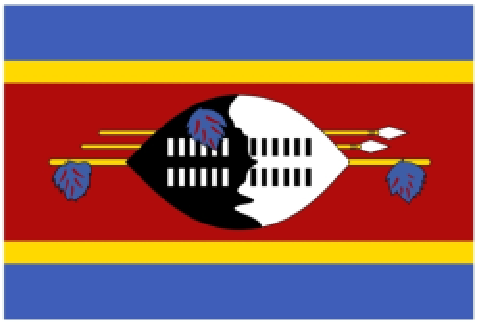

THE NATIONAL IMPLEMENTATION PLAN (NIP) FOR THE MANAGEMENT OF PERSISTENT ORGANIC POLLUTANTS (POPS) IN THE KINGDOM OF SWAZILAND

NOVEMBER 2010

GEF

UNIDO

SWAZILAND ENVIRONMENT AUTHORITY (SEA)

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List of Acronyms

AMCEN	African Ministerial Conference on the Environment
ASP	Africa Stockpile Programme
BAT	Best Available Techniques
BEP	Best Environmental Practices
CL	Crown Land
COP	Conference of the Parties
CSO	Central Statistical Office
DDT	Dichloro Diphenyl Trichloroethane
DANCED	Danish Cooperation for Environment and Development
EMA	Environmental Management Act
ESM	Environmentally Sound Management
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GEF	Global Environment Facility
GMP	Global Monitoring Programme
GoS	Government of Swaziland
HCB	Hexachlorobenzene
ICA	International Cooperation Agency
ICCM	International Conference on Chemicals Management
ICT	Information, Communication and Technology
IEC	Information, Education and Communication
IFCS	Inter-governmental Forum for Chemical Safety
IPM	Integrated Pest Management
IVM	Integrated Vector Management
KVA	Kilo Volt Amperes
LLIN	Long Lasting Insecticidal Nets
M&E	Monitoring and Evaluation
MEPD	Ministry of Economic Planning and Development
MDGs	Millennium Development Goals
MoA	Ministry of Agriculture
MoF	Ministry of Finance
MoH	Ministry of Health
MOU	Memorandum of Understanding
MVA	Mega Volt Amperes
NAMBOARD	National Agricultural Marketing Board
NBSAP	National Biodiversity Strategy and Action Plan
NCC	National Coordinating Committee
NDS	National Development Strategy
NEP	National Environment Policy
NEPAD	New Partnership for Africa's development
NFP	National Focal Point
NGOs	Non Governmental Organizations
NIP	National Implementation Plan
NMCP	National Malaria Control Programme
NPC	National Project Coordinator
NSWMS	National Solid Waste Management Strategy
PCBs	Poly Chlorinated Biphenyls
PCDDs/PCDFs	Polychlorinated dibenzo-p- dioxins and polychlorinated dibenzo furans
PCU	Project Coordination Unit

PIC	Prior Informed Consent
PRSAP	Poverty Reduction Strategy and Action Programme
POPRC	POPs Review Committee
POPs	Persistent Organic Pollutants
RBM	Roll Back Malaria
RSSC	Royal Swaziland Sugar Corporation
SAICM	Strategic Approach to International Chemicals Management
SC	Stockholm Convention
SCARTA	Swaziland Commercial Road Transport Association
SEA	Swaziland Environment Authority
SEAP	Swaziland Environment Action Plan
SEC	Swaziland Electricity Company
SIPA	Swaziland Investment Promotion Authority
SNCP	Swaziland National Chemical Profile
SNL	Swazi Nation Land
SWASA	Swaziland Standards Authority
TDL	Title Deed Land
TEQ/a	Toxic Equivalent per annum
TOR	Terms of Reference
ToT	Training of Trainers
UNICED	United Nations Conference on Environment and Development
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organisation
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISWA	University of Swaziland
UPOPs	Unintentionally Produced Persistent Organic Pollutants
USEPA	United States Environmental Protection Agency
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

Foreword

The use of chemicals constitutes an essential means of achieving socio-economic development in many countries, including the Kingdom of Swaziland. It entails maximising the full benefits of chemicals whilst minimising their health and environmental impacts. Effective utilisation and management of chemicals, most of which are toxic, require an appropriate legal and technical infrastructure to be in place for handling them safely and ensuring that they are properly used. Swaziland will endeavour to elaborate and implement a holistic system for the management of hazardous chemicals and waste as envisioned in the Strategic Approach to International Chemicals Management (SAICM).

The Ministry of Tourism and Environmental Affairs, through the Swaziland Environment Authority (SEA), has been coordinating the project titled "Enabling activities for the development of National Implementation Plan (NIP) as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs)". The project is aimed at strengthening the national capacity and to enhance knowledge and understanding amongst decision makers, managers, industry, academia, NGOs and the general public on POPs and to develop and formulate a NIP pursuant to Article 7 of the Stockholm Convention.

The SEA supervised the whole process of the production of the NIP in Swaziland with financial support from the Global Environmental Facility (GEF) and technical assistance from the United Nations Industrial Development Organization (UNIDO).

The NIP outlines strategies, objectives, priority activities and their timelines. The draft NIP was reviewed and endorsed by various stakeholders on 28 September 2010. The stakeholders involved were drawn from various institutions, which included the private sector, academic and research institutions, the civil society/NGOs and sectoral ministries. The NIP is in compliance with national policies, development plans, as well as, the overall vision of the country in reducing poverty and improving the quality of life for the people.

A safe and healthy environment is central and directly linked to the efficiency of any nation. In striving to improve our country's competitiveness in the global arena, we must ensure the effective institutionalisation of sound environmental protection and management. Our ultimate goal will be reached when every citizen has the right attitude and take full responsibility to practise proper behaviour towards maintaining an environment free of POPs. As a nation, we must make rigorous efforts to create awareness and impart the necessary knowledge to all stakeholders on the dangers of POPs.

M. W. Sibandze
Minister of Tourism and Environmental Affairs

Acknowledgements

I wish to thank the following institutions for making their professional staff available to participate in the preparation of this National Implementation Plan (NIP) for the safe management of Persistent Organic Pollutants (POPs) in the Kingdom of Swaziland: Ministry of Health, Ministry of Agriculture, Ministry of Commerce, Industry and Trade, Ministry of Economic Planning and Development, Ministry of Housing and Urban Development, Department of Customs and Excise, Swaziland Electricity Company, Swaziland Investment Promotion Authority, Federation of Swaziland Employers and Chamber of Commerce, the University of Swaziland and Non-Governmental Organizations.

I would like to thank all institutions and individuals that provided information in various forms that facilitated the production of this NIP. Our thanks are extended to all the stakeholders who participated in the review and final endorsement of the NIP, making it a truly national product.

I am also indebted to the team of national consultants that undertook various tasks that enabled us to develop the NIP on POPs for Swaziland. The team of national consultants included: Mr. Manene Thwala, Dr. J. M. Thwala, Dr. M. M. Mathunjwa, Mr. W. N. Ndlela, Mr. R. L. Mnisi and Mr. J. C. Dlamini. Particular thanks go to Professor Komla Sanda, the UNIDO international consultant for his guidance, report reviews and various training sessions he undertook for the national consultants and members of the National Coordination Committee.

I wish also to thank the Global Environment Facility for funding the project and the United Nations Industrial Development Organization for facilitating its implementation.

I wish to thank all members of the National Coordinating Committee (NCC) for their hard work, cooperation and support throughout the preparation of the NIP. The NCC comprised of the following individuals: Mr. Stephen Khumalo, Mr Boniface Makhubu, Mr Phangindawo Dlamini, Mrs. Constance van Zuydam, Mrs. Zulisile Zulu, Mrs. Bawelile Dladla, Mr Edmund Dlamini, Mr. Caleb Motsa, Mr. Sipho Kunene, Ms. Anita Mukasa, Mr. Andile Zwane, Ms. Nombuso Phiri, Mr. Muzikayise Dube, Mrs Thobile Khumalo, Mrs. Jabu Myeni, Ms. Thabile Dlamini, Mr. Daniel Khumalo, Mr. Vusumuzi Simelane and Mr Delisa Mamba.

I wish to also recognise the excellent contribution made by the Project Coordination Unit for the effective and efficient day-to-day management and production of key reports and compilation of the NIP under my supervision.

Finally, I wish to thank the Swaziland Environment Authority's Management and Staff for entrusting me with the responsibility of being the Project Director and supporting the NIP development process.

M. Z. Dlamini
Project Director

EXECUTIVE SUMMARY

This document constitutes Swaziland's National Implementation Plan (NIP) for the management of Persistent Organic Pollutants (POPs), and its implementation under the Stockholm Convention (SC) obligations. These pollutants include POPs Pesticides, PCBs, DDT, Dioxins and Furans.

The objective of the SC as set in Article 1 states as follows: *"Mindful of the precautionary approach as set forth in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Convention is to protect human health and the environment from POPs".*

Therefore, the key obligation of Parties to the SC, as outlined in sub-paragraph (a), paragraph 1 of Article 7, is to draw up a National Implementation Plan (NIP) that is to be implemented by each party in order to fulfil its obligations under the Convention. Swaziland became a signatory to the SC in May 2001 and acceded to the Convention on 13 January 2006.

In 2008, Swaziland launched the "Development of NIP" Project, which culminated into a series of activities to the development of this document.

This document presents a country profile which outlines the geographical, demographic, political, economic, and environmental overview of Swaziland. In addition, an outline of the current status of the institutional, policy and regulatory framework relevant to issues of POPs and an assessment of these issues is also given. The document also provides strategies and action plans for the implementation of the NIP.

The Kingdom of Swaziland is situated in Southern Africa, and lies between latitudes 25° and 28° south and 31° and 32° east with a total surface area of 17 364 km². It shares its borders with the Republic of South Africa in the North, West and South and by Mozambique in the East.

According to the 2007 census there are 1 133 066 people living in Swaziland. The demographic distribution is such that 25% of the population lives in urban areas and the remainder in rural areas. Urban migration occurs at a rate of 3 to 5% per annum. Life expectancy at birth is 49 years.

Despite being the smallest country in the sub-region, Swaziland has a strong export-oriented economy that is closely linked to that of its larger neighbour, the Republic of South Africa. The agricultural sector plays a very important role in the national development of Swaziland, and is one of the leading sectors contributing to the gross domestic product (GDP). Swaziland's manufacturing and processing sector is traditionally dominated by the private sector. Sugar and wood remain important foreign exchange earners. Mining has declined in importance in recent years with only coal and quarry stone mines remaining active.

In the environmental sector, Swaziland has experienced environmental impacts arising from infrastructure development, urbanisation, agriculture and manufacturing. Other environmental challenges include drought, overgrazing, erosion, climate change, to mention but a few.

Swaziland, is governed through the Tinkhundla System, and exercises its powers through three organs comprising the Executive, Judiciary and Legislature. The executive power is vested in His Majesty the King, who is the head of State, while the Government is headed by the Prime Minister. The Judiciary consists of the Supreme Court, High Court, Industrial Relations Court,

and Subordinate Courts. The Legislature comprises the houses of Senate and the National Assembly.

The institutional framework through which the NIP will be implemented includes most of the government line ministries and agencies. The line ministries include Ministry of Tourism and, Environmental Affairs (MTEA), Ministry of Health (MoH), Ministry of Labour and Social Security (MLSS), Ministry of Agriculture (MoA), Ministry of Education and Training (MET), Ministry of Commerce, Industry and Trade (MCIT), Ministry of Natural Resources and Energy (MNRE), Ministry of Economic Planning and Development (MEPD), Ministry of Finance (MoF). Agencies that have relevance to the implementation of the NIP include Swaziland Environment Authority (SEA), Swaziland Water Services Corporation (SWSC), Swaziland Electricity Company (SEC), Swaziland Standards Authority (SWASA), Swaziland Investment Promotion Authority (SIPA) and some institutions of higher learning and the NGO sector.

To ensure effective implementation, deliberate efforts were made to formulate a NIP that conforms to the National Development Strategy (NDS) and the Millennium Development Goals (MDGs).

The national lead agency in the implementation of the NIP will be SEA, a government parastatal under MTEA. The SEA is the National Focal Point in matters related to the sound management of chemicals.

Persistent Organic Pollutants (POPs)

POPs constitute a class of organic compounds that possess toxic properties, resist natural degradation, bioaccumulate and are transported through air, water and migratory species to place very far from their original occurrence sources. POPs accumulate in the fatty tissues of living organisms and their concentration increases higher in the food chain. Exposure to POPs has been associated with adverse health effects such as cancer, reproductive defects, immune system suppression, hormonal disruptions, etc.

Initially, the SC only identified twelve chemicals as POPs. However, nine other chemicals have been added to the list. The initial twelve include those that are intentionally produced for use as pesticides i.e. Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, and Toxaphene. Polychlorinated Biphenyls (PCBs) also intentionally produced, are used as dielectric fluids in electrical transformers, capacitors and other such equipment. The last category is chemicals that are unintentionally produced, mainly from thermal, and also from biological processes involving organic matter and chlorine as a result of incomplete combustion. Chemicals falling under this group include polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs).

Current Status of POPs issues in Swaziland

None of the POPs pesticides are produced in Swaziland. However, some of them, like Chlordane and Diedlrin were imported in the past, but their usage has been discontinued**.** DDT is exclusively used for malaria vector control and used for indoor residue spraying. PCBs found in Swaziland are contained in electrical equipment such as transformers and capacitors. Though the importation of such PCB containing equipment was banned in the 1980s, there are still a number of them, both obsolete and in use countrywide. PCDDs/PCDFs are also of major concern in Swaziland, particularly due to poor management of solid waste and practices such as open air burning.

Poly Chlorinated Biphenyls (PCBs)
A total of 2 966 electrical units were inventoried during the NIP process, of which 572 were found to be transformers with a PCB concentration above 50 ppm but less than 200 ppm. Of these 96 % belong to Swaziland Electricity Company (SEC), 3.2 % from agro-industries. The remaining 0.8% was a contribution from the food and processing plants. Among the electrical units inventoried were a total of 312 PCB containing capacitors. The total oil found to contain PCBs was in excess of 314 019 kg, with a major contribution from the 40 MVA and the 20 MVA transformers (48% and 12 %, respectively) due to their large sizes. The oldest equipments inventoried were manufactured in the early 1960s. These old units were found to contribute 15.2 % of the total reported contamination.

Dichloro diphenyl trichloroethane (DDT)
DDT used in Swaziland is imported from South Africa and is used for vector control in the malaria endemic areas in the Lubombo Range, Lowveld and some parts of the Middleveld. As such, all DDT stocks in Swaziland are held by the National Malaria Control Programme (NMCP) for malaria vector control at an approximate annual quantity of ten (10) tons of which some six (6) tons are effectively used each year, and hence, an annual accumulation of 4 tons.

