



National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants

Saint Lucia



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National Implementation Plan (NIP) for the Stockholm Convention on Persistent Organic Pollutants (POPs), Saint Lucia

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Department of Sustainable Development

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This bronze Independence Monument ("All In") symbolises *the collective vision and ideals of our nation. A permanent tribute to the tireless striving of our forefathers in steering our land to statehood and a permanent reminder that we too must continue this legacy* - Jallim Eudovic, creator/sculptor.

Note: This updated version of the NIP addresses all chemicals listed in Annexes A, B and C of the Convention text following amendments adopted at the 7th Conference of Parties to the Stockholm Convention (COP 7) in 2015 and gives consideration to the synergies towards the management of the chemicals added in 2017 and 2019.

Prepared on behalf of:

The Government of Saint Lucia

Ministry of Education, Innovation, Gender Relations and Sustainable Development, Department of Sustainable Development, in fulfilment of its obligations under the Stockholm Convention

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LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|-----------------------|--|
| AG Chambers | Attorney General's Chambers |
| Basel Convention (BC) | Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal |
| BAT | Best available techniques |
| BCRC-Caribbean | Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean |
| BEP | Best environmental practices |
| BFRs | Brominated flame retardants |
| c-octaBDE | Commercial octabromodiphenyl ether (hexaBDE and heptaBDE) |
| c-pentaBDE | Commercial pentabromodiphenyl ether (tetraBDE and pentaBDE) ¹ |
| CARPHA | Caribbean Public Health Agency |
| COP | Conference of Parties to the Stockholm Convention |
| CRT | Cathode Ray Tube |
| DDE | p,p'- Dichlorodiphenyldichloroethylene |
| DDT | Dichlorodiphenyltrichloroethane |
| DecaBDE | Decabromodiphenyl ether |
| DoA | Department of Agriculture |
| DSD | Department of Sustainable Development |
| EEE | Electrical and electronic equipment |
| EHD | Environmental Health Department |
| ELVs | End-of-life vehicles |
| EPR | Extended producer responsibility |
| EPS | Expanded polystyrene |
| ERP | Emergency response plan |
| ESM | Environmentally sound management |
| FAO | United Nations Food and Agriculture Organisation |
| GDP | Gross domestic product |
| GEF | Global Environment Facility |
| GEF 5558 | GEF project "Development and Implementation of a Sustainable Management Mechanism for Persistent Organic Pollutants (POPs) in Eight (8) Caribbean Countries" |
| GHS | Globally Harmonised System on the Classification and Labelling of Chemicals |
| GMP | Global Monitoring Programme |
| GoSL | Government of Saint Lucia |
| HBB | Hexabromobiphenyl |
| HBCD | Hexabromocyclododecane |

¹ C-pentaBDE also contain listed hexaBDE and minor heptaBDE.

| | |
|-------------|---|
| HCB | Hexachlorobenzene |
| HCBD | Hexachlorobutadiene |
| HCH | Hexachlorocyclohexane |
| HHPs | Highly hazardous pesticides |
| IPM | Integrated pest management |
| KAP | Knowledge, attitudes and practices |
| LUCELEC | Saint Lucia Electricity Company |
| MEA | Multilateral environmental agreement |
| MEHUC | Ministry of Economic Development, Housing, Urban Renewal, Transport and Civil Aviation |
| MEIGRSD | Ministry of Education, Innovation, Gender Relations and Sustainable Development |
| MOAFPNRC | Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources and Co-operatives |
| MoH | Ministry of Health |
| MOU | Memorandum of Understanding |
| NEMO | National Emergency Management Organization |
| NEP/NEMS | The National Environmental Policy/ National Environmental Management Strategy |
| NGO | Non-governmental organization |
| NIP | National Implementation Plan |
| OECD | Organisation for Economic Co-operation and Development |
| OECS | Organisation of Eastern Caribbean States |
| OHSU | Occupational Health and Safety Unit |
| PAE | Public awareness and education |
| PBB | Polybrominated biphenyls |
| PBDEs | Polybrominated diphenyl ethers |
| PBDEs(2009) | PBDEs listed in 2009 (tetraBDE, pentaBDE, hexaBDE, and heptaBDE) |
| PCBs | Polychlorinated biphenyls |
| PCDDs | Polychlorinated dibenzo-p-dioxins |
| PCDFs | Polychlorinated dibenzofurans |
| PCNs | Polychlorinated naphthalenes |
| PCP | Pentachlorophenol |
| PFASs | Per-and poly-fluorinated alkylated substances |
| PFHxS | Perfluorohexane sulfonic acid |
| PFOA | Perfluorooctanoic acid |
| PFOS | Perfluorooctane sulfonic acid |
| PFOS-F | Perfluorooctane sulfonyl fluoride |
| POPs | Persistent organic pollutants |
| PPE | Personal protective equipment |

| | |
|--------|--|
| PPP | Polluter pays pinciple |
| PTCCA | Pesticides and Toxic Chemicals Control Act |
| PTCCB | Pesticides and Toxic Chemicals Control Board |
| PUR | Polyurethane |
| PWC | Project Working Committee |
| SAICM | Strategic Approach to International Chemicals Management |
| SC | Stockholm Convention on Persistent Organic Pollutants |
| SCCPs | Short-chain chlorinated paraffins |
| SDED | Sustainable Development and Environment Division |
| SDGs | Sustainable Development Goals |
| SLASPA | Saint Lucia Air and Seaport Authority |
| SLBS | Saint Lucia Bureau of Standards |
| SLCC | Saint Lucia Chamber of Commerce |
| SLCED | Saint Lucia Customs and Excise Department |
| SLFS | Saint Lucia Fire Services |
| SLSWMA | Saint Lucia Solid Waste Management Authority |
| SOP | Standard operating procedure |
| TEQ | Toxic equivalence |
| UNIDO | United Nations Industrial Development Organisation |
| UPOPs | Unintentional persistent organic pollutants |
| USA | United States of America |
| WASCO | Water and Sewerage Company Inc. |
| WEEE | Waste electrical and electronic equipment |
| WHO | World Health Organisation |
| XPS | Extruded polystyrene |

EXECUTIVE SUMMARY

Persistent organic pollutants (POPs) are chemical substances that persist in the environment, bioaccumulate through the food chain and cause adverse effects to human health and the environment. These POPs not only pose threats to the regions in which they are produced and used, but they also threaten other regions where they have never been used or produced, as they are transported via air and water, posing an even greater threat to the global population and environment.

The Stockholm Convention (SC) on POPs is a direct response by the international community to protect human health and the environment from the negative effects of POPs. Twelve (12) chemicals, including nine (9) POPs pesticides, were initially listed under the SC. Eighteen (18) additional POPs were added between 2009 and 2019. The Convention therefore currently covers 30 POPs. It is the goal of the SC to provide the necessary technical and financial resources to assist developing countries to take action to reduce and eliminate the releases of these chemicals.

Recognizing that:

1. POPs pose major and increasing threats to human health and the environment in Saint Lucia;
2. Saint Lucia is a Small Island Developing State (SIDS) that does not produce any of the group of POPs chemicals under control by the SC and may only be unintentionally producing POPs; and
3. Saint Lucia may be using consumer products and articles containing POPs and equipment containing POPs.

Saint Lucia became Party to the SC on POPs in 2002 in an effort to take action to protect human life and the environment in Saint Lucia. The Department of Sustainable Development (DSD) in the Ministry of Education, Innovation, Gender Relations and Sustainable Development is responsible for the coordination of efforts to ensure that Saint Lucia meets its obligations under the Stockholm Convention on POPs. The development of the National Implementation Plan (NIP) serves as a key instrument to be used by key Ministries, agencies and stakeholders to implement the Stockholm Convention on POPs in Saint Lucia.

The NIP update in Saint Lucia was part of the project *Development and Implementation of a Sustainable Management Mechanism for POPs in the Caribbean (GEF 5558 Project)*, to advance the commitments of participating States to the Stockholm Convention and improve their capacities and capabilities to manage POPs and possibly other toxic chemical substances. Funding for the project was approved by the Global Environment Facility (GEF) in 2015. The project was implemented by the United Nations Industrial Development Organization (UNIDO) and executed by the Basel Convention Regional Centre for Training and Technology Transfer in the Caribbean

(BCRC-Caribbean). The Caribbean Public Health Agency (CARPHA) was contracted as the technical consultant to execute Output 1.1 of the project (update of the NIP including conduct of in-country inventories of new POPs added to the Stockholm Convention). The national focal point for the project was the Department of Sustainable Development (DSD) in the Ministry of Education, Innovation, Gender Relations and Sustainable Development and was supported by a multi-sectoral Project Working Committee (PWC).

This updated NIP addresses all POPs chemicals listed in Annexes A, B and C of the Convention text following amendments adopted at the 7th Conference of Parties to the Stockholm Convention (COP 7) in 2015. The NIP gives consideration to the synergies towards the management of the chemicals added in 2017 and 2019, namely DecaBDE, SCCPs, PFOA and dicofol.

Commitment to Implementation of NIP

The development and implementation of a NIP is evidence of Saint Lucia's commitment to:

1. Remain compliant with the obligations of the SC on POPs;
2. Reduce and eventually eliminate the unintentional release of POPs; and
3. Protect human health and the environment from the harmful effects of POPs.

Under the Stockholm Convention, Parties seek to:

1. Identify and implement measures to reduce or eliminate releases from intentional production and use as well as from unintentional production.
2. Establish a register of specific exemptions that Parties which have the need to continue the use of POPs with exemption might further use these POPs and register for exemptions.
3. Identify and implement measures to reduce or eliminate releases from stockpiles and wastes.
4. Develop and implement a plan for the implementation of the obligations under the SC.
5. Target additional chemicals for listing in Annexes A, B and/or C.
6. Facilitate or undertake exchange of information relevant to the reduction or elimination or production, use and release of POPs and exchange information regarding alternatives to POPs.
7. Promote and facilitate awareness among policy and decision makers regarding POPs.
8. Undertake appropriate research, development, monitoring and cooperation pertaining to POPs, within each Party's capabilities and resource.

National Priorities and Key Issues

The 2016 inventory findings showed that none of the sixteen (16) POPs pesticides currently listed under the Stockholm Convention are in use or currently registered for use in Saint Lucia. In addition, lindane, has been prohibited, and hexachlorobenzene (HCB) is banned. The use of DDT was banned in Saint Lucia in the 1970s – 1980s, and DDT imports were banned by an administrative measure, however this ban is not articulated in the relevant legislation. Information on the historic use of PCPs in Saint Lucia, including the use of PCP treated electrical poles, was not confirmed. All known POPs pesticides stockpiles have been eliminated from their storage facilities through the GEF-funded initiative spearheaded by the MOAFPNRC in September 2016; however, there are potentially contaminated sites including areas where previous stockpiles were stored and the landfills that historically accepted pesticide containers. Management and monitoring of POPs pesticides and potentially contaminated sites is necessary.

Saint Lucia does not produce or directly import polychlorinated biphenyls (PCBs), however, PCB containing components such as capacitors in electrical and electronic equipment (EEE), may still be imported into the country. Saint Lucia Electricity Services Company (LUCELEC) historically used large quantities of transformers containing PCB oils, but the company has disposed of approximately 34.8 tonnes of identified PCB containing transformers and oils and has phased out the use of these equipment. Obsolete stocks of transformer oils and potentially PCB contaminated equipment at LUCELEC's facilities were confirmed to be PCB-free in 2019. Further analysis of LUCELEC's historic PCB storage site and other potential PCB contaminated sites in Saint Lucia is still needed. Additionally, legislation is needed to address PCB management in Saint Lucia.

The focus of the assessment on PBDEs listed in 2009 was on EEE and related waste (WEEE) (specifically, cathode ray tube computer monitors and televisions), and plastics/polymers from end-of-life vehicles (ELVs) (specifically those manufactured before 2004 and from the United States of America). DecaBDE listed 2017 was not considered in the inventory. For 2016, approximately 225.65 kg of PBDEs homologues in EEE and WEEE and 556 kg of PBDEs from polyurethane foam in operational vehicles were calculated for Saint Lucia. More data is needed to calculate PBDEs in ELVs in particular DecaBDE listed in 2017. Policies and legislations targeted at the management of PDBE chemicals are lacking in the country.

Perfluorooctane Sulfonic Acid (PFOS), its salts and related chemicals are used in firefighting foams and PFOS-containing foams are stored in nine (9) locations throughout Saint Lucia. In 2016, approximately 332 L (342 kg) of PFOS/PFOS-related foam was imported into Saint Lucia and 46 783 L (48 186 kg) was in stock. The presence of PFOS/PFOS-related chemicals in other products such as synthetic carpets, textiles and packaging, and aviation hydraulic fluids is unknown, however, it is likely that some of these products are still in use and have contaminated dumpsites and landfills. The presence of PFOS/PFOS-related chemicals in these products should be confirmed. Additionally, contaminated sites should be identified and monitoring of these and other sites should be conducted.

Polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans (PCDDs/PCDFs) and other unintentional POPs (UPOPs) are by-products of combustion and chemical processes. Preliminary assessment of PCDDs/PCDFs as indicator for UPOPs release revealed that emissions in Saint Lucia for 2016 were primarily to air from open burning and thermal wire reclamation by recyclers.

In general, the assessments of all POPs groups showed that POPs may be prevalent in a range of consumer products (EEE, vehicles, textiles/clothing, synthetic carpets, paints, kitchen utensils from recycled plastic, etc.) thus, proper management and disposal of these products have to be addressed.

In implementing the SC on POPs in Saint Lucia, the following national priorities have been recognized:

1. Institutional strengthening in the field of chemicals management and POPs in particular;
2. Development/amendment of specific legislation on the sound management of chemicals and hazardous waste;
3. Education, training and awareness raising on chemicals and hazardous waste management issues and practices;
4. Improvement of waste management and reduction of unintentionally formed POPs from open burning;
5. Assessment, management and remediation of POPs contaminated sites;
6. Monitoring and research related to POPs, and collaborations;
7. Management of POPs stockpiles, waste and articles in use, and appropriate measures for disposal;
8. Assessment of alternatives to POPs;
9. Update and refining of inventories on POPs; and
10. Strengthen reporting.

The NIP seeks to address these national priorities and key issues, sets targets for implementation within the period 2020 to 2025 and will be developed in accordance with the procedures set out by the Conference of Parties (COP) to the SC under the following objectives:

1. To strengthen and enhance Saint Lucia's institutional and regulatory framework;
2. To eliminate the importation and use of Annex A POPs pesticides and other newly listed POPs, (PFOS, DecaBDE, short-chain chlorinated paraffins (SCCPs), perfluorooctanoic acid (PFOA), perfluorohexane sulfonic acid (PFHxS) suggested as POP, POP-brominated flame retardants (BFRs) and other chemicals that may be of concern related to POPs;

3. To eliminate the importation and use of PCBs and PCB containing equipment and dispose of PCBs and PCB containing equipment;
4. To reduce or eliminate releases from the unintentional production of POPs;
5. To identify and manage contaminated sites;
6. To develop, facilitate and promote a system for information exchange that allows Saint Lucia to be compliant under the SC on POPs;
7. To increase awareness of the public on POPs and chemicals, and their related issues;
8. To ensure the regular preparation and submission of reports in accordance with the SC;
9. To promote capacity for research and development related to the management of POPs pesticides and chemicals; and
10. To monitor implementation of the SC in Saint Lucia.

A road map for the management of POPs was developed. The implementation will take a cross-sectorial approach, comprising key Government ministries and private stakeholders. The total estimated budget for the quantifiable priority activities is over USD 4,681,000. Table 1 presents the estimated budget for the national priorities.

| Table 1: Estimated budget for national priorities for POPs management in Saint Lucia based on quantifiable priority activities | |
|--|--|
| National Priorities | Estimated Budget (USD) |
| I. Institutional and regulatory strengthening in the field of chemicals and wastes management | 840,000 |
| II. Reduction or elimination of releases from intentional production and use | Not quantifiable plus unquantifiable amounts |
| III. Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals) | 255,000 plus unquantifiable amounts |
| IV. Production, import and export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, Part II chemicals) | 266,000 plus unquantifiable amounts |
| V. Production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD | 480,000 plus unquantifiable amounts |
| VI. Production, import and export, use, stockpiles, and wastes of PFOS, its salts and PFOSF and PFAS (SAICM Synergy) | 390,000 plus unquantifiable amounts |

Table 1: Estimated budget for national priorities for POPs management in Saint Lucia based on quantifiable priority activities

| National Priorities | Estimated Budget (USD) |
|---|--|
| VII. Registration for specific exemptions and the continuing need for exemptions | 15,000 plus unquantifiable amounts |
| VIII. Reduction or elimination of releases from unintentional production | 370,000 |
| IX. Identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal | 10,000 plus unquantifiable amounts |
| X. Identification of contaminated sites (Annex A, B and C chemicals), securing and remediation in an environmentally sound manner | 1,950,000 |
| XI. Facilitating or undertaking information exchange and stakeholder involvement | In-kind |
| XII. Public awareness, information and education | 105,000 |
| XIII. Effectiveness evaluation (Article 16) | No funds |
| XIV. Reporting (Article 15) | No funds |
| XV. Research, development and monitoring (Article 11) | Addressed in individual sections above |
| XVI. Technical and financial assistance (Articles 12 and 13) | Not quantifiable |

1 INTRODUCTION

1.1 Purpose of Saint Lucia's National Implementation Plan

The Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) was developed out of an international awareness that POPs posed major and increasing threats to human health and the environment, and an international commitment to take measures to protect human health and the environment. The text of the Convention was adopted and opened for signature in May 2001 in Stockholm, Sweden and entered into force on May 17, 2004.

Parties to the Convention are required to develop and implement, a National Implementation Plan (NIP) that describes the measures to be taken to meet the Convention's obligations for POPs (Article 7). Within two (2) years of the date on which the Convention entered into force for that Party, a plan was to be submitted to the Secretariat of the Convention. Saint Lucia acceded to the Convention on October 04, 2002 and submitted its first NIP, developed in 2006, to the SC Secretariat in 2007.

The Convention requires that Parties subject their NIPs to periodic updating and revision due to the Convention's dynamic nature. For example, a key reason to trigger a NIP update would be the inclusion of new chemicals to the Annexes of the Convention.

1.2 Development of Saint Lucia's 2020 National Implementation Plan

The updated NIP has been developed by the Department of Sustainable Development (DSD) in the Ministry of Education, Innovation, Gender Relations and Sustainable Development in close collaboration with the Project Working Committee (PWC)². Financial support was provided by the Global Environment Facility (GEF) and technical support was facilitated by the BCRC-Caribbean.

In addition to an overdue, obligatory and required periodic update, the addition of sixteen (16) new chemicals to the Convention since Saint Lucia's previous NIP development has triggered the need for a NIP update. The NIP is often described as a living document which means, country status and action plans within must be contemporary.

1.2.1 Scope of the NIP

This version of the NIP addresses all POPs chemicals listed in Annexes A, B and C of the Convention text following amendments adopted at the 7th Conference of Parties to the Stockholm

² The coordination mechanism built into the GEF 5558 project. The PWC comprises of representatives from all national agencies relevant to the management of POPs/UPOPs (including PTCCB, SLSWMA, Saint Lucia Fire Service, LUCELEC, Saint Lucia Chamber of Commerce, MOAFPNC, Customs and Excise, Department of Health, Department of Labour, The Central Statistical Office of Saint Lucia, DSD, Department of Commerce and Industry).

Convention (COP 7) in 2015. Chemicals added in 2017 and 2019, namely DecaBDE, SCCPs, PFOA and dicofol were not directly addressed in this NIP as they were not assessed under the scope of the POPs inventories which informed the NIP development. However, it should be noted that synergies towards the management of these newly listed POPs were considered in the development of the action plans for POPs management in Saint Lucia.

1.2.2 Mechanisms Used to Develop the NIP

The NIP was developed out of a process of stakeholder consultations, national and international research and data gathering, and guidance from the DSD. The following also guided the development of the NIP:

- The 2016 National POPs Inventory reports for POPs in Saint Lucia (BCRC-Caribbean, 2017 a-e)
- The 2018 Saint Lucia Country Report on the assessment of the legislative, regulatory and institutional framework for the management of POPs and chemicals in Saint Lucia (BCRC-Caribbean, 2018a)

The plan is structured along the lines recommended by the “Draft Guidance for Developing a National Implementation Plan for the Stockholm Convention” (UNEP, 2017b). The detailed process of updating the NIP is described in Annex A to this NIP.

1.2.3 Structure of the NIP

The NIP comprises three (3) chapters.

Chapter 1 defines POPs and summarizes the POPs issues in Saint Lucia. It also presents the history of the SC, its goals and provisions. In addition, it describes the development and the structure of the NIP.

Chapter 2 presents Saint Lucia’s country baseline and profile, highlights the current status of the institutional, policy and regulatory framework for POPs and chemicals in Saint Lucia. It also elaborates on Saint Lucia’s environmental status. This chapter further presents the results of the latest assessment of POPs, focusing on the import and export, production, current and future use, registration, release, storage, disposal, and the potential impacts. Existing programmes available for monitoring POPs in Saint Lucia, information exchange and awareness mechanism are outlined, and the status of the NIP implementation is outlined.

Chapter 3 outlines a formal policy statement and the implementation strategy of the NIP. The implementation strategy includes action plans, and related timelines and responsible agencies to aid in the completion of activities.

1.3 Overview of Persistent Organic Pollutants

Persistent organic pollutants (POPs) are a group of carbon-based chemicals, including pesticides, industrial chemicals and some unintended by-products of chemical and combustion processes that:

- are **toxic to humans and wildlife** – common effects of POPs on human life include cancer and damage to the central and peripheral nervous systems. Similar effects are observed in animals in addition to reproductive and immune system damage;
- **persist in the environment** – cannot be degraded by any known natural processes;
- **bioaccumulate** in organisms and **biomagnify** up food chains – this means that large predators such as humans are more likely to experience the detrimental effects of these chemicals;
- are **transported over long distances** through air and water and **can be found worldwide**.

1.3.1 Provisions of the Stockholm Convention

The Convention currently covers 30 POPs (Table 1-1), 16 of which have been recently added subsequent to COP 8 in 2017. The listed POPs are placed in three annexes to the Convention text according to their risk profiles and risk management evaluation:

- Annex A: Measures must be taken by Parties to eliminate the production and use of chemicals listed under Annex A. Specific exemptions for use or production are listed in the Annex and apply only to Parties that register for them.
- Annex B: Parties must take measures to restrict the production and use of chemicals listed in Annex B. Applicable acceptable purposes and/or specific exemptions for these chemicals are listed in the Annex and trade can occur under specific restrictive conditions, as set out in paragraph 2 of Article 3.
- Annex C: Measures must be taken by Parties to reduce the unintentional releases of chemicals listed under Annex C, with the goal of continuing minimization and, where feasible, ultimate elimination.

The Convention encourages the use of Best Available Techniques (BAT) and Best Environmental Practices (BEP) to reduce POPs releases and unintentional production. Furthermore, stockpiles of POPs and wastes contaminated by or containing POPs must also be disposed of in an environmentally sound manner. The SC also requires Parties to adhere to relevant international protocols in place for the transboundary movement of POPs containing waste or products.

Provisions are also made for the distribution of research and information amidst Parties and the development of public awareness campaigns for POPs. Special provisions are made for developing

countries who may need financial and technical assistance to carry out their obligations under the Convention.

| Table 1-1: The thirty (30) POPs currently listed in the Stockholm Convention | | | | | |
|--|---|------------------|----------------------------|---------------------------------|--------------|
| POPs³ | CAS Number⁴ | Pesticide | Industrial Chemical | Unintentional By-product | Annex |
| Aldrin | 309-00-2 | x | | | A |
| Chlordane | 57-74-9 | x | | | A |
| Chlordecone | 143-50-0 | x | | | A |
| Decabromodiphenyl ether (commercial mixture, commercial decabromodiphenyl ether) | 1163-19-5 | | x | | A |
| Dichloro-diphenyl-trichloroethane (DDT) | 50-29-3 | x | | | B |
| Dicofol | 115-32-2 | x | | | A |
| Dieldrin | 60-57-1 | x | | | A |
| Endrin | 72-20-8 | x | | | A |
| Heptachlor | 76-44-8 | x | | | A |
| Hexabromobiphenyl | 36355-01-8 | | x | | A |
| Hexabromocyclododecane (HBCD) | 25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7 and 134237-52-8 | | x | | A |
| Hexabromodiphenyl ether & heptabromodiphenyl ether (commercial octabromodiphenyl ether) | Various | | x | | A |
| Hexachlorobenzene (HCB) | 118-74-1 | x | x | | A & C |
| Hexachlorobutadiene (HCBD) | 87-68-3 | | x | | A & C |
| Alpha hexachlorocyclohexane | 319-84-6 | x | | | A |
| Beta hexachlorocyclohexane | 319-85-7 | x | | | A |

³ Additional information on specific exemptions and/or acceptable purposes for all POPs recognised by the SC is available at <http://chm.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx> and information on alternatives are available <http://chm.pops.int/Implementation/Alternatives/Overview/tabid/5834/Default.aspx>

⁴ CAS Registry Number is a unique numerical identifier assigned by the Chemical Abstracts Service (CAS) to every chemical substance described in the open scientific literature. For more information on the CAS Registry, visit <https://www.cas.org/support/documentation/chemical-substances/faqs>

Table 1-1: The thirty (30) POPs currently listed in the Stockholm Convention

| POPs³ | CAS Number⁴ | Pesticide | Industrial Chemical | Unintentional By-product | Annex |
|---|-----------------------------------|------------------|----------------------------|---------------------------------|--------------|
| Lindane | 58-89-9 | x | | | A |
| Mirex | 2385-85-5 | x | | | A |
| Pentachlorobenzene | 608-93-5 | x | x | | A |
| Pentachlorophenol (PCP), its salts and esters | Various | x | | | A |
| Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds | Various | | x | | A |
| Perfluorooctane sulfonic acid (PFOS), and its salts and perfluorooctane sulfonyl fluoride (PFOS-F) | Various | x | x | | B |
| Polychlorinated biphenyls (PCBs) | Various | | | x | A & C |
| Polychlorinated dibenzo-<i>p</i>-dioxins (PCDD) | Various | | | x | C |
| Polychlorinated dibenzofurans (PCDF) | Various | | | x | C |
| Polychlorinated naphthalenes (PCNs) | Various | | | x | A & C |
| Short-chain chlorinated paraffins (SCCPs) | 85535-84-8 | | x | | A |
| Technical endosulfan and its related isomers | 115-29-7, 959-98-8 and 33213-65-9 | x | | | A |
| Tetrabromodiphenyl ether & pentabromodiphenyl ether (commercial pentabromodiphenyl ether) | Various | | x | | A |
| Toxaphene | 8001-35-2 | x | | | A |

1.4 Status of Implementation of Saint Lucia's 2006 NIP

The 2006 NIP consisted of ten (10) action plans, addressing ten (10) strategic objectives outlined below:

1. Strengthen and enhance Saint Lucia's institutional and regulatory framework to implement the SC on POPs.

2. Eliminate the importation and use of Annex A POPs Pesticides in Saint Lucia.
3. Eliminate the importation and use of PCBs and equipment containing PCBs and to identify and dispose of PCBs and PCB containing equipment.
4. Reduce or eliminate releases from unintentional production of POPs.
5. Identify and manage contaminated sites.
6. Develop, facilitate and promote a system of information exchange.
7. Increase awareness of the public on POPs and chemicals, and their related issues.
8. Monitor the implementation of the SC in Saint Lucia.
9. Reporting
10. Strategy for Research and Development

Table 1-2 details the successes in the implementation of the action plan priorities of the 2006 NIP for Saint Lucia.

