTIVE 2: SENSITISATION OF THE POPULATION AND DECISION MAKERS ON UNINTENTIONAL RELEASE AND ON ENVIRONMENTAL SOUND MANAGEMENT OF NEW POPs						
Result: The Population and decision makers are aware of the issue of NEW POPs						
1) Organize television forums	Number of forums organised; Number of programs organised	Medias archives; Reports; Leaflets distributed; Posters distributed;	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA	Financial support available; Stakeholders involvement also available	2016 - 2025	45,000
2) Prepare a national user guide on the best available techniques and best environmental practices	Validated guide available	Users having the guide	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MINIJUST, MoH, MINALOC-RNP, MINEDUC, PRIVATE SECTOR, MININFRA	AVAILABILITY OF Financial support	2016 - 2025	50,000

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget (USD)
SPECIFIC OBJECTIVE 3: IMPROVEMENT IN THE MANAGEMENT OF HEALTH CARE WASTES AND MUNICIPAL SOLID WASTES						
Result 1: Wastes of unintentional NEW POPs resulting from elimination of solid wastes are reduced						
Activities						
3) Installation of industrial incinerators with filter to trap toxic substances	Number of industrial incinerators.	Technical reports; Financial reports	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MoH, PRIVATE SECTOR, MININFRA	Technical assistance Financial support by donors or government	2016 - 2017	
4) Establishment of E-equipments reparation workshop center in different cities of the country.	Number known workshops for Equipment	Technical reports;	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MoH, MINALOC, PRIVATE SECTOR, MININFRA	Political will , Financial support by donors or government	2016 - 2017	600,000
5) Establishment of governmental stores for used electronic and electrical	Number known stores of e- _equipment	Technical reports	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB-	Political will and financial support either from government or		250,000

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source of verification	Actors	Hypothesis/suppositions (Financing and others)	Deadline	Budget (USD)
equipments in different cities			NAEB-RALIS, MoH, PRIVATE SECTOR, MININFRA, MINALOC	donors	2016 - 2020	

SPECIFIC OBJECTIVE 4: PROGRESSIVE REDUCTION UNINTENTIONAL NEW POPs WASTES RESULTING FROM ANARCHIC MANAGERMENTS OF NEW POPs CONTAING WASTES

Result 1 : Wastes of NEW pops from anarchic managements are progressively gathered and reduced

Activities/Logic of intervention	Indicators objectively verifiable (IOV)	Source verification of	Actors	Hypothesis Financing and others	Deadlines	Budget (USD)
1) Promote importation of new POPs free materials specially cars	Quantity of lead free fuel imported Text establishing obligation of using lead free fuel	Oil stations;	MINIRENA/REMA MINICOM, MoH, MINECOFIN,	Political commitment	2016 - 2025	150,000
2) Fight against illegal entry of materials containing new POPs or new POPs themselves except these that ate exempted.	Number of defaulters arrested and prosecuted	Reports by the concerned authorities.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MoH, PRIVATE SECTOR, MININFRA, MINALOC	Community participation	2016 - 2025	40,000
3) Fight against the anarchic management of Materials containing new POPs(dismantling of E-equipments, vehicle	Number of installations of alternative energies (at level of households and collectivises)	Reports of investigations.	MINECOFIN, MINICOM-RSB, MINICOM-RRA MINAGRI-RAB- NAEB-RALIS, MoH, PRIVATE	Political commitment	2016 - 2025	40,000

oil in stoves, break making, etc)			SECTOR, MINALOC, MININFRA			
4) Collect vehicles wastes from garages and Gikondo industrial park and store them in a well- managed store	Availability of a the central stores in different cities	DISTRICTS, Kigali city	MINIRENA/REMA, MINALOC/ MINECOFIN	Political commitment and participation of key stakeholders guaranteed	2016 - 2016	45,000
TOTAL ACTION PLAN 3						1,477,000
TOTAL						4,253,000

Strategy 1: Release from stockpiles and wastes: pesticides, industrial and Unintentional production of NEW POPs
Obligation

Table 13: Activities, indicators actors for the implementation of the strategy of release from stockpiles and wastes: pesticides, industrial and Unintentional production of NEW POPs