Polychlorinated DibenzoDioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs)
According to the 2009 national inventory, the major release routes for PCDDs/PCDFs were air, and land with a total amount released estimated at 117 g TEQ/a. The priority sector is uncontrolled open burning (86% of total). It was followed by heat and power generation (9.6 % of total emissions) and medical waste incineration (4.23 % of total emission).

National Priorities in Relation to POPs Management
The 2009 inventory findings formed the basis for prioritising issues with regards to the management of POPs. The priority areas related to POPs production, use/disposal in the country including pollution of land, ground water, air and foods. The priority issues identified in the management of POPs in Swaziland are the following:

1. Domestication of the Stockholm Convention.
2. Regulating the import, use, distribution and disposal of pesticides.
3. Developing a phase out programme and effective management of PCBs.
4. Phasing out the use of DDT for disease vector control by 2015 (Abuja Declaration) and evaluating the persistence of DDT in different matrices (soil, water, food, breast milk, etc.).
5. Reducing emissions from burning of waste and establishing a monitoring system for emissions & their effects.
6. Strengthening the existing legal framework in order to address POPs issues
7. Infrastructure upgrading to accommodate POPs testing and analysis.
8. Public awareness, information and training.

National Needs
In order for the Kingdom of Swaziland to meet its aspirations, there is a need for capacity strengthening of various institutions relating to the development of an integrated chemicals management strategy that is closely aligned to the Strategic Approach to International Chemicals Management (SAICM). Although the Government of Swaziland (GoS) is keen to spearhead the efforts towards the integrated management of chemicals through local sources of funding, there is a need for its cooperating partners to play an active role in assisting in the strengthening of the legal, regulatory and institutional framework, the management of PCBs, the mitigation of UPOPs, the introduction of Best Available Technology (BAT) and Best Environmental Practice (BEP), to name but a few.

Strategy and Action Plan Elements

Implementation Strategy

The NIP for Swaziland will be implemented through a multi stakeholder approach where SEA on behalf of MTEA will continue to serve as the National Focal Point for the SC. The existing National Coordinating Committee (NCC) will coordinate the implementation of the NIP and suitably strengthened by involving other agencies such as energy, education and training, etc. The Committee comprises of relevant ministries involved in POPs life cycle management, such as agriculture, environment, health, housing, industry and labour. In addition, civil society and the private sector are part of the NCC. The outlined institutional and legal framework will facilitate smooth implementation strategies through responsible ministries and agencies as earmarked in the Action Plans.

Action Plans and Cost of Implementation

1. Institutional and Regulatory Strengthening measures: E655 000.00 or US$85 650.02
2. Production, Import and Export, Use, Stockpiles and Wastes of Pesticides POPs (Annex A, Part 1 Chemicals): E4 555 000.00 or US $595 627.27.
3. Production, Import and Export, Use, Identification, Labelling, Removal, Storage and Disposal of PCBs and Equipment Containing PCBs (Annex A, Part II Chemicals): E325 550 000.00 or US $42 570 023.79.
4. Production, Import and Export, Use, Stockpiles and Wastes of DDT (Annex B Chemicals): E5 155 000.00 or US $674 085.31
5. Releases from Unintentional Production of PCDDs/PCDFs, HCB and PCBs**:** E25 930 000.00 or US $3 390 694.88.
6. Public Awareness, Information and Training: E775 000.00 or US $101 341.63
7. Participation in the international activities and programmes in the field of POPs: E1 300 000.00 or US $169 992.42
8. Reporting, Monitoring and Evaluation: E2 005 000.00 or US $262 180.61
9. Research and Development: E7 290 000.00 or US $953 265.16
10. Technical and Financial Assistance: E1 640 000.00 or US$214 451.91

The total cost for NIP implementation covering both short term and long term action plans is three hundred and sixty one million four hundred and forty five thousand Emalangeni (E 374 855 000.00), an equivalent of forty seven million two hundred and two thousand three hundred and seventeen United States Dollars (US$ 49 017 313.07). The rate of exchange was 1 USD to 7.6474 Emalangeni. The financing will be shared by the Private Sector, Donors and the Government of the Kingdom of Swaziland.

CHAPTER 1: INTRODUCTION

1.1 Background

Having identified the effects of Persistent Organic Pollutants (POPs) on human health and the environment, the Governing Council of the United Nations Environment Program (UNEP) requested in its decision 18/32 in May 1995 that an international assessment be undertaken of an initial list of 12 POPs. The list included Aldrin, Chlordane, Dichloro diphenyl trichloroethane (DDT), Dieldrin, Dioxins, Endrin, Furans, Hexachlorobenzene, Heptachlor, Mirex, Polychlorinated biphenyls (PCBs) and Toxaphene. During this period, the Inter-governmental Forum for Chemical Safety (IFCS) was mandated to develop recommendations on international action for consideration by the UNEP Governing Council and the World Health Assembly not later than 1997.

In June 1996, the IFCS confirmed the need for international action including a legally binding instrument, to reduce the risks to human health and the environment arising from the release of the 12 POPs. After a series of negotiations, the Stockholm Convention (SC) was signed on 23 May 2001 in Stockholm, Sweden. The objective of the Convention is to protect human health and the environment from POPs. Swaziland became a signatory in May 2001 and acceded to the SC on 13 January 2006.

1.2 Purpose and Structure

This National Implementation Plan (NIP) aims to assist the Kingdom of Swaziland successfully implement the SC by undertaking various activities planned to ensure reduction / elimination of POPs and to meet other obligations of the Convention. Chapter 1 deals with the introductory elements. Chapter 2 provides the baseline, including the legislative framework and the current situation regarding POPs issues. Chapter 3 focuses on the action plans and strategies. The annexes provide supporting information.

1.3 Main Obligations of the Convention

The SC aims to protect human health and the environment from the adverse effects of POPs. It includes a number of major obligations that require Parties to:

- Prohibit and/or take legal and administrative measures necessary to eliminate the production and use of chemicals listed in Annex A in accordance with the provisions of that Annex (Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, Toxaphene, and PCBs **(Art.3.1a);**
- Restrict the production and use of chemicals listed in Annex B - DDT in accordance with the provisions of that Annex (**Art. 3.1b**);
- Ensure that any chemical listed in Annex A or in Annex B is exported only in view of an environmentally sound disposal or for use in accordance to the specific exemptions as set forth in (**Art.6 and Art.3.2a**);
- Ensure that any chemical listed in Annex A or Annex B is exported to a Party that is permitted to use this chemical under Annex A or Annex B or to a State not Party to this Convention, which has provided an annual certification to this Party. The State not Party should take appropriate measures to protect human health and the environment and shall comply with provision under **Art 6** and paragraph 2 of Part II of Annex B - **Art. 3.2b;**

- Take measures to prevent the production and use of new pesticides or industrial chemicals taking into account the POPs screening criteria (**Art. 3.3 and 3.4)**;
- Register for specific exemptions, report periodically to the Convention on the quantities imported and used and undertake periodical assessment of the continuing need for exemption – (**Art. 4.5 and 4.6)**;
- Elaborate and endeavour to implement a national sub regional or regional action plan to reduce where feasible, the total releases of the chemicals listed in Annex C from anthropogenic sources within two years after entry into force of the Convention for this Party. In particular, the Party shall update its national inventories of Annex chemicals every five years and promote the use of best available techniques (BAT) and best environmental practices (BEP) to reduce/eliminate of unintentionally produced POPs (**Art. 5)**;
- Develop a strategy for identifying and managing in an environmentally sound manner, the stockpiles of products, articles in use and waste containing or consisting of chemicals listed in Annex A, B or C (**Art. 6)**;
- Prohibit disposal options that may lead to recovery, recycling, reclamation, direct use or alternative use of POPs. Regulate the transboundary movements of POPs stockpiles and waste containing POPs taking into account international relevant regulations standards and guidelines (**Art. 6.1d)**;
- Develop and endeavour to implement strategies to identify sites contaminated by chemicals listed in Annex A, B or C. If remediation of such sites is to be undertaken, it should be done in an environmentally sound manner (**Art. 6.1e)**;
- Elaborate a national implementation plan (NIP) and submit it to the COP no later than two years after entry into force of the Convention for that Party (**Art. 7.1)**;
- Participate in the identification and listing of new POPs through the participation in work of the POPs Review Committee (POPRC) (**Art.8)**;
- Designate national a focal point for the exchange of information on POPs and their alternatives between the Party and the Secretariat of the Convention and with other Parties to the Convention (**Art.9)**;
- Provide information on POPs to the public, including information relating to human health, security and to the environment. The information to be provided shall also include information on alternatives to POPs (**Art.10.2)**;
- Encourage and/or undertake appropriate research and development on the effects and levels of POPs in humans and the environment (**Art.11**);
- Provide in the case of Parties, which are developed countries, through appropriate mechanisms, technical assistance to Parties that are developing countries or Small Islands or countries with economies in transition (**Art.12)**;
- Provide financial assistance and incentives to national activities that aim to achieve the objectives the SC (**Art.13.1);**
- Provide, in the case of developed countries, financial support to Parties that are developing countries or Small Islands or countries with economies in transition to meet full agreed incremental cost of implementation measures (**Art.13.2)**;
- Report periodically to the Secretariat of the Convention on the measures taken to implement the Convention and on the effectiveness of these measures, including the amounts produced, imported and exported chemicals listed in Annex A and Annex B (**Art.16)**;
- Make every effort to participate in the periodical evaluation of the effectiveness of the Convention (**Art.16)**.

Article 17 deals with the settlement of non-compliance, while **Article 18** to **Article 30** deal with the administration of the Convention.

1.4 General Information on POPs

Parties to the SC recognize that POPs possess toxic properties, resist degradation, bioaccumulate and are transported, through air, water and migratory species, across international boundaries and deposited far from their places of release, where they accumulate in terrestrial and aquatic systems. POPs tend to accumulate in fatty tissues of living organisms and their concentrations increase as one move higher in the food chain. Exposure to POPs has been associated with adverse health effects such as cancer, reproductive defects, immune system suppression and hormonal disruptions. Parties are also aware of the health concerns, especially in developing countries, resulting from local exposure to POPs, in particular impacts on food, and through them, to future generations.

1.5 Methodology for NIP Development

The Kingdom of Swaziland, through the Swaziland Environment Authority (SEA), requested technical support from UNIDO in its role as a GEF Executing Agency to help the country prepare and submit its proposal on POPs enabling activities to the GEF.

The NIP project in Swaziland was preceded by a project preparatory phase in 2002 with technical support from UNIDO. The enabling activities were approved by GEF in 2008 with a project to be executed following a participatory approach in five phases as listed below, in full consistency with the guidance adopted by COP 1 in 2005 for preparing the NIP:

- Phase 1: Determination of coordinating mechanisms and organisation of process
    - SEA was designated the lead agency
    - Establishment of the Project Coordination Unit
    - Appointment of the National Project Coordinator
    - Appointment of members of the National Coordinating Committee.

- Phase 2: Establishment of a POPs inventory and assessment of national infrastructure and capacity
    - Inventories: Pesticides, PCBs, Unintentional POPs, Legal Framework and the National Chemical Profile.
    - Consultation with stakeholders
    - Thematic reports

- Phase 3: Priority setting and determination of objectives
    - Appointed consultant
    - Brainstorming workshop to set priorities and determine objectives (Consultants, NCC and selected stakeholders)
    - Report on priority setting and objectives determination
    - Validation of priorities and objectives

- Phase 4: Formulation of a National Implementation Plan, with Strategies and specific Action Plans on POPs
    - Appointment of Consultant
    - Training of Consultant and NCC members on development of action plans

- Development of Actions and Strategies
- NCC review and revision
- Draft NIP preparation

• Phase 5: Endorsement of NIP by stakeholders.
- Circulation of Draft NIP and Invitation to Endorsement Workshop
- Holding of Endorsement Workshop with wider participation (Principal Secretaries, Managing Directors of Industry and Private Sector Companies, NCC, Government Departments, etc.)
- Incorporate workshop comments and finalise report

1.6 Main Findings of POPs Inventories

The inventories revealed that the country experiences minor POPs pesticides releases to the environment mainly from the previous use of Dieldrin, and Chlordane and current use of DDT. The current use of DDT is for malaria vector control. Other source categories include stockpiles of obsolete POPs pesticides and pesticide waste, including contaminated sites. There is also evidence of soil contamination by PCB containing transformer oils from electrical systems infrastructure mainly from the Swaziland Electricity Company. Concerning unintentionally generated POPs - dioxins, furans, PCBs and HCBs, it was observed that the biggest contributors to the emissions were open burning processes, followed by heat and power generation and waste incineration respectively.

POPs challenges and bottlenecks related to the development and strengthening of inter-ministerial coordination in Swaziland. It was felt that there was poor inter and intra-ministerial communication; conflicting or competing mandates; gaps in expertise; lack of resources; low priority given to hazardous chemicals and waste issues within certain ministries; and general lack of coordination amongst ministries as a result of the fragmented nature of legislation on chemicals. The degree of awareness and knowledge was also very low and it was therefore recommended that awareness campaigns be included in ongoing programmes by the ministries and the school curriculum must include aspects of chemical awareness. The level of information of stakeholders was extremely limited as noted by the poor and non sustainable practices employed on sampled sites and homes. From the outcome of the review, it is apparent that Swaziland needs to adopt a holistic approach towards hazardous chemicals, which will aid in assisting her to comply not only with the Stockholm Convention, but also the other international treaties relevant to the safe handling and disposal of chemicals in line with SAICM.

This report therefore, outlines the priorities identified by the selected thematic areas and their action plans for the management of POPs issues in Swaziland.

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CHAPTER 2: COUNTRY BASELINE

2.1 Country Profile

2.1.1 Geography and population

The Kingdom of Swaziland is situated in Southern Africa, and lies between latitudes 25° and 28° south and 31° and 32° east in the south-eastern part of Africa. The country is landlocked and covers an area of 17364 km^2. It is bounded by South Africa in the north, west and south, and by Mozambique in the east (Figure 2.1).