Table 1-2: Achievements of the 2006 NIP

| Action Plans (2006 NIP) | Implementation Successes |
|---|---|
| Eliminate the importation and use of PCBs and equipment containing PCBs and to identify and dispose of PCBs and PCB containing equipment | Equipment below the threshold phased in and in-use by Saint Lucia Electricity Company (LUCELEC). |
| | A sampling exercise conducted in July 2019 confirmed that the obsolete stock was PCB free. A management plan for decommissioned equipment is being developed. |
| Reduce or eliminate releases from unintentional production of POPs | SLSWMA established and operates one landfill and a waste management facility. |
| | Minimal open burning of waste. |
| Removal of stockpiles of obsolete and/or banned POPs pesticides | Approximately 9.7 tonnes shipped off island for final disposal under the GEF-funded initiative spearheaded by the Ministry of Agriculture in September 2016 (GEF/Food and Agriculture Organisation (FAO) 5407 project). |
| Eliminate the importation and use of Annex A POPs Pesticides in Saint Lucia | Mirex, lindane, endrin, aldrin, dieldrin, endosulfan, heptachlor, PCP, chlordane, chlordecone, toxaphene are addressed in existing legislation i.e. prohibited/restricted and one (1) banned by administrative measure (DDT) in Schedule five (5) of the PTCCA. |
| Develop, facilitate and promote a system of information exchange | POPs Information System partly developed. |
| Research, development and monitoring | National Inventory completed in 2006. |
| | Efforts initiated, but not completed, to enhance red-flagging of banned or restricted chemicals by including the new POPs in the Automated System for Customs Data (ASYCUDA) World. |

2 COUNTRY BASELINE

This chapter describes the current situation and the level of knowledge on POPs in the country, and the status of institutional and other capacities to address the issues related to the sound environmental management of chemicals in Saint Lucia.

2.1 Profile of Saint Lucia

This section gives a brief country profile to place the NIP strategies and action plans in context. It summarises information on geography and population, membership in regional and sub-regional organisations, economic and political profile of the country, profiles of potentially important economic sectors in the context of POPs and, environmental conditions in Saint Lucia.

2.1.1 Geography, Climate and Biodiversity

Saint Lucia is situated in the Lesser Antillean Arc of the Caribbean Archipelago at latitude 13° 53' north and longitude 60° 68' west (refer to Figure 2-1). It is situated on a volcanic ridge between the French island of Martinique to the north and Saint Vincent and the Grenadines to the south. Saint Lucia has a land area of 616.4 km², (238 sq. miles) with maximum dimensions of 42 km (27 miles) long and 22 km (14 miles) wide.

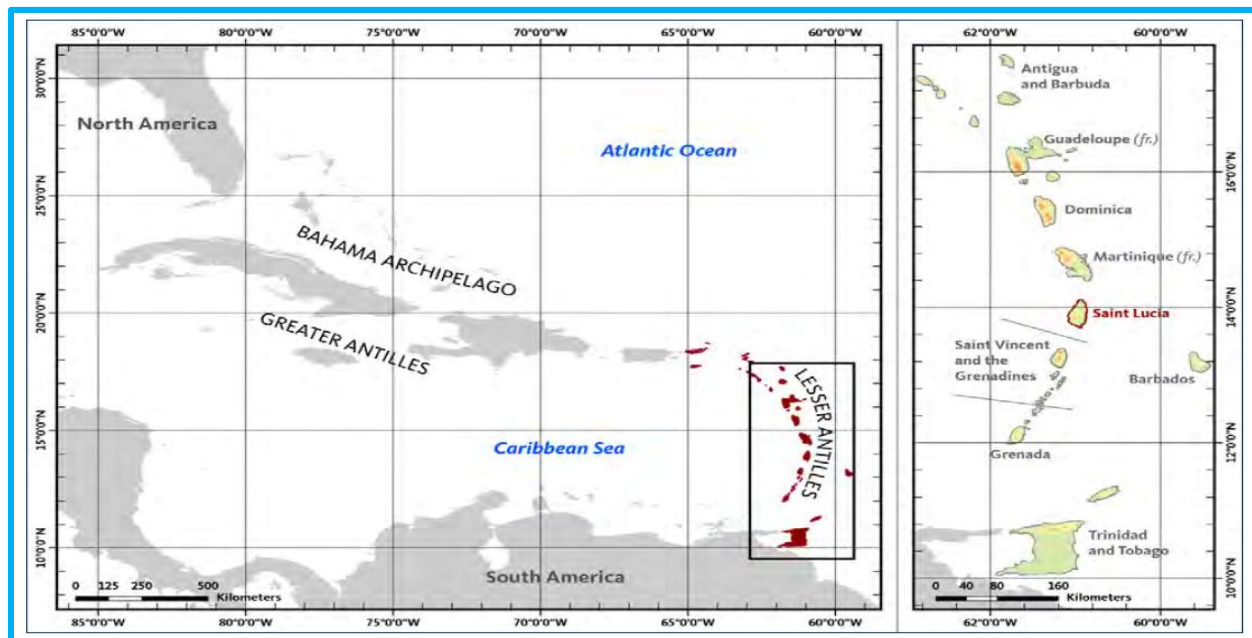


Figure 2-1: Map of the Caribbean showing the location of Saint Lucia

Source: GeoMinds and CREDP-GIZ, 2013

Saint Lucia's landscape is characterized by a mountainous interior and flatter terrain along its coastline. Saint Lucia is rich in biodiversity with its mountainous interior being home to a wide variety of tropical plants and birds, including the indigenous Saint Lucian Parrot, the *Amazona Versicolor*. In addition to its rich biodiversity, Saint Lucia is also home to a World Heritage Site, the Pitons Management Area (PMA) (Figure 2-2). The PMA is located in the western coastal town of Soufriere and is one of few World Heritage Sites to have both a land and marine component. The marine component forms part of the Soufriere Marine Management Area and is home to one of the Island's more vibrant and healthy coral reef systems.



Figure 2-2: Map of Saint Lucia

Source: Google Maps

Saint Lucia experiences year-round warm, humid climatic conditions, which is usually associated with the tropical marine climate. Located within the northeast Trade Wind belt, the island is normally under an easterly flow of moist, warm air with an average temperature of 28°C and relative humidity of 75%. Temperatures rarely rise above 32°C or fall below 21°C. The highest temperatures are recorded around August to October, and the lowest in the months of January to March⁵.

⁵ Cited from Saint Lucia's Third National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC) (2017).

Sunshine levels over Saint Lucia are at a maximum from February to May and a minimum around September. Radiation values vary widely over the island and this is partially due to varied cloud cover⁶.

The island experiences two climatic seasons, a wet season which extends from June to November, while the dry season runs from December to May. Tropical disturbances (waves, depressions, storms, hurricanes), account for the greater amount of recorded rainfall during the rainy season. Local convectional showers and other weather systems account for the remainder. The geographic influence of rainfall on the island is quite pronounced. Mean annual rainfall varies from 1,265 mm in relatively flat coastal regions, to 3,420 mm in elevated interior regions⁷.

2.1.2 Population

The projected midyear population for Saint Lucia in 2018 is 178,696, with an approximately balanced ratio of males to females (Figure 2-3). The medium, projected population distribution for 2015 by age reveals a youthful population (Figure 2-4). Approximately 53.8 % of the over 60 age group was female, indicating a slightly greater lifespan for females. This figure was approximately the same in the previous 2010 census.

Large segments of the island's population are located along the coastal belt. Approximately 58.5% of the population resided along the north-west corridor in 2010. Urbanisation rates per district were not available for multiple years however, in 2010, Micoud's urban centre was the most populated of all the districts. The Castries district had the highest population density of 2,139 households per square mile in 2010 (The Central Statistical Office of Saint Lucia, 2019).

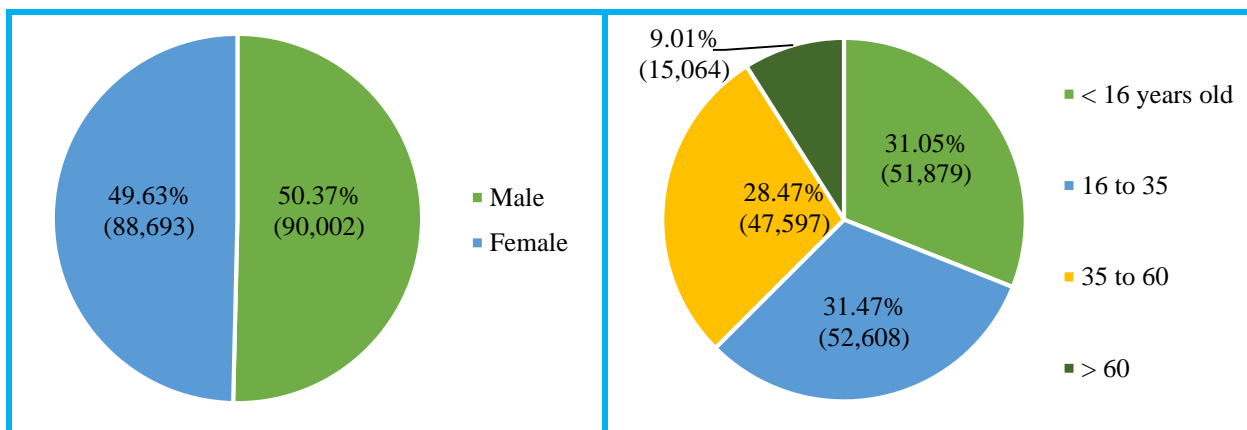


Figure 2-3: Sex distribution in Saint Lucia⁸

Figure 2-4: Age distribution in Saint Lucia (2010)

⁶ Ibid

⁷ Ibid p. 23

⁸ Mid-year projection for 2018 from the Central Statistical Office of Saint Lucia, 2019

2.1.3 Membership in Regional and Sub-regional Organisations

Saint Lucia is a member of several regional and sub-regional organizations that may be relevant to POPs issues. A listing is presented in Table 2-1.

| Organisation | Mandate |
|---|---|
| The Caribbean Community (CARICOM) | Assists in regional integration and development by providing a diverse range of services that is equitable and beneficial to all members. |
| The Organisation of Eastern Caribbean States (OECS) | An International Inter-governmental organisation that seeks economic harmonisation and integration, protection of human and legal rights and ensures proper governance among independent and non-independent countries in the Eastern Caribbean. |
| The Caribbean Public Health Agency (CARPHA) | Assists countries in the management, surveillance, diagnosis and treatment of communicable diseases by providing the facilities, research and training necessary to ensure prevention and containment. |
| The CARICOM Regional Organization for Standards and Quality (CROSQ) | A regional organization that seeks to establish and harmonise the standards for improved efficiency and quality of producing goods and services, thus facilitating consumer and environmental protection and allowing better trade within the community and with third states. |
| The Caribbean Disaster Emergency Management Agency (CDEMA) | The regional disaster management body which ensures comprehensive disaster management in all participating states. This is done by providing resources and encouraging the implementation of policies as well as immediately coordinating and mobilising effective disaster relief responses to mitigate the consequences of disaster in member states. |
| The Bolivarian Alliance for the Americas | A political entity that aims to foster integration and cooperation among Latin America and Caribbean countries, primarily focused on the development of the economy, social welfare, natural resources, and energy cooperation of all members. |

2.1.4 Political and Economic Profile

2.1.4.1 Political profile

Saint Lucia gained independence from Great Britain on February 22, 1979, inheriting a Westminster System of Government with a constitution and a well-established parliamentary democracy. The country has a multi-party structure, dominated by two (2) political parties. Elections are constitutionally due every five (5) years. Its bicameral parliament comprises the Senate or Upper House comprising eleven (11) members and the House of Assembly comprising

seventeen (17) district representatives elected by the House of Parliament. The Governor General represents the Queen as the Head of State; however, this role is generally ceremonial.

2.1.4.2 Economic profile

Saint Lucia's economy grew moderately in the last few decades, with GDP growth rate averaging around 1.4% annually between 2006 and 2017 (The Central Statistical Office of Saint Lucia, 2019). The island's economy has, and continues to be, impacted by several externalities such as changing trade regimes and rising fuel prices. Global trading arrangements have eroded traditional markets for trade in primary products (specifically bananas), and cheaper imports continue to threaten local industries and increase the food import bill and balance of trade deficit.

Over the last two (2) decades, the country's economy has undergone significant adjustment from being agrarian-based to service-based. The tourism sector as of writing, leads economic growth. Manufacturing and industry have remained as important productive sectors. The manufacturing sector contributed to 4.6% of the country's GDP in 2006 and showed steady growth until 2014 (5.57%). Since 2014, contribution of manufacturing to GDP has declined to 5.42%. The construction sector's contribution to GDP averaged 8.28% between 2006 and 2017. This sector's GDP contribution has declined however, from 11.42% in 2006 to 7.57% in 2017 (The Central Statistical Office of Saint Lucia, 2019). For the foreseeable future, Saint Lucia's economic growth and development will continue to be centred on tourism and other service-oriented sectors, agriculture, infrastructural development and commercial sectors.

2.1.4.3 Profiles of the main economic sectors

Traditionally, Saint Lucia's economy has been dependent on exports of agricultural commodities (primarily bananas and previously sugar). However, following the loss of preferential market access to the European Union in 1995, the banana industry on the island has declined significantly. As a result, the share of agriculture in the economy has fallen, dropping from 2.88% of GDP in 2006 to 2.08% by 2017 (The Central Statistical Office of Saint Lucia, 2019).

2.1.4.4 Tourism services

Tourism is the main component of the services sector. Saint Lucia hosted between 5 to 6 times its 2018 population in visitors yearly, from 2006 to 2017. A significant amount of the island's resources is therefore allocated to the tourism sector. The industry relies on the island's natural aesthetic and unique heritage to attract visitors. Thus, the state of the environment directly impacts economic growth. The direct contribution of hotel and restaurant services to the GDP of Saint Lucia averaged 9.64% between 2006 and 2017 (The Central Statistical Office of Saint Lucia, 2019).

2.1.5 Environmental Overview

Key economic drivers of environmental degradation in Saint Lucia are:

- Tourism;
- Agriculture, Livestock and Forestry; and
- Construction.

The main environmental concerns relate to:

- Pollution of the marine and coastal systems and its impacts on human and ecosystem health as well as on biodiversity;
- Adaptation to the negative impacts of climate change; and
- Land degradation due to poor land management and clear land use zones.

The development and operation of ports and marinas have significant negative impacts on coastal/marine resources. Unplanned and uncontrolled settlements also foster degradation of supporting coastal systems, through inadequate sewage and grey water treatment and general waste disposal. Other land-based activities such as near-shore development, deforestation and agricultural activities also affect freshwater and saltwater quality in Saint Lucia. Leaching of agrochemicals into the soil, water-tables and river systems is of concern due to the island's relatively high agricultural activity.

The most important climate change impacts on marine ecosystems are gradually increasing sea surface temperature (SST), sea level rise (SLR) and ocean acidification. In addition, the increased intensity of storms and associated run-off of fresh water, nutrients and suspended sediments will also cause negative impacts. This issue is amplified by the destruction of mangroves, which act as natural filters for surface runoff from the mainland, for developmental purposes. Furthermore, Saint Lucia's coastal waters are not isolated from the rest of the region; both nutrients and pollutants are washed into the Caribbean Basin from South America and neighbouring islands.

Degradation of air quality has also become a concern for the island in recent years. Key drivers include greater demand for vehicles, institutional and commercial buildings, electricity, housing and expansion of the manufacturing sector. Air quality is further degraded by the yearly influx of Saharan dust and forest fires during the dry season. Furthermore, proper ventilation systems for large buildings are often not considered, which reduces indoor air quality.

As a small island developing state (SIDS), it is imperative that Saint Lucia manages its natural environment to sustainably support the country's growth and development for the foreseeable future. Much of the county's income-earning activities depend on natural resources.

2.2 Institutional Policy and Regulatory Framework

This section presents a description of the institutional, policy, and regulatory framework within which the NIP will be implemented.

2.2.1 Policy Framework

Owing to Saint Lucia's commitment to preserving life on Earth, Saint Lucia is Party or signatory to several multilateral environmental agreements (MEAs) and regional agreements. Much of the progress that Saint Lucia has made in managing its environment has been the result of technical and financial assistance received as a Party to these agreements. Table 2-2 presents these agreements relevant in the context of POPs and chemicals management.

| Agreement | Notes |
|---|---|
| Minamata Convention on Mercury | A global treaty to protect human health and the environment from the adverse effects of mercury, particularly from anthropogenic releases. Acceded January 23 rd , 2019. |
| St. George's Declaration on Principles of Environmental Sustainability | Sets out principles for environmental sustainability for the OECS countries. First adopted in April 2001, then revised in November 2006. Currently under revision to encapsulate new and emergent issues such as the Sustainable Development Goals. |
| Stockholm Convention | Seeks to eliminate the use of POPs. Acceded October 4 th , 2002. |
| Rotterdam Convention⁹ | Promotes shared responsibility among Parties in the international trade of hazardous chemicals through information exchange. Signed January 25 th , 1999. |
| Basel Convention | Addresses the transboundary movement and environmentally sound disposal of toxic and hazardous waste. Acceded December 9 th , 1993. |
| Montreal Protocol | Seeks to phase out the consumption of ozone depleting substances. Acceded July 28 th , 1993. |
| Cartagena Convention | Protects Caribbean waters from pollution, 1984. |
| The Strategic Approach to International Chemicals Management | A policy framework to promote environmentally sound chemicals management. |

Adapted from Government of Saint Lucia, 2006

⁹ On the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

The Sustainable Development Goals (SDGs) are targets to be reached by 2030, which promote a unified framework for improving human quality of life and environmental responsibility. Sound management of chemicals and waste (SMCW) is a specific target under SDG 12 on Sustainable Consumption and Production. SMCW is also referred to under SDG 3 on Good Health and Well-being and SDG 6 on Clean Water and Sanitation. SMCW is relevant for, and supports, the implementation of many of the other SDGs, or possibly all, due to the interconnectedness of the targets. Goals and targets in the area of food security, health or sustainable cities, for example, cannot be reached without SMCW. Upgrading industrial processes based on the principles of green chemistry can help to achieve SDG 9 on Industry, Innovation and Infrastructure (United Nations Institute for Training and Research, 2019). The Sustainable Development Goals National Coordinating Committee (SDGNCC) is the guiding body for Saint Lucia's implementation of these goals. The Committee comprises of the DSD, the Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources and Co-operatives (MOAFPNRC) and others¹⁰.

2.2.2 Regulatory Framework

The main existing laws relevant to POPs and chemicals management in general, are the Pesticides and Toxic Chemicals Control Act (PTCCA), Chapter 11.15 and the Waste Management Act (WMA) Chapter 6.05). The Labour Act, Chapter 16.04 also plays a significant role with the management and use of chemicals in the workplace with respect to worker health and safety.

The PTCCA is the most comprehensive single piece of legislation dealing with chemicals in Saint Lucia including POPs; however, it is limited in addressing national obligations under the Stockholm Convention. While the PTCCA addresses some of the national obligations related to the intentional use and production of POPs (Article 3); it does not address any of the national obligations related to the unintentional production (Article 5), stockpiles and wastes (Article 6). The PTCCA also allows for the regulation of the manufacture, trade and use of POPs pesticides but does not address many of the industrial POPs.

The Pesticides and Toxic Chemicals Control Board (PTCCB) is the appointed local authority for the import, export and sale of pesticides and toxic chemicals, while the Pharmacy Council is responsible for the regulation of pharmaceuticals. POPs pesticides are the only group of POPs for which there is some degree of import regulation and for which a monitoring system exists. This monitoring system is guided by the PTCCA and focuses on imports. An Officer from the Ministry of Agriculture who is assigned as an inspector, is responsible for conducting inspections at ports. An overview of the PTCCB's operations is summarized in Annex B to this NIP.

¹⁰ Department of Education, Innovation and Gender Relations; Department of Economic Development, Transport and Civil Aviation; Department of Finance; Central Statistical Office; Ministry of Equity, Social Justice, Empowerment, Youth Development, Sports and Local Government; Office of the Prime Minister; Department of External Affairs; Sir Arthur Lewis Community College; Civil Society Organisation (represented by the Coalition of Civil Society Organisation and the Caribbean Youth Environment Network); The Private Sector.

When an individual or company wishes to import a pesticide, they must first ensure that the pesticide is registered for use then acquire a license for import in accordance with the stipulations of the PTCCA. When the pesticide arrives:

- The Customs Department contacts the MOAFPNC for an inspection.
- If the pesticide is registered for use in Saint Lucia and is deemed acceptable under the guidelines of the PTCCA, the item is released. If the chemical is deemed unacceptable or unregistered, it is confiscated.
- If the confiscated quantity is relatively small, it is kept in a storage unit at the MOAFPNC's Research Division. A larger quantity in the past, would be kept in a sealed container at the port.

In practice, the established import monitoring system for POPs pesticides is enforced; however, illegal pesticides may still be smuggled into the country or be falsely labelled¹¹.

In general, legislative support for existing environmental management policies is inadequate. While there are relevant sectoral laws, some with accompanying regulations and statutory instruments, many are not effectively applied and enforced. In addition, there is no overarching legislative framework for environmental or chemicals management; however, a draft Environmental Management Act (EMA) is currently being prepared that will support improved legal and administrative coordination of diverse sectoral initiatives necessary to support improved environmental management in Saint Lucia. The draft EMA and its regulations are to be administered by the Department of Sustainable Development and make provisions to prevent and mitigate environmental pollution, including the control of hazardous substances, the management of wastes and responses to environmental accidents.

Notable policy and/or legislative gaps include the involvement of the private sector, civil society and the general public in chemicals management.

2.2.3 Roles and Responsibilities

The Department of Sustainable Development (DSD) is responsible for the coordination of sustainable development issues in the country with strong emphasis on thematic areas related to environmental sustainability, including the sound management of chemicals and wastes. However, environmental management is not only vested in this Department- various agencies including governmental, non-governmental and community-based organizations also share this role (Table 2-3).

¹¹ Consultation with Hannah Dupal-Romain, Ministry of Agriculture, 2019.

| Table 2-3: Agencies responsible for key environmental issues | |
|---|--|
| Environmental Issue | Responsible Agency/ies |
| Water | MOAFPNC, WASCO, MEHUC, MEIGRSD |
| Air and pollution | MOAFPNC, OHSU, MEHUC, CARPHA, MEIGRSD |
| Climate | MOAFPNC, MEIGRSD |
| Land | MOAFPNC, MEHUC, MEIGRSD |
| Waste Management | SLSWMA, MEIGRSD |
| Coastal and Marine | MOAFPNC, MEHUC, SMMA, MEIGRSD |
| Energy/Renewable Energy | MEHUC, LUCELEC, MEIGRSD |

CARPHA- Caribbean Public Health Agency; LUCELEC- Saint Lucia Electricity Company; MOAFPNC- Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources and Co-operatives; MEHUC- Ministry of Economic Development, Housing, Urban Renewal, Transport and Civil Aviation; MEIGRSD- Ministry of Education, Innovation, Gender Relations and Sustainable Development; SLSWMA- Saint Lucia Solid Waste Management Authority; SMMA- Soufriere Marine Management Association; WASCO- Water and Sewerage Company.

2.3 Assessment of the POPs Issue in Saint Lucia

This section outlines the current state of knowledge about POPs in Saint Lucia, including inventory information, technical management and monitoring capacity, and provisions for sharing information and raising public awareness. This is mainly informed by the 2016 POPs Inventory Reports conducted for Saint Lucia (Government of Saint Lucia, 2017 a-e).

2.3.1 Assessment with Respect to Annex A, Part I Chemicals (POPs Pesticides)

2.3.1.1 Status of POPs pesticides

At its entry into force in 2004, the Stockholm Convention listed nine (9) pesticides within its Annexes (A, B, and/or C)¹². Subsequently, in 2009 and then in 2011, an additional five (5) pesticides were added to the Annexes of the Convention. These additional pesticides were: chlordecone, lindane and the principal isomers found in technical hexachlorocyclohexane (HCH) including also alpha-and beta-HCH, pentachlorobenzene (a contaminant found in specific types of pesticides) in 2009, endosulfan in 2011 and PCP in 2015.

Saint Lucia is not a producer or exporter of POPs pesticides but has been importing pesticides for use primarily in the agricultural sector. Several of these pesticides appear in the PTCCA Cap. 11.15, under Schedule Five (5)¹³. Thus, these POPs pesticides cannot be manufactured, sold or

¹² Aldrin; chlordane; dichlorodiphenyltrichloroethane (DDT); dieldrin; endrin; heptachlor; hexachlorobenzene; mirex; and toxaphene.

¹³ Endrin, Aldrin, Dieldrin, Chlordane, DDT, Mirex, Toxaphene, Lindane, Chlordecone and Endosulfan

imported without the requisite licenses prescribed in sections 28, 29 and 31 of the PTCCA Cap. 11.15. Alternatives to lindane (for control of head lice and scabies) and chlodecone (insecticide in the banana industry) have been registered for use in Saint Lucia.

The most current inventory (2016) indicates that of the sixteen (16) POPs pesticides currently listed under the Stockholm Convention, none are in use or currently registered for use in Saint Lucia (Government of Saint Lucia, 2017a). In addition, lindane, has been prohibited, and HCB is banned. In Saint Lucia, DDT was banned for use in the 1970s - 1980s through an administrative measure to ban DDT imports however, this ban is not articulated in the PTCCA Cap. 11.15. Information on the historic use of PCP in Saint Lucia, including the use of PCP treated electrical poles, was not confirmed.

2.3.1.2 Stockpiles and contaminated sites

All known POPs pesticides stockpiles (8,915 kg) have been eliminated from their storage facilities through the GEF-funded initiative¹⁴ spearheaded by the MOAFPNRC in September 2016. Potentially contaminated sites include those where previous stockpiles were stored (sites at Soufriere and Union) and the landfills that historically accepted pesticide containers (Vieux Fort Solid Waste Management Facility and Deglos Sanitary Landfill) (Figure 2-5).