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
✓ Take measures to ensure that wastes containing POPs, including products and articles containing chemicals listed in Annex A, B or C, are managed in an environmentally sound manner.	Guidelines documents are elaborated and published	REMA; MINIFRA; MINAGRI; MINECOFIN, UR, RSB, MINICOM	REMA
Ensure that waste containing POPs is not recovered recycled or reused in anarchic manner.	Report from the facility visit	MININFRA, REMA, RNRA, MINRERNA, UR; RSB, etc	REMA
Ensure that any transboundary transport of such waste is in accordance with national and international rules such as the Basel convention requirements	Report on transport of wastes Availability of the adequate transportation facility	Private Sector, REMA; MININFRA,	REMA
Ensure that wastes are stored in an environmental sound management manner (in an adequate facility).	Availability of storage guidelines and adequate infrastructure	Private Sector, REMA; MININFRA, MINISTRY OF ICT; MoH	REMA
Ensure that disposal of waste containing POPs and wastes in general is in accordance with the provisions of the Convention and harmonised with work under the Basel	Availability of disposal SOPs for each category	Private Sector, REMA; MININFRA, MINISTRY OF ICT; MoH	REMA

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
Convention to establish what is meant by a low content of POPs and destruction or irreversible transformation so that waste no longer exhibits the characteristics of POPs.			
Endeavour to develop a strategy for identifying sites contaminated by POPs. If remediation of such sites is necessary, this must be performed in an environmentally sound manner.	Guidelines for contaminated sites identification are remediation SOP	REMA; MINIFRA; MINAGRI; MINECOFIN, UR, RSB, MINICOM; MININFRA, etc	REMA
Installation of an industrial incinerator for Kigali urban wastes with filter to trap toxic substances	Availability of an industrial incinerator	REMA; MINIFRA; MINAGRI; MINECOFIN, UR, RSB, MINICOM; MININFRA, MoH, Private Sector, MINADEF, etc	REMA

5.2.1. Strategy 2: information exchange, education, communication and awareness raising

Table 14: Requirements for information exchange, education, communication and awareness raising strategy implementation

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
To establish a data acquisition and transmission system	Data acquisition system is available	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB, MINICOM, etc.	REMA
Training of the stakeholders of the data acquisition and transmission system	Trained people with skills to use it	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB, MINICOM, etc.	REMA
Periodically update national inventories and evaluations on POPs	Updated inventories are available ant SC focal point	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB, MINICOM, etc.	REMA
Develop and implement a program to sustain awareness and understanding of the health, environmental risks, and economic impact of POPs	Number of seminars, training, public talks	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB, MINICOM, etc.	REMA; MoH
Setting up of databank/library on POPs that would be the source of information for the continuous public dissemination. This would include:	Data/ library bank is availed	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB, MINICOM, etc.	REMA; MoH

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
<ul style="list-style-type: none"> ✓ Research studies ✓ Testimonials from victims of POPs and those who shifted to alternatives ✓ Technical reports 			
<p>Production and dissemination of Information, Education, and Communication materials based on documented testimonials and popularized technical reports and risk studies.</p> <ul style="list-style-type: none"> ✓ Focused distribution, leafleting, placement of posters and billboards at work places and offices, schools, health centers, local markets, shops, etc. ✓ Posting of general information and updates on web page 	Documents are produced and disseminated using different means	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN,UR, RSB, MINICOM,MINEDUC etc.	REMA; MoH, MINEDUC
<p>Sustain media coverage through:</p> <ul style="list-style-type: none"> ✓ Writing and placement of regular news releases ✓ Conduct of regular press conference ✓ Radio-television guesting by government officials ✓ Tapping of public affairs programs for integration of POPs messages 	Availability of video, newspapers with some news on POPS	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN,UR, RSB, MINICOM,RBA, private media	REMA; MoH, RBA and private media