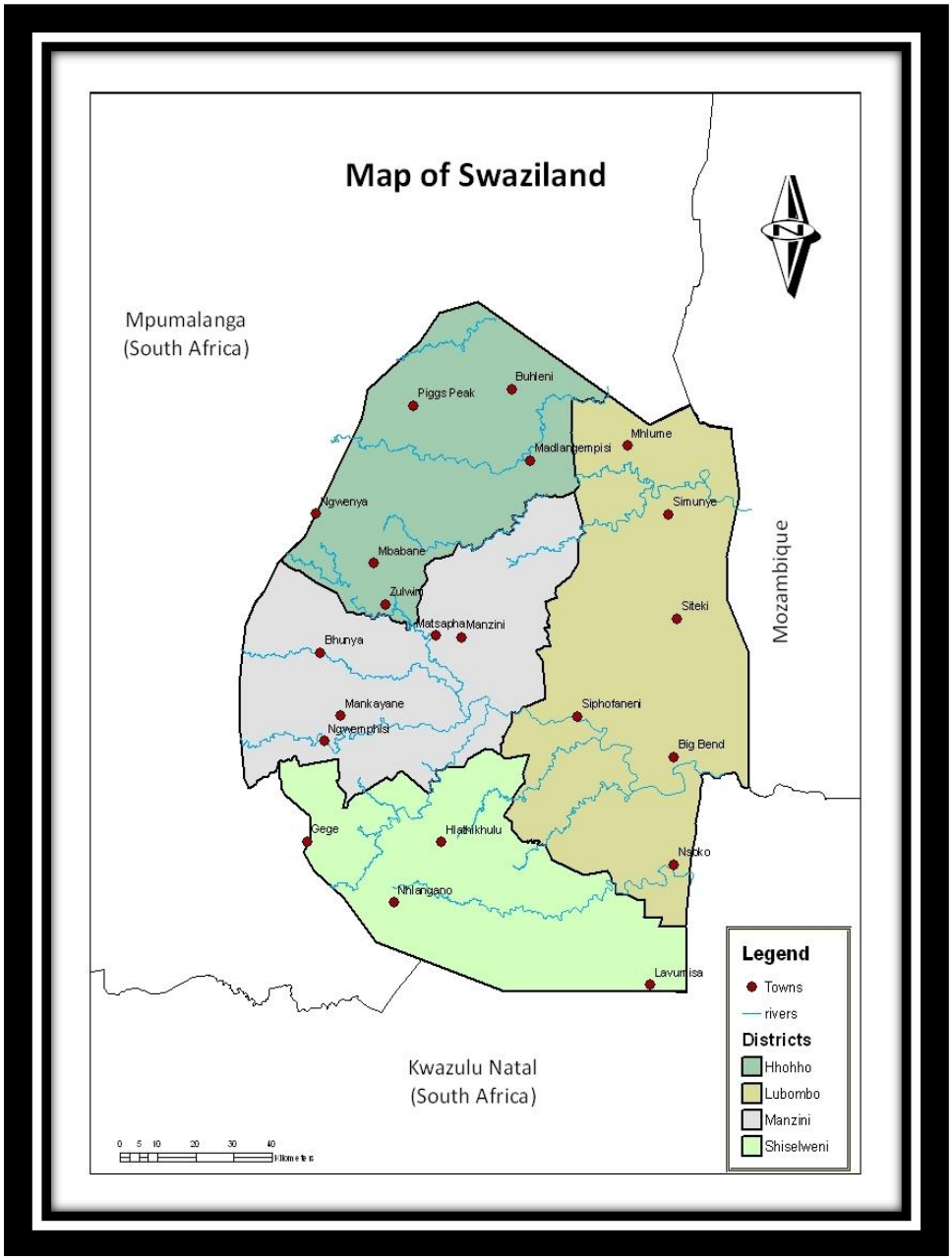

Fig 2.1: Map of Swaziland

Although small in size, Swaziland is characterized by a great variation in landscape, geology and climate. Although the country has historically been divided into four regions (Highveld, Middleveld, Lowveld, and Lubombo), it has now been more appropriately reclassified into six physiographic zones, taking into account elevation, landforms and geology (Remmelzwaal, 1993). These six zones are: Highveld, Upper Middleveld, Lower Middleveld, Western Lowveld, Eastern Lowveld and Lubombo Range.

According to the 2007 census there are 1 133 066 people living in Swaziland and this translates to a population density of 66h/km^2. The population is evenly distributed across the four administrative regions (Hhohho, Manzini, Shiselweni and Lubombo), reflecting the fact that the country is devoid of natural barriers inhibiting human settlements. The demographic distribution is such that 25% of the populations live in urban areas and 75% in rural areas. Urban migration occurs at a rate of 3 to 5% per annum. Life expectancy at birth is 49 years, the fertility rate is 3.19 children born and the mortality rate is 15 deaths / 1000, with a population growth rate of 1.2%. (CIA, World Fact Book, 2010).

2.1.2 Political Profile

The Kingdom of Swaziland is governed through the Tinkhundla System, and exercises its powers through three organs comprising the Executive, Judiciary and Legislature. The executive power is vested in the Head of State, His Majesty King Mswati III who came into power in 1986. The Government is headed by the Prime Minister who is appointed by the King. The Prime Minister appoints Cabinet Ministers from the members of both the Houses of Parliament. The Legislature comprises the houses of Senate and the National Assembly. The House of Assembly has 65 seats, 55 of which are filled by members elected by the population from their constituencies called Tinkhundla. The Monarch appoints the 10 additional members. From the 65 members, the House of Assembly appoints 10 members into the House of Senate, whereas the Monarch appoints 20 members into the House of Senate. The Judiciary consists of the Supreme Court, High Court, Industrial Relations Court, and Subordinate Courts.

2.1.3. Economic Profile

Swaziland has a small, but strongly export-oriented economy. The agricultural sector plays a very important role in the national development of Swaziland, and is one of the leading sectors contributing to the GDP. It is a major source of employment for rural households with over 70% of the population relying on this sector for their income. Swaziland's manufacturing and processing sector is traditionally dominated by the private sector. The manufacturing sector has diversified since the mid-1980s. Sugar, wood and citrus remain important foreign exchange earners. Mining has declined in importance in recent years with only coal and quarry stone mines remaining active. Swaziland is heavily dependent on South Africa for both imports and exports. The GDP per capita is $5,200 (2006 est.) and the GDP composition by sector is as follows agriculture: 8.6%, industry: 49.7% and services: 41.7% (CSO, 2007).

2.1.4 Environmental overview

Key environmental impacts of development

The key environmental impacts of development in Swaziland have come from infrastructure development, urbanisation, agriculture and manufacturing. There are other attributes such as drought, overgrazing, erosion etc. that constitute further environmental challenges. Overgrazing, soil depletion, drought, and sometimes floods persist as problems that will require further scrutiny and applicable interventions in the future (Mlangeni & Keatimilwe, 1999).

Drought is an inherent feature of the semi-arid Lowveld climate. There are indications that severe periods of drought occur every 17 years. This problem led to the establishment of the National Disaster Task Force in 1992, which has focused on assisting affected communities with food. The 1991/92 drought was the most severe, when less than half the annual rainfall was received. The impact of drought has led to more than one-fourth of the population requiring emergency food aid in 2004 - 10.

The arrangement of land tenure plays a crucial role in the management of land and the environment. There are three recognised classes of land tenure in Swaziland: Swazi Nation Land (SNL), Title Deed Land (TDL) and Crown Land (CL). SNL is held in trust by His Majesty the King on behalf of the Swazi Nation, TDL is private freehold land and CL is land over which GoS has title (SEAP, 1997).

Overgrazing is most prevalent on SNL, especially in the Lower Middleveld and Western Lowveld. The average stocking rate is about 1.77 head per hectare, but actual rates vary within the country. There are no effective mechanisms in place to address the problem because overgrazing and soil erosion has reached critical levels in some parts of the Lowveld. In 1998, soil losses through erosion were estimated at 250 t/ha per annum. This problem is also prevalent in the Highveld, where steep slopes are vulnerable to erosion after the removal of vegetation cover.

Impacts resulting from arable agriculture include the clearing of vegetation, mono-cropping, and the prevalence of exotic plantations. Fertilisers and pesticides are commonly used in agriculture. Chemicals such as DDT, Chlordane and Dieldrin have been used although their application has declined over the years. These contribute to soil and water pollution.

The harvesting of timber and fuel wood is widespread, especially on SNL, and effective management is difficult because of communal ownership and utilisation. Trade in fuel wood in parts of the Middleveld and Lowveld has grown significantly in the past few years without any apparent control, although there is provision for doing so through the Flora Protection Act of 2001.

Concurrently, the rate of afforestation has declined over the past two decades. There appears to be an increase in the harvesting of medicinal plants, but this has not been quantified. There is no mechanism in place to ensure the regeneration of indigenous plants.

Urbanisation is occurring at an annual rate of 5–6% (CSO, 2007). This increase has resulted in pressure on infrastructure, especially waste management services. For example, only 60% of the urban population has access to safe sanitation. There has also been a recent increase of unplanned settlement in peri-urban areas, particularly around Mbabane, Manzini and Matsapha, due to the demand for housing. A major impact of housing demand has been the loss of agricultural land, but addressing the problem is politically sensitive.

2.2 Institutional, policy and regulatory framework

2.2.1 Environmental policy, sustainable development policy and general legislative framework

2.2.1.1 Current Policy framework

According to Thwala (2009), Swaziland lacks the policy framework for directly managing POPs. Current policy frameworks do not specifically address POPs. However, the Government of Swaziland has formulated policies, strategies and action plans aimed at achieving sustainable development. Among these are the National Development Strategy (GoS, 1999), the Economic and Social Reform Agenda, Poverty Reduction Strategy and Action Programme completed in 2003 and the Environmental Policy in 1999.

The Constitutional Review Commission, which completed its work in 2001, was established to set a context for constitution-building and to establish an environment of good governance, peace, stability and sustainable economic and human development. The Constitution became supreme law and got delivered to the nation in 2005.

The Swaziland Government has generated several policies in order to address various national challenges. Thwala (2009) listed a number of current policies (some of which are still in draft form) that have some measure of bearing in the support, management and compliance with the Stockholm Convention on POPs. These are:

(i) The National Development Strategy, 1999

Its main vision is that "*By the year 2022, the Kingdom of Swaziland will be in the top 10% of the medium human development group of countries founded on sustainable economic development, social justice and political stability".* One of the main priorities of the National Development Strategy is environmental management, which is viewed as an important and necessary condition for the attainment of sustainable development.

(ii) *The Economic and Social Reform Agenda*

The Economic and Social Reform Agenda was a programme of action that sets target dates for the completion of tasks that are necessary for the economic and social development of the country driven by the Office of the Prime Minister.

(iii)The Swaziland Environment Action Plan, 1997

The Swaziland Environment Action Plan (SEAP) is a broad framework which attempts to integrate environmental issues into Swaziland's overall macro-economic framework. The SEAP complements the NDS in that it pushes issues of environmental sustainability into government's socio-economic development goals.

(iv) The National Solid Waste Management Strategy, 2000

With the assistance of the Danish Co-operation for Environment and Development (DANCED), Swaziland has developed a National Solid Waste Management Strategy (NSWMS) that concerns itself with the promotion of integrated waste management.

(v)The National Environment Policy, 1999

The National Environment Policy (NEP) is an important and key component for integrating and coordinating the other sectoral policy frameworks including the National Development Strategy (NDS).

(vi) The Draft National Land Policy, 2000

The Draft National Land Policy forms part of the long-term NDS vision of improving the quality of life of individuals through poverty reduction, job creation and gender equality. It is therefore, a very broad policy for achieving development, but is silent on pollution as a consequential by-product of the accelerated production brought about by the NDS.

(vii) The National Biodiversity Strategy and Action Plan (NBSAP)

The National Biodiversity Strategy and Action Plan acknowledges SEA's prerogative of ensuring that environmentally sound management practices are adhered to. The value of Swaziland's biodiversity has long been recognised and is used on a daily basis for various reasons 'such as traditional medicine, food, building material, traditional attire, etc.

2.2.1.2 Current Legislative Framework on POPs.

Swaziland lacks the legal and regulatory framework for specifically addressing and controlling POPs (Thwala, 2009). The Environmental Management Act 2002, Public Health Act 5 of 1969, Occupational Safety and Health Act 9 of 2001 and other related acts address issues similar to the risks of POPs, but do not go to the point of matching current level of knowledge. Thwala (2009) identified a number of legal instruments that were promulgated that regulate various aspects of the environmental management, including the use of chemicals such as POPs. These are:

- The Constitution of the Kingdom Of Swaziland Act, No1/ 2005
- The Environment Management Act, No. 5/ 2002, (EMA)
- Cotton Act, No. 26/ 1968
- Citrus Act No. 22/ 1967
- Sugar Act, No. 4/ 1967
- The Cane Growers' Act, No.12/ 1967
- Pineapple Act, No. 8/ 1967
- Tobacco Act, No. 52/ 1933
- The Animal Diseases Act, No. 7 / 1965
- The Dairy Act, No. 28 / 1968
- The National Agricultural Marketing Board Act, No. 13 / 1985
- Noxious Weeds Act, No. 19/ 1929
- The Grass Fires Act, No. 44/ 1955
- The Private Forest Act, No.3/ 1951
- The Plant Control Act, No. 8/ 1981
- The Cooperatives Act, of 2003
- The Environmental Audit, Assessment, and Review Regulation, 2000
- The Waste Regulations, 2000
- Public Health Act, No. 5/ 1969
- The Building and Housing Act, No. 38 / 1968
- Pharmacy Act No. 38/ 1929
- Control of Slaughter-Houses Act, No. 10/ 1964
- Control of Radio-Active Substances Act, No. 23/1964
- Urban Government Act, No. 8/ 1969
- Electricity Act, No. 3/ 2007

- Natural Resources Act, No 71/ 1951
- Water Act, No. 7/ 2003
- Road Traffic Act No. 6/ 2007
- The Road Transportation Act, No. 5/ 2007
- Mines, Works and Machinery Act, No. 61/1960
- Factories, Machinery and Construction Works Act, No. 17/ 1972
- Occupational Safety and Health Act, No. 9/ 2001
- Customs and Excise Act, No. 21 / 1971
- The Air Pollution Control Regulations, 2010
- The Water Pollution Control Regulations, 2010
- Swaziland Investment Promotion Act, No. 1/ 1998
- The Standards and Quality Act, No.10 / 2003

These pieces of legislation, though not specific to POPs, provide the institutional mechanism necessary to implement the NIP to ensure effective cross sector coordination.

2.2.2 Roles and responsibilities of ministries, agencies and other governmental institutions involved in POPs life cycles

2.2.2.1 Government Ministries

Table 2.2.2.1 outlines the roles and responsibilities of government Ministries that are somehow involved in POPs life cycle.