¹⁴ GEF/FAO 5407 Project: Disposal of Obsolete Pesticides including POPs, Promotion of Alternatives and Strengthening Pesticides Management in the Caribbean

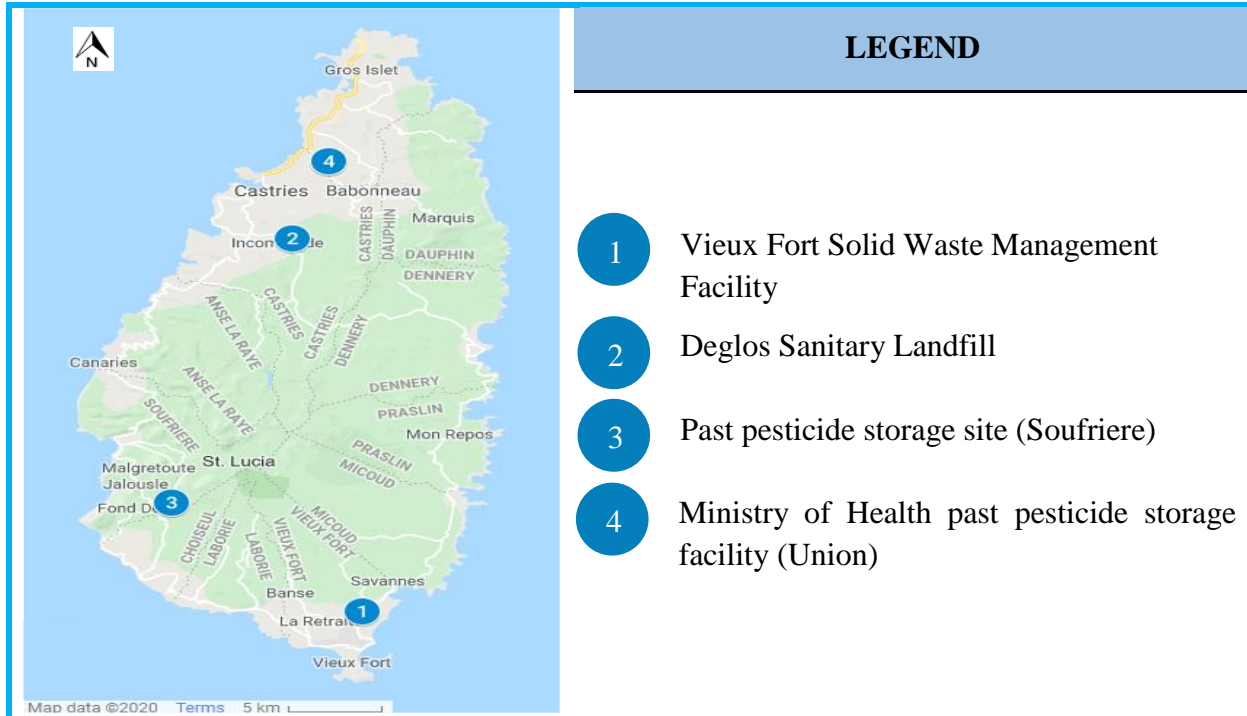


Figure 2-5: Potential POPs pesticide contaminated sites in Saint Lucia

2.3.1.3 The management of pesticides in Saint Lucia

The PTCCB serves to regulate the import and use of chemicals through the PTCCA Cap. 11.15 (2006) in coordination with the Department of Commerce, Industry, Investment, Enterprise Development, and Consumer Affairs. Chemical waste is addressed by the MOAFPNRC in collaboration with other agencies such as SLSWMA. Disposal and transboundary management of chemical waste including pesticides is handled by the SLSWMA.

Pesticides use and containers are managed through initiatives of the MOAFPNRC. Draft Guidelines for the disposal of hazardous waste containers were developed in 2013 under the project, Effective Chemicals Management in Saint Lucia¹⁵. Farmers on the island are engaged in a range of integrated pest management strategies/activities/initiatives. Such initiatives are undertaken in collaboration with agencies such as FAO, CARPHA, GIZ, GEF, MOAFPNRC and SDED.

¹⁵ Funded under the Strategic Approach to International Chemicals Management's (SAICM) Quick Start Programme

2.3.2 Assessment of Polychlorinated Biphenyls (PCBs) (Annex A Part II Chemicals)

2.3.2.1 Status of PCBs

The SC allows for PCBs to be used in equipment (e.g. transformers and capacitors), while setting out priorities for action toward the goal of eliminating their use by 2025 and elimination by 2028 (subject to review by the COP).

Saint Lucia does not produce or directly import PCBs (Government of Saint Lucia, 2017b). PCB containing components such as capacitors in EEE, may still be imported into the country. Saint Lucia Electricity Services Company (LUCELEC) is the only major agency that historically used large quantities of transformers containing PCB oils. LUCELEC has indicated that as a matter of due diligence, a previous initiative was conducted to identify, phase-out and dispose of PCB containing transformers and oils (approximately 34.80 tonnes) in its possession. In July 2019, the obsolete stocks of transformer oils (Figure 2-6) and potentially PCB contaminated equipment at LUCELEC's facilities in Vieux Fort and Union were analysed as part of a regional POPs management project. The exercise confirmed that the obsolete stocks are PCB-free. Further to that exercise, a management plan will be developed for the ongoing management of decommissioned equipment. Sustainability is considered in the project as the LUCELEC's laboratory capacity would be improved through support for the acquisition of PCB analysing equipment.



Figure 2-6: Obsolete transformers in storage at LUCELEC's Union Compound

SCCPs were recently (2017) listed in Annex A with a range of exemptions. SCCPs have substituted PCBs and PCNs in a wide range of open applications (e.g. paints, coatings, sealants, plastic additive/flame retardant, rubber, lubricants, and metal-working fluids). Although data is not available, it is assumed that PCBs in 'open applications' such as paints, caulking and hydraulic systems, have been used in the past. Since the recent listing of PCNs and SCCPs as POPs in 2015 and 2017 respectively, open applications of PCBs also must be assessed for these POPs.

2.3.3 Stockpiles, Waste and Contaminated Sites

Currently, there are no known stockpiles of PCB oil or PCB containing equipment. The potentially PCB contaminated sites include LUCELEC's historic PCB storage site (in Union) and at a site in the Black Bay area where there was the minor potential for the unintentional production of PCBs from past informal thermal copper cable/wire reclamation.

2.3.3.1 The management of PCBs in Saint Lucia

Currently, PCB management, including their elimination and the import of PCB containing equipment, is not specifically addressed in legislation.

2.3.4 Assessment of POP-PBDEs listed 2009 (Annex A, Part IV and Part V) and HBB (Annex A, Part I)

PBDEs have been mainly used as an additive flame retardant in plastics used in electrical and electronic equipment, in polymer foams in vehicles and to a minor extent, in furniture and textiles (UNEP, 2017c). In 2009 tetraBDE, pentaBDE, hexaBDE and heptaBDE were listed as POPs in the Stockholm Convention. In 2017 also decaBDE were listed but were not considered in this inventory due to the lack of guidance documents and impact factors.

Hexabromobiphenyl (HBB) was only produced as a flame retardant in the 1970s and its production during this period was relatively low (UNEP, 2017c). As such, most products containing HBB would have already reached their end-of-life and would have entered the waste stream decades ago. Consequently, HBB containing materials are not considered relevant to Saint Lucia and are not addressed in the 2016 inventory report.

Of concern to Saint Lucia are PBDEs in electrical and electronic equipment/waste electrical and electronic equipment (EEE/WEEE) (c-OctaBDE), in the transport sector (c-PentaBDE) and to a lesser extent, in furniture and textiles (Figures 2-7 and 2-8). DecaBDE listed 2017 were not considered in this inventory but is present in EEE/WEEE plastic or vehicles in higher concentration compared to PBDEs (Liu et al. 2019; Sindiku et al. 2015).

Information in this section is primarily based on the *“Inventory report of listed polybrominated diphenyl ethers (POP-PBDEs) hexabromobiphenyl (HBB) and hexabromocyclododecane (HBCD) in Saint Lucia (2016)”* (Government of Saint Lucia, 2017c).



Figure 2-7: E-waste pile at private waste collection facility in Deglos, Saint Lucia
(Photo taken October 2019)



Figure 2-8: ELVs at Vieux Fort Waste Management Facility
(Photo taken July 2019)

2.3.4.1 POP-PBDEs in electrical and electronic equipment (EEE)/waste EEE (WEEE)

PBDEs are used as flame-retardants in the manufacture of plastic castings for computer equipment. Cathode Ray Tube (CRT) castings for computer monitors and televisions are expected to contain the majority of the total PBDEs present in EEE. PBDEs content in CRT monitors for computers and televisions was therefore the key area for concern.

2.3.4.1.1 Import of EEE in 2016

In 2016, approximately 186 tonnes of EEE was imported into Saint Lucia. CRT computer monitors accounted for approximately 31% of these imports (Table 2-4). The production of OctaBDE was stopped globally in 2004. Consequently, only second hand imported EEE are partly impacted (not the new EEE). The proportion of second-hand electronics could not be determined for Saint Lucia during the 2016 inventory.

| Table 2-4: Amount of EEE imported, impacted CRT computer monitors and their c-OctaBDE content for the year 2016 | |
|--|-------------------|
| EEE Imports (2016) | Weight (t) |
| Total EEE Imported | 186.11 |
| CRT computer monitors | 56.94 |

2.3.4.1.2 Use and storage of EEE in 2016

EEE in use and/or stored at the consumer level was also determined through evaluation of three (3) main sectors: private consumers (households), government institutions (primary and secondary schools) and private sector businesses. The estimated quantity of EEE in use during the inventory year was 4,194 tonnes of which approximately 1,360 tonnes were CRT computer and television monitors. The impacted polymer fraction of the imported CRTs was an estimated 406 tonnes and the estimated c-OctaBDE contained therein was 0.378 tonnes (Table 2-5).

| Table 2-5: Estimated quantity of EEE, impacted CRT computer and TV monitors and their c-OctaBDE content for the year 2016 | | | | |
|--|--------------------------------|---|--|-----------------|
| Quantity | Consumers | | | Total |
| | Households (n = 81) | *Government Institutions/ Agencies | Private Sector Businesses (n = 8) | |
| EEE in use/in stock (t) | 3,487.17 | 480.47 | 226.53 | 4,194.17 |
| CRT computer monitors and TVs (t) | 1,335.88 | 0.55 | 24.53 | 1,360.96 |
| Impacted CRT computer monitors and TVs (t) | 400.76 | 0.17 | 5.41 | 406.34 |
| c-OctaBDE present in impacted CRT computer monitors and TVs (t) | 0.365 | 0.00014 | 0.0127 | 0.378 |

* Estimates of all primary and secondary schools in Saint Lucia

2.3.4.1.3 WEEE in 2016

In 2016, the total WEEE from CRT computer monitors entering the waste stream was 6.46 tonnes and that from CRT TVs was 133.35 tonnes. The estimated impacted plastics in CRT computer monitors and TVs in WEEE was 41.95 tonnes and the estimated c-OctaBDE content in the impacted WEEE was approximately 39.7 kg (Table 2-6).

2.3.4.1.4 Overall estimation of PBDE (listed to 2009) homologues in EEE and WEEE in 2016

Hexabromodiphenyl ether and heptabromodiphenyl ether are the homologues listed in the convention and main components of c-OctaBDE¹⁶. Based on the estimations of PBDEs in impacted EEE/WEEE (imports, in-use and stocked, WEEE) in Saint Lucia during the inventory year 2016, the estimated homologue for hexaBDE was 46.44 kg and that of heptaBDE was 181.51 kg. The grand total for the homologues hexaBDE, hepta-BDE was 227.95 kg.

¹⁶ Cited from "Hexabromodiphenyl ether and heptabromodiphenyl ether" at [http://chm.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx#LiveContent\[6-7-BDE\]](http://chm.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx#LiveContent[6-7-BDE])

| Table 2-6: Estimation of WEEE (CRT computer monitors and TVs), impacted plastic and total amount of c-OctaBDE entering the waste stream for the year 2016 | | | | |
|--|--------------------------------|---|--|---------------|
| Quantity | Consumers | | | Total |
| | Households (n = 81) | *Government Institutions/ Agencies | Private Sector Businesses (n = 8) | |
| WEEE entering the waste stream from CRT computer monitors (t) | 3.32 | 0.00 | 3.14 | 6.46 |
| WEEE entering waste stream from CRT TV monitors (t) | 130.27 | 0.091 | 2.99 | 133.35 |
| Impacted WEEE CRT computer monitors and TVs (t) | | | | 41.95 |
| c-OctaBDE present in impacted WEEE CRT computer monitors and TVs (t) | | | | 0.039 |

* *Estimates of all primary and secondary schools in Saint Lucia*

2.3.4.2 PBDEs (listed to 2009) in the transport sector

Vehicles (cars, trucks, buses) produced between 1975 to 2004 are known to contain PBDEs. c-PentaBDE has been used mainly for the treatment of flexible polyurethane (PUR) foam in vehicle seating, head rests, vehicle ceilings, acoustic management systems, etc. The inventory focused on vehicles produced during 1975 to 2004 and considered vehicles from the United States of America (USA) as being potentially highly impacted.

2.3.4.2.1 Vehicle imports in 2016

In 2016, car imports were the greatest (85%) followed by trucks (11%) and buses (4%). Imports in Saint Lucia are mostly from Asia (Figure 2-9). The estimated quantity of PUR foam to be managed in imported vehicles produced before 2005, was 0.35 tonnes with an estimated PBDE content of 0.028 tonnes therein. The total inventoried homologue for vehicles in current use and those imported for the year (2016) are summarised in Figure 2-10. The total quantity of homologues was 0.582 tonnes for vehicles in operation and those imported in 2016.

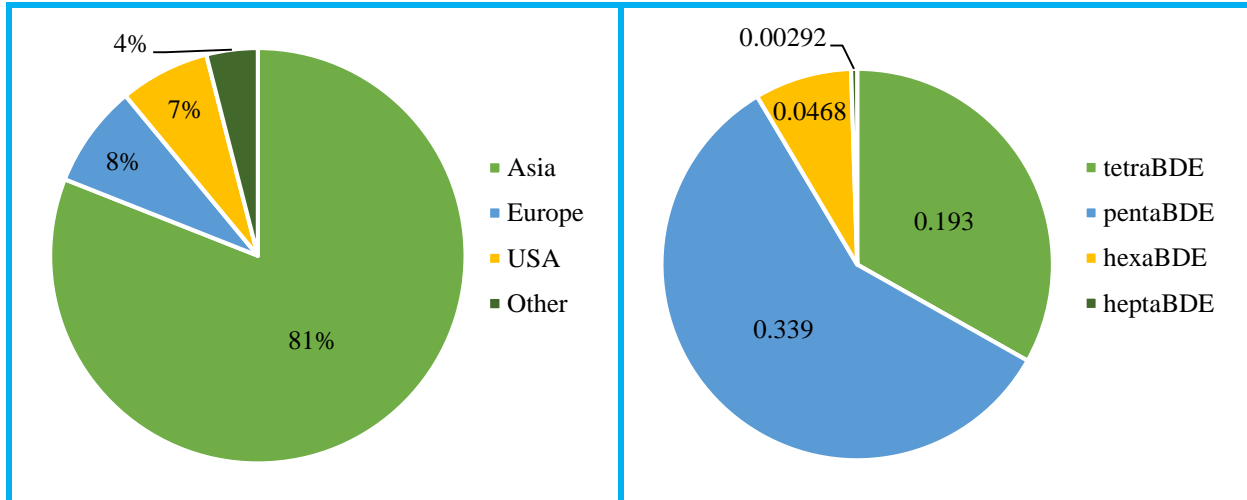


Figure 2-9: Origin of vehicle imports for the period 2014 - 2016

Figure 2-10: Total quantity (tonnes) distribution of PBDE homologues in imported and operational vehicles for the year 2016

2.3.4.2.2 Vehicles in use during 2016 (produced before 2005)

The use of c-OctaBDE and c-PentaBDE containing PBDEs ceased globally in 2004. As a result, there has been no production and use of these PBDEs since 2004. However, DecaBDE was, and is, also used in the transport sector- its use in vehicles is exempted for specific parts. Currently, there is no guidance/impact factor to quantify DecaBDE in vehicles. The use of DecaBDE in vehicles is likely greater than c-PentaBDE and c-OctaBDE. It was also more frequently detected in studies monitoring brominated flame retardants (BFRs) in vehicles (Kajiwara et al., 2014; Liu et al. 2019; Leslie et al., 2013). The total estimated amount of PUR foam in operational vehicles in 2016 was approximately 6.72 tonnes and the PBDE content was estimated at 0.556 tonnes.

2.3.4.2.3 End-of-life vehicles in 2016

There was insufficient statistical data to calculate PBDE content in end-of-life vehicles (ELVs) disposed in the year, 2016.

2.3.4.2.4 Stockpiles, contaminated sites and the management of PBDEs in Saint Lucia

The main waste streams concerned are EEE/WEEE and ELVs manufactured between 1975 and 2004. These products and related wastes are not adequately managed in Saint Lucia. Plastic from WEEE is not recycled in Saint Lucia; however, there are several informal operations through which WEEE is collected, dismantled and shipped out of the country. Vehicles that end up at the landfill are usually stripped (usually by recyclers) of all plastic parts for resale and the metallic parts are either crushed and shipped or used as structural barriers at the waste management facilities. Policies and legislations targeted at the management of these PDBE chemicals are lacking in the country.

2.3.5 Assessment of Hexabromocyclododecane (HBCD) (Annex A, Part I)

HBCD was mainly used in polystyrene insulation foams (EPS/XPS) in buildings with minor use in textiles and electronics (UNEP, 2017d). Findings in this section are primarily based on the “*Inventory report of listed polybrominated diphenyl ethers (POP-PBDEs) hexabromobiphenyl (HBB) and hexabromocyclododecane (HBCD) in Saint Lucia (2016)*” (Government of Saint Lucia, 2017c).

Saint Lucia does not produce or use HBCD in the manufacturing of products. The four (4) major construction companies interviewed in Saint Lucia did not use HBCD (EPS/XPS) foam in their construction. An inventory of current use and stocks of HBCD foams was not possible; however, it is expected that use is uncommon in Saint Lucia since buildings are not commonly insulated. Government buildings may be insulated; however, it was not possible to determine if the insulating material contains HBCD.

An inventory of PBDE/HBCD in products such as curtains, furniture, draperies, textiles in vehicles and children’s sleepwear could not be established in this study. It is difficult to identify products that contain PBDE/HBCD due to inadequate labelling. Furthermore, inadequate labelling makes flagging imports of such products difficult. Potential importers and users of HBCD containing products often have no knowledge or records to determine if their products contain HBCD.

HBCD is not present in Saint Lucia Fire Service uniforms. The company that has been providing the material used for their uniforms uses iKevlar® Fiber (polybenzimidized).

2.3.6 Assessment of Hexachlorobutadiene (HCBD) (Annex A, Part I)

The use of HCBD as a product has also been phased out decades ago by Organisation for Economic Co-operation and Development (OECD) countries but, might exist in other countries with chlorinated solvent production (UNEP, 2017e). HCBD is mainly formed unintentionally in some specific organochlorine production in particular production of organochlorine solvents. Minor amounts can be formed in refining processes (aluminium, magnesium, copper) and incineration of waste with high chlorine content. As these processes are not utilised in Saint Lucia, there is no relevant use or formation/release of HCBD in Saint Lucia.

2.3.7 Assessment of Polychlorinated Naphthalenes (PCNs) (Annex A, Part I)

PCNs were mainly used between 1920 and 1960 but remained high volume chemicals until the 1970s (UNEP, 2017f). PCNs were used in the same applications as PCBs however, with a different focus of products. PCNs were used in open applications like sealants, rubber, paints and plastic additives similarly to PCBs. However, PCNs and PCBs were substituted in the 1970s by chlorinated paraffins such as short-chain chlorinated paraffins (SCCPs) listed in the 2017 and are still currently used in these applications with specific exemptions (UNEP, 2017f).

Findings in this section are primarily based on the “*National Inventory Report for Polychlorinated Biphenyls (PCBs) in Saint Lucia (2016)*” (Government of Saint Lucia, 2017b). Due to the common use patterns, PCNs and PCBs are co-managed thus they were inventoried and addressed together in this NIP. Refer to Section 2.3.2 for PCNs usage in Saint Lucia.

2.3.8 Assessment with respect to Annex B Chemicals Dichlorodiphenyltrichloroethane (DDT)

Findings in this section are primarily based on the “*National Inventory Report for POP Pesticides in Saint Lucia (2016)*” (Government of Saint Lucia, 2017a). The manufacture and use of the pesticide DDT have been banned or restricted in countries all around the world from 1970 to 2000. The SC authorises its use in accordance with World Health Organisation (WHO) recommendations and guidelines until appropriate alternatives are provided, and in this regard, countries reserve the right to seek exemptions for disease vector control, with no time limitation (UNEP, 2014). Currently, there are no DDT stocks in Saint Lucia. The stock of DDT previously inventoried at a national laboratory was disposed of through the FAO initiative discussed in Table 1-2.

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

PFOS has been used in a wide range of products and processes including firefighting foams, metal plating, pesticide manufacturing (insecticides for leaf-cutting ants), chemically driven oil production, electronic industries and medical devices which have all been exempted under the Convention (UNEP, 2017g).

Findings in this section are primarily based on the “*National Inventory Report for Perfluorooctane Sulfonic Acid (PFOS) and Related chemicals in Saint Lucia (2016)*” (Government of Saint Lucia, 2017d).

2.3.9.1 Production, import and use of PFOS in Saint Lucia

The major inventory sector for PFOS/PFOS-related chemicals in Saint Lucia is specific firefighting foams (Figures 2-11 and 2-12). Other relevant sources include sulfluramid insecticide for ants and termites; synthetic carpets, textiles, leather, paper packaging and related stockpiles; aviation hydraulic fluids and contaminated sites. Sulfluramid has not been registered for use in Saint Lucia since 1998, and it is not currently on the market. The presence of PFOS/PFOS-related chemicals in products such as carpets, textiles and packaging is unknown since the chemical identity of the impregnating material (used to make the product water/soil/stain resistant) is proprietary. However, it can be assumed that some of these products are still in use and have contaminated dumpsites and landfills.



Figure 2-11: Saint Lucia Fire Services Station in Castries

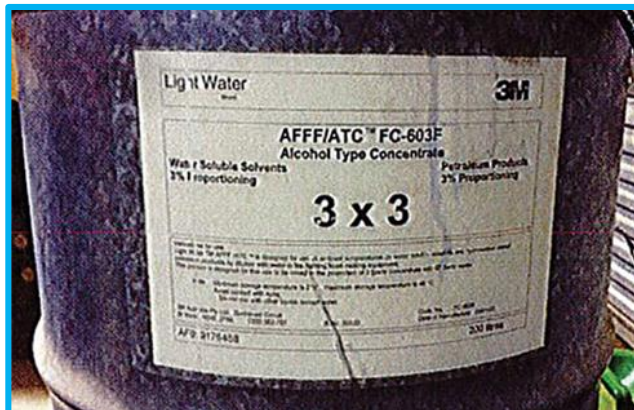


Figure 2-12: Example of PFOS containing firefighting foam used in Saint Lucia

Aviation hydraulic fluids with PFOS/PFOS-related chemicals are not used at the airports in Saint Lucia; however, it should be noted that concentrations of PFOS below 0.1% do not have to be stated in the Material Safety Data Sheet (MSDS) (UNEP, 2017g). The two brands used in Saint Lucia are Skydrol LD-4 fire resistant hydraulic fluid and Royco 756 MIL-PRF-5606H. The manufacturer of Skydrol LD-4 confirmed there is no PFOS or PFOS salts in their product.

2.3.9.2 PFOS-containing foam

The initial assessment showed that PFOS, its salts and related chemicals are not manufactured in Saint Lucia. The professional users of these foams are the oil storage company (Buckeye) and personnel at the eight (8) fire service stations and the fire training services area. The PFOS firefighting foams present on the island include Fluoroprotein alcohol resistant foams (FP-AR), aqueous film-forming foams (AFFF) and alcohol resistant aqueous film-forming foam (AR-AFFF).

In 2016, approximately 332 L (342 kg) of PFOS/PFOS-related foam were imported into Saint Lucia and 46,783 L (48,186 kg) were in stock. The total estimated content of PFOS in firefighting foams in 2016, ranged from 240.93 kg to 722.78 kg (Figure 2-13).

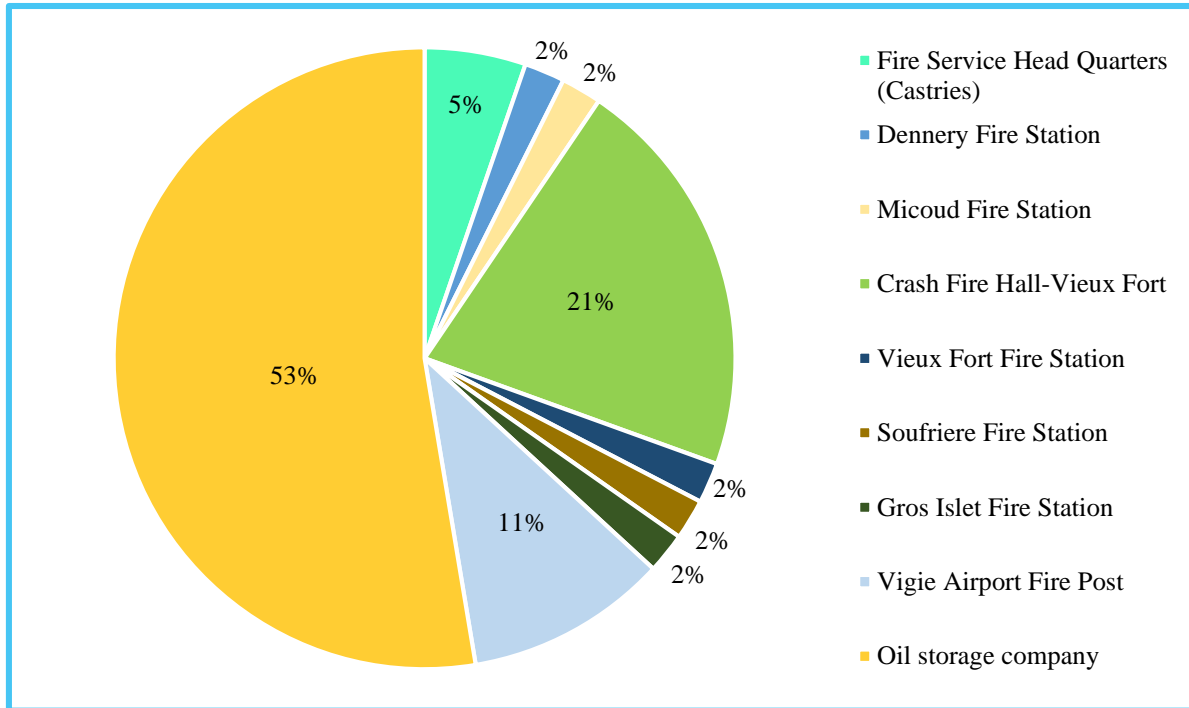


Figure 2-13: Percentage of total PFOS stocks from firefighting foams (2016)

All locations where PFOS firefighting foam is, or was used, are considered potentially contaminated. Locations that are potentially contaminated include areas where fire trucks are flushed and where training drills are conducted. The latter includes an enclosed facility where the fire service training school uses PFOS/PFOS related firefighting foams for training exercises. The facility is surrounded by a deep concrete drain which collects runoff from the concrete training surface. The runoff accumulates in an underground concrete holding tank. The SLSWMA is responsible for removing the contents of the tank when it is full. The holding tank has not been emptied since the inception of the training facility in 2014¹⁷.