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
<ul style="list-style-type: none"> ✓ Recognition of journalists & media organizations that regularly cover POPs and related issues ✓ Organization/ coordination of special events pertaining to POPs ✓ Develop the concept for the TV shows ✓ Run the TV shows 			
<p>Build and sustain network for information exchange and communication on POPs and the National Implementation Plan</p> <ul style="list-style-type: none"> ✓ Survey of partner stakeholders to establish common interest and preferred communication mechanisms ✓ Set schedule for regular coordinative meetings, including reporting on POPs updates and the activities under the National Implementation Plan ✓ Participation in local, national, and international forums on POPs ✓ Presentations during regular meetings of business associations. 	Activities report are available in the focal point office	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN,UR, RSB, MINICOM, etc.	REMA
Collaborate with universities to elaborate the technical capacity building tools transferring knowledge on environmental management of chemicals, focusing on POPs, environmental	Tools are developed and published	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN,UR, RSB, MINICOM, etc.	REMA; MoH, MINEDUC

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
toxicology; environmental management of urban solid wastes, medical wastes, obsolete pesticides, PCB-containing wastes, and wastes containing new POPs; measures for the prevention and control of sources that generate unintentional POPs (such as dioxins and furans); proper monitoring of emissions to air using best available techniques and best environmental practices (BAT/BEP), protection of the quality of soil and of ground waters and sediments; management of contaminated sites			
Collaborate with Universities to offer online education to increase the number of people who are prepared to act in the area of chemical management, particularly the Stockholm Convention POPs, throughout the entire country	Online education is initiated	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB, MINICOM, etc.	REMA; MoH, MINEDUC

5.2.2. Strategy 3: research and development considering the gender issues

As earlier indicated, the area of research for POPs management does not have any data. Therefore the main goal for this strategy is to initiate research aiming at putting out the status of POPs in Rwanda environment.

This strategy in the Rwandan context has two major objectives, namely:

6. Strengthening the human and institutional capacity for managing POPs chemicals in Rwanda.
7. Conducting risk assessment of POPs chemicals on human health (taking into consideration of gender aspects) and the environment

Objective 1: Strengthening human and institutional capacity for managing POPs chemicals. I. Goal

The main goal of this objective is to build the appropriate human and institutional capacity for POPs management. The major activities to be accomplished are given in the table below.

Table 15: Activities for research and development considering the gender issues strategy

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
Identify at least two laboratories to be upgraded up to accreditation in POPs analysis	Selected laboratory are know	MoH, MINAGRI, MINIRENA, REMA, MINECOFIN, UR, RSB	REMA
Procure equipment and other inputs	Equipments are available	REMA, MoH, MINIRENA, MINECOFIN, UR	REMA, MoH
Training of staff of relevant institutions in the management and control of POPs chemicals. Training of staff in the judiciary system and other law enforcement agencies with the view to appropriate	Trained staff are available and training certificates are available in their files	REMA, MoH, MINIRENA, UR, RSB	REMA, MoH

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
enforcement of POPs legislation			
Conducting bioassays and physical-chemical analyses as service providers;	Data are available and published	REMA, MoH, MINIRENA, MINALOC, UR, RSB, MINECOFIN	REMA, MoH
Carrying out research in suspected areas considering all matrixes of the area	Data are available and published	REMA, MoH, MINIRENA, MINALOC, UR, RSB, MINECOFIN	REMA, MoH

Objective 2: Conducting risk assessment of POPs chemicals on human health (taking into consideration of gender aspects) and the environment

According to the literature, Levels of exposure to toxic chemicals—as well as the resulting impacts on human health are determined by social as well as biological factors. Determined by social roles, women, men, and children are exposed differently to toxic chemicals in daily life. The differences include the kinds of chemicals encountered as well as the level and frequency of such exposures. In addition men, women, and children vary in their physiological susceptibility to the effects of exposure to toxic chemicals.

For instance, in agricultural communities in developing countries, men may be at higher risk of direct exposure to chemical pesticides during application, while women (and sometimes children) may be more likely to be indirectly exposed during planting and harvesting. At the same time, biological factors notably size, physiological, hormonal, and enzyme differences between women and men, and between adults and children—also influences susceptibility to health damage from exposure to toxic chemicals. Many examples also show that there are certain especially sensitive periods to specific chemicals during fetal and child development. Therefore, the research that covers all these gender criteria are very important for future activities. In addition, the environmental effects have to be assessed.