Table 2.2.2.1: The Roles and Responsibilities of the Various Government Ministries

MINISTRY	MANDATE	RELEVANCE TO THE STOCKHOLM CONVENTION
1. Agriculture	Responsible for the import, use and disposal of all agricultural chemicals including POPs pesticides.	9 of the 12 POPs chemicals were used within the agriculture sector.
2. Economic Planning & Development	Responsible for issues of National Economic Development including financial resources' mobilisation.	Programmes on the environment are financed from funds channelled through MEPD.
3. Foreign Affairs and International Co-operation	Responsible for Foreign Direct Investments and the ratification by Swaziland of international treaties.	Convention came to be binding on Swaziland after its accession.
4. Health	The ministry is responsible for the import, use and disposal of DDT for malaria vector control and of clinical wastes.	Ministry has a duty to report to the WHO on Government's handling of its DDT use and management of stockpiles.
5. Housing and Urban Development	This ministry is responsible for waste management in urban areas.	The unintentionally produced POPs come out of the residential waste management processes (burning of waste & leachate from improperly managed waste disposal sites).
6. Justice and Constitutional Affairs	Is responsible for providing legal support to Ministries in the preparation of legislative enactments aimed at ensuring public order and safety.	Has to enforce POPs related laws.

7. Natural Resources and Energy	Ministry manages Sectors that are very critical in the POPs control: Management of effluent waste in urban areas; management of mining sites; control of the oil petroleum industry; the provision of safe drinking water.	Sound POPs management practices can help reduce harmful exposures.
8. Public Works and Transport	Promote and maintain an adequate transportation network so as to contribute to the economic development of the country.	Ministry is responsible for supervising the transportation, distribution and storage of POPs containing chemicals - Uses of POPs chemicals in termites control (building sector)
9. Tinkhundla Administration and Development	Responsible for the informal settlements in peri-urban areas	Unintentionally produced (domestic) waste.
10. Tourism and Environment Affairs	In charge of environment management issues in the country.	Fostering environmentally sustainable economic practices/ development.
11. Labour and Social Security	Ministry is responsible for workplace issues including safe working environment	Enforcement of employee's health and safety in the workplace environment.
12. Commerce, Industry & Trade	Ministry responsible for trade promotion and commerce	Licensing of trading premises including industrial operations

Source: Adapted from Thwala, M. (2009)

2.2.2.2 Governmental Agencies

(i) Swaziland Environment Authority (SEA)

The SEA was established under the Environmental Management Act 2002, as an autonomous institution operating outside of government, but largely dependent on government funding and is charged with four main responsibilities, viz;

a) to promote the development of policies, legislation necessary for sound environmental management, including their enforcement;
b) coordinate activities of bodies (both local and international) that are involved in matters pertaining to the environment;
c) monitor trends in the state of the environment;
d) Promote research in environmental matters and increase public awareness and participation.

(ii)Swaziland Water Services Corporation (SWSC)

The Swaziland Water Services Corporation is a government parastatal charged with the duty of delivering safe water supply and collecting, treating and disposing sewage in areas designated by gazette.

(iii)Swaziland Standards Authority (SWASA)

The Swaziland Standards Authority, as an institution, is very key to the issue of POPs, especially the pressing need to establish laboratory facilities with the capacity to test and monitor for POPs within the industry, commerce and public sectors. The Swaziland Standards Authority through the Standards and Quality Act 2003 is mandated to put in place standards on product quality, industrial/agricultural processes, imports and exports to ensure safety and quality of goods and services in the country.

(iv)Swaziland Investment Promotion Authority (SIPA)

The Swaziland Investment Promotion Authority can be a critical agency towards the management of POPs, particularly for newly established industries. SIPA through the Swaziland Investment Promotion Act, 1998 is mandated to attract, facilitate and promote local and foreign investment; initiate, coordinate and implement GoS policies and strategies on investment; and provide a one-stop information and support facility for local and foreign investors.

(v) Energy Regulatory Authority

The newly established Energy Regulatory Authority regulates the generation, transmission, distribution and supply of electricity. In so doing, it ensures that all installations for the generation, transmission and distribution of electricity are built and operated in accordance with legislation on health, safety and environmental standards. The Energy Regulatory Authority could complement any efforts of regulating the use and releases of POPs within the electricity sector, particularly PCBs.

(vi)Tripartite Advisory Technical Committee for Occupational Health and Safety

This is a committee of experts established pursuant to the provisions of the **Occupational Safety and Health Act, No.9 of 2001 (Section 20).** It is a multi-sectoral committee made up of experts in sectors that are very relevant to issues of POPs both within the Agriculture and Industry sphere and their principal role is to advise on issues of Occupational Safety and Health.

2.2.3 Relevant international commitments and obligations

The following regional and international organizations exist through which POPs management issues could be addressed:

Stockholm Convention on POPs was adopted in 2001 in response to the urgent need for global action to protect human health and the environment from the adverse effects of POPs. The convention seeks to eliminate or restrict production and use of all intentionally produced POPs. In addition, it also seeks the continued minimization and where possible, elimination of all releases of un-intentionally produced POPs. The Convention entered into force in 2004 and Swaziland acceded to the Convention in 2006.

Bamako Convention on the Ban of Import into Africa and the control of the Transboundary Movement and Management of Hazardous Waste within Africa. This is an African Regional Convention providing for the ban of the import, into Africa, of hazardous wastes including issues of transboundary dealings in hazardous wastes within the Continent. This Convention was adopted by the African Ministerial Conference on the Environment (AMCEN) in Bamako, Mali on the 30 January 1991. Its focus is the promotion and provision of training in sound environmental management of hazardous wastes, technology transfer, information dissemination, research and consulting on the sound management of all hazardous waste among African States.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal was adopted in 1989 in response to concerns about toxic waste produced in industrialized countries being dumped in the developing world and in countries with economies in transition. In its initial phases, the Convention focused on drawing up controls for transboundary movements of hazardous wastes across international frontiers and the development of criteria for environmentally sound management of the wastes. Recently

however, it has emphasized the full implementation of treaty agreements, promotion of environmentally sound management of wastes and minimization of the generation of all such wastes. It entered into force in May, 1992 and Swaziland became a party in 2005.

Rotterdam Convention on Prior Informed Consent Procedure for certain Hazardous Chemicals and Pesticides in International Trade was adopted in 1998 following numerous concerns related to potential risks posed by hazardous chemicals and pesticides. In the 1980's, UNEP and FAO developed voluntary codes of conduct and information exchange systems resulting in the Prior Informed Consent (PIC) procedure introduced in 1989. It entered into force in February, 2004. Both this Convention and the Stockholm Convention bestows the right upon Parties to have listed a chemical that pose hazardous risks either to human health and/or the environment. Article 6 of the Rotterdam Convention sets out such a procedure, whilst same is set out under Article 8 in the Stockholm Convention.

United Nations Framework Convention on Climate Change (UNFCCC) sets an overall framework for intergovernmental efforts to tackle the challenges posed by climate change. Swaziland signed the Convention on the 12 June 1992 in Rio de Janeiro, Brazil during the Earth Summit and ratified it on the 7 October 1996. The Convention advocates for Green House Gases (GHG) information gathering and sharing; launching national strategies for addressing GHGs; and cooperating in preparing for adaptation.

United Nations Convention on Biological Diversity (CBD) opened for signature at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in June 1992. It came into force on 29 December 1993 and currently has 191 Parties. Swaziland ratified the Convention on 9 September 1994. The principal objectives of the Convention are the conservation and sustainable use of biological diversity, and the fair and equitable sharing of benefits arising from its utilisation.

International Labour Organisations Conventions on Safety and Health in Agriculture (Convention 184) was adopted by the Conference to protect workers in the agricultural sector. The use of chemicals with toxic effects such as pesticides within the agricultural sector clearly exposes people to the risk of injury and death. The Convention therefore advocates for the development, within states, of good chemical management practices.

Rio Declaration on Environment and Development was an outcome of the United Nations Conference on the Environment and Development was held in Rio de Janeiro, Brazil in June 1992. It came up with a list of principles to guide the world on issues of development and the environment. Under Principle 15 thereof, States committed themselves to adopt the precautionary principle in order to protect the environment from serious or irreversible damage.

World Summit on Sustainable Development (WSSD) held in September 2002 in Johannesburg, South Africa agreed on an intergovernmental plan of implementation which had within it, the implementation of existing Chemicals Conventions and the development of a global framework called Strategic Approach to International Chemicals Management (SAICM) adopted by the International Community in February 2006.

***Strategic Approach to International Chemicals Management (SAICM*)**: Swaziland has since 2006 been part of the process to bring about a strategic approach to international chemicals management following the Johannesburg World Summit on Sustainable Development where

countries committed to ensuring that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.

New Partnership for Africa's Development (NEPAD) is a program of action for the development of the African continent adopted by the assembly of heads of states and governments in Africa. The environmentally sound management of chemicals including POPs was identified as a key issue under the environmental initiative in Chapter 38 of the NEPAD Plan of Action.

Abuja Declaration: Swaziland committed herself to the Roll Back Malaria (RBM) principles and strategy in 1999 and in the year 2000 she reaffirmed her commitment to the RBM by becoming a signatory to the Abuja Heads of State Declaration on RBM. Swaziland has committed herself to using DDT up to 2015 for purposes of malaria vector control in order to enable her meet the commitments under the Abuja Declaration.

2.2.4 Description of existing legislation and regulations addressing POPs

Swaziland's legislative framework does not deal specifically with POPs. However, some control measures via sectoral legal instruments is present and usable within the framework. Herewith are some legal instruments that were considered by Thwala, 2009 to be somehow relevant in addressing POPs:

Constitution of the Kingdom of Swaziland Act, No. 1/ 2005

Chapter XII of the Kingdom's Constitution expressly declares that the country is committed to environmental conservation and further enjoins the state to ensure that urbanisation and industrialisation are undertaken with due respect for the environment. Chapter V of the National Constitution deals with Directive Principles of State Policy and Duties of the Citizen, which, clearly spells out the duties of both the State and the individual to conserve and protect the environment. These constitutional provisions carry enough weight for use in whatever action plan meant to address POPs issues in Swaziland.

Environment Management Act, No. 5/ 2002,

This is Swaziland's principal legislation on the protection of human health and the environment. The Environment Management Act (EMA) is a framework piece of legislation whose fundamental purpose is the protection and management of the environment. The enactment of the EMA together with the establishment under it of the Swaziland Environment Authority (SEA) gave birth to a process of producing a coherent body of environmental pieces of legislation. In this regard, the SEA has and shall continue to be pivotal in giving direction to the development of POPs management plans and activities, including ensuring that sector-specific legislation on POPs is properly interlinked with other national enactments. This Act further controls the management and disposal of waste through the Waste Regulations, 2000, the undertaking of EIAs through the Environmental Audit, Assessment and Review Regulations, 2000, the control of pollution through the Air and Water Pollution Control Regulations of 2010 respectively. As a framework Act, the EMA has a potential to cater for POPs specific regulations.

Cotton Act, No. 26/ 1968

This Act establishes the Cotton Board, a body corporate whose duties and functions include the purchase and/or acquisition, for purposes of supply to growers, of insecticides and fungicides necessary for the production of cotton. This Act, though relevant to Swaziland's obligations

under the Convention, is evidently silent on the control and regulation of POPs in or within the cotton production industry.

Citrus Act No. 22/ 1967

This Act establishes the Citrus Board that is vested with sufficient authority to control issues within the Citrus Industry. The Act, however, makes no reference to POPs within the Citrus Industry.

Sugar Act, No. 4/ 1967

This Act provides for the central control of this industry, without specific reference to the production, use and/or disposal of any POPs chemical compounds that may result there from. There is no doubt, however, that it is located right at the centre of the agricultural, industrial and environmental tri-circle.

Cane Growers' Act, No. 12/ 1967

The Act constitutes into a body corporate, the Swaziland Cane Growers Association, and thereafter goes on to regulate its internal constitutive structures. Its relevance is that it provides an institutional body that may be used in the advancement of the goals and aspirations of the Stockholm Convention.

Pineapple Act, No. 8/ 1967

The Act provides for the registration, as an association, not for gain, of the Swaziland Pineapple Association, with power to regulate, generally, the pineapple industry including issues of research and/or biotechnology that may be beneficial to it.

Tobacco Act, No. 52/ 1933

This is an Act that is intended for the control and regulation of the tobacco trade. Its relevance in Swaziland is the small remnant of farmers that practice tobacco farming, thereby falling within the ambit of those farmers likely to use the nine (9) banned POPs chemicals.

Animal Diseases Act, No. 7 / 1965

The Act aims at the prevention and control of diseases in animals. The Act grants the Ministry of Agriculture power to direct matters of inoculation, disinfection, cleaning and dipping of animals, premises and other receptacles wherein animals are kept and/or conveyed. Whilst the **Stock Diseases Regulations, 1933,** do make specific mention of the chemical solutions to be used in an effort to control the spread of animal diseases, they do not, in their extent, cover POPs issues.

Dairy Act, No. 28 / 1968

This Act establishes a body corporate called the Swaziland Dairy Board (SDB) that is to ensure that the quality of dairy products is of a standard suitable for public health. The worth of the SDB for the purposes of Swaziland's ability to conform to the Stockholm Convention is its regulatory capacity within the dairy industry in Swaziland, including imports.

National Agricultural Marketing Board Act, No. 13 / 1985

The Act establishes the National Agricultural Marketing Board (NAMBOARD) as a body corporate and renders it as a controller of certain pre-listed products. The list of scheduled products include maize and maize products; rice; all fresh commodities categorised as fruits; all

fresh commodities categorised as vegetables; slaughtered poultry and poultry products; wheat and wheat products and live cattle and carcase meat. Dealers in these areas must register with NAMBOARD to be issued with import and/or export permits. The scheduled products listed under this Act are a direct concern of the Stockholm Convention. However, the Act does not attempt to control POPs, nor has NAMBOARD produced any guidelines for its suppliers on POPs compliance issues.

Noxious Weeds Act, No. 19/ 1929

An Act promulgated to prescribe measures to be undertaken by land owners/occupiers to clear noxious weeds. It empowers the Minister of Agriculture to list and gazette certain plants to be noxious weeds and thereafter prescribe the method(s), other than clearing, for their destruction. This suggests the use of chemicals, which in turn would lead, if left unmonitored, to the spread of persistent organic pollutants.

Grass Fires Act, No. 44/ 1955

This Act prescribes for a general prohibition against the burning of grass, whether accidentally or wilfully. Grass fires can only be lit and set upon issuance of a permit by the Director of Agriculture or a duly appointed nominee of the Ingwenyama in the case of Swazi Nation Land. This Act is obviously very oblivious of neither the Stockholm Convention nor Swaziland's obligations thereto. Its relevance to POPs is demonstrated by the country's willingness to control the setting of fires, in general, which aspect is now known to contribute in the formation of dioxins and furans.

Private Forest Act, No. 3/ 1951

This Act was promulgated for the regulation and protection of private forest owners in Swaziland. It effectively vested private title deed land owners upon which trees were growing, legal protection against trespassers and illegal entry. Its relevance is that it afforded forest entities the legal right to establish and maintain forest fire protection measures.