2.3.9.3 Synthetic carpets, textiles, leather, paper and related stockpiles

One of the major carpet retailers in Saint Lucia imports synthetic carpets of various brands. The composition of these synthetic carpets is mainly nylon, polypropylene or polyester. In some cases, their special properties indicate stain, fade, soil or wear-resistant, but there is no indication of whether PFOS and its related chemicals might have been applied to the synthetic fibres. In Saint Lucia, it is possible that a range of PFOS treated paper and textile is imported into the country; however, in most cases, it is difficult to assess if the products contain PFOS compounds as the manufacturers do not disclose the chemical content. It can be assumed that these products are still in use and are at the dumpsites and landfills.

¹⁷ M. Charles, interview held on April 10, 2017.

2.3.9.4 Stockpiles and potentially contaminated sites

As discussed in Section 2.3.9.2, PFOS-containing foams are stored at nine (9) locations in Saint Lucia, including 8 fire stations and at the oil storage company. Potentially contaminated sites include the following:

- Areas where foams may have been used to extinguish fires;
- Areas where fire training drills are conducted;
- Areas where fire trucks are flushed (fire stations);
- Areas where obsolete pesticides and pesticides containers are stored;
- Areas of pesticides use (sulfluramid); and
- Areas where waste is dumped and burned.

2.3.9.5 Management of PFOS and related chemicals in Saint Lucia

Currently, the use and management of PFOS in Saint Lucia are not directly addressed in either policy or legislation. Information on PFOS is not available as monitoring and research of contamination is not conducted. There is also limited information on the availability of alternative foams on the local market. Monitoring of water quality at the Deglos Sanitary Landfill and Vieux Fort Solid Waste Management Facility does not include PFOS/PFOS-related chemicals.

2.3.10 Assessment of Releases from Unintentionally Produced Chemicals (Annex C Chemicals)

The total emission of PCDD/PCDFs for Saint Lucia in the first inventory (2006) was updated using the UNEP Toolkit (UNEP, 2013). Findings in this section are primarily based on the “*National Inventory Report for Inventory of Unintentionally Released POPs (UPOPs) in Saint Lucia (2016)*” (Government of Saint Lucia, 2017e).

The total PCDD/PCDF emission for 2016 was 1.073 g TEQ/a compared to 0.172 g TEQ/a in 2006. Notwithstanding this increase in emissions, the 2016 emission is small compared to the global emission estimate of approximately 100 kg TEQ/a (B. Loganathan and P. Lam, 2011). When considering a world population of 7.5 billion, the average estimated emission per person is approximately 13 µg TEQ/a. The average estimated per capita emission from Saint Lucia is 2.14 µg TEQ/a and therefore considerable below global average.

The total emission of PCDD/PCDFs to air in 2016 was 0.867 g TEQ/a estimated to be mainly from source group 6 – Opening Burning (0.754 g TEQ/a). This was attributed to the two (2) spontaneous fires at the solid waste management facilities (Figures 2-14 and 2-15). Additionally, the source categories, “Biomass burning” and “Waste burning and accidental fires” were contributors to the

open burning emission. In the first inventory, no activity rate was determined for open burning. This factor accounted for the difference in the overall emissions between the two (2) years.



Figure 2-14: Deglos Landfill
Photo taken October 2019



Figure 2-15: Landfill operations at the Vieux Fort Landfill
Photo taken October 2019

The next major source category of PCDD/PCDFs emissions to air came from source group 2 – Ferrous and Non-Ferrous Metal Production - Thermal wire reclamation. Emissions from this source category was 0.096 g TEQ/a. The air emission for this category in 2006 was negligible (2.0×10^{-4} g TEQ/a). This significant increase in the air emissions for 2016 may be due to increased activity in thermal wire reclamation by recyclers or higher market prices; however, in 2019, the SLSWMA confirmed that thermal wire reclamation is no longer undertaken by private recyclers.

The emissions for residue were very similar for both inventory years (2006 and 2016) - 0.169 g TEQ/a and 0.162 g TEQ/a, respectively. The 2016 emission was attributed to residue from domestic waste.

| Table 2-7: Total emission of PCDD/PCDF and other UPOPs from 2016 inventory | | | | | | |
|--|--|---------------------------|-------|-------|---------|---------|
| Group | Source Groups | Annual Releases (g TEQ/a) | | | | |
| | | Air | Water | Land | Product | Residue |
| 1 | Waste Incineration | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | Ferrous and Non-Ferrous Metal Production | 0.096 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | Heat and Power Generation | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | Production of Mineral Products | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | Transportation | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | Open Burning Processes | 0.754 | 0.000 | 0.026 | 0.000 | 0.000 |
| 7 | Production of Chemicals and Consumer Goods | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | Miscellaneous | 0.001 | 0.000 | 0.000 | 0.000 | 0.004 |

| Table 2-7: Total emission of PCDD/PCDF and other UPOPs from 2016 inventory | | | | | | |
|--|---------------------------------------|---------------------------|--------------|--------------|--------------|--------------|
| Group | Source Groups | Annual Releases (g TEQ/a) | | | | |
| | | Air | Water | Land | Product | Residue |
| 9 | Disposal | 0.000 | 0.012 | 0.000 | 0.000 | 0.165 |
| 10 | Identification of Potential Hot-Spots | | | | | |
| 1-10 | Total | 0.867 | 0.012 | 0.026 | 0.000 | 0.169 |
| Grand Total | | | | 1.073 | | |

2.3.10.1 Contaminated sites and hotspots

Historical activities that could have caused UPOPs contamination and the potential contaminated sites in Saint Lucia include:

- End-of-life storage and disposal/dumping of compounds known to contain PCDD/PCDFs or possess PCDD/PCDF precursor potential (i.e. historical obsolete pesticide storage and PCB storage).
- Thermal sources with high historic releases of PCDD/PCDF to air, water or wastes and related contamination such as sites of cable smouldering.
- Accidental fires such as dumpsite fires or fires of buildings.

2.3.10.2 Management of UPOPs in Saint Lucia

Legislation or policies that directly address the management of UPOPs are currently non-existent in Saint Lucia. Information on UPOPs is also lacking as monitoring and research of emissions is not undertaken.

2.3.11 Information on the State of Knowledge on Stockpiles, Contaminated Sites and Wastes, Identification, Likely Numbers, Relevant Regulations, Guidance, Remediation Measures and Data on Releases from Sites

Saint Lucia does not generally manufacture chemicals in large quantities, therefore there is little concern with contaminated sites due to manufacturing processes. Importation of hazardous wastes is prohibited in Saint Lucia. Most hazardous wastes including POPs-containing waste are generated through the use and disposal of consumer items/products. Furthermore, the island is not equipped to manage most hazardous chemical wastes. On occasion, hazardous wastes are packaged locally and shipped to countries with the appropriate disposal or recycling facilities. These efforts are usually funded through international aid.

The occurrence of stockpiles and potentially contaminated sites were discussed in the respective sections above and are summarized in the Table 2-8 and Figure 2-16 below.

Table 2-8: Potential POPs contaminated sites in Saint Lucia

| Potential POPs Contaminated Sites | GPS Coordinates Latitude/Longitude | Pesticides | PCBs | HBCD & PBDE | PFOS/related chemicals | PCDF/PCDD |
|--|---|-------------------|-------------|------------------------|-------------------------------|------------------|
| Vieux Fort Solid Waste Management Facility | 13.751957, -60.944463 | X | X | X | X | X |
| Deglos Sanitary Landfill | 13.980396, -60.977498 | X | X | X | X | X |
| Past pesticide storage site (Soufriere) | 13.818940, -61.034839 | X | | | X | |
| Ministry of Health past pesticide storage facility (Union) | 14.027905, -60.960445 | X | | | X | |
| Black Bay (historic thermal copper wire reclamation site) | 13.730837, -60.977383 | | X | | X | X |
| Saint Lucia Electrical Company Ltd. Storage Facility | 14.028462, -60.963904 | | X | | | |
| Crash Fire Hall-Vieux Fort | 13.731571, -60.949355 | | | | X | |
| Dennerly Fire Station | 13.917874, -60.892839 | | | | X | |
| Fire Service Head Quarters (Castries) | 14.008772, -60.992595 | | | | X | |
| Gros Islet Fire Station | 14.079687, -60.947087 | | | | X | |
| Micoud Fire Station | 13.821879, -60.903972 | | | | X | |
| Soufriere Fire Station | 13.856580, -61.059878 | | | | X | |
| Vieux Fort Fire Station | 13.736688, -60.970511 | | | | X | |
| Vigie Airport Fire Post | 14.020386, -60.993880 | | | | X | |
| Fire Service Training Area | 13.746193, -60.946309 | | | | X | |
| Buckeye St Lucia Terminal Ltd (Oil storage company) | 13.979853, -61.016577 | | | | X | |

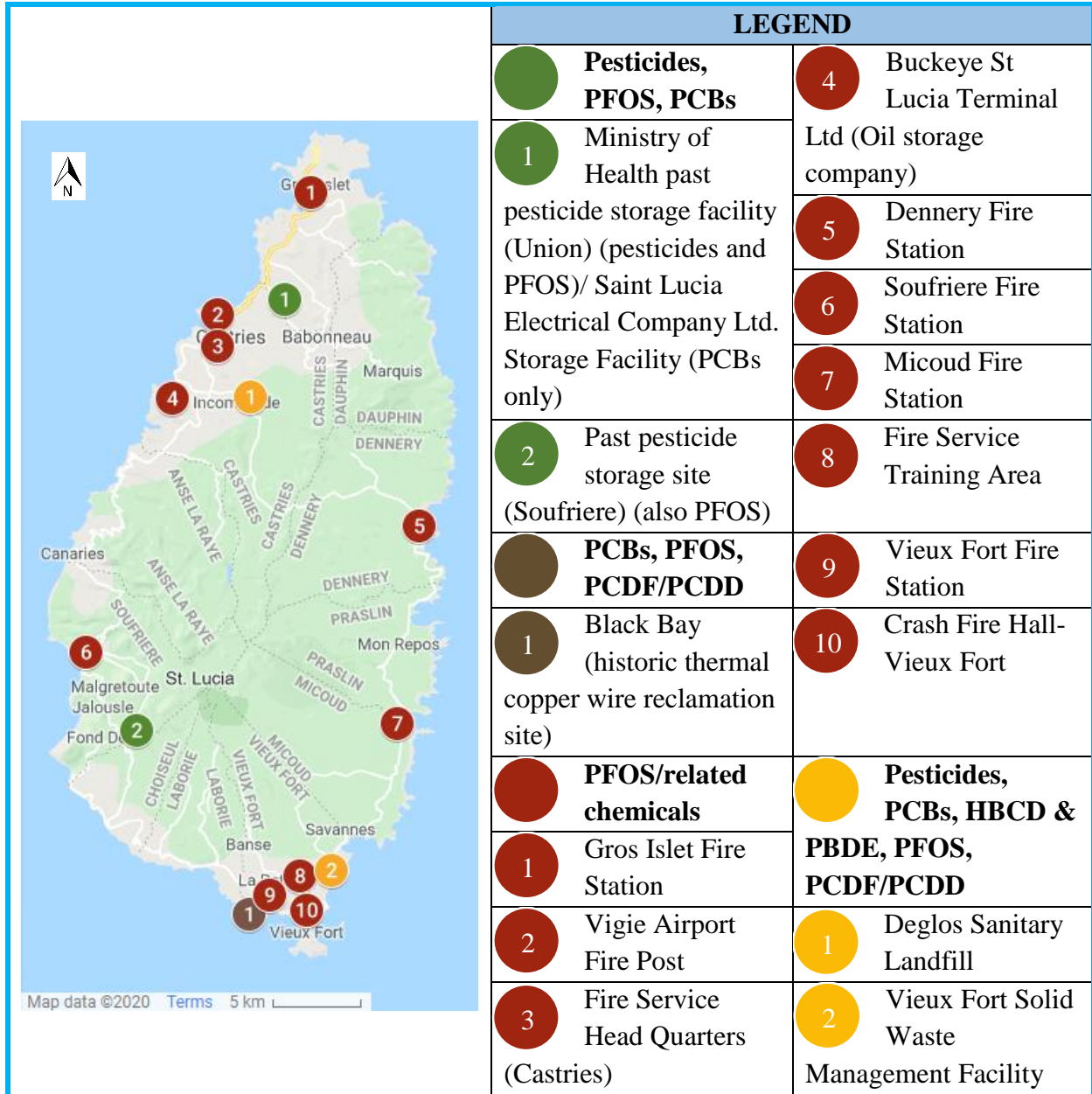


Figure 2-16: Location of the sites potentially contaminated with POPs in Saint Lucia
Prepared using Google Maps

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

2.3.12.1 Specific exemption for POPs pesticides

Saint Lucia does not plan to produce or use POPs pesticides in the future; however, Saint Lucia reserves the right to seek exemptions for vector control purposes, until suitable and economically feasible alternatives to DDT are identified and become available. Exemptions for use of newly listed POPs pesticides in Saint Lucia have not been determined by the PTCCB. However, exemptions may not be needed for these POPs since none of the pesticides (endosulfan, lindane, PCP) are imported into the country.

2.3.12.2 Specific exemption for POP-PBDEs or HBCD

There is no need for specific exemptions for HBCD use in insulation for buildings. These chemicals are not found in the materials used by the major construction firms on the island and there are alternatives on the market that are currently in use.

2.3.12.3 Specific exemption for PFOS/PFOS related chemicals

Alternatives to PFOS firefighting foams are currently available on the market. Major manufacturers like Chemguard and 3M, now produce PFOS-free foams (UNEP, 2017g). The need for exemptions for the use of PFOS/PFOS-related firefighting foams in Saint Lucia will depend on the availability of fluorine-free foams, their effectiveness and cost. Alternatives to PFOS foams may have not been explored by the major users like the fire stations officials (where use is infrequent, and most stocks include donations).

2.3.13 Existing Programmes for Monitoring Releases and Environmental and Human Health Impacts, Including Findings

Saint Lucia has no existing programmes for monitoring releases and environmental and human health impacts of POPs, nor does it have the capacity to do so. There is also little recent research specific to Saint Lucia in the area of monitoring (the environment, food, humans and health impact). Research in this area is more available in the wider Caribbean.

2.3.13.1 The 2017 prenatal exposure study

A study was conducted in 2007 by the Caribbean EcoHealth Programme (CEHP). The objective of the study was to determine the level of prenatal exposure to POPs, pesticides, heavy metals (mercury and lead) and zoonotic infections in ten (10) Caribbean countries including Saint Lucia. Blood and urine samples were collected from pregnant women in these ten (10) Caribbean countries. The results of the study indicated that Saint Lucia, like the other Caribbean countries in the study, showed low levels of POPs exposure.

The study showed that only three (3) congeners of PCBs (138, 153 and 180) were present in pregnant women tested. The PCB levels in blood and urine samples for women in Saint Lucia were lower than comparable findings from both Canada and the USA (Table 2-9). Similarly, analysis of blood and urine samples from 442 pregnant women for six (6) congeners of BFRs (PBB 153, PBDE 100, 153, 47, 17, 99) indicated very low levels of exposure to BFRs in the region (Forde and Dewailly, 2012). Overall, the concentration of the BFRs in Saint Lucia's samples were low compared to USA and Canada.

The results of the study also indicated low levels of DDT exposure for Saint Lucia. DDE, a major metabolite of DDT was present in all samples. The levels of DDE present in samples for women in Saint Lucia were lower (less than half) than that present for both Canada and the USA (Table 2-9). The ratio of DDE/DDT for the Saint Lucian samples was high, which indicates that the source of contamination was distal and global, far from any local sources (Forde and Dewailly, 2012).

| Table 2-9: Summary of POPs results for Saint Lucia compared to findings from USA and Canada | | | |
|--|--|---------------|---------------|
| POPs | Concentration in Blood and Urine Samples of Pregnant Women (µg/L) | | |
| | Saint Lucia | Canada | USA |
| PCB#118 | 0.01 | Not Available | Not Available |
| PCB #138 | 0.03 | Not Available | Not Available |
| PCB #153 | 0.07 | 0.11 | 0.15 |
| PCB#156 | 0.01 | Not Available | Not Available |
| PCB#170 | 0.02 | 0.03 | 0.04 |
| PCB#180 | 0.05 | 0.09 | 0.12 |
| Hexachlorobenzene | 0.03 | 0.05 | 0.1 |
| p,p'- Dichlorodiphenyldichloroethylene (DDE) | 0.34 | 0.91 | 1.69 |
| p,p'- Dichlorodiphenyltrichloroethane (DDT) | Not Available | Not Available | Not Available |
| Ratio p,p'-DDE/p,p'- DDT | 12.1 | Not Available | Not Available |
| β- hexachlorocyclohexane (HCH) | Not Available | 0.04 | 0.05 |
| trans-Nonachlor | 0.01 | 0.04 | 0.11 |
| Dioxin (pg/g lipid) | 11.4 | 8.9 | Not Available |

Adapted from Forde and Dewailly, 2012.

2.3.13.2 The 2006 study on POPs pesticides and PCBs

In 2006, another project was undertaken with the objective of estimating the amount of POPs pesticides and PCB releases in Saint Lucia. Potential POPs hot spots around Saint Lucia – including POPs storage sites, disposal sites and sites where POPs products were used - were sampled.

Fourteen (14) soil and ground water samples were analysed for all nine (9) legacy POPs pesticides (aldrin, chlordane, dieldrin, p,p-DDT, endrin, HCB, heptachlor, mirex and toxaphene). The results showed that although several of these pesticides were detected, all of them were at very low concentrations in water (< 2 µg/L) and below the limits set by the SC. It was noted that aldrin and dieldrin were at the higher concentrations in these samples.

The results from the analysis of eight (8) soil samples showed that dieldrin was present at significantly higher concentrations (< 6 mg/kg) in a dumpsite of a pesticide control company and DDT was present at higher concentrations (< 12 mg/kg) at the Vieux Fort Port. Aldrin, endrin and mirex were also detected but at concentrations below the limit set by SC (50 mg/kg). The conclusion stemming from the report was that the results showed no significant sources of POPs pesticides and that there were big gaps related to data collection and research on health and environmental impacts of POPs pesticides in Saint Lucia (Government of Saint Lucia, 2006).

2.3.13.3 Potential health and environmental impacts

According to UNEP (2002), acute poisoning by exposure to pesticides has been reported in a few Central and South American countries. In the Caribbean, the environmental effect of POPs pesticide contamination is evident from coral bleaching and egg-shell thinning (UNEP, 2002).

2.3.13.4 Health impacts of POPs on the Saint Lucia population

There is currently no research on the human health impacts of any of the categories of POPs on the Saint Lucian population.

2.3.14 Current Level of Information, Awareness and Education among Target Groups; Existing Systems to Communicate such Information to the Various Groups; Mechanism for Information Exchange with Other Parties to the Convention

Surveys on the Knowledge, Attitudes and Practices (KAP) of the general public and other groups discussed in the following sections regarding POPs and chemicals are scheduled for 2020. This KAP study will accurately assess the level of information and awareness among the general public and is expected to provide a baseline to inform the implementation of public awareness and

education (PAE) programmes designed under the regional POPs communications strategy and POPs PAE Toolkit¹⁸.

2.3.14.1 General public

The awareness among the general public regarding chemicals management is relatively low compared to knowledge on other environmental issues. Although the issues of POPs and chemicals are incorporated into the public awareness work programme of the SDED as well as that of the Department of Agricultural Services and the Pesticides and Toxic Chemicals Control Board, knowledge of POPs and its negative impacts on human health and the environment among this group needs to be improved.

2.3.14.2 Farmers and users of POPs, pesticides and other chemicals

The MOAFPNC has also been educating farmers on the POPs issues with particular focus on the proper use of pesticides, resulting in a higher level of awareness among farmers. This is facilitated mainly through one-on-one contact between farmers and Extension Officers. The Ministry also produces short features on various aspects of agriculture which are aired regularly on the National Television Network (NTN).

2.3.14.3 Industry

The Occupational Health and Safety Unit (OHSU) seeks to ensure that manufacturers and other industries are aware of the issues related to the handling of chemicals. Again, there is no quantitative data on the actual level of knowledge among persons in the manufacturing industry.

2.3.15 Mechanism to Report Under Article 15 on Measures Taken to Implement the Provisions of the Convention and for Information Exchange with Other Parties to the Convention

Similar to the development of the NIP, reporting under Article 15 on measures taken to implement the provisions of the Convention and for information exchange with other Parties to the Convention is an obligation for Parties. The timeframe for the national reporting to the Stockholm Convention is every four years, in accordance with a format as established by the COP at its first meeting (Decision SC-1/22). The fourth and most recent reporting cycle was in August 2018. Information exchange on POPs-related issues with other Parties to the Convention was weak in the past; however, training is expected to be conducted under the GEF 5558 project in 2020.

¹⁸ Undertaken as part of the regional project: *Development and Implementation of the Sustainable Management Mechanism for POPs in the Caribbean*

2.3.16 Relevant Activities of Non-Governmental Stakeholders

Non-Governmental Organisations (NGOs) are a crucial group and have great influence in the success of a Government's efforts to manage POPs and chemicals. Whilst NGOs in Saint Lucia have not traditionally participated in the management of POPs and chemicals, they are actively involved in general environmental awareness and management. Belle Vue Farmers' Cooperative has done training as part of its Organic Farmer's Project. RISE Saint Lucia Inc. has developed a draft national policy framework to promote organic agriculture under the Good Food Revolution project. The project is placing emphasis on the elimination of toxic chemicals and potentially harmful genetically modified organisms (GMOs) from the Saint Lucian food chain and support for healthy consumption practices. The project also seeks to develop technical and research capacities and encourage collaboration among NGOs.

There is recognized need for greater participation from NGOs in the management of chemicals.

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

The overall technical infrastructure in Saint Lucia for POPs assessment, measurement, analysis, management, research and development (R&D) is weak. The NIP will propose steps that can be taken to improve the infrastructure for POPs assessment and analysis as well as research and development.

2.3.18 Overview of Technical Infrastructure for POPs Management and Destruction

There is no infrastructure in place for POPs management and destruction in Saint Lucia.

2.3.19 Identification of Impacted Populations or Environments, Estimated Scale and Magnitude of Threats to Public Health and Environmental Quality and Social Implications for Workers and Local Communities

Table 2-10 seeks to identify the potentially impacted populations and environments and estimates the scale and magnitude of threats to health and environmental quality in the Saint Lucian context.

| Table 2-10: Populations and environments impacted by POPs and chemicals | | | |
|--|--------------------------------------|----------------------------------|---|
| POP or Chemical | Impacted Group or Environment | Threat Scale¹⁹ | Notes |
| Pesticides | Farmers | 5 | Farmers have daily direct contact with pesticides |
| | Households | 2 | Insecticides and household products used on an as- needs basis; household chemicals are usually of lower concentrations |
| | Fresh water ecosystems | 5 | Very vulnerable system especially when poor management of pesticides on farms and chemicals in industries is factored |
| | Soil | 5 | Contaminated soil affects plant production and reduces land usage |
| Chemicals | Industry workers | 3 | Daily contact with chemicals; threat rises to 5 if PPE not provided |
| | Fresh water systems | 5 | Very vulnerable system especially when poor management of pesticides on farms and chemicals in industries is factored |
| | Soil | 3 | Contaminated soil affects plant production and reduces land usage |
| PCBs | Electricity company employees | 2 | Employees become exposed upon leakage of equipment; threat rises to 4 if PPE is not provided |
| | Telecommunication company employees | 2 | Employees become exposed from leakage of equipment; threat rises to 4 if PPE is not provided |
| DDT | Farmers | 1 | DDT not used in Saint Lucia |
| | Soil | 1 | DDT not used in Saint Lucia |
| | Fresh water systems | 1 | DDT not used in Saint Lucia |
| Dioxins and Furans | General public | 4 | Though burning and charcoal making may occur in public areas, negative effects are determined by factors such as distance of people from the site, wind speed and direction. Also, people generally avoid these conditions. In general, dioxins and furans are easily carried via wind exposing people to their negative effects |
| | Farm animals | 4 | Studies show that animals such as chickens are highly sensitive to POPs and that POPs show up in eggs when farms are located in close proximity to a constant source of dioxins and furans. |
| | Hospital and Funeral Home employees | 3 | Employees are directly exposed to PCDD/PCDF, as most facilities do not have stacks or an outlet for release of these POPs |

Source: Government of Saint Lucia, 2006.

¹⁹ Threat Scale: (1=low, 5=high)

2.3.20 Details of any Relevant System for the Assessment and Listing of New Chemicals

The importation of POPs pesticides and chemicals into Saint Lucia is controlled through the PTCCA. The PTCCB assesses chemicals proposed for importation. It should be noted that this assessment is limited to national, regional and international research and the experiences of other countries. A system for assessing new chemicals with respect to POPs properties has not been established.

2.3.21 Details of any Relevant System for the Assessment and Regulation of Chemicals Already in the Market

The PTCCB, in collaboration with the Research Unit at the MOAFPNC, has an established system for the assessment of chemicals already in the market in Saint Lucia. There is a notable lack of sampling and analytical capacity in Saint Lucia, and these are crucial to the proper identification and management of chemicals in the market.