Table 16: Activities for risk assessment of POPs chemicals on human health

Activities/ logical interventions	Indicators objectively verifiable (IOV)	Actors	Source of verification
Conduct bioaccumulation analysis on direct handlers of POPs	Data are available	MoH; MINIRENA, REMA, MINECOFIN, UR, RSB	MoH, REMA
Conduct scientific research linking bioaccumulation level, health impact and gender and sociodemographic aspect (Occupational factors, Differences in household exposures, Differences in physiological susceptibility	Data are available	MoH; MINIRENA, REMA, MINECOFIN, UR, RSB	MoH, REMA
Raise awareness of the linkages between chemical exposures, the effects on human health and the environment, and gender differences in risks and impacts.	Number of people with sufficient skills on NEW POPs issues	MoH; MINIRENA, REMA, MINECOFIN, UR, RSB, MINAGRI, MINIFRA	REMA
Promote a multi-stakeholder approach to ensure the participation of women and vulnerable populations in policy development and decision-making processes.	List of involved people including women and other vulnerable people	MINIRENA, REMA, MINECOFIN, MINAGRI, MINIFRA, MINALOC	REMA

The financial analysis for the implementation of the formulated NIP estimated a total cost of .Fourteen Million thirty one thousand Dollars (14, 031,000.U\$D) equivalent to Eleven Milliard two hundred twenty four Million eight hundred thousand Rwandan Francs (11,224,800,000 Rwf) and this budget will be covered by all actors.

CHAPTER VII: DISPOSAL OPTIONS FOR POPs AND POPs CONTAINING WASTE

7.1. Contaminated site management

The management procedures for contaminated sites follow a similar hierarchy to those of wastes management; i.e. prevent further contamination, recover spilled or dumped material where possible, implement management procedures to contain the contaminants on site, and finally treat on site or remove the residues for disposal elsewhere. The requirements for each of these stages are discussed below.

7.1.1. Prevention

It is essential that action to be taken as soon as possible to prevent further contamination from occurring. In the case of current operation, this might involve making alternative arrangements for wastes disposal, introducing spill management procedures, or changing the process to prevent further discharge.

7.1.2. Recovery

This is especially important where site containment is poor, and there is a significant risk of off-site contamination due to surface run-off or leaching into groundwater.

7.1.3. Site management

Steps include the minimization of any potential risks from contaminants. This includes restrictions of on sites access to prevent direct exposure, and the development of containment systems, such as bunding to prevent surface run-off.

7.1.4. Treatment and disposal

There are two general options for cleaning up contaminated sites: On-site treatment or excavation and removal to a treatment facility elsewhere. If neither of these is immediately possible (or practical), then the following options should be considered:

- Removal of contaminated soil to more suitable disposal site or storage facility
- Isolation of the soil by covering with a layer of concrete or clay, or some other suitable protective layer.
- Leave the material where it is. This option would only be accepted if an effective site management system was being used to prevent site access, and it had been shown that there were not potential risks, such as those due to surface runoff or groundwater contamination.

7.2. Disposal option of POPs

The simplest disposal option for nearly all pesticides is high temperature incineration. This can handle virtually all of the different types of chemicals, and formulations (solid

and liquids). It is also suitable for small quantities of unidentified materials. It is however, an expensive option for those pesticides which are able to be disposed using much simpler methods. There are a number of these alternative options, including the followings:

- Land applications, which effectively range from use of the pesticides as intended, through to controlled application on waste land.
- Treatment with lime prior to burial at a landfill is also recommended for those materials which are amenable to alkaline hydrolysis
- Treatment in a disposal pit is recommended for some other materials of low toxicity. Pesticide disposal pits make use of naturally occurring soil microbes for pesticides degradation. The systems are mainly intended for liquid wastes, such as left-over spray solutions. However, they can also be used for disposal of small quantities

7.3. Disposal of pesticides empty containers

In Rwanda like in other developing countries, the reuse of pesticides containers for storage of water, food and fuel is sometimes a major problem. However, it is nearly always impossible to completely decontaminate these used containers. Regardless of the number of washings, residues will continue to be released from inner wall of the container and can contaminate anything placed inside.

The available options for disposal of used containers are incineration, recycling or burial in a landfill. Containers should only be disposed by burial after they have been triple-rinsed and crushed or shredded. Only designated landfill should be used.