Plant Control Act, No. 8/ 1981

The relevance of this Act to the Convention is only to the extent that potentially harmful chemicals may be used to control the spread of insect pests in timber; noxious land weeds and red and brown locusts (plant phytosanitary issues). To this extent, the Act is silent on the legality or otherwise of the use of 9 chemicals of the listed 12 POPs.

Cooperatives Act, of 2003

This Act promotes the establishment, as body corporate, of cooperative societies with their central activity being agricultural activities mainly based in the rural areas. The societies serve as independent functionaries/suppliers of agricultural produce to the dominant players of the market/industry. In the meantime, there is no regulator of the compounds/ingredients used in the treatments that are used in order to produce the product for the market. To this extent, banned chemicals may, through shear ignorance, continue in circulation way beyond their lawfully permitted useful life.

Public Health Act, No.5/ 1969

This Act is responsible for the preservation of human health in Swaziland. It provides for issues of sanitation, vaccines, monitoring and prevention of communicable diseases. The Public Health Regulations, 1935, grants the Health Department the power to spray premises with an insecticide for the purposes of malaria control. It is also relevant in so far as it houses the

Environmental Health Inspectorate Division, an institution that is critical in public health monitoring processes.

Building and Housing Act, No. 38 / 1968

This Act controls the construction of buildings, issues of safety and matters incidental thereto. Its relevance to POPs is through the Standard Building Regulations, 1969 that prescribes the control of termites using chemicals, and the use of regional cooperation in areas where there may be domestic technical deficiencies.

Pharmacy Act No. 38/ 1929

The Act allows for the possibility of importing agricultural POPs into Swaziland through Sections 9 and 10 that allows general dealer licence holders to sell poisons for any industrial or agricultural purposes for the destruction of vermin or insect pests or for the treatment of diseases in animals or plants. Whilst the Act may appear to be old, several amendments have been effected to bring it in line with modern trends, the last of which was in 1993, particularly on the penalties for drug trafficking.

Control of Slaughter-Houses Act, No. 10/ 1964

This Act Controls the establishment of slaughtering houses of animals for human consumption. Its relevance is the location of slaughter-houses away from POPs contaminated sites.

Urban Government Act, No. 8/ 1969

This Act provides for the establishment, operation and control of urban authorities. Through this Act, the central government, delegates on an incremental basis, issues of general governance to duly elected local structures.

Electricity Act, No. 3/ 2007

The objective of this Act is to regulate, the generation, transmission, distribution, and sale of electricity in Swaziland. The Act is at the centre of complying with the Stockholm Convention where **Section 61** provides that all electrical installations must be operated in accordance with legislation on health, safety and environmental standards.

Natural Resources Act, No. 71/ 1951

The Natural Resources Act provides for the conservation of Swaziland's natural resources (therein defined as soil, water, minerals, animal, bird, fish life and other, that is, landscape and scenery) through the Natural Resources Board. The Board has powers to control the burning of grass and other vegetation (dioxins and furans). However, it is oblivious of the PCB producing effect of either the domestic burning of bio-fuels.

Water Act, No. 7/ 2003

The Act establishes the National Water Authority and gives it powers to control water pollution (Part VIII). The Authority also recommends to the Minister the adoption of water quality standards. The Purification of Industrial Water and Effluent Regulations, 1967 provides for the clearing and purification of water that has been used for industrial purposes. The Water Pollution Control Regulations, 2010 issued under the Environment Management Act 2002, envisages the role of multiple authorities in the control and monitoring of water quality. The aims and purpose is to establish general water quality standards.

Road Traffic Act No. 6/ 2007

This Act prohibits the operation of a motor vehicle, on a public road, whose engine emits excessive smoke or fumes (Section 73 (2)). Whilst the Act is not expansive on its definition of excessive smoke or fumes, regulations could be made to cover the dioxins and furans associated with this industry.

Road Transportation Act, No. 5/ 2007

This Act, through a permit system, controls the haulage of goods on public roads. Applicants for the permit are obliged to furnish certain information to the Board pertaining the nature of their business. This "disclosure clause" can therefore be useful in regulating the haulage of POPs chemicals on public roads. Other POPs issues that can be regulated through the polluter pay principle in the instances where the transporters have taken the risk to provide haulage of toxic cargo.

Factories, Machinery and Construction Works Act, No. 17/ 1972

This Act introduces within the factories sector, the power of inspectors to take samples for analysis, where he / she has reason to believe that it is likely to cause bodily injury to persons working at the factory (Section 9). This Act may be used to give effect to the provisions of the Stockholm Conventions within the factory industry.

Occupational Safety and Health Act, No. 9/ 2001

This Act provides for the safety and health of persons not only within the workplace but also against hazards to the safety and health of persons other than persons at the workplace caused by the activities of persons in the workplace. **Section 12** imposes certain duties on designers; manufacturers, importers and users of articles; substances, plant and/or machinery to ensure human health and safety. **Section 9** obliges employers to ensure that the working environment is kept free from any hazards. It is a known fact that human exposure to dioxins, PCBs and HCB can be through occupational exposure.

Customs and Excise Act, No. 21 / 1971

This Act is critical in POPs management as it regulates the establishment of places through which goods may be imported, exported and/or landed for purposes of onward transit. It brings together all the key role players in the implementation of the Stockholm Convention, such as the customs and excise regulator, the transporters, the manufacturer / supplier / shipper, the depot operator and the owner/receiver of the consignment. All these entities are vital in the regulation of POPs chemicals. Further, both Article 3 of the Stockholm Convention (which seeks to regulate the trans boundary movement of POPs) and Article 13 of the Rotterdam Convention (on the Prior Informed Procedure for Certain Hazardous Chemicals and Pesticides in International Trade) encourages the engagement of the World Customs Organisation as central in operationalising the Harmonised Custom Code System for Chemicals that includes POPs.

Swaziland Investment Promotion Act, No. 1/ 1998

This Act was promulgated to ease the bottlenecks encountered by investors by creating a one-stop service for investors. Whilst the Act upholds the freedom of investment to both Swazi and non-Swazi citizens, such investments excludes hazardous waste treatment or disposal (Section 19 (2) (d)). The Act can be used to enforce Swaziland's obligations under the Convention, as well as, prohibit the importation of hazardous waste as articulated by Article 4 of the Basel Convention.

Standards and Quality Act, No. 10 / 2003

The Act prohibits any person from making any reference to a standard approved or purporting to have been approved by the Council unless such person possesses a license issued by the Authority allowing him/her to apply such certification mark to any commodity or product or for the manufacture, production, processing, or treatment of that commodity or product (Section 18 (7)). The Act establishes the Swaziland Standards Authority (SWASA) that can assist Swaziland in her efforts to comply with the provisions of Article 16 of the Convention. This Act can be used together with the Environment Management Act and the Public Health Act to develop standards and systems by which POPs and other banned chemicals can be monitored.

2.2.5 Key approaches and procedures for POPs chemical and pesticide management including enforcement and monitoring requirements

There are no specific approaches and procedures for pesticide management in the country due to the absence of policy and regulatory frameworks. Even though chemical substances are used by many players, no chemicals management plan is in place to oversee and control their use. Further, most of the pieces of legislation reviewed were enacted to operate independently of each other without any linkages. As a result, the management of used empty chemicals and pesticides containers is a major problem. It is particularly the case for the DDT's empty sachets in malaria endemic areas of the country and in general, other containers that previously contained chemicals.

2.3 Assessment of the POPs issue in the Country

2.3.1 Assessment with respect to Annex A, Part I chemicals (POPs pesticides)

2.3.1.1 Production, import, export and use (present, past and future)

Swaziland has never produced nor exported POPs pesticides. Some POP pesticides like Chlordane and Diedlrin were imported for various usages which seem to have been discontinued according to the findings of the inventory. The absence of records at end users or providers prevents provision of any information on historical importations and uses.

Apart from actual POPs, 281,000 litres of usable Endosulfan were found during the inventory. This pesticide is under consideration by the POPRC for listing as new POP. A positive decision by the COP might then affect Swaziland in the very near future on the use of Endosulfan.

2.3.1.2 Existing Policy and Regulatory Framework for Annex A, POPs pesticides

In Swaziland, there is no legal authority governing pesticide registration or approval authority, as well as, the monitoring of use, distribution, exports and imports of pesticides including POPs. Currently, the use of pesticides in agriculture is 'regulated and controlled' through persuasion and advice and is not enforced by any legal instrument. The Crop Production Department of the Ministry of Agriculture with offices in Manzini is the responsible office. There is however, a Pesticides Bill (1992) that has been lying idle for the past eleven years at the Ministry of Agriculture. It was drafted with the help from Food and Agriculture Organization (FAO). From a practical point of view, there is no effective means and control when it comes to dealing with chemicals in Swaziland. The country relies on non obligatory South African requirements, or at best, International Standards Organization (ISO) requirements for certified organizations and individuals.

2.3.1.3 Summary of available monitoring data (environment, food, humans) and Health Impacts

Due to lack of knowledge and weak awareness on POPs in general, the country does not have any monitoring programme. As a matter of fact, there is no data available in the above mentioned areas of concern. With regard to POPs pesticides, the priority concern coming out is the adoption and effective enforcement of specific legislation to discontinue their use as per Article 3 of the Convention and to promote environmentally friendly alternatives readily available and affordable in local circumstances.

2.3.2 Assessment with respect to Annex A, Part II chemicals (PCBs)

PCBs are not produced or manufactured in Swaziland, but enter the country through importation as oils or as part of electrical equipment such as capacitors and transformers. PCBs are used in electrical equipment for regulation of heat and temperature fluctuations and as additives in the paint industry, pesticide formulations, etc. A total of 2 966 electrical units were inventoried during the NIP process, of which 572 were found to be transformers with a PCB concentration above 50 ppm but less than 200 ppm. Of these 96 % belong to Swaziland Electricity Company (SEC), 3.2 % from agro-industries. The remaining 0.8% was a contribution from the food and processing plants. A total of 312 capacitors were inventoried with low concentrations of PCBs. The above results were obtained using the DEXIL LC2000 PCB Analyser. SEC has recently undertaken an inventory of their recently installed substations and took samples to an accredited laboratory – UIS Organic Laboratory in South Africa using GCMS. The results showed PCB concentrations of less than 0.3 ppm.

2.3.2.1 Status of PCBs in Swaziland

The total oil found to contain PCBs was in excess of 314 019 kg, with a major contribution from the 40 MVA and the 20 MVA electrical transformers (48% and 12 %, respectively) due to their large sizes. The oldest equipment inventoried was manufactured in the early 1960s. These old units were found to contribute 15.2 % of the total reported contamination. This percentage contamination equals that for the 2000 to 2009 period which recorded a 15.3 % contamination. The highest period was the 1980 to 1989 wherein 30 % contamination is reported in this inventory. There was lack of evidence for the vertical movement of the PCBs into the soil profile. SEC is a member of the Southern African Power Pool (SAPP) that developed guidelines on the management and disposal of PCBs. Despite these efforts, general awareness on PCBs is very low even at the company level and there are no environmental management plans in place to monitor against these pollutants. It was also observed that the disposal of waste liable to contain PCBs is a problem in Swaziland as there are no enabling instruments to monitor if they are disposed of in accordance with sound environmental principles and practices. The information obtained revealed that SEC is the major stakeholder in the use of equipment suspected to be containing PCBs in Swaziland.

2.3.2.2 Awareness level on PCBs

Only 8 % of the inventoried establishments had prior knowledge of PCBs, even though it was scanty. This implies that the companies inventoried are mostly ignorant of the presence, characteristics and health effects of PCBs. Hence, they had no environmental management plan in place for the management of PCBs, the equipment containing them and their waste. The economic sectors having significant contribution to PCBs were also ascertained. Table

2.3.2.2 below shows the sectors and provides a summary of the findings of the inventory *vis à vis*; the levels of PCBs obtained and the numbers and types of units identified and inventoried.

Table 2.3.2.2: Distribution of PCB-Containing Equipment across Sectors in Swaziland

No.	Company Type	Total	Tr<50	Tr>50	ONAN	Capa	Cont<50	Cont>50	Srp
1	Electricity distributors	2 524	1 223	551	1 814	297	0	0	0
2	Transformer repair centres	222	0	0	0	0	50	8	222
3	Waste Recyclers	0	0	0	0	0	41	4	0
4	Food processing plants	22	20	2	40	9	-	-	-
5	Sugar cane industry	156	149	7	120	-	12	-	-
6	Agricultural	40	28	12	40	6	-	-	-
7	Railway stations	0	0	0	0	0	23	5	0
8	Workshops	0	0	0	0	0	12	23	-
	Total	**2 966**	**1 420**	**572**	**2 014**	**312**	**138**	**40**	**222**

Key; Tr. < 50; Transformers with less than 50 ppm of PCBs,
Tr. > 50; Transformers with more than 50 ppm of PCBs,
ONAN; Transformers with mineral oil,
Capa.; Capacitors,
Cont. < 50; Containers (210 L) of oil with less than 50 ppm of PCBs,
Cont. > 50; Containers (210 L) with more than 50 ppm of PCBs and
Srp.; Scrap equipment.
Source: Mnisi 2009

2.3.2.3 Contaminated Transformers in the economy sectors

Figure 2.3.2.3 shows percentage distribution of contaminated transformers in the economy sectors inventoried.

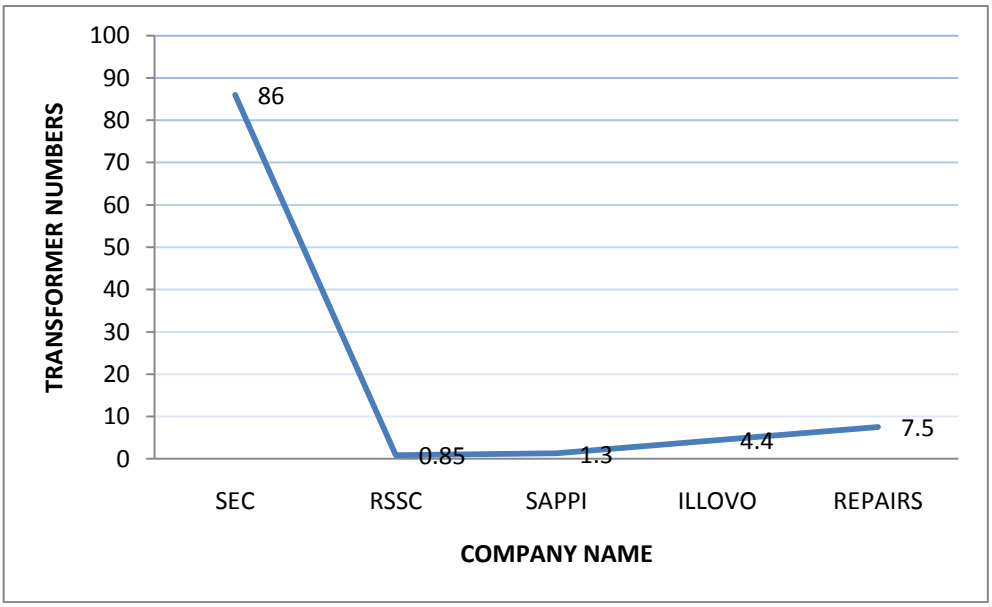

Figure 2.3.2.3: Percentage Distribution of Contaminated Transformers across Sectors (Mnisi, 2009).