2.4 Implementation Status

The status of implementation of SC requirements is compiled in Table 2-11.

| Table 2-11: The SC requirements and status of NIP implementation for Saint Lucia | | |
|---|---|--|
| Convention Article | Status of Implementation | Comments |
| ARTICLE 3 Measures to reduce or eliminate releases from intentional production and use | For POPs pesticides, refer to sub-chapter 2.3.1 | Saint Lucia is not a producer or exporter of POPs pesticides but has been importing pesticides and chemicals for use primarily in the agricultural and manufacturing sector and in industrial processes. In Saint Lucia the PTCCB is responsible for approval of imports of all pesticides entering the country. |
| | For PCBs, refer to sub-chapter 2.3.2 | Saint Lucia does not produce or directly import PCBs. PCB containing equipment, namely transformers, capacitors and light ballasts, are imported into the country. Saint Lucia Electricity Company (LUCELEC) is the only major entity that used large quantities of transformers containing PCB oils. In 2005, LUCELEC voluntarily exported the known stock of PCB oil and equipment. The company is also currently working on a screening and sampling exercise as part of the GEF 5558 project in order to continue PCBs management. |
| | For DDT refer to sub-chapter 2.3.8 | DDT is not produced in Saint Lucia. In Saint Lucia, DDT was banned for use in the 1970s -1980s. DDT imports were banned by an administrative measure, but this ban is not articulated in the 2001 or 2006 PTCCA Cap. 11.15. The SC authorizes its use in accordance with WHO recommendations and guidelines until |

| Table 2-11: The SC requirements and status of NIP implementation for Saint Lucia | | |
|---|---|---|
| Convention Article | Status of Implementation | Comments |
| | | appropriate alternatives are provided (UNEP, 2014) and in this regard, countries reserve the right to seek exemptions to use DDT for disease vector control, with no time limitation (ibid). |
| ARTICLE 4 Register of exemptions | Currently Saint Lucia has not registered for any specific exemption/acceptable purposes allowed under the Stockholm Convention. | |
| ARTICLE 5 Measures to reduce or eliminate releases from unintentional production | Refer to sub-chapter 2.3.10 | Measures to reduce or eliminate emissions of UPOPs have been addressed in the following two areas. 1. The burning of animal carcasses by farmers is generally avoided and burial has become the general practice. 2. Emissions of PCDD/PCDF during the use of asphalt in road construction is currently well managed through the use of fabric filters or wet scrubbers for gas cleaning. |
| ARTICLE 6 Measures to reduce or eliminate releases from stockpiles and wastes | Refer to sub-chapter 2.3.11 | The only means of reducing and eliminating unintentional releases of PCDD/PCDF, HCB and PCBs is by improving the efficiency of crematories, vehicles and machinery in factories and by reducing or eliminating the practice of burning through legislative measures. |
| ARTICLE 7 Implementation plans | Saint Lucia submitted its first NIP in 2006. | |
| ARTICLE 8 Listing of chemicals in Annexes A, B and C | Saint Lucia has never submitted a proposal on the listing of new chemicals in Annexes A, B and C to the COP. | |
| ARTICLE 9 Information exchange | Saint Lucia participated in the Regional POPs Project with related information exchange. | |
| ARTICLE 10 Public information, awareness and education | Refer to sub-chapter 2.3.14 | |
| ARTICLE 11 Research, | Refer to sub-chapter 2.3.17 | There are no formal programs for identification and monitoring of POPs chemicals at the country level in |

Table 2-11: The SC requirements and status of NIP implementation for Saint Lucia

| Convention Article | Status of Implementation | Comments |
|--|---|---|
| development and monitoring | | Saint Lucia. There were a few regional studies done that included Saint Lucia. |
| ARTICLE 12 Technical assistance | FAO, UNIDO and BCRC Caribbean are providing technical assistance. | |
| ARTICLE 13 Financial resources and mechanisms | Financial resources are needed for the implementation of the Convention. As of 30 According to the Status of Contribution compiled by the SC Secretariat ²⁰ in 2019, Saint Lucia is up-to-date with payments for pledges for 2018 and prior years, as well as for 2019 and future years. | |
| ARTICLE 15 Reporting | Saint Lucia submitted its national report for the third cycle pursuant to article 15 of the Stockholm Convention. As of 30 November 2019, National reports had not been submitted for the first (due 2006), second (due 2010) and fourth (due 2018) reporting cycles ²¹ . | |
| ARTICLE 16 Effectiveness evaluation | Saint Lucia did not participate in the UNEP/WHO (2013) human milk study for the basic POPs (POPs pesticides, PCB, PCDD/F and HCB) | In 2019-2020, Saint Lucia plans to participate in a component of the POPs project on identification and monitoring of potentially POPs contaminated sites in the country. |
| ARTICLE 17 Non-compliance | The procedures and institutional mechanisms for determining non-compliance are not yet approved and developed, thus the country's compliance cannot be verified. | |
| ARTICLE 19 Conference of the Parties (COPs) | Saint Lucia has attended COPs 5-9. | |
| ARTICLE 21 Amendments to the Convention | Saint Lucia has accepted all the Stockholm Convention amendments. | |
| ARTICLE 22 Adoption and amendment of annexes | Saint Lucia accepted all the Stockholm Convention amendments of the annexes. | |
| ARTICLE 24 Signature | Information is not available. | |

²⁰ Available at

<http://www.pops.int/TheConvention/FinanceBudget/TrustFund/2019TrustFund/tabid/7926/Default.aspx>

²¹ Available at http://ers.pops.int/eRSodataReports2/ReportSC_Submit_Status.html

| Table 2-11: The SC requirements and status of NIP implementation for Saint Lucia | | |
|---|---------------------------------|---|
| Convention Article | Status of Implementation | Comments |
| ARTICLE 25 Ratification, acceptance, approval or accession | | Saint Lucia became a Party to the SC in October 4, 2002 ²² . |
| ARTICLE 26 Entry into force | | The SC entered into force in May 17, 2004 ⁹ . |

²² <http://chm.pops.int/Countries/StatusofRatifications/PartiesandSignatoires/tabid/4500/Default.aspx>

3 STRATEGIES AND ACTION ELEMENTS OF THE NATIONAL IMPLEMENTATION PLAN (NIP)

This chapter has two (2) elements: a formal policy statement and the implementation strategy for the NIP. The implementation strategy sets out specific (updated or new, where relevant) action plans or strategies to achieve Convention obligations and additional priorities/objectives set by the country.

3.1 Policy Statement

Saint Lucia's commitment to eliminating the use of POPs and related chemicals is evident by the country becoming Party to the Stockholm Convention (SC) on POPs. Saint Lucia's commitment can be further recognised by the efforts made towards the update of the NIP and its current participation in several initiatives geared towards the sustainable management of POPs in accordance with the obligations under the SC. The objective of the NIP is to identify the institutional, policy and legislative activities that will ensure the protection of human health and the environment from negative effects of POPs and chemicals through the development and implementation of a POPs and chemicals management plan that meets the needs of Saint Lucia as the SC evolves.

Implementation of the SC in Saint Lucia falls under the portfolio of the Sustainable Development and Environment Division (SDED) within the Department of Sustainable Development (DSD). The Convention's focal point also resides with the office of the Chief Sustainable Development and Environment Officer within the Division. In addition, the SDED is significantly involved in the implementation of several other MEAs including the Basel Convention, Minamata Convention on Mercury, Montreal Protocol, SAICM and Land Based Sources of Pollution Protocol of the Cartagena Convention. As such, the NIP is integrated into the work programme of the SDED and into government's environmental policies and sustainable development strategies. Further references of the integration of POPs and chemicals management into the national agenda are:

- **The National Environmental Policy/National Environmental Management Strategy (NEP/NEMS)** – Outcome 4 of the revised draft 2014 NEP and NEMS identifies the need for “Improved systems for managing waste and controlling pollution so as to enhance environmental health for optimised quality of life for citizens and protection of terrestrial and marine resources”. The Outputs include: (i) Upgrading and implementation of solid waste management strategies; (ii) Improvement in management systems for sewage and wastewater; and (iii) Implementation of obligations under chemicals and waste MEAs to which Saint Lucia is a State Party, including the Strategic Approach to International Chemicals Management (SAICM), to ensure that sound chemicals management is achieved by 2020.

- **St. George's Declaration (SGD's) on Principles of Environmental Sustainability in the OECS** (2006, currently being revised) – this provided a regional strategy and framework for environmental management in the OECS. Relevant Principles which address the improved management of POPs pesticides and chemicals includes: Principle 3 (Improve on Legal and Institutional Frameworks), 6 (Use Economic Instruments for Sustainable Environmental Management), 7 (Foster Broad-based Environmental Education, Training and Awareness), 10 (Prevent and Control Pollution and Manage Waste) and 17 (Negotiate and Implement Multilateral Environmental Agreements).
- **The DRAFT Policy and Strategy for Environmental Health in Saint Lucia (2016 – 2021)** under which Priority Area 5: 'Water and wastewater management, pollution prevention and development control' provides an imperative to "review, adapt and collaborate with other agencies as required, to implement the UNEP SAICM." In addition to incorporating the six (6) core activities and eleven (11) basic elements of the SAICM, the objectives specific to this ninth (9th) of eleven (11) imperatives are: (i) Develop a national strategic approach in chemicals management in collaboration with stakeholders, (ii) Develop a budget and (iii) Implement [the] strategy [developed].

Saint Lucia's national priorities for implementing the NIP are to:

1. Strengthen the coordination between institutions and stakeholders.
2. Develop specific legislation on sound management of chemicals and hazardous waste.
3. Increase education, training and awareness raising on chemicals management issues including hazardous and chemical waste.
4. Improve waste management and introduce waste hierarchy towards a circular economy and reduce unintentionally formed POPs from open burning.
5. Assess, manage and remediate contaminated sites.
6. Promote collaborations on monitoring and research related to POPs.
7. Manage POPs stockpiles, waste and articles in use and institute appropriate measures for disposal (POP-PBDEs, PFOS).
8. Update and refine inventories of POPs.
9. Assess alternatives to POPs.

3.2 Implementation Strategy

The objective of the NIP is to protect human health and the environment from the negative effects of POPs and related chemicals, by developing a holistic and integrated approach to POPs and chemicals management in Saint Lucia. The NIP will be implemented in the context of the NEP and NEMS and its implementation will be coordinated by the SDED of the Department of Sustainable Development. The overarching implementation strategy is discussed according to the sections below.

3.2.1 Improve National Coordination Considering National Priorities

At the governmental level, all relevant ministries will be involved in the NIP implementation with clear responsibilities relevant to their functions. This inter-ministerial coordinating mechanism is considered vital in addressing chemicals and waste management issues (including POPs). Furthermore, the management of chemicals and waste is important for a range of the SDGs of the 2030 Sustainable Development Agenda. To address the national management of chemicals and waste, a coordinated approach will be adopted, with cooperation among all relevant stakeholders at all levels and sectors. Responsibilities of various stakeholder groups²³ related to the sound management of chemicals and waste as well as those related to chemical safety, will be identified and are addressed in section 3.3 below.

3.2.2 Improve Legal, Institutional, Administrative and Technical Infrastructure

Adequate legal, institutional, administrative and technical infrastructure is required for the implementation of the SC. The implementation strategy will include policy development and strengthening of institutional capacities for enforcement and supervision. The legal framework also needs to consider financial mechanisms to support chemicals and waste management. These may include Extended Producer Responsibility (EPR) and Polluter Pays Principle (PPP). Additionally, adequate technical infrastructure is needed for the management of POPs-impacted waste and the analysis and monitoring of relevant POPs in products and environmental media. Appropriate actions are presented in the action plans below.

3.2.3 Promote Synergies among related Multilateral Environmental Agreements (MEAs)

At the international level, there is established need for greater cooperation and coordination, and for measures that support more harmonized implementation of the MEAs. Saint Lucia has ratified, and is a signatory to, several other international chemicals and waste conventions and agreements and is also aware that efforts should be made for harmonized implementation at the national level. The integrated approach of this updated NIP complements SAICM.

²³ Includes private sector, industry, labour, science and public interest groups

Hazardous waste management is an important requirement for adequate implementation of both the Stockholm and Basel Conventions. However, due to capacity constraints for waste destruction at both the national and regional levels, most chemicals, products and materials imported into the country are disposed of at dumpsites at the end of their useful life with a minor fraction being recycled or exported. An integrated management approach to the import, consumption and treatment of POPs and other hazardous chemicals as well as products is therefore needed.

Furthermore, international efforts to protect the Ozone Layer (Montreal Protocol/Vienna Convention) address partly the same waste categories containing POPs: air conditioners in cars or HBCD-containing extruded polystyrene (XPS) normally contain 8% hydrofluorocarbon (HFC) as blowing agent (often HFC-134a with high global warming potential value of 1300). The inventory of vehicles, electronic waste and building insulation in the framework of the SC for POP-PBDEs and the improvement of their end-of-life management can at the same time, be used for improved management of ozone depleting substances present in these products and wastes.

3.2.4 Address POPs Phase Out and Use of Alternatives within Sustainable Consumption and Production Approach (SDG12)

Article 7(3) of the Stockholm Convention states that, “*Parties shall endeavour to utilize and, where necessary, establish the means to integrate national implementation plans for POPs in their sustainable development strategies where appropriate*”. POPs management in the context of the sustainable consumption and production efforts (SDG 12) is considered in this regard. As detailed in the action plan, this consideration is being addressed through measures for restricting importation of POPs into Saint Lucia; improved end of life management; improved source separation, recycling and recovery; phase-out of stocks and appropriate disposal of some products.

In Saint Lucia, POPs pesticides are either banned/prohibited or are not registered for use. However, there is still potential to manufacture, sell or import different classes and formulations of several POPs pesticides with a special license, based on their listing under Schedule Five of the PTCCA. Also, endosulfan can be used with a Pest Control Operators License. In addition to the ongoing use of alternatives to POPs pesticides and more integrated approaches to managing pests, the action plan gives consideration to revision of the PTCCA to prevent the importation all POPs pesticides.

Consideration is given to the use of schemes for extended producer and importer responsibility in the case of EEE/WEEE and vehicles. Improved collection or recovery practices are also needed. The recycling efforts are directly linked to sustainable production and sustainable import of products. Considering the challenges of managing POPs, there is need for the implementation of a policy that not only discourages or prohibits the import of products that contain POPs or similar chemicals, but also promotes the adoption of the most appropriate alternatives, considering green and sustainable chemistry principles. Currently, there are a few start-up companies involved in the collection, storage and shipment of wastes, including WEEE and metal from ELVs (for processing

off-island). However, the environmentally sound management (ESM) and disposal of these products cannot be verified.

Saint Lucia is giving consideration to the reduction and elimination of POPs, the use of alternatives, disposal of chemical-containing products, and management of existing stocks. The disposal of PCBs in transformer oils and the assessment of alternatives to PFOS containing firefighting foams is considered in the action plan. The use of more sustainable chemical products and practices would result in lower amounts of hazardous chemicals in consumer products and the indoor environment, lower contamination of environmental media (air, soil, sediment, ground/surface water) and lower exposure of humans and wildlife. Saint Lucia's approach is consistent with SDG 12- ensuring sustainable consumption and production pattern.

3.2.5 Integrate POPs/Chemical Management and Policy with Waste and Resource Management Considering the Waste Hierarchy

The management of POPs included in large plastic/polymer fractions such as POP-PBDEs in Waste Electronic and Electrical Equipment (WEEE) and End-of- Life Vehicles (ELVs), would require a collaborative approach for the collection, recovery and recycling of these items. Although there are a few start-up companies involved in collection, storage and shipment of these wastes (for processing off-island) and the sector is unregulated, there is potential to address recycling chains or sorting facilities on a regional scale to ensure economic feasibility. However, this would require collaboration between the SLSWMA, resource recovery companies and local businesses as well as formalisation and regulation of the resource recovery sector.

A pilot initiative, unrelated to POPs and aimed at reducing the plastic waste in surface water bodies through the collection and recycling of plastics bottles²⁴, is currently underway, and lessons learnt from this approach can be potentially applied to POP-PBDEs in WEEE and ELVs. Though still in its infancy, the approach has the potential to move Saint Lucia further away from disposal of plastic bottles (base of waste hierarchy) to waste recovery and recycling (top of waste hierarchy). The initiative involves the formation of a partnership comprising the SLSWMA, a newly formed resource recovery company and four (4) local businesses. The resource recovery company has conducted a pilot activity for collection of plastics through partnership with a major supermarket chain on the island and other local sponsors. The pilot activity seeks to collect plastics at the source and gather preliminary data on waste from the public. The private company has also engaged in school awareness initiatives to promote proper waste management practices (reuse, reduce, recycle).

²⁴ Initiative is facilitated by the International Water Stewardship Programme (IWaSP) and supported by the Caribbean Aqua Terrestrial Solutions (CATS)/CARPHA

3.3 Action Plans including Strategies and Activities

3.3.1 Institutional and regulatory strengthening measures

In Saint Lucia, the issue of hazardous chemicals including POPs is of great concern. None of the laws provide a comprehensive regulatory framework for chemicals management in the country (Government of Saint Lucia, 2018a). Aspects of chemical management are found in various laws and legislation within the country, e.g. the Pesticide and Toxic Chemical Control Act and the Pharmacy Act. The SC on POPs requires Parties to take certain measures to achieve the objectives of the Convention. Successful implementation of the Convention in Saint Lucia would therefore involve the integration of some of the Convention's provisions into the current institutional and regulatory framework for managing chemicals in the country, with the aim of strengthening it.

A comprehensive gap and barrier analysis of Saint Lucia's institutional and regulatory framework for the management of hazardous chemicals was conducted in 2017. The analysis informed the development of a Regional Model Integrated Chemicals Management Act (ICM) in 2018, which governs the management of chemicals from origin to disposal (BCRC-Caribbean, 2018b). In this context, it was agreed that Saint Lucia may adopt either one of two strategies when considering the regional model Act (Government of Saint Lucia, 2018b):

- a) Adaptation of the regional model legislation, as a whole, to provide a new country specific chemicals management law, repealing and replacing the existing national laws; or
- b) Adoption of elements of the regional model legislation to amend the existing national laws (ideally, the Pesticides and Toxic Chemicals Control Act PTCCA, 2001).

The overarching strategy to address the institutional and regulatory gaps for management of POPs in Saint Lucia involves the advancement of Saint Lucia's use of the Regional Model Act and the strengthening of administrative and institutional capacities needed to support the update/updates. The actions to support the proposed strategy are outlined in Table 3-1 below. The aims of SAICM for the overall management of chemicals including the emerging POPs related issues, are considered in this approach.

In order to address institutional strengthening, there is the need to improve the flow of information between stakeholders and to raise awareness on POPs among key stakeholders. The most applicable and available solution includes the adoption of the Globally Harmonised System (GHS) on the classification and labelling of chemicals. The national implementation of this system would provide awareness of chemical risks. The comprehensive integration of the POPs (in accordance with the GHS) with the existing Automated SYstem for CUstoms DAta (ASYCUDA), can improve the controlled movement of hazardous chemicals and wastes into and out of Saint Lucia.

Table 3-1: Action plan for institutional and regulatory strengthening

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ²⁵ |
|---|--|---|------------|---|
| Regulatory Strengthening Measures | | | | |
| Assess and harmonize existing legal/policy framework on POPs and hazardous chemicals (synergy with SAICM) | Assess the context for National Policy and determine policy direction (e.g. use of the regional model Act or revision of the PTCCA) | Policy Direction determined and approved | 6 months | <u>SDED</u> ²⁶ , <u>DoA</u> ²⁷ , <u>PTCCB</u> ²⁸ , <u>SLSWMA</u> ²⁹ , <u>OSHU</u> ³⁰ , <u>SLCED</u> ³¹ , <u>SLASPA</u> ³² , <u>EHD</u> ³³ |
| Develop framework for chemical management (synergy with SAICM) and waste management (synergy with BC) | Determine mechanisms, institutional capacity, financial resources and technical resources required for the implementation of national policy | Financial and technical resources mobilized | 1 year | <u>SDED</u> , <u>DoA</u> , <u>PTCCB</u> , <u>SLSWMA</u> , <u>SLCED</u> , <u>SLASPA</u> , <u>EHD</u> |
| | Revise/update legislation in accordance with approved policy | Updated/revise legislation drafted Consultation meetings held Final legislation approved by Cabinet | 2 years | <u>SDED</u> , <u>AG Chambers</u> ³⁴ , <u>PTCCB</u> , <u>DoA</u> , <u>EHD</u> |
| Implement the Globally Harmonized System (GHS) in | Draft law/regulation Conduct stakeholder consultations | Law/regulation on national GHS adopted | 4 years | <u>SDED</u> , <u>SLCED</u> , <u>SLSWMA</u> , <u>SLASPA</u> , <u>SLBS</u> ³⁵ , Bureau of |

²⁵ *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

²⁶ Sustainable Development and Environment Division (SDED)

²⁷ Department of Agriculture (DoA) – under the Ministry of Education, Innovation, Gender Relations and Sustainable Development (MEIGRSD)

²⁸ Pesticide and Toxic Chemicals Control Board (PTCCB)

²⁹ Saint Lucia Solid Waste Management Authority (SLSWMA)

³⁰ Occupational Safety and Health Unit, Department of Labour (OSHU)

³¹ Saint Lucia Customs and Excise Department (SLCED)

³² Saint Lucia Air and Seaport Authority (SLASPA)

³³ Environmental Health Department (EHD)

³⁴ Legislative Drafting Unit, Attorney General's Chambers including Chief Parliamentary Council (AG Chambers)

³⁵ Saint Lucia Bureau of Standards (SLBS)

Table 3-1: Action plan for institutional and regulatory strengthening

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ²⁵ |
|---|---|---|------------|------------------------------------|
| Saint Lucia (Synergy with SAICM) to support the effective exchange of information relevant to chemicals | Develop guidance materials | Final GHS implementation strategy formally adopted by the Government GHS implemented | | Health Education, private sector |
| | Develop and approve national implementation strategy and associated training and awareness raising plan | | | |
| | Notify public of regulation/ issued by government | | | |
| | Implement GHS and related labelling | | | |
| Update national plans and policy to match the NIP | Update the 2004 NEMS to include key targets and activities of the NIP | NEP/NEMS updated and endorsed | 4 months | <u>SDED, SLSWMA, EHD</u> |
| | Update the National Waste Management Strategy to address the management of hazardous waste streams of concern | National Waste Management Strategy updated | | |
| Develop a mechanism for coordination, cooperation and collaboration for an integrated approach to chemicals management | Identify partners whose mandate directly relate to POPs and chemicals management | MoUs of cooperation signed between partners and Government | 6 months | SDED |
| | Establish a national chemical working group ³⁶ | Number of meetings held | 1 year | SDED |
| | Coordinate work programme activities among agencies with responsibility for chemicals management | Number of activities executed, and number of agencies involved | 1 year | SDED |

³⁶ Representatives to include the cross section of agencies relevant to waste and chemicals management (similar to the Project Working Committee). Consideration will be given to streamlining the officers holding responsibilities for the national obligations to all MEAs (Multilateral Environmental Agreements) in order to synergise where possible.

Table 3-1: Action plan for institutional and regulatory strengthening

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ²⁵ |
|--|--|---|-------------------|--|
| | Develop and implement a national information exchange system | Information system developed | 1 year | SDED |
| Strengthen Institutions for assessment, analysis and monitoring of POPs and chemicals | Create/put in place infrastructure for POPs assessment and management ³⁷ | Gaps assessment and report Training and workshops Improved Legal framework (to provide requisite backstopping to SDED officers) | 3 years - ongoing | SDED |
| Develop ESM protocols for priority areas of chemicals management | Review, revise and update protocols for identification, classification and importation of hazardous chemicals | Protocols approved and training conducted (as part of the regional training initiative) | 1 year | <i>PTCCB, SLCED, SLSWMA, SLASPA, SDED, EHD, DoA</i> |
| | Update national protocols for transportation, storage, handling/ use and disposal of chemicals including storage | Protocols developed and approved (using regional project manual on ESM and disposal of POPs) Training conducted | 1 year | <i>SLSWMA, OSHU, PTCCB, SDED, EHD, DoA</i> |
| | Develop and implement a monitoring programme for evaluating use and adequacy of protocols | Monitoring programme established | Ongoing | <i>SLSWMA, OSHU, PTCCB, SDED, EHD, SLFS³⁸</i> |

³⁷ Use of recently developed SOP for Inspectors of Chemicals and SOPs for Sampling

³⁸ Saint Lucia Fire Services (SLFS)

Table 3-1: Action plan for institutional and regulatory strengthening

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ²⁵ |
|------------|--|--|------------|---|
| | Update/develop contingency plan for chemical disaster management | Elements of plan developed Plan approved and implemented Resources mobilized for implementing plan Capacity built to implement plan | 8 months | <i>NEMO</i> ³⁹ , SDED, SLFS, EHD |

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

Under Article 3 each Party is required to prohibit and/or take legal and administrative steps to reduce and eliminate the production and use of all the intentionally produced POPs. Import and export of these chemicals is also prescribed, with certain exceptions, such as for environmentally safe disposal.

In Saint Lucia, there is no intentional production of POPs chemicals. However, there are several POPs in use including POP-PBDEs and PFOS in consumer products/articles. The sole power company on the island is the major user of PCBs and is in the process of phasing-out PCB use in closed applications i.e. transformers. The company is also working on the development of a management and disposal plan. PCB use in open applications in Saint Lucia has not been assessed. All known stocks of POPs pesticides have been disposed of; however, there is potential to import and use different classes and formulations of several (endrin, aldrin, dieldrin, chlordane, DDT, mirex and toxaphene, lindane, chlordecone and endosulfan) through the requisite licenses, as provided for in the PTCCA. Recently listed POPs such as short chain chlorinated paraffins (SCCPs) and DecaBDE which have a range of exemptions that have not yet been assessed for Saint Lucia in the current NIP update, are likely used in some processes and are certainly present and used in consumer products/articles.

This action plan presented below identifies measures to reduce or eliminate releases from intentional production and use of POPs. The national priorities established in relation to achieving compliance with Article 3 are detailed in Table 3-2 and fall into two (2) categories – actions that aim to:

³⁹ National Emergency Management Organization (NEMO)

- A. **Improve the regulatory framework for POPs Pesticides** – this would address the concerns related to the potential to import POPs pesticides and chemicals and improve the technical capacity for the improved management of POPs in Saint Lucia; or
- B. **Assess available alternatives, phase-out and disposal** – this would support the need to address the current use of Pesticides and POPs containing materials and substances such as EEE, ELVs, PCB oils and PFOS-containing firefighting foams.

| Table 3-2: Action plan for the reduction or elimination of releases from intentional production and use | | | | |
|--|---|--|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁴⁰ |
| Establish regulatory and administrative measures to prohibit the use, import and export of Annex A and B chemicals with the exception of export for environmentally sound disposal (Refer to Table 3-1) | Submit recommendations to the Chair of the PTCCB and/or the Ministry of Legal Affairs to ban Annex A and B chemicals as well as those that are newly listed | Legislation banning use of chemicals in Annex A and B | 1 year | <u>PTCCB</u> , AG Chambers, SDED |
| | Issue public notices of banned Annex A and B chemicals | List of banned chemicals available for public access | 2 years | |
| Assess alternatives, develop management (phase-out) and disposal plan for POPs products/articles currently in use (detailed in Sections 3.3.4 and 3.3.7) | Phase out current use of identified POPs and promote their substitution (PCBs and PFOS) | Substitution by more sustainable chemicals and non-chemical alternatives | 2 years | <u>SDED</u> , <u>SLFS</u> , LUCELEC, OSHU, SLSWMA, PTCCB |

⁴⁰ Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role

3.3.3 Production, import and export, use, stockpiles and wastes of Annex A POPs Pesticides (Annex A, Part I Chemicals)

The POPs pesticides listed in the Stockholm Convention (initial POPs pesticides and newly listed pesticides) have never been produced in Saint Lucia.