7.4. Disposal by landfill

Bags and boxes can be cut up and stored in plastic bags prior to disposal in designated sanitary landfill under REMA supervision. Empty plastic and steel containers should be thoroughly emptied, triple-rinsed with water or solvent and punctured, crushed or shredded before they are sent to the landfill. The rinsate must be drained, collected and stored separately in appropriate and clearly labelled containers. The rinsate should be managed in the same manner as the pesticide. If the product was still usable, the rinsate can be applied with the product.

7.4.1. Disposal by incineration

All common types of contaminated packaging can in principle be destroyed safely in a specialized hazardous waste incinerator.

International regulations on the transport of hazardous wastes apply when empty containers are exported for destruction. Under such regulations, unrinsed empty contaminated containers are regarded as a hazardous product in the same category as the original contents.

This means that empty pesticides containers need to be re-packed prior to shipping. This can be done by over-packing the containers in their original form, or by packing them after cutting or shredding. It may be possible to incinerate small quantities of contaminated bags, boxes, and crates in a local incinerator, such as used for medical wastes. Plastic containers should be cut and shredded.

7.4.2. Recycling

At large pesticides stores, empty steel drums that are still in good condition may be retained as spares to repack the same product from leaking, or deteriorating drums, or to pack contaminated spill control material after clean-up activities. Drums retained for this purpose should be rinsed tripled.

If it is possible to return containers to the supplier, this is the preferred option. One could consider negotiating an arrangement (e.g. as part of the procurement order) under which the supplier agrees to take the empty containers back after the product has been used.

Old or deteriorated steel drums and surplus steel drums can be used as raw material at a steel smelter. They should be rinsed, punctured or crushed before being sent to the smelter.

CHAPTER VIII: CONCLUSION

The updated of POPs was conducted starting from the existing national implementation plan of the Stockholm convention on persistent organic pollutants (POPs) in Rwanda: 2007-2025 here called NIP I and the inventory of different category of POPs covered by the SC that allowed including the NIP for NEW POPs. During its elaboration all actions plans were revisited and those who were not executed since its establishment were kept in order to fulfil all plans before the targeted year of the Stockholm Convention 2025.

The assessment conducted on the existing NIP showed that: Rwanda is equipped with institutions, laws, regulations, and policies enacted to protect environment. Also Rwanda adhered and ratified international treaties and conventions aiming at the promotion and the protection of environment either, nationally or internationally. Furthermore, an updated inventory was conducted as a basis on which all subsequent activities for the update of NIP I was based and allowed the establishment of new actions plans for the updated NIP.

It is important to mention at this stage some gaps in the regulatory framework resulting mainly from the conflict situation of insecticides used in the public health, when the same insecticides are banned by the Ministry of Agriculture and Animal Resources. This is the case of the organophosphate Pirimiphos methyl (Actellic) used in the control of the vectors of malaria, while it is on the list of prohibited pesticides. The relevant pesticide management laws, regulations and institutional arrangements should be regularly reviewed and updated to provide adequate protection of human health and the environment in vector control operations.

Regarding new POPs, Rwanda has already some regulations establishing measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste from electrical and electronic equipment and by promoting resource efficient through reuse, recycling and other forms of recovery of e-waste in environmental friendly manner. Furthermore, special attention should also be given to this category of new POPs as they have never been taken into account while establishing NIP I. Also specific regulations and laws need to be clearly established mainly related with equipment containing PBDEs and PFOs like cars in order to make sure that item containing these POPs are not allowed to enter the country and to also have in the customs office a well defined recording system of such items.

Furthermore the area of research on POPs is still untouched as there is no data illustrating the level of contamination for both humans and environment. This can be considered as a priority area for research or scientific investigation in the country. Priority areas were established basing on reliable data that have been collected from public institutions like RRA, NISR, RURA. As data from RRA and NISR were found having many items (products) sharing the same code and this hindered the usage of their data during the

quantification of POP-PBDEs. Also the way data were captured was found to be useless, because sometimes it was not providing the needed information.

NIP update was conducted following the priority areas which have been identified for each category of POPs. This is in general showing priority area where the country needs to focus and put more efforts in order to achieve its engagement to the Convention. It has clearly shown activities indicators, sources of verification, actors involve in these activities and the related budget needed for a successful achievement of all established actions plans. Looking at the time scale for completion of the SC, a strong collaboration is needed both locally and internationally.

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