2.3.2.4 The year of manufacture of the equipment

The results of the analysis of transformers per year of production are presented in figure 2.3.2.4 below;

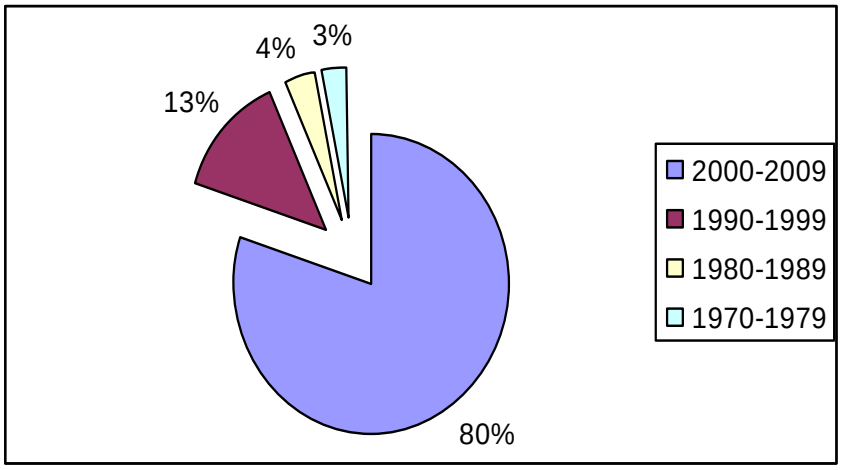

Figure 2.3.2.4: Percentage Transformers per Year of Manufacture 1970-2009 (Mnisi, 2009).

The figure above shows that a majority of the transformers (80%) in Swaziland, whether new, decommissioned or in operation, were manufactured within the 2000-2009 period. It would then be expected that they contain no PCBs or indeed concentrations less than 2 ppm, as is usually indicated on the nameplate of some transformers. However, the results of the survey indicate

that some of them actually contain concentrations that are way above the SC limit of 50 ppm through cross contamination. It was found that transformers procured or retrofilled from Mandlakazi Electrical, a South African based company, were found to be containing high concentrations of PCB oil. Some of these results are presented in figure 2.3.2.5 below;

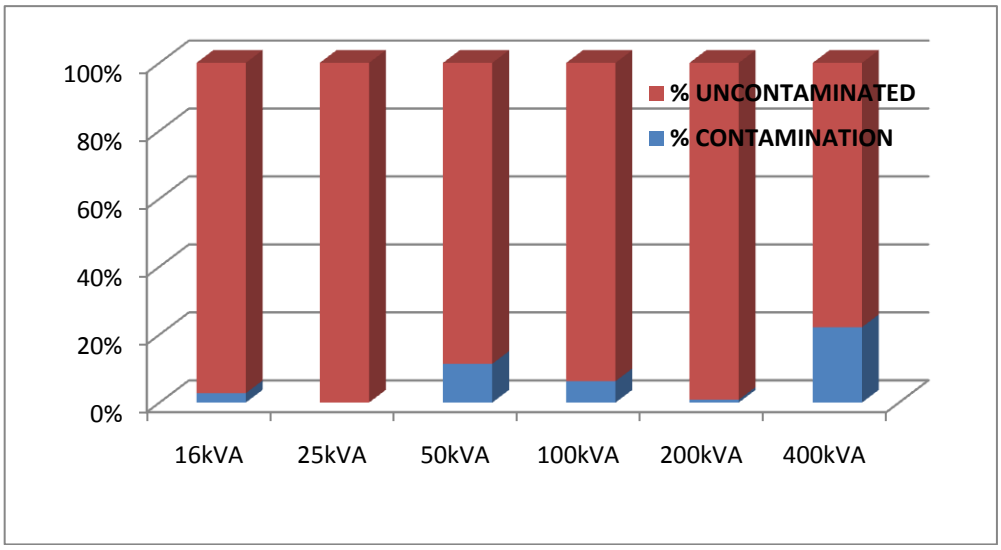

Figure 2.3.2.5: Percentage Contamination of Transformers Manufactured between the 2000 to 2009 Period. (Mnisi, 2009)

This figure shows that the percentage of transformers that are contaminated is much less than the percentage of transformers that are not contaminated. The percentage contamination is relatively low with the 16 kVA type, due to the fact that most of them were manufactured after the PCB ban. Most of the contaminated transformers are the older ones especially between the periods 1980 to 1989. This information is clearly shown in figure 2.3.2.6 below:

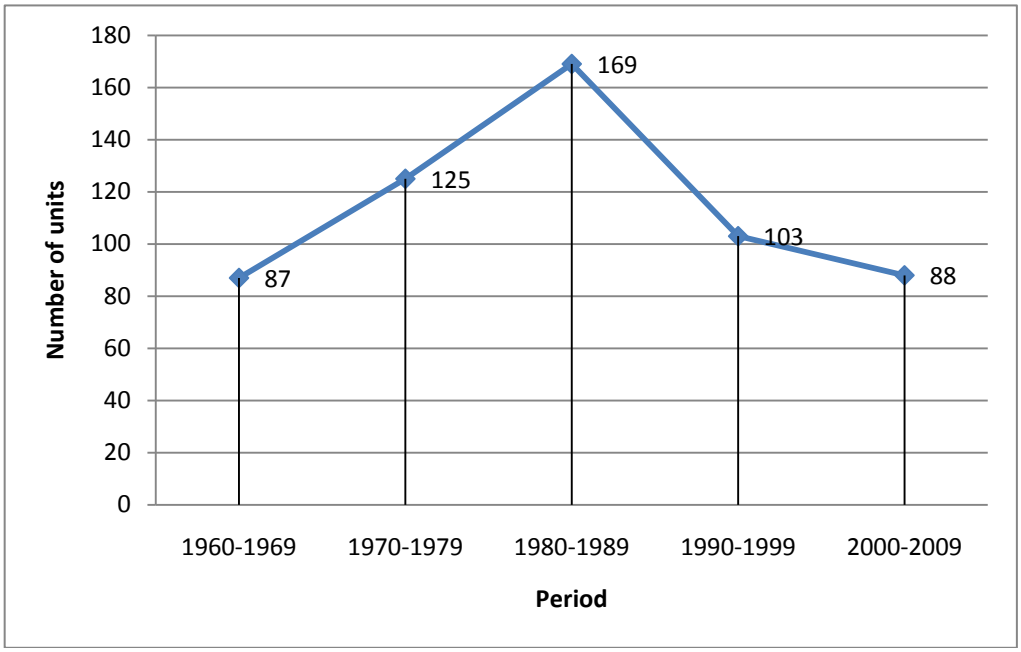

Fig 2.3.2.6: Number of Contaminated Transformers per Year of Manufacture (Mnisi, 2009)

A sharp decline in the number of contaminated transformers is observed after 1989, following the ban of the production and use of PCBs in most producer countries.

The priority concerns with PCBs in Swaziland are the following:

- Low knowledge and weak awareness.
- Need to regulate transformer oil purchasing or recycling to curb cross contamination.
- The ESM of PCBs, their equipment and their waste is currently lacking in most facilities. According to Article 3 and Annex A, Part II, a national strategy is required for a sound management of PCBs waste no later than 2028.
- An important number of electrical transformers, with more than 50ppm PCBs need to be properly managed according to the Basel Convention until their final decommissioning no later than 2025 in accordance with Article 3 of the SC.
- In the short term, there is need to avail an interim storage facility for used PCB oil and equipment and their waste according to the Basel Convention's ESM standards.

2.3.3 Assessment with respect to Annex B chemicals (DDT)

In Swaziland, DDT is officially imported from South Africa and is used for vector control at the malaria endemic areas in the Lubombo Range, Lowveld and some parts of the Middleveld. All DDT stocks in Swaziland are held by the NMCP for malaria vector control at an approximate annual quantity 6 tons. A small amount (5kg) was found at the University of Swaziland (UNISWA), Faculty of Agriculture for research and educational purposes.

2.3.3.1 General requirements of the Convention on users of DDT

According to Article 4 of the SC, compliance of countries using DDT entails among other things to do the following:

- Send triennial reports;
- Make efforts to reduce reliance on DDT;
- Parties using specific exemptions or acceptable purposes provisions must take measures to prevent or minimize human exposure and release to the environment;
- Confining use of DDT to vector control:

After meeting her 2010 targets of the Roll Back Malaria Partnership, Swaziland was among other countries identified for malaria elimination and achievement of malaria related Millenium Development Goals (MDGs) by 2015 by both SADC and African Union. Swaziland has adopted the use of IVM using both long lasting insecticidal nets (LLIN) and indoor residual spraying (IRS) with Pyrethroids.

2.3.3.2 Existing programmes for monitoring releases and environmental and human impacts

Currently, Swaziland does not have any environmental and/or bio-monitoring programme on DDT. The NMCP requires capacity to develop guidelines to carry out health impact tests on

spray operators and host communities, as well as, environmental surveillance in hotspot areas. There is a need to designing systems to ensure that DDT does not get into wrong hands, and also undertake research and monitoring efficacy studies. This could require upgrading an existing laboratory to undertake chemical testing on DDT and its alternatives, including building a facility for ESM sachet disposal.

2.3.3.4 Future DDT usage

According to the NMCP, the continued use of DDT is facing serious challenges as more and more modern structures are being built at the malaria endemic areas. This is because DDT can only be applied to indigenous mud houses. This has resulted in the decrease on the amount of DDT procured year after year. Also, the households being sprayed raise many complaints regarding the use of DDT in their houses.

Challenges for using DDT include the following:

- Lack of a monitoring (environmental and bio-monitoring) programme on DDT in the endemic areas;
- Lack of specific legislation;
- Lack of disposal facility for used DDT sachets;
- Slow pace in finding alternatives to DDT;
- Lack of support structures in research and development on use and effects of DDT;
- Need for continued public awareness, education and information on the DDT issues;
- Need for medical (epidemiological) surveillance of the spray operators and the host communities.

2.3.3.5 Current levels of information, awareness and education on the dangers of DDT among the target groups

The strategy put in place by the NMCP through community education before spraying has led to certain levels of information dissemination to the population on the hazards associated with the use of DDT. However, more IEC awareness creation is required as some people interviewed already reported experiencing problems with sinus and asthmatic attacks after spraying operations.

2.3.4 Assessment of releases from unintentional production of Annex C Chemicals (PCDD/PCDF)

PCDDs/Fs are formed as unintentional by-products of numerous industrial and domestic activities generally involving combustion processes. According to Article 5 of the SC, Swaziland is obliged to develop a Dioxins and Furans Action Plan within two (2) years of her accession to the Convention, which plan must to the extent possible, link-up with any regional plan on the subject. The Plan adopted by the country to control un-wanted POPs (UPOPs) must apply Best Available Techniques (BAT) and Best Environmental Practices (BEP) as required by the Stockholm Convention. Currently, Swaziland has no specific regulation to control dioxins and furans.

Table 2.3.4 below provides total emissions of Swaziland calculated using the UNEP Standardised Toolkit in 2009 with the year of reference being 2006.

Table 2.3.4: National Inventory of PCDD and PCDF in Swaziland for 2006

Cat.	Source Categories	Annual Releases (g TEQ/a)				
		Air	Water	Land	Product	Residue
1	Waste Incineration	4.93				0.025
2	Ferrous and Non-Ferrous Metal Production	ND	NA	NA	NA	NA
3	Heat and Power Generation	11.11	NA	NA	NA	0.13
4	Production of Mineral Products	0.012	NA	NA	NA	ND
5	Transportation	0.02	NA	NA	NA	ND
6	Open Burning Processes	31.24		69.52	NA	ND
7	Production of Chemicals and Consumer Goods	ND	0.011	ND	0.13	0.04
8	Miscellaneous	0.00	NA	ND	ND	0.03
9	Disposal	ND	0.001	ND	NA	ND
10	Identification of Potential Hot Spots	ND	ND	ND	ND	ND
1-9	**Total**	**47.32**	**0.012**	**69.52**	**0.13**	**0.22**
	Grand Total	**117.20**				

(Mathunjwa, 2009)

As shown in Table 2.3.4, Swaziland contributed approximately 117 g TEQ/a in total emissions in 2006. The priority sector needing attention is uncontrolled open burning of waste (86% of total). It is followed by heat and power generation (9.6 % of total emissions) and medical waste incineration (4.23 % of total emission) respectively. In accordance with Annex C Part II, medical waste incineration is of priority concern. The industrial sector, represented by the manufacture of mineral products (0.01% of total emission) and the manufacture of chemicals and consumer goods (0.15 % of total emission) were rather minor contributors. Under open burning, uncontrolled burning of domestic waste contributed 90.149 g TEQ/a, and that is 76.9% of the total emissions. The second contributor in this category is agricultural burning in the sugar cane plantations (7.9% of total emissions). In the heat and power generation source category, the use of sugar cane bagasse as bio-fuel is the major contributor (81% of the emissions).

The current situation in Swaziland as far as dioxins and furans are concerned is basically characterized by a total absence of awareness and knowledge on these chemicals. As a consequence of this, there is:

- No legislation nor emission standards;
- Mismanagement of waste in general, due to insufficient information and education on “cleaner production” and “cleaner waste management” concepts;

To overcome the above mentioned barriers, the action plan prescribed under Article 5 of the SC should include the following activities:

- Undertake public awareness, education and information on the national dioxins emitting sources and the mitigation measures;

- Strengthen the legislative and regulatory framework to address UPOPs-related issues including the setting up of standards to cover major sources with consideration of Annex C part II and part III sources;

- Introduce BAT and BEP in the industry, in waste management and other relevant sectors. More specifically, if the wood pulping facility were to be reactivated, it would require the use of non elemental chlorine-based technology for paper beaching in order to mitigate dioxins emission;

- Introduce “cleaner production” and “cleaner waste management” concepts in the curricula

Figure 2.3.4.1 below shows some waste that has been taken out from an incinerator. The picture on the left shows that no combustion has taken place at all, while the picture on the right shows partially burnt waste.