Currently, the manufacture, import, sale and use of pesticides is addressed through the PTCCA (2001). Under the PTCCA, the listed POPs pesticides (both new and legacy) are prohibited from use and/or not registered for import (see Section 2.3.1). However, several POPs pesticides are listed in Schedule 5 of the Act⁴¹ and as such, the manufacture, sale or import of different classes and formulations of these POPs pesticides can occur in the future with a special license. Additionally, the PTCCA provides for the use of endosulfan with a Pest Control Operators License. There are no records of the historical import and use of the newly listed pesticides. Alternatives to lindane and chlordecone are available in Saint Lucia. Sulfluramide is addressed in Section 3.3.7.

The major challenges with the management of pesticides in Saint Lucia include illegal trafficking or smuggling of counterfeit products, the management of spent containers and the storage and/or disposal of seized and obsolete stocks. Gaps remain with the treatment of structures (such as utility poles) and the assessment of alternative pesticides. The action plan for managing the production, import and export, use, stockpiles and waste of Annex A Part I chemicals in Saint Lucia encompasses the areas discussed below (Table 3-3):

- A. **Strengthening the Regulatory framework for POPs Pesticides** (Update of the PTCCA) – this would address the concerns with (i) those pesticides listed under Schedule 5 to restrict all of the different classes and formulation of the newly listed POPs pesticides which can be accessed through a special requisite license and (ii) the potential use of banned/counterfeit highly hazardous pesticides (HHPs). Strengthening the current Act would also improve the technical capacity for the management of pesticides in Saint Lucia.
- B. **Inventory development/update** – this would address the presence of counterfeit/illegal HHPs in Saint Lucia and the inventory of those structures/products that may be treated with pesticides such as PCP in the utility poles.
- C. **Life cycle management of equipment, products, stockpiles and waste** – this would address the management of pesticides containers and obsolete pesticides stocks.
- D. **Assessment of alternatives**– this would inform the decision to totally ban those pesticides currently listed under Schedule 5 of the PTCCA and inform the use of the most suitable alternatives to currently used HHPs.

⁴¹ endrin, aldrin, dieldrin, chlordane, DDT, mirex and toxaphene, lindane, chlordecone and endosulfan

- E. **Awareness raising and education for targeted stakeholder groups** – this would inform the primary users of HHPs on the possible implications of their use; provide information on alternatives to HHPs; promote Good Agricultural Practices (GAP) with a view to reducing use/importation; and promote the ongoing initiatives (of Ministry of Agriculture) on Integrated Pest Management (IPM), organic farming and the management of spent containers. In the long term, this measure is also expected to support efforts to combat illegal trade and the use of counterfeit pesticides.
- F. **Analysis and monitoring** – this would give a good indication of the national exposure to, and associated risk from, POPs pesticides and other HHPs on the environment and human health. It can contribute to the improved chemical safety and prevent the exposure of babies through the placenta or breast milk.
- G. **Management of contaminated sites** – this would address the concerns on the potential contamination of the environment at and around, current and historical storage sites.

| Table 3-3: Action plan for the production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals) | | | | |
|--|--|--|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁴² |
| Strengthen regulatory framework for POPs pesticides | Update existing regulations to restrict/ address all pesticides by banning (PTCCA to remove POPs Pesticides listed under Schedule 5) | See Section 3.3.1 | | |
| | Improve regulatory measures to combat illegal traffic of counterfeit pesticides | Regulations approved by Cabinet | 1 year | <i>DoA</i> in collaboration with the <i>PTCCB</i> , SDED, SLASPA, SLCED |
| Strengthen the capacity of Border Control to detect and seize POPs pesticides and other HHPs | Provide opportunities for capacity building and training on the detection and seizure (based on regulations) of POPs pesticides and other HHPs | Training exercises conducted Availability of HHPs and POPs pesticides reduced and/or eliminated | 1.5 years | <i>MOAFPNC (Lead)</i> , <i>SLCED</i> , <i>SLASPA</i> , <i>PTCCB</i> , SDED |
| Development/ update of pesticides and | Update 2016 inventory of POPs pesticides and other HHPs (including PCP use and treated material) | Inventory updated | 1 year | <i>MOAFPNC (Lead)</i> , <i>PTCCB</i> , SDED, EHD, OSHU |

⁴² *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

Table 3-3: Action plan for the production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴² |
|--|--|--|------------|--|
| HHPs inventory | | | | |
| Life cycle management of pesticides - equipment, products, stockpiles and waste | Develop/update the guidelines for storage, handling and transport of pesticides | Guidelines for the lifecycle management of pesticides endorsed and published | 2 years | <u>DoA, PTCCB, SDED, EHD, OSHU</u> |
| | Establish collection and management system for empty pesticide containers (Extended Producer Responsibility) | EPR System established (roll-out on a pilot scale) Number of collection centres Tonnes collected and managed in an ES manner | 2 years | <u>DoA, PTCCB, SDED, SLASPA, SLCED, SLSWMA</u> and relevant NGOs/farmers associations, manufacturing/importing associations, <u>SLCC⁴³, EHD, OSHU</u> |
| | Establish a system for the appropriate transportation and storage of obsolete and seized pesticides stocks at SLSWMA | MoU between PTCCB/SLASPA/SLCED/SLSWMA | 2 years | <u>SLSWMA</u> , in collaboration with the PTCCB, SLASPA, SLCED, EHD |
| | Establish/identify a system for the appropriate disposal of containers and obsolete stockpiles | Disposal facility identified or constructed | 2 years | <u>SLSWMA, PTCCB, MOAFPNC, EHD</u> (and other regional entities) |
| | Develop emergency response plans (ERP) | Emergency response plans developed for disasters and spillage Training and information dissemination on ERP | 2 years | <u>NEMO, SLSWMA, EHD, SDED, SLFS, OSHU</u> |
| Assess alternatives to | Compile information on alternatives to POPs | Report on assessment of | 2 years | <u>DoA, SDED, Relevant</u> |

⁴³ Saint Lucia Chamber of Commerce (SLCC)

Table 3-3: Action plan for the production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴² |
|---|--|--|------------|---|
| POPs pesticides and HHPs including IPM and organic farming | pesticides and HHPs (SAICM Synergy) | alternatives to POPs pesticides and HHPs in Saint Lucia | | NGOs/farmer associations, manufacturing/importing associations/SLCC, Sir Arthur Lewis Community College (Department of Agriculture), EHD |
| | Select the most suitable alternatives and promote their use as a measure for reducing POPs pesticides and HHP use | Report on most suitable alternatives to POPs pesticides and HHPs in Saint Lucia Implementation Plan and roll-out (pilot scale) of POPs pesticides and HHP phase out | 3 years | <u>DoA</u> in collaboration with SDED, Relevant NGOs/farmers associations, manufacturing/importing associations/SLCC, Sir Arthur Lewis Community College (Department of Agriculture), EHD |
| Awareness raising and education for relevant stakeholder groups | Execute an Education Campaign on handling, use and disposal of spent pesticide containers | Number of stakeholders educated Improved treatment of spent containers | 3.5 years | <u>DoA</u> , Relevant NGOs/farmer associations, manufacturing/importing associations/SLCC, Bureau of Health Education, EHD |
| | Implement a programme to promote awareness on alternatives to POPs pesticides/other HHPs and Organic farming in collaboration with ongoing IPM initiatives | Number of stakeholders educated | 3.5 years | |
| Analysis and monitoring of POPs pesticides usage and in products and the environment | Visit farms and businesses regularly to ensure adherence to guidelines on storage, handling and transport of pesticides | Designated inspectors appointed; regular visits conducted | Ongoing | <u>DoA</u> , OSHU |
| | Work with external agencies to perform analysis of | <u>DoA</u> (See Table 3-4 on Institutional strengthening of the National Diagnostic Laboratory), EHD, OSHU | | |

| Table 3-3: Action plan for the production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals) | | | | |
|--|---|-------------------------------|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁴² |
| | products, soil, water, human milk, etc. for POPs pesticides | | | |
| <i>Note: The action plan for POPs pesticides contaminated sites is integrated in the general action plan on contaminated sites in Section 3.3.11.</i> | | | | |

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

Currently, PCBs are not produced or imported in Saint Lucia. The PCBs currently found in Saint Lucia are in electrical equipment, and the major potential users have moved towards the use of alternatives. As such, Saint Lucia's strategy and action plan is focused on the storage, phase-out and disposal of PCBs and PCB containing equipment.

While the major focus of this action plan is on the management of PCBs, PCNs are also addressed in this action plan. PCNs were listed in Annexes A and C of the Convention in 2015. PCNs have been used in the same applications as PCBs but mainly in the 1930s to 1960s. The total global production was approximately 150,000 tonnes (10% of global PCB production). Due to the lower volume of use and the dated production/use, industrial PCNs have much lower overall relevance compared to PCBs and are considered managed within the framework of PCB management.

SCCPs were listed recently (in 2017) as POPs with a range of exemptions. SCCPs have substituted PCBs and PCNs in a wide range of open applications in the 1970s including paints, coatings, sealants, plastic additive/flame retardant, rubber, lubricants and metal-working fluids. SCCPs will therefore need to be addressed in the next NIP update. An inventory of open applications would address all three POPs (PCBs, PCNs and SCCPs).

The management concerns for PCBs in Saint Lucia include the absence of:

- (i) a regulatory framework on importation and use of closed and open applications of these chemicals;
- (ii) an effective phase-out and disposal strategy; and
- (iii) information on the use of PCBs in open applications at the industrial and domestic level.

The action plans for the management of the production, import and export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs in Saint Lucia (Table 3-4) encompasses:

- A. **Regulatory framework for PCB management** – this would address the concerns with the import/export, use, identification, labelling, removal and disposal of PCBs and equipment containing PCBs through an overarching framework on POPs management.
- B. **Inventory development/update** – this would provide the information needed to manage PCBs/PCNs in open applications and SCCPs.
- C. **Life cycle management of equipment, products, stockpiles and waste** – this would address the need for an effective phase-out and disposal plan.
- D. **Awareness raising and education for relevant stakeholder groups** – this would contribute to the overall management of PCBs/PCNs.
- E. **Analysis and monitoring** – this would address the long-term identification and management of PCB/PCN containing equipment (considering those that are currently in service and future failure).
- F. **Management of contaminated sites** – this would address the concerns surrounding the potential contamination of the environment at and around current and historical storage sites.

Table 3-4: Action plan for the production, import and export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴⁴ |
|---|---|--|------------------|--------------------------------------|
| PCBs inventory development/update | Complete inventory on PCB/PCN containing equipment (in and out of service) | Inventory of transformers, capacitors and other equipment | 6 months | <u><i>LUCELEC,</i></u> SDED |
| | Assess past use of SCCPs in open applications (such as sealants, paints, rubber, plastics) and where relevant, develop an inventory | Assessment of use (report) Inventory of open applications | 5 years | SDED |
| Life cycle management of PCB equipment, products, stockpiles and waste | Develop and implement a management and phase-out plan for PCBs and PCB containing equipment | Management and phase-out plan approved and implemented | 1 year | <u><i>LUCELEC,</i></u> SDED |
| | Dispose of identified PCBs and PCB containing equipment | Tonnage disposed by 2025 | 1 year (ongoing) | <u><i>LUCELEC,</i></u> SDED, OSHU |
| Awareness raising and education for | Educate the utility sectors, maintenance workers and industry owning | Number of awareness | 2 years | <u><i>LUCELEC,</i></u> SDED, OSHU |

⁴⁴ *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

| Table 3-4: Action plan for the production, import and export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs | | | | |
|--|--|---|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁴⁴ |
| relevant stakeholder groups | transformers, on the health hazards of PCBs, PCNs and SCCPs | activities conducted | | |
| Analysis and monitoring of PCBs/PCNs | Improve lab capacity to support the monitoring and analysis of PCBs/PCNs for closed, open applications, food and environment | Laboratory equipment obtained/ upgraded | 2 years | <u>LUCELEC</u> , Regional or International Collaborations |
| <i>Actions to address legislative and regulatory activities and contaminated site assessments are addressed in synergy with Sections 3.3.1 and 3.3.11, respectively.</i> | | | | |

3.3.5 Production, import and export, use, stockpiles and wastes of hexaBDE and heptaBDE (Annex A, Part IV chemicals) and tetraBDE and pentaBDE (Annex A, Part V chemicals), decaBDE; and HBCD (Annex A, Part I and Part VII)

The main industries in Saint Lucia that have applicable or possible use of the Brominated Flame Retardants (BFRs)⁴⁵ and HBCD in Saint Lucia include the:

- Electrical and electronics industry;
- Transport industry;
- Furniture industry;
- Textiles industry; and
- Insulation foam.

Based on the results of the 2016 POPs inventories, the use of insulation foams in the construction sector was not a concern, and the presence of BFRs and HBCD in furniture and EPS packaging could not be confirmed. With respect to the textiles, it was confirmed that the firefighting uniforms marketed in Saint Lucia do not contain HBCD; however, confirmation could not be obtained on the other types of textiles manufactured locally. The major concerns with the POP-BFRs in Saint Lucia surround the management of WEEE (Waste Electrical and Electronic Equipment) and ELVs (End of Life Vehicles). Derelict vehicles are usually stripped of plastic parts for resale, metallic parts are crushed and shipped or used by the solid waste facilities as structural barriers. There are no specific regulations related to management of WEEE and ELVs management in Saint Lucia.

⁴⁵ hexaBDE, heptaBDE, tetraBDE, pentaBDE and decaBDE

The action plans for managing the production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD (Table 3-5) in Saint Lucia includes:

- A. **Regulatory framework for PBDE and HBCD management** – this would address the need to develop/improve regulation to support the management of PBDE/HBCD impacted products.
- B. **Inventory development/update** – this would address the gaps associated with the use of PBDE/HBCD in the textile and food packaging industry in Saint Lucia.
- C. **Life cycle management of equipment, products, stockpiles and waste** – this would address the management of PBDE/HBCD-containing material in the context of a larger framework to manage plastic/polymers in Saint Lucia.
- D. **Application of BAT/BEP assessment of alternatives** – this would encourage appropriate management practices for PBDE/HBCD in the context of life cycle management.
- E. **Awareness raising and education for relevant stakeholder groups** – this would contribute to the overall management of PBDE/HBCD in Saint Lucia. Through this strategy, relevant stakeholders would be made aware of the impacts associated with POPs containing materials, the best practices available for the management of the waste streams and also of the role they play in the overall management of POPs in Saint Lucia. Additionally, this can highlight the capability of relevant stakeholders to inform policy and strategy development.
- F. **Analysis and monitoring** – this would address the long-term identification and management of PBDE/HBCD.
- G. **Management of contaminated sites** – this would address the concerns surrounding the potential contamination of the environment at and around current and historical storage and disposal sites.

| Table 3-5: Action plan for the production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD | | | | |
|---|---|---|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁴⁶ |
| Develop regulatory framework for POP-BFRs and | Initiate the regulatory framework on the management of PBDE/HBCD products and waste ⁴⁷ | Import regulations developed to address EEE/WEEE and ELVs (limit on age | 4 years | <i>SDED, SLSWMA, SLASPA, SLCED, private recyclers, manufacturing/importing associations, SLCC, Ministry of</i> |

⁴⁶ *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

⁴⁷ This can be addressed in overarching legislative and regulatory activity and addressed in synergy with Section 3.3.

Table 3-5: Action plan for the production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴⁶ |
|---|---|--|------------|---|
| impacted product/waste | (WEEE, ELVs, insulation foams) | of imported vehicles) | | Infrastructure (Transport Division), EHD |
| | Develop Policy to support EPR schemes and disposal of POP-BFR waste | Policy on EPR schemes approved by Cabinet | 4 years | |
| | Establish licensing system for importers of POP-BFR containing products | Importation database developed | 4 years | |
| Development/ update of inventory of POP-BFRs | Update inventory giving consideration to DecaBDE and gaps of current inventory related to textiles and food containers | Revised inventory developed | 3 years | <u>SDED, SLSWMA</u> , EHD |
| Sound lifecycle management of POP-BFR containing products and waste categories (integrated into a larger framework for plastic/polymer management) | Assess the current management, recycling and disposal of products and waste containing BFRs (including EEE/WEEE, ELVs) | Assessment Report/s (including material substance flow assessment reports) | 3 year | <u>SDED, SLSWMA</u> , EHD |
| | Develop source separation strategy for products and waste containing BFRs (including EEE/WEEE, ELVs) | Source separation strategy endorsed by Cabinet | 5 years | <u>SDED, SLSWMA</u> , EHD, SLFS |
| | Develop ESM strategy for POP-BFRs containing plastic and other polymers in EEE/WEEE (collection, storage, treatment – considering the waste management hierarchy) | EEE plastic and POP-BFRs management is addressed within the management of WEEE | 5 years | <u>SDED, SLSWMA</u> , SLCC, WEEE recyclers, EHD |

Table 3-5: Action plan for the production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴⁶ |
|---|---|--|------------|---|
| | Develop ESM strategy for POP-BFRs containing plastic and other polymers in ELVs (collection, storage, treatment – considering the waste management hierarchy) | Plastics in ELVs and POP-BFR management is addressed within the management of ELVs | 5 years | <u>SDED, SLSWMA</u> , SLCC, Ministry of Infrastructure (Transport Division), Vehicle importers, EHD |
| | Establish hazardous waste storage facility (giving consideration to the requisite requirements for POP-BFRs) | Hazardous waste storage facility constructed | 2 years | <u>SDED, SLSWMA</u> , SLCC, Ministry of Infrastructure (Transport Division), Vehicle importers, WEEE recyclers, EHD |
| | Identify destruction and energy recovery options for POP-BFRs containing waste | Phase-out/ destruction options identified | 5 years | <u>SDED, SLSWMA</u> , SLCC, Ministry of Infrastructure (Transport Division), Vehicle importers, WEEE recyclers, EHD |
| | Develop phase out/ destruction options for identified POP-BFR sources | Phase-out/ destruction programme executed | | |
| Assessing and selecting the most suitable alternatives to POP-BFRs | Compile information on the alternatives to HBCD containing EPS/XPS insulation Compile information on alternatives to DecaBDE | Most suitable alternatives determined | 4 years | <u>SDED, SLSWMA</u> , SLCC, EHD |
| | Phase in of sustainable alternative chemicals and non-chemical alternatives | Phase-in programme implemented | 5 years | <u>SDED, SLSWMA</u> , SLCC, EHD |
| Application of BAT/BEP in the ESM of POP-BFRs | Develop national guidelines and SOPs on the ESM, BAT/BEP and | ESM guidelines developed | 3 years | <u>SDED, SLSWMA</u> , EHD |

Table 3-5: Action plan for the production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴⁶ |
|--|---|---|------------|--------------------------------------|
| | disposal of products with POP-BFRs | | | |
| Awareness raising and education for relevant stakeholder groups | Train relevant stakeholders on the national guidelines and SOPs on the ESM, BAT/BEP and disposal of POP-BFRs. Synergised with SAICM initiative on 'Chemicals in Products' | Trainings conducted | 3 years | <u>SDED, SLSWMA</u> , recyclers, EHD |
| Analysis and monitoring of POP-BFRs in the environment, food and humans | Assess monitoring options (national/regional capacity through international collaborations e.g. GMP) Create capacity for research, measurement and analysis of POP-BFRs in the environment, food and in humans | Monitoring capacity developed | 5 years | <u>SDED</u> , EHD |
| | Establish monitoring programme for POP-BFRs | Monitoring programmed conducted (inventory revised to reflect findings) | | |
| <i>Actions to address contaminated site assessments are addressed in synergy with Section 3.3.11.</i> | | | | |

3.3.6 Production, import and export, use, stockpiles and wastes of DDT (Annex B chemicals) if used in the country

DDT has not been registered for use in Saint Lucia since the 1970s and 1980s and is currently not registered because of an administrative measure. DDT is listed in Schedule Five (5) of the Pesticide and Toxic Chemical Control Act Chapter 11.25 (PTCCA Cap. 11.15) and as such, it cannot be

manufactured, sold or imported without the requisite licenses prescribed in sections 28, 29 and 31 of the PTCCA Cap. 11:15. Known stockpiles of DDT were exported from Saint Lucia for disposal under the FAO initiative in 2016 which is discussed further in Table 1-2.

The strategy towards addressing the production, import and export, use, stockpiles and wastes of DDT in Saint Lucia focuses on the development of the regulatory framework for POPs pesticides and the action plan will coincide with that discussed in Section 3.3.3. This is intended to address the ban of DDT in Saint Lucia without provisions for the special import licence.

3.3.7 Production, import and export, use, stockpiles, and wastes of PFOS, its salts, PFOSF (Annex B, Part III Chemicals)

In Saint Lucia, there is no production or export of PFOS and PFOS-related substances; however, PFOS and related substances enter Saint Luca in consumer products and articles.

The major relevant sector for PFOS/PFOS related substances in Saint Lucia is firefighting foams. In addition to large stocks stored at the fire services posts throughout the island, the potential for groundwater contamination exists at areas where foam is used periodically during drills (at the George F L Charles and the Hewannora International Airports (old runway- Vieux Fort training facility)).

The minor relevant sources of PFOS, PFOSF and related substances in Saint Lucia are sulfluramide; synthetic carpets, textiles, leather, paper packaging and related stockpiles; aviation hydraulic fluids; and contaminated sites. Sulfluramide has not been registered for use in Saint Lucia since 1998 and is currently unavailable on the local market. The use of PFOS/PFOS related chemicals in products such as carpets, textiles and packaging are unknown since the chemical identity of the impregnating material (used to make the product water/soil/stain resistant) is proprietary. However, it can be assumed that some of these products are still in use and are at the dumpsites and landfills. Aviation hydraulic fluids with PFOS/PFOS related chemicals are not used at the airports in Saint Lucia.

PFOS and related substances have been substituted mainly by other per-and poly-fluorinated substances (PFAS). PFAS is an issue of concern under SAICM. Considering the synergy with SAICM and that PFOA was listed in the Convention in 2019, and PFHxS is proposed for listing, PFAS is addressed in this action plan, where appropriate.

The major management challenges and gaps for PFOS, its salts, PFOSF (Annex B, Part III Chemicals) and PFOA in Saint Lucia relate to the absence of legislation or policies that directly address the use and management of PFOS; the lack of monitoring and research into PFOS contamination of environmental media and food; and the lack of awareness among key stakeholders.

The action plan for the management of the production, import and export, use, stockpiles, and wastes of PFOS, its salts, PFOSF (Annex B, Part III Chemicals) and PFOA (Table 3-6) in Saint Lucia includes:

- A. **Regulatory framework for PFOS, PFOSF and PFOA management** – this would address the concern with the current use and import of PFOS (particularly the use of firefighting foams). Provisions may also be made for the mandatory declaration of other PFOS containing products in order to control and manage these products.
- B. **Life cycle management of equipment, products, stockpiles and waste** – this would focus on management of current known stocks of PFOS-containing material and products in Saint Lucia.
- C. **Assessment of alternatives** – this would address a major challenge where the primary users of PFOS foams in Saint Lucia have indicated that there is limited information on alternatives which may be effective for their purposes.
- D. **Awareness raising and education for relevant stakeholder groups** – consolidated with the assessment of alternatives, this would address the concerns currently faced by the main users of PFOS firefighting foams in Saint Lucia. Through this strategy, relevant stakeholders would be made aware of the alternatives available and the appropriate use (including PPE), management and disposal options to be considered.
- E. **Analysis and monitoring** – this would address the historic use of firefighting foams in particular areas and inform their long-term management.
- F. **Management of contaminated sites** – this would address the concerns about the potential contamination of the environment at and around the sites where firefighting foam is used during training activities.

Table 3-6: Action plan for the production, import and export, use, stockpiles, and wastes of PFOS, its salts and PFOSF and PFAS (SAICM Synergy)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴⁸ |
|---|--|--|------------|---|
| Establishing policy and regulatory framework | Improve regulatory framework to prevent the import and use of PFOS and related substances and PFAS (SAICM Synergies) | Regulation approved | 1 year | <u><i>SLFS</i></u> , SDED, AG Chambers, EHD, SLCC |
| | Implement extended producer/ user responsibility by importers/users throughout lifecycle (including disposal) | EPR in place Firefighting foams: takeback and | | |

⁴⁸ Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role

Table 3-6: Action plan for the production, import and export, use, stockpiles, and wastes of PFOS, its salts and PFOSE and PFAS (SAICM Synergy)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁴⁸ |
|---|---|--|------------|------------------------------------|
| | | safe destruction of unused stock Other consumer products: takeback of end-of-life products and ESM | | |
| Life cycle management of PFOS/PFAS equipment, products, stockpiles and waste | Assess management and destruction options for PFOS and other PFAS containing stocks and wastes | Management and destruction options assessed and report produced | 1 year | <u>SLFS</u> , SDED, EHD |
| | Environmentally safe storage of PFOS containing materials | PFOS-containing waste stored appropriately | 1 year | <u>SLFS</u> , SDED, EHD |
| | ESM and disposal of products and materials (destruction of exports giving consideration to Basel synergy and EPR schemes) | PFOS-containing waste disposed of appropriately | 3 years | <u>SLFS</u> , SDED, EHD |
| Assessment of alternatives to PFOS firefighting foams | Compile information and conduct research on environmentally friendly alternatives used in the region/ internationally | List of alternatives to PFOS chemicals established Most appropriate alternative identified Phase-in plan developed | 6 months | <u>SLFS</u> , SDED, EHD, OSHU |
| Training and awareness raising with Fire Services | Conduct direct training with Fire Services on the impacts of PFOS use, the use of alternatives, ESM and disposal | Training conducted | 6 months | <u>SLFS</u> , SDED, EHD, OSHU |

| Table 3-6: Action plan for the production, import and export, use, stockpiles, and wastes of PFOS, its salts and PFOSF and PFAS (SAICM Synergy) | | | | |
|--|---|---|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁴⁸ |
| | Compile and disseminate information to sensitize other key stakeholders (carpets, textiles, packaging industry) | Material developed and disseminated | 1 year | <i>SDED, EHD, SLCC, Bureau of Health Education</i> |
| Analysis and monitoring of PFOS and its related substances | Develop monitoring capacities for PFOS concentrations in products/articles suspected to contain PFOS and its related substances (consider regional and international collaboration) | Monitoring approach for PFOS and its related substances developed | 2 years | <i>DoA, SDED, WASCO⁴⁹, EHD</i> |
| <i>Actions to address contaminated site assessments are addressed in synergy with Section 3.3.11.</i> | | | | |

3.3.8 Register for specific exemptions and the continuing need for exemptions (Article 4)

Article 4 of the SC on POPs requires the establishment of a POPs register for Parties that have specific exemptions listed in Annex A or B. Specific exemptions and acceptable purposes are listed for: decaBDE, HBCD, lindane, PBDEs (recycling only), PCNs, PCP, PFOA, PFOS, SCCPs and endosulfan.