Fig 2.3.4.1: Waste from Two Different Incinerators (Mathunjwa 2009).

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Fig 2.3.4.2: An Incinerator (l) and a Corroded Incinerator Chimney (r) (Mathunjwa 2009).

Figure 2.3.4.2 shows an incinerator and chimney similar to ones mostly found in Swaziland. The incinerator lacks a control panel (left) whilst the chimney (right) is corroded and partly broken off. Possible hot spots include mainly the sites potentially contaminated by chemicals in Annexes A, B and C, which are dealt with in subsection 2.3.5 below. There are also timber industries that produce timber products that may require chlorine containing substances for preservation and possible activities from the informal sector that may create hot spots.

Open Burning Practices in Swaziland

The open burning processes includes several activities in Swaziland such as infield sugarcane trash burning before harvesting, accidental plantation forest fires, wild grass and savannah fires, domestic waste burning and accidental fires in municipal landfills. Municipal waste is not deliberately burnt in Swaziland. It is dumped in landfills, compacted and then covered with soil. The waste that goes to the dumpsites is not segregated into different categories, and therefore is a mixture of everything thrown away by city dwellers and businesses. Scavengers do sometimes set the dumpsites on fire before they are filled with soil. The municipalities have no records of how often this happens nor have they an idea as to how much waste gets burnt each time it happens.

2.3.5 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

Article 6 of the Stockholm Convention renders it obligatory for a Party to take appropriate measures to reduce or eliminate releases from POPs stockpiles and wastes. The inventory studies through data collection found that there were generally no regulations, guidance, remediation measures and data collection noted on the release from the contaminated sites.

2.3.5.1 Identified Stockpiles of POPs Pesticides and POPs Pesticide Waste

Sites hosting outdated stocks of pesticides are as a matter of fact contaminated sites. Swaziland is indeed facing such a situation as shown in the picture below. KaLanga is close to the town of Siteki in the Lubombo Region. The facility is under the ownership of the Ministry of Agriculture. Table 2.3.5.1 pointed out four (4) sites (Farm Chemicals, Khuba Traders, KaLanga and SAS) that were hosting obsolete stocks of pesticides (5,784 litres of liquid formulation and 1,150 kg in solid formulation). Of these, POPs pesticides consisted only in 90 litres of Dieldrin. The remainder, 5,274 litres, was non-POP pesticides. A quantity of 420 litres of Endosulfan was also found (Table 2.3.5.1).

The KaLanga Site with Obsolete Pesticides

Evidence collected during site visits revealed that people managing this site lack the skills and management capacity for the site being manned. For instance, other products in current use such as fertilizers, and certain farm implements were being kept together with the leaking obsolete stocks. None of the people manning the site were able to produce certificates of proficiency on managing contaminated sites. Some years back, FAO tried to help with training for the management of the site but the situation is now alarming and requires urgent attention.

Fig 2.3.5.1 KaLanga Obsolete Stocks Site - internal view (Ndlela, 2009)

Table 2.3.5.1: Inventory of Obsolete Stocks in 2009

Type of pesticides	Liquid formulation (litres)	Solid formulation (kg)
POPs	90	0
Non POPs	5,274	1,152
Endosulfan	420	0
Total	5,784	1,152
Number of sites	(4) Farm Chemicals, Khuba, KaLanga and SAS	

2.3.5.2 Present Management (Production, Use, Stockpiles and Waste) of POPs Pesticides *and Empty Containers*

The present management of stockpiles and waste in Swaziland is very poor. There are no specific approaches and procedures for pesticide management in the country due to the absence of policy and regulatory framework. As a result, the management of used empty chemicals and pesticides containers is an issue of concern. Some empty containers were used as water containers whilst others were burnt as a means of disposal, thus exposing users to chemical poisoning and the release of dioxins and furans.

In the final analysis, the issue of obsolete stockpiles and empty containers is of medium importance in Swaziland due to the total amount of used pesticides. There is no obsolete stock of DDT revealed by the inventory due to an improved management practice. Nonetheless, public awareness, education and information are a priority along with training and capacity strengthening for an ESM of stockpiles and empty containers. The activity already undertaken with a South African company, Thermopower Process Technology, with the assistance of FAO, should be reactivated within the framework of the Africa Stockpile Programme (ASP) for the disposal of the obsolete stocks. In addition, the country needs disposal capacity to deal with DDT empty sachets as mentioned above.

2.3.5.2 Contaminated sites

According to the Stockholm Convention on POPs, under Article 6, contaminated sites are potential sources of POPs releases, and form an integral part of the inventory process and managed in an environmentally sound manner. Potential POPs pesticides contaminated sites include soils and river systems. The contamination was evident around the pumps wash-up areas at the Malaria Camp sites both at Ngcayizivele and Mpumalanga Camps sites due to DDT spillages and washing of the spray pumps close to the nearby rivers.

The inventory on PCBs identified the wood treatment facilities as potential contaminated sites in addition to the Armagh Investments and Saw Millers. On a general note, all other identified contaminated sites were sited away from human habitations and settlements except for security personnel that man the premises where there were no remediation measures. It can be concluded that current knowledge on sites contaminated by POPs in Swaziland is far from being

sufficient to support the safeguarding and/or remediation activities. Priority actions should be put on IEC to reduce exposure risk to the communities, inventory consolidation to identify, assess and prioritize the hot spots, and if feasible, undertake remediation with low cost and effective technologies. In this regards, Swaziland already has an experience with the bio-remediation of the SEC Malkerns Depot that had slight contamination by PCBs.

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

Swaziland does not produce any POPs but imports all her stocks. Two POPs pesticides are of concern in the country because they are still in existence and some are in use. These are DDT for malaria vector control and Chlordane as termiticide. Some attention should also be put on Endosulfan that is currently under assessment by the POPRC for being listed as POP.

2.3.6.1 DDT

With respect to DDT, the country has been given a target by SADC and the African Union to eliminate the use of DDT by 2015. The country is therefore actively employing other strategies towards this goal. These include creating awareness and development of IEC materials, introducing larviciding, increased usage of Pyrethroids and other environmental management strategies, including Integrated Vector Management (IVM) and Integrated Pest Management (IPM).

2.3.6.2 Chlordane

A national survey is needed to establish if there is still need for Chlordane in termite control in Swaziland, and if such need exist, then apply to the Convention Secretariat for an exemption.

2.3.6.3 Dieldrin

Dieldrin was found at KaLanga as purely obsolete stock with clearly no future prospects.

2.3.6.4 Endosulfan

Various establishments were found to be still using Endosulfan and a survey should be undertaken to help Swaziland complete the Annex E and Annex F forms with regards to the use of Endosulfan in the country.

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

2.3.7.1 Monitoring of impacts on the Environment

Article 16 provides for the effectiveness evaluation four years after the Stockholm Convention enters into force, and thereafter periodically as determined by COP. Parties are then requested to contribute to the activities of the Global Monitoring Programme (GMP). For this to be effective in Swaziland there is a strong need for analytical capacity strengthening and the country should undertake efforts to join the GMP activities that started on the continent since 2008. In Swaziland, there has never been nor is there a POPs Monitoring Programme. Even though POPs releases to the environment were physically noted at various sites, the study found that there is currently no database for monitoring uses and releases to the environment. There were also no chemical safety data sheets and incidents inventories within government as evidence for monitoring. It was reported that officials rely on some aspects of the Public Health Act 1969, the Environmental Management Act 2002, and Water Pollution Control Regulations 2010 to conduct some sort of monitoring through routine inspection of suspected sites. Local

studies and limited research conducted by University students, with very specific and short-term purposes. Most of these studies have been conducted within the framework of specific projects, but are not able to provide the true dimension of the national situation with respect to POPs. Further, the research findings have tended to end up being shelf and book material that does not reach the intended stakeholders and/or affected communities. There is lack of a forum that creates a co-ordinating mechanism, as well as, publicising the results. There is need to find ways so that these findings get published and attain their usefulness. The lack of monitoring mechanisms for Swaziland is also partially attributed to lack of background information for studying these types of pollutants. Further, there is lack of trained personnel and laboratories with the necessary equipments and standards. The problem is exacerbated by limited awareness of interested parties and the shortage of research programmes in general.

2.3.7.2 Monitoring of impacts on Human Health

There is no organisation responsible for epidemiological monitoring of the impacts of POPs on the health of the people of Swaziland. The Hospitals and Clinics lack systematization with respect to pesticides and the inventory found general shortage of reliable statistics in this area. The lack of monitoring data for the environment or humans is closely related with the lack of awareness and knowledge on POPs. The weakness of the technical infrastructure and the shortage of trained personnel is another contributory factor. This has to be suitably addressed in the NIP, and assist the country to participate in the GMP activities.

2.3.8 Current level of awareness and education among target groups; existing systems to communicate such information to various groups; mechanisms for such information exchange with other Parties to the Convention

To date, the level of awareness on POPs is generally low as evidenced by the limited use of protective clothing by pesticide spray operators within the cotton and sugar cane agricultural communities. However, with the acceding by Swaziland of the Stockholm Convention on 13 January 2006, SEA has embarked on a number of awareness raising activities including publication of fliers, radio programs and articles published in local Newspapers. Public awareness raising efforts are hampered by insufficient resources to procure:

i) Data base facilities for storing data on chemical incidents, monitoring data, etc.
ii) Unavailability of International Chemical Databases;
iii) Lack of co-ordinating mechanism within ministries and other stakeholders.

2.3.9 Relevant activities of non-governmental stakeholders

The Global Fund and UNICEF have been funding activities of the NMCP for some time, particularly the purchasing of long lasting treated bed nets. Non-Governmental Organisations such as Yonge Nawe have played a more direct role in educating the public on environmental management initiatives that included taking actions on hazardous chemical exposure of workers. Yonge Nawe is a member of the NCC, but its participation has been ad-hoc to say the least. Yonge Nawe is also participating in the production of IEC materials, radio programs, and articles in the print media. However, nothing specific to POPs has been done yet.

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

2.3.10.1 Technical infrastructure for POPs disposal

Such facilities are not a priority concern for the country except the need of an ESM disposal of used DDT sachets and temporal PCB storage facility mentioned above.

2.3.10.2 POPs analysis instrumentation

Swaziland does not have any accredited laboratory for POPs testing. This gap could be addressed in the short or medium term through the upgrading of existing laboratories with suitable equipment and personnel training. Of these, the Swaziland Water Services Corporation is partially accredited by the South African Bureau of Standards. These laboratories use internationally recognised protocols like those of the United States Environmental Protection Agency (USEPA) and OECD.

In addition to suitable equipment and training of the personnel, there is need to:

- Establish national programmes for proficiency testing and accreditation
- Have these laboratories accredited through the South African Bureau of Standards in order to establish capacity to perform PCB and pesticide testing for chemical management.
- Expand the instrument base to be capable of pesticide and PCB analysis.

2.3.10.3 Overview of technical training and education programmes

The country has the basic infrastructure and personnel that can assist mount a sound chemical management system. The University of Swaziland, within the faculty of Science, has recently introduced programmes in Integrated Environmental management and Resources Management; and Analytical/Environmental Chemistry with aspects of pesticides analysis, toxicology, Geographic Information Systems.
The weakness of these facilities includes:

i) The lack of accreditation and proficiency testing schemes
ii) The lack of international chemical libraries in all the institutions
iii) Insufficient instrumentation like the GC/MS at the University for validation of data between the institutional laboratories
iv)The lack of local and international networks between laboratories.

2.3.10.4 Linkages to international programmes / projects

As a result of the above mentioned weaknesses and gaps, Swaziland has not yet started participating in any of the existing monitoring programmes like the GEF/UNEP projects for breast milk and ambient air testing.

2.3.11 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

Exposure risk is not assessed due to absence of knowledge, weak infrastructure and shortage of relevant equipment and skilled personnel. This has led to lack of monitoring data and ignorance on the threats to public health and the environment from exposure to POPs in

Swaziland. From current status on the usage of POPs pesticides in the country, the impacted environments and communities are those of the malaria endemic areas. One is at Ngcayizivele in Big Bend and the other at Mpumalanga around Simunye. DDT spray operators and the recipient communities are impacted groups of concern.

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

Swaziland has no R&D chemical industry and such system based on the precautionary approach is not relevant for the country. However, the country needs to support the work of POPRC, particularly the assessment of Endosulfan and other chemicals that may be listed as POPs in the near future.

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

Swaziland does not yet have such a system and this is a major gap particularly for the registration of pesticides.

3.0 STRATEGY AND ACTION PLANS

3.1 Policy Statement

The Kingdom of Swaziland participated in the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992. At this Conference, Heads of States or Governments adopted "Agenda 21" – a document that sought, among other things, to enhance sound management of chemicals. The document, outlined responsibilities of every nation towards the collective achievement of sustainable development. Of special relevance for chemicals management is Chapter 19 of "Agenda 21" that deals with environmentally sound management of chemicals, including illegal international traffic in toxic and dangerous products.

The Kingdom of Swaziland is committed to the protection of the human health and the environment from the harmful effects of dangerous chemicals, including POPs. This is evidenced from provisions of environmental management in several Acts and the Constitution. Recognising the importance of preserving the environment and the welfare of the Swazi people, the Government of Swaziland (GoS) signed the Stockholm Convention in 2001 and became a Party in 2006. Consequently, GoS through SEA and its stakeholders has spearheaded efforts towards the sound management of POPs through the preparation of the NIP. POPs of primary concern in Swaziland are DDT, PCBs, Dioxins and Furans and the disposal of obsolete stock. As a Party to the Convention, the country is bound by the provisions enshrined therein, and is committed to meet her obligations under the SC through the implementation of NIP. The GoS has generated several policies and action plans in order to address various national challenges, but none are specific to chemicals, in particular, POPs. The NIP proposes actions for phasing out various POPs sources and the reduction and the elimination of existing stockpiles in the short, medium and long terms. The country's goal is to eliminate POPs as soon as practicable through the implementation of the NIP.

The implementation of the NIP will contribute to the national efforts of combating poverty and improving environmental quality. It will also provide the country with opportunities to identify and build synergies with other Conventions and international agreements to which the country is Party to such as New Partnership for Africa's Development (NEPAD), Strategic Approach to International Chemicals Management (SAICM), Basel Convention, Rotterdam Convention, United Nations Framework Convention on Climate Change (UNFCCC), the Montreal Protocol, the Convention on Desertification, the Convention on Biological Diversity and the Kyoto Protocol, etc.