A decision on the need for an exemption for use of a specific listed POPs chemical can be made after an assessment of chemical and non-chemical alternatives (conducted by an appropriate technical/research institution or committee). If an exemption is needed, the Secretariat of the Stockholm Convention/COP is informed, and the exemption is then registered.

There is currently no determined need for exemptions in Saint Lucia as the country is moving towards the management of POPs in accordance with the Annexes of the Convention. However, in this action plan, an activity is included to establish an appropriate systematic methodology should the need for an exemption be determined and to appropriately meet the obligations under Article 4 in future. All registrations of specific exemptions are subject to periodic review.

⁴⁹ Water and Sewerage Company Inc. (WASCO)

| Table 3-7: Action plan for registration for specific exemptions and the continuing need for exemptions (Article 4) | | | | |
|---|---|--|-------------------|---|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵⁰ |
| To establish an informed registration process for needed exemptions | Organise stakeholder consultation to establish criteria for assessment and selection of exemptions for chemicals listed under Annex A or B | Stakeholder consultation held and outcomes documented | 3 years | <u>SDED</u> , PTCCB, OSHU, Other respective agencies based on the nature of the chemical being considered |
| | Assess if exemptions are needed | Country assessment of current listed POPs with exemptions (report) | 3 years | <u>SDED</u> , PTCCB, OSHU |
| Listing of POPs where exemptions and periodic review are needed | Inform Secretariat of the SC/COP on the exemption needed after thorough assessment of the need and the alternative options | Notification submitted and exemption listed | As needed | <u>SDED</u> , affected stakeholders (e.g. SLFS or PTCCB), OSHU |
| | Undertake periodic review to assess the need for continued exemptions and alternatives, and to stop exemption and use more sustainable alternatives as soon as feasible | Review report | As needed | |

3.3.9 Measures to reduce or eliminate releases from unintentional production (Article 5)

The total emission of PCDD/PCDFs for Saint Lucia is 1.073 g TEQ/a. The major emission of PCDD/PCDFs to air (0.754 g TEQ/a) was from open burning and was attributed to two (2) spontaneous fires at the solid waste management facilities. The next major emission of PCDD/PCDFs to air (0.096 g TEQ/a) came from Ferrous and Non-Ferrous Metal Production for thermal wire reclamation.

⁵⁰ Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role

The strategy and action plan to address UPOPs in Saint Lucia focuses on provisions and measures in following areas (Table 3-8):

- A. **Life cycle management of POPs waste and POPs containing material with the potential to generate UPOPs** – this can include source separation and the ESM and disposal of POPs waste.
- B. **Awareness raising and education for relevant stakeholder groups on UPOPs** – this is in support of the reduction of open burning and improved waste management initiatives (such as source separation, etc.).
- C. **Analysis and monitoring** – this would address the potential human health and environmental concerns at/around contaminated sites and landfills.
- D. **Application of BAT/BEP** – this would be to encourage better waste management practices at the landfills. This, in synergy with the life cycle management of POPs waste and POPs containing material, can decrease the likelihood of landfill fires that contribute to UPOPs production in Saint Lucia. Similarly, sharing of BAT/BET information with relevant operators (such as the funeral home with incinerators) can contribute to reduced UPOPs emissions.
- E. **Management of contaminated sites** – this would address the concerns with potential contamination of the environment at and around the landfills.

| Table 3-8: Action plan for the reduction or elimination of releases from unintentional production (Article 5) | | | | |
|--|--|---------------------------------------|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵¹ |
| Life cycle management of POPs waste and POPs containing material (to reduce UPOPs production from open burning) (consideration to waste management hierarchy) | Develop EPR schemes for priority waste streams (WEEE, ELVs and PFOS firefighting foams, etc.) to reduce waste generation rates | EPR schemes developed | 5 years | <u><i>SLSWMA</i></u> (other stakeholders determined based on waste stream) |
| | Develop ESM and disposal procedures to support SLSWMA operations | ESM and disposal procedures developed | 1.5 years | <u><i>SLSWMA</i></u> in collaboration with SDED, EHD |
| | Develop source separation schemes | Source separation schemes | 2 years | <u><i>SLSWMA</i></u> in collaboration with SDED, EHD |

⁵¹ Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role

Table 3-8: Action plan for the reduction or elimination of releases from unintentional production (Article 5)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁵¹ |
|---|--|--|------------|--|
| | | developed and implemented Supporting hazardous waste storage infrastructure constructed | 5 years | |
| | Determine alternative fuel source for fire simulation training exercises | Alternative fuel source identified and used | 6 months | <u>SLFS</u> |
| Awareness raising and education | Train landfill operators on ESM, disposal and BAT/BEP relevant to POPs waste streams (focus on UPOPs reduction) | Training conducted | 2 years | <u>SLSWMA</u> in collaboration with SDED |
| | Develop and disseminate public awareness information on UPOPs sources, impacts and reduction (include open burning and BAT/BEP for operations such as funeral homes) | Public awareness material distributed | 1 year | <u>SLSWMA</u> in collaboration with SDED, Bureau of Health Education |
| Analysis and monitoring of UPOPs in humans and the environment | Improve monitoring of waste management facilities to detect, prevent and control spontaneous fires | Monitoring plan developed and implemented | 1 year | SLSWMA |
| | Develop capacity to undertake research and monitoring on human exposure to UPOPs | Lab capacity developed | 2 years | <u>DoA</u> , SDED, WASCO, EHD |

Actions to address contaminated site assessments are addressed in synergy with Section 3.3.11.

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

Article 6 of the SC is concerned with the sound management of POPs stockpiles and POPs wastes. A stockpile may be defined as a stock of POPs chemicals or equipment, or materials containing or contaminated with POPs, for which there are still permitted uses in a country according to the register of specific exemptions and the list of acceptable purposes in Annexes A and B of the Convention. If the stock in question no longer has a permissible use under the terms of Annex A or B, it is considered to be a waste.

Parties are required to develop and implement strategies to identify (i) stockpiles consisting of, or containing, Annex A or B chemicals and (ii) wastes consisting of, containing or contaminated by chemicals listed in Annex A, B, or C. Stockpiles, when identified, should be managed in a safe, efficient and environmentally sound manner. Wastes should be handled, collected, transported and disposed of in an environmentally sound manner. No recovery, recycling, reclamation or reuse of POPs waste is permitted. Wastes should not be transported across international boundaries without taking into account relevant international rules, standards and guidelines, such as those of the Basel Convention.

There have been several initiatives towards the management and disposal of known stocks of POPs Pesticides (GEF/FAO 5407 project in 2016, see Table 1-2), PCBs (LUCELEC voluntary disposal in 2005 and ongoing involvement in PCB screening and disposal efforts) and smaller initiatives towards the collection, storage and shipping of BFR containing products (WEEE recycler and ELVs export see Section 2.3.4.2.4). However, there have since been build-up of pesticides stocks, PCB containing equipment and oil (from decommissioned equipment) and PFOS containing foams have been collected in the storage tank at the SLFS training facility.

The strategy and action plan to address the identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal in Saint Lucia focus on the following areas (Table 3-9):

- A. **Improvement of the legislative framework and policy to prevent the import, illegal traffic and build-up of future stocks in Saint Lucia** – this can be integrated into overall improvement of the legislative framework and policy as discussed in Section 3.3.1.
- B. **Life cycle management of POPs waste and POPs containing material** – this can include source separation and the ESM and disposal of POPs waste and is addressed in each respective section: pesticides in Section 3.3.3, PCBs in Section 3.3.4, PFOS in Section 3.3.7, and UPOPs in Section 3.3.9. This is also relevant to the determination of feasible options/limitations for the destruction and management of POPs and hazardous chemicals.

C. **ESM of POPs and POPs waste and the application of BAT/BEP** – the use of best practices associated with the transport and storage of stocks identified for disposal is necessary in order to prevent further environmental and human health implications.

| Table 3-9: Action plan for the identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal | | | | |
|--|--|---|-------------------|---|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵² |
| Improvement of the legislative framework and policy to prevent the import, illegal traffic and build-up of future stocks in Saint Lucia (see Section 3.3.1). | | | | |
| Identify stockpiles, products and waste consisting of, containing or contaminated by POPs chemicals | Update inventories every four years (as needed) Assess existing stockpiles and determine jurisdictions and responsibilities | Updated POPs inventories MoU between respective parties to allow efficient management of waste streams (e.g. Seized pesticides – Customs, PTCCB/ MOAFPNC and SLSWMA) | As needed | <u>SDED, SLSWMA</u> , OSHU <u>SLSWMA</u> , SLCED, SLASPA, PTCCB, DoA |
| ESM, storage and disposal of stockpiles of POPs containing chemicals and articles in use | Assess national capacity to manage hazardous wastes Develop measures for safe handling, separation and sound disposal of stockpiles of chemicals and articles in use (including source separation, EPR schemes and hazardous waste storage). Particular focus can be placed on the improvement of procurement policies to prevent future build-up | Guidelines for environmentally sound management of chemical stockpiles/ articles in use Source separation/EPR scheme demonstrated Relevant stakeholders trained | 2 years | <u>SLSWMA</u> , SLBS, MoH ⁵³ , PTCCB/DoA, SDED <u>SLSWMA</u> , EHD, SLCC, OSHU, SLFS (Others based on relevant waste streams) |

⁵² *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

⁵³ Ministry of Health (MoH)

| Table 3-9: Action plan for the identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal | | | | |
|--|--|--|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵² |
| | Develop measures to store POPs stockpiles and hazardous chemicals and wastes in a safe and environmentally sound manner (the application of BAT/BEP) | | | |
| Determine feasible options/ limitations for the destruction of POPs and hazardous chemicals | <p>Identify feasible options/limitations for the destruction and management of POPs and hazardous chemicals</p> <p>Consider appropriate material/energy recovery options (giving consideration to the synergies with BC and SAICM)</p> <p>Train relevant stakeholders on management and disposal options</p> | <p>Feasible disposal/ recovery options for each POPs group/waste stream(s) of concern identified</p> <p>Management/ disposal plans developed</p> | 3 years | <i>SDED, SLSWMA, EHD, OSHU, DoA</i> |

3.3.11 Identification of contaminated sites (Annex A, B and C chemicals), securing and remediation in an environmentally sound manner

Under Article 6 of the SC, Parties are required to endeavour to develop strategies for identifying sites contaminated with POPs. While not explicitly requiring remediation of contaminated sites, the SC stipulates that any remediation attempts must be carried out in an environmentally sound manner.

The 2016 POPs inventories for Saint Lucia identified potentially contaminated sites for all the POPs chemicals (BCRC-Caribbean, 2017). It should be noted that identification of such sites was based on current or historic activities – no analysis of soil/sediment or water was conducted on these sites. Thus, potential POPs contaminated sites included all the locations where POPs chemicals are/were used and disposed of, i.e. landfills. Additionally, considering the results of the inventories, it is likely that there is contaminated soil and groundwater in Saint Lucia. The potential

POPs contaminated sites may be considerably larger than the preliminary compilation in the 2016 inventory since there are no available records of the areas where POPs had been historically used (refer to section 2.3.11 for details on the identification of potentially contaminated sites in Saint Lucia). The identification and remediation of contaminated sites have not been historically addressed in Saint Lucia.

The strategy and action plan to address the identification of contaminated sites (Annex A, B and C chemicals), securing and remediation in an environmentally sound manner in Saint Lucia focuses on the following areas (Table 3-10):

- A. **Improvement of the legislative framework and policy to set criteria for determining contaminated sites for the respective/relevant POPs.**
- B. **Development/update inventory to identify, assess and prioritise the sites potentially contaminated with POPs** – this can contribute to the assessment and development of remediation or management plans.
- C. **Analysis and monitoring** – the development of analytical and monitoring capabilities in Saint Lucia is necessary for the conduct of comprehensive site assessments and management or remediation.

| Table 3-10: Action plan for the identification of contaminated sites (Annex A, B and C chemicals), securing and remediation in an environmentally sound manner | | | | |
|--|--|--|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵⁴ |
| See section 3.3.1 for legislative and regulatory activities. The Model ICM Act includes consideration for the management of contaminated land. In addition, consideration can be given to the development of regulations which set the criteria for determining contamination of POPs and other hazardous chemicals (e.g. regulation for the current Polluter Pays Principle (PPP) for oil contamination can be developed). | | | | |
| Regulatory framework for contaminated sites (see also Section 3.3.1) | Develop/update national legislation for determining contaminated sites for relevant POPs and other hazardous chemicals (including guidelines for assessments and quality limits) | Draft regulation developed on contaminated sites | 4 years | <u><i>SDED, AG Chambers, PTCCB, EHD, SLSWMA, DoA</i></u> |
| | Update legislation on liability related to contamination and clean-up procedures (Polluter Pays Principle (PPP)) | Draft regulations on PPP | 4 years | <u><i>SDED, AG Chambers, PTCCB, EHD, SLSWMA, DoA</i></u> |

⁵⁴ Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role

Table 3-10: Action plan for the identification of contaminated sites (Annex A, B and C chemicals), securing and remediation in an environmentally sound manner

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁵⁴ |
|---|---|---|------------|--|
| Development/ update of inventory of POPs contaminated sites | Develop methodology to identify, assess and prioritise sites contaminated with Annex A, B and C chemicals considering available international best practice ⁵⁵ | Procedures for site investigation developed Methodology for site sampling and analysis developed | 2 years | SDED, SLSWMA, EHD |
| | Develop list of potentially contaminated sites | List of contaminated sites developed | | |
| | Conduct preliminary prioritization of sites | List of priority sites compiled | | |
| Secure POPs contaminated sites for remediation | Identify potential remediation technologies available | Report on the environmentally sound remediation methods available | 2 years | SDED, SLSWMA, EHD and relevant agencies (e.g. LUCLEEC, SLFS) |
| | Develop strategies for the environmentally sound management of POPs contaminated sites | Draft management or remediation plan- BEP and BAT for contaminated sites increased | 2 years | |
| | | Remediation of 50% of contaminated sites, from the 2016 baseline, by 2025 | 5 years | |
| | Train and upgrade skills of personnel in the assessment, securing and remediation of contaminated sites | Nationals trained | 2 years | SDED, SLSWMA, EHD |
| Improved capacity for analysis and monitoring of POPs contaminated sites | Develop capacity for data collection, analysis and monitoring of releases | Monitoring and reporting on state of contaminated sites to agencies every 2 years Analytical capacity improved within laboratories | 4 years | SDED, SLSWMA, EHD, DoA- National Diagnostic Lab |

⁵⁵ Examples: UNIDO POPs Contaminated Site Toolkit https://www.informea.org/sites/default/files/styles/medium/public/imported-documents-images/thumbnail_new%3Fvault%3DStockholm%20Production%26file%3DUNIDO-POPS-TOOLK-ContaminatedSiteIM.En.pdf?itok=qxGzIynd AND <https://toolkit.pops.int/Publish/Downloads/UNEP-POPS-TOOLKIT-2012-En.pdf>

3.3.12 Facilitating or undertaking information exchange and stakeholder involvement

Articles 9 and 10 of the Convention require Parties to assign a focal point for sharing information with the public. Currently, there is a well-developed mechanism by which the focal point/s effectively distributes information from the Basel, Rotterdam, Stockholm (BRS) and SAICM Secretariats to all relevant national stakeholders (governmental organizations and non-governmental organizations). Organisations are briefed regularly in the form of written correspondence, individual meetings or focus group meetings.

The National Focal Point, with the support of the Secretariat of the Stockholm Convention, facilitates information exchange between the Parties of the Stockholm Convention on the activities directed at reducing or eliminating POPs and the risks imposed by POPs to humans and the environment (including information on socio-economic implications). This activity supports and establishes a system for exchanging information on POPs at regional and international scales.

Information exchange and stakeholder involvement are activities to be elaborated for the implementation of the NIP. The development of a comprehensive strategic information exchange and communication plan will be one step to take in order to achieve successful implementation of the NIP. The communication plan must also ensure that POPs management issues will be addressed through various media in order to receive full collaboration (Table 3-11). This activity is closely linked with the action plan on awareness raising in Section 3.3.13 below.

| Table 3-11: Action plan for facilitating or undertaking information exchange and stakeholder involvement | | | | |
|---|--|---|-------------------|--|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵⁶ |
| Improve international and regional information exchange on POPs and chemicals management | Develop/improve mechanism for information exchange with international and regional counterparts and regional Centres | Web based platform established or improved | 2 years | SDED |
| | Develop and implement an Information System Application for chemicals management | Website developed and approved Website use increased Spatial mapping of | 1 year | SDED |

⁵⁶ *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁵⁶ |
|--|---|--|-------------------|--|
| | | vulnerable communities | | |
| Develop a coordinated approach to national information generation, sharing and exchange | Increase information generation and collection capacities among agencies on POPs and other chemicals in Saint Lucia | Agency identified to oversee coordinated approach Annual report on generated information prepared | 1 year | <i>SDED</i> , Bureau of Health Education, OSHU, SLFS, SLSWMA, DoA |

3.3.13 Public awareness, information and education (Article 10)

Article 10 of the SC on public information, awareness and education, requires Parties to promote and facilitate awareness raising among policy and decision makers with regard to POPs. Parties should ensure that all available information on POPs is provided to the public and that the information is kept up to date. Parties should also ensure that appropriate education and awareness programmes are put in place for groups such as women, children and the least educated, as well as for workers, scientists, educators as well as technical and managerial personnel.

Sensitisation of relevant stakeholders (policy makers, industry, science community, civil society and general population) on the nature of POPs, other hazardous chemicals and their effects on human health and the environment is pivotal to the successful implementation of the SC on POPs. It is therefore important for action to be directed at promoting continuous and detailed awareness, information and training programmes on POPs and hazardous chemicals in products and in the life cycle (SAICM synergy). Information needs to be developed and targeted for specific stakeholder groups including policy and decision makers, industry as well as the general public. The individual stakeholders should be trained so that they can effectively play their respective roles.

Awareness activities will be linked to general awareness on chemical safety, awareness programmes on public health, life cycle management of products/equipment, use of alternatives and green economic development, as well as programmes on sustainable consumption and production - all aimed at broad awareness raising strategies for sustainable development. A range of suggested awareness raising activities have been included in the individual action plans of this NIP for pesticides, PCBs, UPOPs, and new industrial POPs (POP-BFRs and PFOS). These activities will be coordinated and addressed collectively, where appropriate. The general activities on awareness of POPs and hazardous chemicals are provided in Table 3-12 below.

Table 3-12: Action plan for public awareness, information and education

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁵⁷ |
|---|---|---|--------------------|--|
| Assess the knowledge, attitude and practice (KAP) regarding POPs and chemicals | Assess the general public's, agricultural sector's and industry's KAPs regarding POPs and chemicals | Report on KAP study regarding POPs and chemicals published KAP study conducted on an as-needed basis | 6 months (ongoing) | <u>SDED, SLSWMA, EHD, SLNT</u> ⁵⁸ (<i>Communication Department</i>), Other relevant departments based on the topic (eg. DoA for POPs pesticide awareness and education OR SLFS for PFOS related issues) |
| | Develop and implement a programme to monitor KAP of industry, agricultural sector and general public. | Gaps in KAP for different target groups identified. | 6 months (ongoing) | |
| Public awareness and education programme for POPs and chemicals management, health and environmental impacts | Develop and implement an effective PAE programme on chemicals management Implement sustained public awareness activities on the health and environmental impacts of POPs and other toxic chemicals | KAP increased by 50% over the baseline level assessed (Public awareness and at an industry specific level) | 6 months (ongoing) | <u>SDED, SLSWMA, EHD, SLNT</u> , Other relevant departments based on the topic (eg. DoA for POPs pesticide awareness and education OR SLFS for PFOS related issues) |
| Promote safe handling of chemicals and the use of chemicals-free alternatives | Develop BEP for handling chemicals | Critical control points established | 6 months (ongoing) | <u>OSHU, EHD, PTCCB, SDED, DoA</u> |
| | Host health and safety workshops and BEP workshops with industry | Workshops held annually | 6 months (ongoing) | |
| | Promote the use of non-chemical | Community workshops and programmes on the | 6 months (ongoing) | |

⁵⁷ *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

⁵⁸ Saint Lucia National Trust (SLNT)

Table 3-12: Action plan for public awareness, information and education

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁵⁷ |
|------------|--|--|--------------------|------------------------------------|
| | alternatives to the public | use of non-chemical alternatives | | |
| | Promote safe handling of household chemicals | Community workshops and programmes on households' use of chemicals | 6 months (ongoing) | |

3.3.14 Effectiveness evaluation (Article 16)

Article 16 of the Convention requires Parties to establish mechanisms for providing comparable monitoring data on the presence of Annex A, B and C chemicals. According to Article 16, Parties, in accordance with their technical and financial capabilities and using existing monitoring programmes and mechanisms, where possible, are to co-operate on a regional basis, when appropriate, and contribute to a global monitoring programme for the SC. This evaluation shall be conducted on the basis of available scientific, environmental, technical and economic information including national reports. Human milk and air have been chosen as main matrices for assessment of the effectiveness of the implementation. These activities are coordinated in the frame of the global POPs monitoring programme.

The general activities on effectiveness evaluation are provided in Table 3-13 below.

Table 3-13: Effectiveness evaluation (Article 16)

| Priorities | Activities | Performance Indicators | Time frame | Responsible Agencies |
|--|--|-------------------------------|------------|----------------------|
| Evaluate the effectiveness of the implementation of the Convention | Develop national performance evaluation criteria | Assessment criteria developed | 4 years | SDED |
| | Assess implementation, progress and performance | Assessment report prepared | | |
| <i>The actions required to generate updated data on POPs in human milk or human blood were also addressed in the plan for the respective POPs groups. These included the improvement of the national laboratory, training and capacity building in each section.</i> | | | | |

3.3.15 Reporting (Article 15)

An important requirement for each Party is the reporting of that Party's actions and status with respect to the implementation of its NIP. Saint Lucia was the only Caribbean country to participate in a GEF-6 Medium Sized Project aimed at identifying gaps in data and information requested pursuant to Article 15 of the Stockholm Convention and other reporting obligations and the data and information generated throughout the NIP update process, and providing recommendations for streamlining of both activities. An outcome of this project is the development of an integrated electronic toolkit to improve the transmission of information under Articles 7 and 15⁵⁹. Through use of the toolkit, Saint Lucia would be able to enhance its compliance with the SC.

The general activities on reporting are provided in Table 3-14 below.

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies |
|---|--|--|-------------------|-----------------------------|
| Establish mechanisms for Article 15 reporting and comply with Article 15 reporting | Develop a mechanism for complying with the reporting requirements by submission of reports within the given deadlines | Reports submitted within deadline | 2 years | SDED |
| | Establish a National information exchange system to facilitate data collection and analysis (e.g. Systematic updates from LUCELEC on status of PCBs, SLFS on use of PFOS foams, etc., and SLCED/DoA on stockpiles of seized goods, etc.) | National information exchange system functional | 1 year | SDED |
| | Set up responsibilities for data compilation and filling out the reporting form | Data compilation process established Responsible units within SDED identified | | |
| | Submit statistical data of total production, import and export of the chemicals listed in Annexes A and B of the Convention, or reasonable estimates of such data | Statistical data submitted | | |

⁵⁹ GEF-6 Medium Size Project: Integrated SC Toolkit to Improve the Transmission of Information under Articles 07 and 15, August 2018

3.3.16 Research, development and monitoring (Article 11)

Article 11 of the Convention requires each Party to encourage and/or undertake an appropriate programme of monitoring and research to identify new candidate chemicals and alternatives. Research and monitoring of this sort may be pursued through regional and international cooperation. Saint Lucia's proposed actions to address research, development and monitoring are provided in Table 3-15. The assessment of POPs contaminated sites outlined in Section 3.3.11 will also result in valuable data collection.

| Table 3-15: Research, development and monitoring (Article 11) | | | | |
|---|---|---|-------------------|---|
| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies⁶⁰ |
| Improve analytical capacity | Review/update of laboratories to determine existing and potential capabilities and resources required | Laboratories equipped with technical and financial resources and equipment for data collection, analysis and monitoring of POPs and chemical releases | 1 year | SDED, DoA (National Diagnostic Lab) |
| | Train staff on analytical techniques, sampling protocols and BAT/BEP related to POPs and other hazardous chemicals | Laboratory staff trained (national or regional initiative) | 2 years | DoA (National Diagnostic Lab) |
| Develop monitoring programme for detecting POPs and chemicals (consider SAICM synergies) in potable water and food | Develop Research and Development (R&D) capabilities and capacities in Saint Lucia | National capacity for R&D developed (within MOAFPNC) | 3 years | <u>DoA (National Diagnostic Lab)</u> , SDED, EHD, OSHU, SLBS, International/regional partner(s) |
| | Develop a monitoring plan for analysing and detecting levels of PCBs, POPs and other chemicals in potable water and food (focus on sites potentially contaminated with PFOS) | Standards for acceptable levels of POPs and chemicals in potable water and food established and enforced | | |
| Access technical assistance from countries with well-established POPs monitoring | Identify countries with experience in POPs monitoring and analysis (consider regional GMP participation) | Technical assistance to monitor POPs and chemical releases received | Ongoing | SDED, SLCED |

⁶⁰ *Where applicable, leading agencies underlined and italicised, other agencies will play a supporting role*

Table 3-15: Research, development and monitoring (Article 11)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies ⁶⁰ |
|--------------------------------|--|--|------------|------------------------------------|
| and analysis programmes | Mobilize financial and technical assistance to enable monitoring of POPs | Saint Lucia's ability to monitor POPs and chemicals releases | Ongoing | SDED |

3.3.17 Technical and financial assistance (Articles 12 and 13)

The ability of a country to fulfil its obligations under the Stockholm Convention depends partly on the provision of adequate financial and technical assistance. Saint Lucia needs technical and financial assistance and will seek this assistance when implementing its NIP. The actions detailed in Table 3-16 will enable the country to obtain the needed financial and technical support required for the successful implementation of activities and actions to be carried out to achieve the overall objectives.

Table 3-16: Technical and financial assistance (Articles 12 and 13)

| Priorities | Activities | Performance Indicators | Time Frame | Responsible Agencies |
|---|--|--|------------------------|----------------------|
| Sourcing technical assistance towards the successful implementation of the Convention (Article 12) | Assess technical needs | Documentation of needs | As opportunities arise | SDED |
| | Identify sources of technical assistance and develop project proposals | List of sources of technical assistance Proposals prepared and submitted and acceptance | | |
| Sourcing financial assistance towards the successful implementation of the Convention | Conduct and develop an analysis of current financing mechanisms employed in chemicals management | Financing mechanisms identified | As opportunities arise | SDED |
| | Identify potential sources of financial support relevant to Saint Lucia | List of potential donors | | |
| Develop mechanisms for sustainable financing for chemicals management | Seek sustainable financial assistance through proposals | Proposals prepared and submitted and acceptance | As opportunities arise | SDED |

3.4 Priorities and Development/Capacity-Building Proposals

Seven (7) priority areas for the implementation of the SC were identified during development of the 2016 inventory, the Stakeholder Consultation Workshops for updating the POPs NIP in Saint Lucia, the initial NIP and other subsequent consultations with relevant stakeholders and the PWC. The order of the priority areas presented below is not indicative of priority among areas.

I. Strengthening the coordination between institutions and stakeholders

The priority areas identified in section 3.4 require inter and intra ministerial corporation as well as collaboration with private sector industry and other key stakeholders. The strengthening and coordination of such collaboration/cooperation (as discussed in Sections 3.3.1) would ensure the effective implementation of the action plans towards a more integrated approach to chemicals management including POPs. To address this priority, a coordinated work programme that would link programme activities and the responsibilities of the ministries/agencies to that of private sector industries/key stakeholders is necessary. In this regard, the human resource constraints within the SDED (focal point for the SC) can also be improved.

The strengthening of coordination on a regional scale may also be beneficial. This can allow for sustainable project development and involvement.

This priority area can contribute to SDGs 3, 8, 9, 11, 12, 14, 15 and 16.

II. Development of specific legislation for the sound management of chemicals and hazardous waste

There is a need to introduce new or amended legislation for hazardous chemicals and waste. Additionally, an assessment of whether the proposed action plan activities can be integrated into existent regulation/policies on chemical management is needed. As is evident from sections 3.2 and 3.3, this is a priority area common to all the POPs chemicals. Of particular importance is the newly listed POPs – POP-PBDEs related to the management of ELVs and WEEE. Additionally, newly listed PFOS and its related chemicals necessitate new laws related to the restriction on importation and control that support an integrated approach to the management of these POPs and other hazardous chemicals and their waste. Effective, well-written and enforced legislation on chemical management will ensure sustainable management of both land and water resources and protection of the country's food sources and biological resources. To address this priority area, institutional capacity/personnel for drafting wastes and chemical management related legislation/policies must be strengthened, and increased efficiency in the process should be addressed.

This priority area contributes to SDGs 3, 8, 9, 11, 12, 14, 15 and 16.

III. Education, training and awareness raising on chemicals and hazardous waste management issues and practices

Education and awareness raising should be an integral part of any integrated approach to chemicals and waste management. The focus has to be on the groups of POPs most relevant to Saint Lucia (including the newly listed POPs). The targeted individuals for this priority area would include the public, government officials and stakeholders. In particular, continuous training for waste management staff, recyclers, customs officers, farmers and firefighters is essential and must include the use of Best Available Techniques (BAT) and Best Environmental Practise (BEP) for chemicals and waste management. Good Agricultural Practices (GAP) should also be shared with farmers and other key personnel within the agricultural sector. Education has the potential to change behaviours and attitudes and can lead to support/ 'buy-in' and the success of environmental initiatives related to chemicals and waste management.

The priority contributes to SDGs 1, 2, 3, 5, 8, 9, 12, 13,14, 15 and 16.

IV. Improvement of waste management and reduction of unintentionally formed POPs from open burning

There is need for improvement in the management and disposal of derelict vehicles and electronic waste and other materials containing POPs. The perception of waste as a resource is important and can create movement towards a waste hierarchy approach (circular economy) to waste management while creating numerous job opportunities. However, such initiatives, though promising, will require partnerships with key stakeholders/private sector businesses and capital investments. Regional collaboration may also be considered due to the cross-cutting issues and the economies of scale with waste treatment and disposal. The benefits are far-reaching and linked to multiple environmental and economic issues (freshwater and marine pollution, air and soil pollution, water and food security, job creation, innovation, etc.).

The reduction of releases from open burning of wastes (domestic/private burning and landfill fires), through the use of more integrated waste management strategies, is of significance since open burning is a significant source of UPOPs in Saint Lucia and other Caribbean countries. Investment in appropriate technology and upgrading of the sanitary landfill and waste management facility are important and may require external financial assistance/investment.

The priority contributes to SDGs 2, 3, 6, 7, 8, 9, 11 and 12.

V. Assessment, management and remediation of POPs contaminated sites

Sites potentially contaminated with POPs from all POPs groups due to historic or current activities exist in Saint Lucia. Thus, activities related to assessment, identification, mapping, securing and remediation of these sites are considered as high priority. Among the sites of highest priority are

the Deglos Sanitary Landfill site, the Vieux Fort Waste Management Facility, LUCELEC's Union Compound and several authorized/unauthorized dump sites around the country. Sites potentially contaminated with POPs may threaten the safety of ground and surface water (PFOS), grazing animals and humans that consume these animals.

The priority and associated activities would contribute to SDGs 3, 6, 11, 14 and 15.

VI. Monitoring and research related to POPs, and collaborations

Small developing countries like Saint Lucia are unable to conduct research and monitoring of the environment due to financial constraints. Consequently, Saint Lucia relies on regional and international agencies for assistance. However, Saint Lucia recognises the need for continuous monitoring of air quality, food products, water sources and human breast milk for POPs. Saint Lucia is not a participant in the WHO human milk study, but it is believed that participation in this study will give Saint Lucia quantitative baseline information on the population's exposure to POPs which will bring more focus to their priorities on POPs. Additionally, epidemiological research on specific sectors of the population that are likely exposed to POPs (firefighters, solid waste management officers, recyclers, waste pickers, etc.) is also an area of priority.

The priority contributes to SDGs 1, 2, 3, 5, 8, 9, 12, 13, 14, 15 and 16.

VII. Management of POPs stockpiles, waste and articles in use, and appropriate measures for disposal (POP-PBDEs, PFOS)

Stocks of POP-PBDEs (WEEE and ELVs) are prevalent in Saint Lucia and are present at the Waste Management Facility, the Landfill, dumpsites and at roadsides (in various communities). At present, there are no measures or legislation in place for environmentally sound management for these stockpiles. These may even be burnt to collect valuable resources. As such, besides releasing POPs, these practices contribute to the release of co-pollutants (soot, Polycyclic aromatic hydrocarbon (PAHs), metals, etc.) and degradation of terrestrial, fresh water and marine habitats and together with POPs, can enter food chains.

The firefighting service and the oil storage company are the major users of PFOS/PFAS related foam; however, the largest quantities are stored (and in use) at the fire service stations. Most of the fire service's stock is old and was obtained through donations. Added to the fact that these foam stocks are not used regularly and are used in small quantities, such stocks will be around for some time. In the near future, Saint Lucia will look to phase-out the use of these foams for POPs-free alternatives. This undertaking would also include environmentally sound disposal of the existing stocks and would be expensive. Thus, Saint Lucia would require both technical and financial assistance from regional or international organizations.

Currently, the use of PFOS poses a threat to the individuals that use the foam for training or firefighting, residents that live in the areas where such activities occur, or where there may be contamination from waste management facilities/dumpsites through releases into nearby water sources, and wildlife. Notwithstanding, a first measure would be to refine the 2016 inventory and perform a Tier 3 analysis on the firefighting foams, and soil and water analysis in potentially contaminated areas.

The priority contributes to SDGs 3, 12, 14 and 15.

3.5 Timeframe for Plan Implementation

The individual action plan items in subchapter 3.2 consist of individual timeframes for implementing the corresponding activities. The timeframes vary from short term (4 months – 1 year) to medium/long term (2/5 years) and include ongoing activities.

3.6 Resource Requirements

The activities outlined in the action plans included in the sections above have an estimated budget of over USD 4,681,000. Table 3-17 itemises the estimated budgets for completing the quantifiable priority activities in this NIP.

| Table 3-17: Estimated budget for quantifiable priority activities for POPs management in Saint Lucia | |
|--|-------------------------------|
| National Priorities | Estimated Budget (USD) |
| I. Institutional and regulatory strengthening in the field of chemicals and wastes management (840,000 USD) | |
| a) Assess and harmonize existing legal/policy framework on POPs and hazardous chemicals (synergy with SAICM) | 10,000 |
| b) Develop framework for chemical management (synergy with SAICM) and waste management (synergy with BC) | 50,000 |
| c) Implement the Globally Harmonized System (GHS) in Saint Lucia (Synergy with SAICM) to support the effective exchange of information relevant to chemicals | 50,000 |
| d) Update national plans and policy to match the NIP | 80,000 |
| e) Develop a mechanism for coordination, cooperation and collaboration for an integrated approach to chemicals management | 100,000 |
| f) Strengthen Institutions for assessment, analysis and monitoring of POPs and chemicals | 500,000 |
| g) Develop ESM protocols for priority areas of chemicals management | 50,000 |

| | |
|--|--|
| II. Reduction or elimination of releases from intentional production and use (not quantifiable plus unquantifiable amounts) | |
| a) Establish regulatory and administrative measures to prohibit the use, import and export of Annex A and B chemicals with the exception of export for environmentally sound disposal | Refer to Section I(b) |
| b) Assess alternatives, develop management (phase-out) and disposal plan for POPs products/ articles currently in use | Estimate after completion of inventory for each POPs group and determination of stocks for destruction |
| III. Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals) (255,000 USD plus unquantifiable amounts) | |
| a) Strengthen regulatory framework for POPs pesticides | Refer to Section I(b) |
| b) Strengthen the capacity of Border Control to detect and seize POPs pesticides and other HHPs (Budget would also have to make provision for regular training; not just a one-off activity) | 50,000 |
| c) Development/update of pesticides and HHPs inventory | 20,000 |
| d) Life cycle management of pesticides - equipment, products, stockpiles and waste (guidelines for storage, EPR schemes, establishment of appropriate transport and disposal systems and ERPs) | 150,000 |
| e) Assess alternatives to POPs pesticides and HHPs including IPM and organic farming | 25,000 |
| f) Awareness raising and education for relevant stakeholder groups (agricultural sector, home garden owners and pesticide suppliers) | 10,000 |
| g) Analysis and monitoring of POPs pesticides usage and in products and the environment | In-kind (Department of Agriculture) |
| IV. Production, import and export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, Part II chemicals) (266,000 USD plus unquantifiable amounts) | |
| a) PCBs inventory development/update | 6,000 |
| b) Life cycle management of PCB equipment, products, stockpiles and waste (management plan and disposal) | 250,000 |
| c) Awareness raising and education for relevant stakeholder groups (Electrical and Power Generating Industry) | 10,000 |
| d) Analysis and monitoring of PCBs/PCNs | In-kind |
| V. Production, import and export, use, stockpiles, and wastes of hexaBDE, heptaBDE, tetraBDE, pentaBDE, decaBDE and HBCD (480,000 USD plus unquantifiable amounts) | |
| a) Develop regulatory framework for POP-BFRs and impacted product/waste | Refer to Section I(b) |

| | |
|--|--|
| b) Development/ update of inventory of POP-BFRs | 20,000 |
| c) Sound lifecycle management of POP-BFR containing products and waste categories (integrated into a larger framework for plastic/polymer management) (including source separation strategy and approach to hazardous waste storage) | 300,000 |
| d) Assessing and selecting the most suitable alternatives to POP-BFRs | 40,000 |
| e) Application of BAT/BEP in the ESM of POP-BFRs | Estimate further to assessment of alternatives and determination of regional management capabilities |
| f) Awareness raising and education for relevant stakeholder groups | 20,000 |
| g) Analysis and monitoring of POP-BFRs in the environment, food and humans | 100,000 |
| VI. Production, import and export, use, stockpiles, and wastes of PFOS, its salts and PFOSE and PFAS (SAICM Synergy) (390,000 USD plus unquantifiable amounts) | |
| a) Establishing policy and regulatory framework | Refer to Section I(b) |
| b) Life cycle management of PFOS/PFAS equipment, products, stockpiles and waste (storage, management and disposal) | Estimate after completion of inventory for each POPs group and determination of stocks for destruction |
| c) Assessment of alternatives to PFOS firefighting foams | 80,000 |
| d) Training and awareness raising with the Fire Services | 10,000 |
| e) Analysis and monitoring of PFOS and its related substances (in historical firefighting areas and groundwater) | 300,000 |
| VII. Registration for specific exemptions and the continuing need for exemptions (15,000 USD plus unquantifiable amounts) | |
| a) To establish an informed registration process for needed exemptions | 15,000 |
| b) Listing of POPs where exemptions and periodic review are needed | Estimate based on national consultation/assessment NOTE: Most recent POPs listing to be used |
| VIII. Reduction or elimination of releases from unintentional production (370,000 USD) | |
| a) Life cycle management of POPs waste and POPs-containing material (to reduce UPOPs production from open burning) (consideration to waste management hierarchy) (including source separation and EPR Schemes) | 250,000 |

| | |
|--|---|
| b) Awareness raising and education (improve landfill management practices and national support of national initiatives) | 20,000 |
| c) Analysis and monitoring of UPOPs in humans and the environment | 100,000 |
| IX. Identification and management of stockpiles, waste and articles in use, including release reduction and appropriate measures for handling and disposal (10,000 USD plus unquantifiable amounts) | |
| a) Improvement of the legislative framework and policy to prevent the import, illegal traffic and build-up of future stocks in Saint Lucia | Refer to Section I(b) |
| b) Identify stockpiles, products and waste consisting of, containing or contaminated by POPs chemicals | Estimate after inventory |
| c) ESM, storage and disposal of stockpiles of POPs containing chemicals and articles in use | Estimate after inventory |
| d) Determine feasible options/limitations for the destruction of POPs and hazardous chemicals | 10,000 |
| X. Identification of contaminated sites (Annex A, B and C chemicals), securing and remediation in an environmentally sound manner (1,950,000 USD) | |
| a) Regulatory framework for contaminated sites | Refer to Section I(b) |
| b) Development/update of inventory of POPs contaminated sites | Determine after POPs inventories |
| c) Secure POPs contaminated sites for remediation (including assessments) | <u>Total estimate: 1,750,000</u> Pesticide Sites: 300,000 PCB Sites: 300,000 PFOS/PFAS Sites: 750,000 POPs BFR Sites: 100,000 Dioxins/UPOPs Sites: 300,000 |
| d) Improved capacity for analysis and monitoring of POPs contaminated sites (including assessments, inventory, securing and remediation phases) | 200,000 |
| XI. Facilitating or undertaking information exchange and stakeholder involvement | |
| a) Improve international and regional information exchange on POPs and chemicals management | In-kind |
| b) Develop a coordinated approach to national information generation, sharing and exchange | In-kind |
| XII. Public awareness, information and education (105,000 USD) | |
| a) Assess the knowledge attitude and practice (KAP) regarding POPs and chemicals | 5,000 |

| | |
|---|--|
| b) Public awareness and education programme for POPs and chemicals management, health and environmental impacts | 100,000 |
| c) Promote safe handling of chemicals and the use of chemicals-free alternatives | |
| XIII. Effectiveness evaluation (Article 16) | |
| a) Evaluate the effectiveness of the implementation of the Convention | No funds required |
| XIV. Reporting (Article 15) | |
| a) Establish mechanisms for Article 15 reporting and comply with Article 15 reporting | No funds required |
| XV. Research, development and monitoring (Article 11) | |
| a) Improve analytical capacity | Addressed in individual sections above |
| b) Develop monitoring programme for detecting POPs and chemicals (consider SAICM synergies) in potable water and food | |
| c) Access technical assistance from countries with well-established POPs monitoring and analysis programmes | |
| XVI. Technical and financial assistance (Articles 12 and 13) | |
| a) Sourcing technical assistance towards the successful implementation of the Convention (Article 12) | Not quantifiable |
| b) Sourcing financial assistance towards the successful implementation of the Convention | |
| c) Develop mechanisms for sustainable financing for chemicals management | |

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ANNEX A – MECHANISMS USED TO DEVELOP THE NIP

The NIP was developed out of a process of stakeholder consultation, national and international research and data gathering, and guidance from the DSD. The following also guided the development of the NIP:

- National POPs and Chemicals Inventory; and
- Assessment of the Legislative, Regulatory and Institutional Framework for the Management of POPs and Chemicals in Saint Lucia.

The plan is structured along the lines recommended by the “Interim Guidance for Developing National Implementation Plans for the Stockholm Convention”. The detailed process of updating the NIP consisted of five (5) phases:

Phase I – Establishment of Coordinating Mechanism and Organization Process

The coordinating mechanism involved the establishment of the National Project Coordinator (NPC), which is selected from the focal ministry; Ministry of Education, Innovation, Gender Relations and Sustainable Development (MEIGRSD). The DSD of the MEIGRSD coordinates all activities related to the implementation of the NIP as well as the SC. The PWC consists of key stakeholders representing various ministries and agencies, and the chair of the committee is from the DSD. The PWC is established under the Regional POPs Project and functions principally to oversee the project and validate the content of the National Inventory and NIP update.

Phase II – Establishment of POPs Inventories and Assessment of National Infrastructure and Capacity

The activities undertaken in Saint Lucia in phase II were:

- Participation in the POPs initiation workshop;
- Conduct of national inventories for POPs pesticides, industrial chemicals and UPOPs (as listed in the SC until 2015); and
- Development of five (5) inventory reports for the aforementioned.

Inventories were developed based on the current situation of POPs in Saint Lucia. Information was gathered from the key stakeholders and the national partners including public and private sector agencies, non-governmental organizations (NGOs) and regional partners. For each group of POPs chemicals, gaps in resources, capacity and knowledge were considered. Additionally, these inventories included information on general chemical management, pollution control and related policies.

The development the POPs inventories consisted of five (5) steps:

1) Planning the inventory

This first step involved identification of stakeholders and major professional users of POPs and related substances in Saint Lucia. Additionally, both the national inception meeting (in Trinidad, November 08 – 11, 2016) and the National POPs Initiation Workshop contributed to defining the inventory objectives.

The POPs initiation workshop in Saint Lucia (January 30, 2017) marked the commencement of the development of the POPs inventories. The participants of the workshop came from Government, the private sector and NGOs. The objective was to raise awareness of POPs at the national level and provide exposure to stakeholders on the process and methodology for developing and updating the national POPs inventories (with special emphasis on the 14 new POPs excluding SCCPs and decaBDE).

2) Choosing the data collection methodology

A Tier Approach was used to collect data. The approach involved levels of increasing complexity, ranging from the use of statistics (at the lower level) to resource-intensive data collection and country specific measurements (high level). In this step, an initial assessment was conducted through literature reviews, consultations, interviews, surveys, use of statistics and site visits with relevant stakeholders. Data was also collected from the POPs Initiation Workshop through the working group session. Site inspections were conducted as necessary (higher level data collection), however, -country facilities lacked the capacity to conduct sampling and country specific measurements/testing.

3) Collecting and compiling data from key sectors

This step involved compiling collected data, considering the current status of the old and the new POPs.

4) Managing and evaluating the data

In this step, data gaps and limitations were identified, and information was validated. In addition, assumptions were documented, and the data format and estimations were determined.

5) Preparing the inventory report

In this final step, the compiled data was analysed, evaluated and reported to give current information on the old POPs, and information on the management of newly added POPs. This Draft Inventory Report was then validated and endorsed at the Regional POPs Inventories Validation Workshop (November 16-17, 2017).

Due to the limited capacity for POPs monitoring, the inventories are rather semi-quantitative or qualitative. Also, inventory guidance documents were not available at the time of inventory development for the POPs listed in 2015 (PCNs, PCP and HCBDD) thus, the information gathered can be considered preliminary.

Phase III – Priority Assessment and Objective Setting

The priority assessment of individual POPs groups was based on key information on POPs, findings from the POPs inventories, relevance to the region and, where appropriate, relevance of available data on POPs levels in human milk or blood. The major criteria for the assessment were: toxicological relevance to human health and biota/wildlife, relevance of co-pollutants and affected waste and socio-economic relevance.

The approach to priority assessment and objective setting included the engagement of national partners and key stakeholders in priority setting and action planning for POPs during a one-day consultation workshop (February 12, 2018). Subsequent consultations were also conducted with DSD and the PWC/key stakeholders to consolidate and validate information obtained from the consultation workshop.

Phase IV – Formulation of National Implementation

Information on the update of the NIP was given at the start and during the progress of the project. The approach to the NIP update, the structure and content, was presented at the Inventory Validation Workshop (November 16-17, 2017), the National Stakeholder Consultation Workshop (February 12, 2018) and again at the NIP Validation Workshop (May 30, 2018).

International POPs Consultant, Dr. Roland Weber, assessed the previous NIP for Saint Lucia in relation to the current requirements of the NIP update guidance document, and the newly listed POPs. Dr. Weber then developed a document that detailed updates to be made in the current NIP - rearrangement and update of old information, and addition of sections for the newly listed POPs groups. Thus, Saint Lucia's previous NIP was updated using the aforementioned document and the NIP update guidance document (2017). The NIP was finalized considering input by the PWC/stakeholders. Consultations were held with the DSD and PWC to ensure the draft NIP was suitable to meet the needs of the SC, and furthermore, priorities/objectives and action plans were relevant to Saint Lucia.

Phase V – NIP Endorsement and Submission

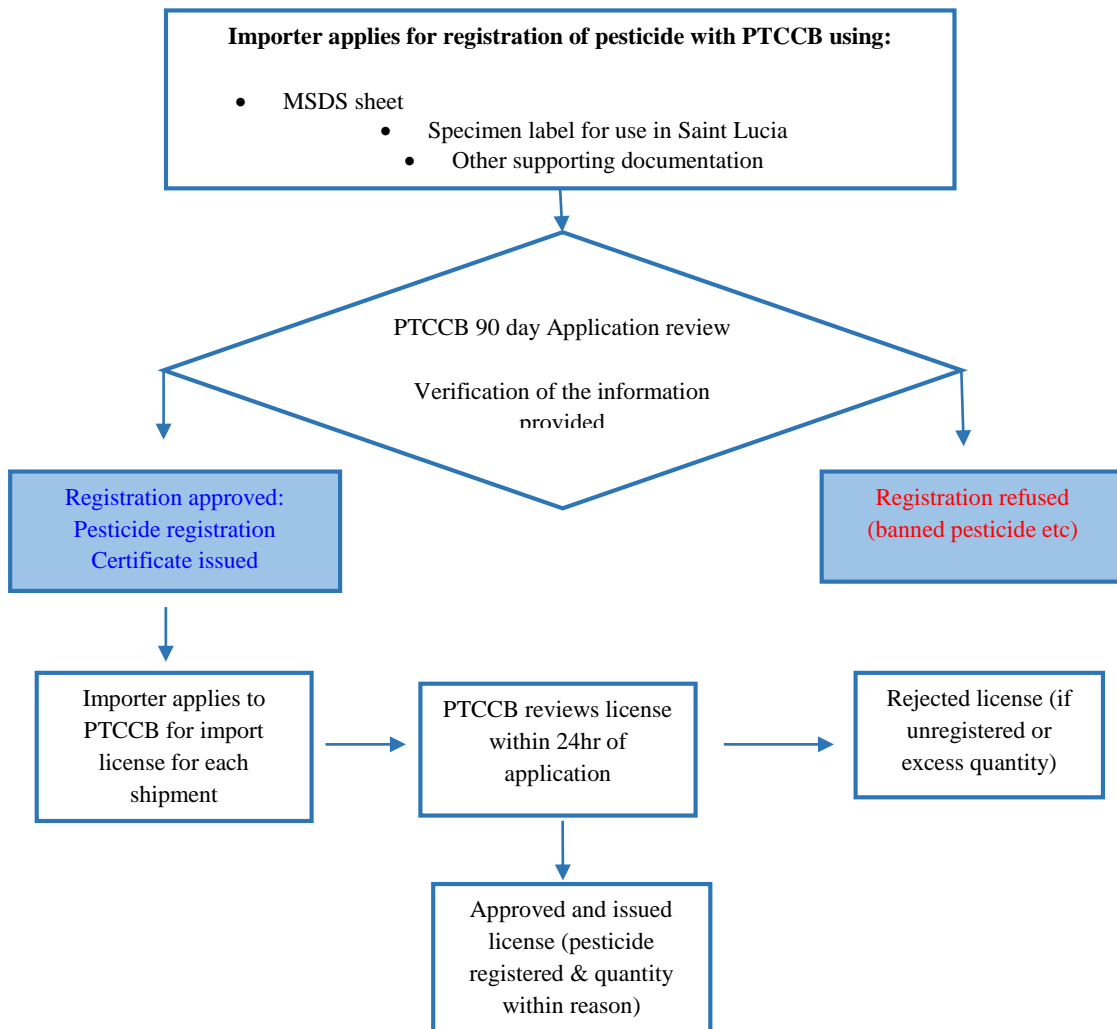
Subsequent to the NIP update, there must be political support and endorsement by the relevant authorities for the NIP and its implementation. Once endorsed, the updated NIP will be submitted to the Secretariat of the SC.

ANNEX B – OVERVIEW OF THE PTCCB OPERATIONS

In Saint Lucia, POPs chemicals and pesticides are managed largely by the PTCCB, which was established under the PTCCA. The Act provides for the regulation and control of the importation, use, enforcement and monitoring of pesticides and toxic chemicals in Saint Lucia.

Importation

The PTCCB sets the overall procedures for importing pesticides and chemicals into Saint Lucia. Products are included in a list of chemicals that require a license to import. This list is compiled by the PTCCB and reviewed periodically. The typical process is as follows:



Source: Charles, 2006.

The PTCCB and the OHSU set out procedures for the safe use of chemicals and pesticides. They ensure that farmers and industry workers are equipped with the necessary information regarding the negative effects of exposure to pesticides, fertilizers and chemicals and provide the necessary guidelines for safe use of pesticides and chemicals. The OHSU also seeks to ensure that industries provide the required personal protective equipment (PPE) to their workers to ensure safety whilst handling chemicals.

Enforcement and Monitoring

Management of chemicals and pesticides require enforcement of the established codes and guidelines. Enforcement is lacking in Saint Lucia, as the required technical and financial resources are not allocated to allow for efficient and effective enforcement and monitoring for all chemical groups.

| POPs Life Aspect | Responsible Agencies | Responsibilities |
|-----------------------------------|--------------------------------|--|
| Importation | PTCCB | Determines whether POPs can be imported and issues licenses to import |
| | MOAFPNC | Provides guidance on intended use of pesticides to be imported and performs inspections at ports when pesticides are flagged |
| | Customs and Excise Department | Monitors imports and prevents illegal imports |
| Storage | Customs and Excise Department | Stores the POPs until released to importer or distributor |
| | Distributors | Store POPs until sold |
| | Users | Store POPs until used; store POPs containers until disposed of |
| | MOAFPNC | Stores small quantities of confiscated pesticides |
| Production of Chemicals | Manufacturers | Manufacture chemicals |
| Transportation | Importers, distributors, users | POPs transported to point of sale or to farm or business place by importer or distributor |
| Distribution and Marketing | Importers or distributors | Importer uses it for self or distributor places it for sale |

| POPs Life Aspect | Responsible Agencies | Responsibilities |
|-------------------------|-----------------------------|--|
| Use/Handling | Users | Handle chemicals during use |
| | OHSU | Provides guidance on procedures to be followed when handling chemicals |
| Disposal | Users | Dispose chemical containers |
| | Distributors | Dispose waste at landfill |
| | SLSWMA | Exports waste such as lead acid batteries |