Therefore, the NIP is in compliance with national policies, development plans, as well as, the overall vision of the country in reducing poverty and improving the quality of life for the people. The following are policy pronouncements on the NIP to facilitate review, amendment and eventual adoption and approval by stakeholders and the Government of Swaziland:

Recognising the risks posed by POPs to human health and the environment, the Government of Swaziland commits itself to progressive reduction in the usage and eventual elimination of all stocks of DDT, PCBs and PCB containing equipment, and minimising the exposure to unintentionally produced Dioxins and Furans.

The underlying principles will include strategies and activities for the management of POPs based on a risk assessment approach justified by internationally accepted risk factors.

Raising awareness will be achieved through public awareness, education and communication on POPs related issues to all stakeholders and the public.

Integrating POPs management strategies with other existing strategies on hazardous waste and national solid waste strategies to achieve a harmonised approach to environmental and chemicals management.

Continuous participation in relevant international efforts to meet the obligations of the SC and to support its initiatives and commitments.

3.2. Implementation Strategy

In order to ensure a coherent approach to hazardous chemical and waste management at all levels, State Parties in cooperation with other stakeholders, developed the Strategic Approach to International Chemicals Management (SAICM) that was adopted at the International Conference on Chemicals Management (ICCM) in February 2006 in Dubai, United Arab Emirates. Paragraph 23 of the SAICM Overarching Policy Strategy provides for an integrated approach to managing chemicals, where each government should establish arrangements for implementing the strategic approach on an inter-ministerial basis. To facilitate communication both at national and international levels, each government is required to appoint a National Focal Point (NFP) to act as an effective conduit for communication on strategic approach matters. SAICM seeks to combine the synergies of the Basel, Rotterdam, Stockholm and Vienna Conventions. It is envisaged that the NIP for Swaziland will be implemented through a multi stakeholder approach where SEA will continue to be the NFP for the SC. The current NCC will be strengthened into an Inter-sectoral Coordinating Mechanism to coordinate the implementation of the NIP. This committee will comprise of relevant ministries involved in POPs management such as agriculture, environment, health, industry and labour. In addition, civil society and public interest groups will be integrated into this framework. The outlined institutional and legal framework will facilitate implementation of the NIP through responsible ministries and agencies as provided for in the Action Plan.

The overall objective of the strategy for the NIP is to protect human health and the environment from impacts that are associated with the releases through progressive mainstreaming of chemical safety issues in national poverty reduction and sustainable development strategies. This will ensure that actions and modalities to implement the NIP are designed to comply with the Convention and be consistent with other national environmental strategies and action programmes.

The NIP seeks to reduce or eliminate sources and releases of POPs from 2011 to 2028, elaborate and enforce an adequate and holistic national legislation. Further, it must enhance our knowledge on POPs, provide for the evaluation of its effectiveness and strengthen the capacities of national stakeholders through co-operation at the national, regional and international level. The implementation process will be monitored and evaluated internally (SEA and its stakeholders) and externally (international experts, donors, etc.).

3.2.1 Priority Concerns

The priorities, covering the main obligations of the Convention, are aligned to the thematic areas chosen by Swaziland to comply with the Stockholm Convention as shown in Table 3.1 below.

Table 3.2 List of Priority Concerns

N°	Thematic Area	Priority
01	Institutional, Policy and Regulatory Framework	Enactment and upgrading of legislation that allows the country to address POPs as well as capacity building for key institutions.
02	Annex A, Part 1, Chemical - Pesticides	Phasing out of residual usages, prevention of future accumulation of POP pesticides and management of contaminated sites (Art. 3 and Art. 6).
03	Annex A, Part 2 Industrial Chemicals – PCBs	Establish a programme to systematically replace all PCB contaminated equipment (phase out program) and develop strategy for and ESM of waste and contaminated sites (Art. 3 and Art. 6).
04	Annex B Pesticides – DDT	Seeking alternatives to phase out the use of DDT, minimize human exposure and environmental contamination from DDT (Art.3; 4 and 6).
05	Annex C, PCDD/PCDF	Improve waste management and introduce BAT/BEP in the industry and other relevant sectors (Art. 5)
06	Public Awareness, Information and Education	Development of communication, education and training strategy on POPs and their alternatives (Art. 9 and Art. 10).
07	Participation in International Activities and Programmes in the field of POPs	Support the work of the POPs Review Committee, report to Convention and participate in the effectiveness evaluation (Art. 8 , Art. 15 and Art. 16).
08	Reporting, Monitoring and Evaluation	Building capacity for monitoring, evaluation and reporting on POPs at national, regional and international levels (Art. 15 and Art. 16).
09	Research & Development on POPs and alternatives	Technical capacity to laboratories and research institutions to analyze and research on POPs (Art. 11).
10	Technical and Financial Assistance	Need of support from the International Community for national capacity strengthening and additional funding to implement the NIP (Art. 12 ; 13 and 14)

3.3. Strategies and Action Plans

In accordance with United Nations Environment Programme (UNEP) Guidelines on NIP Development (2002), the NIP consists of a number of Action Plans and Strategies addressing national priority concerns under thematic areas as indicated in subsection 3.2.4 above. This section discusses the Action Plans developed for the implementation of the NIP in Swaziland with specific resource allocation for each aspect. The detailed costing and time frame for each plan are tabulated in Section 3.6 – Logical Framework.

3.3.1. Action Plan: Institutional, Policy and Regulatory Frameworks

According to paragraph 1 of Article 3 of the SC, each State Party shall prohibit and/or take legal and administrative measures necessary to eliminate the:

(i) Production and use of chemicals listed in Annex A subject to the provisions of that Annex;
(ii) Import and export of chemicals listed in Annex A in accordance with the provisions of paragraph 2;
(iii) Paragraph 1 (b) requires that each Party shall restrict the production and use of the chemicals listed in Annex B in accordance with the provisions of that Annex.

Article 5 (a) (ii) of the SC provides for an evaluation of the efficacy of the laws and policies of the Party relating to the management of chemicals listed in Annex C. Article 6 paragraph 1 (c) of the SC requires that each Party manages the stockpiles, as appropriate, in a safe, efficient and environmentally sound manner.

In order to meet the above Convention obligations, the country plans to update/amend existing laws to incorporate POPs issues, to domesticate the Stockholm Convention and to establish an intersectoral coordinating mechanism for hazardous chemicals management. The Swaziland National Chemical Profile (SNCP) and the Inventory on Institutional, Policy and Regulatory Framework elaborated in 2009 pointed out various gaps in the existing legislative, institutional and regulatory framework for hazardous chemicals management including POPs. The GoS has generated several policies in order to address various national challenges. However, none is specific to chemicals in general, pesticides or persistent organic pollutants. These barriers need to be properly addressed in order to help Swaziland meet the Convention's obligations. Building upon this, the country will have the capacity to elaborate and implement an integrated chemicals management strategy according to the SAICM. To accomplish this, the country will need support from local and external sources to cover costs for consultancies, meetings, surveys, legal services and development of publicity materials. It is estimated that the overall plan for Institutional, Policy and Regulatory Framework review will cost E 655 000.00, an equivalent to US$ 85 650.02.

3.3.2. Action Plan: Production, Import and Export, Use, Stockpiles and Wastes of Pesticides POPs (Annex A, Part 1 Chemicals)

Article 3, paragraph 1 (a) of the SC, provides that each Party shall prohibit and/or take legal and administrative measures necessary to eliminate the production, use, import and export of chemicals listed in Annex A.

In addition, Article 6 provides that each Party shall ensure that stockpiles consisting of or containing chemicals listed either in Annex A or Annex B and wastes, including products and articles upon becoming wastes, consisting of, containing or contaminated with a chemical listed in Annex A, B or C, are managed in a manner protective of human health and the environment as provided for in sub-paragraphs (a), (b), (c), (d) and (e).

Specific Action Plans to help Swaziland meet these obligations of the SC for the elimination of residual usages of Annex A chemicals, to regulate import, production, use, distribution and disposal of POPs pesticides, and to dispose of obsolete stockpiles. The main concern for Swaziland is finding alternatives to DDT. Chlordane and Dieldrin were found in small amounts as obsolete stocks. Hence, the focus is on mechanism for curtailing importation of POPs pesticides and disposing existing stocks and preventing future accumulation of stockpiles. Further, mechanisms for capturing data on the effectiveness and safety of identified alternatives will be implemented coupled with training of pesticides handlers and farmers. A tracking system for capturing data on imports and exports of POPs Pesticides at points of entry will be developed and implemented.

An estimated amount of E4 555 000.00 will be required to implement this aspect of the plan equivalent to US $595 627.27.

3.3.3. Action Plan: Production, Import and Export, Use, Identification, Labelling, Removal, Storage and Disposal of PCBs and Equipment Containing PCBs (Annex A, Part II Chemicals)

Subject to the requirements of paragraph (a) of Part II of Annex A, each Party shall eliminate the use of PCBs in equipment (e.g. transformers, capacitors or other receptacles contaminated with PCBs) by 2025, subject to review by the COP in accordance with priorities listed in sub-paragraphs (i) (ii) and (iii). Additional measures are outlined in paragraphs (b) – (h) of Part II of Annex A.

The national inventory conducted in 2009 revealed that hundreds of electrical transformers under operation in Swaziland were keeping dielectric fluids contaminated by PCBs. In all cases, the contamination rate did not exceed 200 ppm, but some were over the Convention's 50 ppm limit, which implies that they have to be first managed according to the Basel Convention and ultimately be decommissioned no later than 2025. The inventory also pointed out the lack of a national plan for an ESM of PCBs and their waste that is required by the Convention from each Party before 2028. A number of sites in Swaziland were presumed to be contaminated with PCBs and need to be properly identified (geographical coordinates), assessed, safeguarded and ultimately remediated in an ESM manner as provided for in the Convention.

The Action Plan to meet the above requirements of the SC with regard to import, export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing or contaminated with PCBs have been developed. The country seeks to screen all equipment likely to contain PCBs, phase out PCB containing electrical equipment, establish an Import & Export mechanism, and to dispose of all PCB contaminated materials. The elimination of PCB containing equipment and waste by 2025 will be achieved by preparing a phase out programme by all industrial facilities utilising PCB containing equipment and the final disposal of the identified equipment and waste.

The Action Plan to meet the above requirement is estimated to cost approximately E325 550 000.00 an equivalent to US$42 570 023.79.

3.3.4. Action Plan: Production, Import and Export, Use, Stockpiles and Wastes of DDT (Annex B Chemicals)

The overall outcome is to provide basis for identifying/formulating specific objectives and actions consistent with article 3 and 6 of the Stockholm Convention, as well as, articles 5, 6 and 10 of the Rotterdam Convention. Annex B, Parts I and II of the SC outline restrictive measures with regard to production, import, export, use, stockpiles and wastes of DDT.

In order for Swaziland to comply with Article 3 (1) (b), of the Stockholm Convention, the country has to restrict the use of DDT for public health vector-borne disease control in conformity with the World Health Guidelines. Also, as per the Abuja Declaration, Swaziland is expected to phase out her reliance on DDT by 2015. Further, the country must collaborate with the Secretariat of the Convention in the development and implementation of a strategy aimed at reducing and ultimately eliminating the use of DDT while triennially applying for exemptions.

The inventory on DDT carried out in 2009, revealed an approximate annual quantity of ten (10) tons held annually by the National Malaria Control Programme for Vector Control. These quantities are all imported as Swaziland does not have a DDT production facility. The inventory also noted DDT releases to the environment due to the cleaning of spray pumps, handling of DDT empty sachets and the exposure to DDT by the spray operators and recipient communities.

The developed Action Plan seeks to minimise the use of DDT for disease vector control and minimize risks on environment and human health from DDT. WHO and UNEP in collaboration with the SEA, NMCP and UNISWA will explore avenues to identify alternatives to DDT and determine their efficacy and cost effectiveness. Further, the organisations will spearhead the issue of stockpiles and packaging of DDT waste arising from past and current uses. As part of the implementation of the Plan will be the development of guidelines on procurement, transportation, storage, distribution, usage and mechanisms for disposal of stockpiles and wastes. The determination of the persistence of DDT in different matrices will also be undertaken through research.

It is estimated that the overall Action Plan will cost approximately (E5 155 000.00) an equivalent of (US$674 085.31).

3.3.5. Action Plan: Releases from Unintentional Production of PCDDs/PCDFs, HCB and PCBs

Article 5 paragraph (a) of the SC stipulates that each Party shall develop an Action Plan within two years of the date of entry into force of this Convention. The plan must, to the extent possible, link-up with any regional plan on the subject as per article 5 and 7 of the SC as listed in Annex C and to facilitate implementation of sub-paragraphs (b) to (e). The Plan adopted by the country must apply Best Available Techniques (BAT) and Best Environmental Practices (BEP) as required by the Stockholm Convention.

According to the recently completed inventories, open burning from domestic waste, was found to contribute the highest emission at 100.765 g TEQ/a, representing 86% of the total emissions. The dilemma of this is that the rural folk, comprising the majority of the population, rely on open

burning for the reduction and management of their wastes. Heat and power generation was second contributor to the emissions at 11.239 g TEQ/a representing 9.65% of total emissions. Swaziland lacks proper incineration facilities and practices with emissions amounting to 4.955 g TEQ/a, 4.2% of total emissions. A challenge for the country is the reduction of emissions from the waste burning, the establishment of proper waste disposal facilities, and encouraging recycling and reduction of waste. Further, the construction and maintenance of proper landfills, incinerators, as well as, the training of staff to efficiently manage these facilities is important.

The Action Plan will focus its attention to reduce emissions from burning of waste and establish a monitoring system for UPOPs emissions & their effects on human health and environment.

It is estimated that E25 930 000.00 an equivalent to US$3 390 694.88 will be required to implement this aspect of the plan.

3.3.6. Action Plan: Public Awareness, Information and Training

Article 10 of the SC obligates Parties to enhance capabilities to promote and facilitate public information, awareness and education.

The national situational analysis performed in 2009 revealed that the recently emerging POPs issues are far from being understood in Swaziland. As such, law makers, farmers, decision makers, professionals and the public lack awareness, information and training regarding the nature of these highly toxic substances. The release sources, various uses and their health and environmental impacts are unknown. Also, the country does not yet have applicable knowledge on the availability, affordability and environmentally friendly alternatives.

Swaziland intends to meet her obligation under Article 10 regarding POPs and also pave the way for the development of an operational national strategy for communication and training in the field of chemical safety, and in accordance with the SAICM recommendations by building the capacity in key target groups on control of POPs, information dissemination and publicizing the Stockholm Convention to all stakeholders.

In order to implement this Action Plan, some of the activities to be undertaken include the following:

1. Identify an organization to undertake IEC programs and disseminate information.
2. Identify and compile a POPs database.
3. Establish link between formal learning institutions and SEA.
4. Enhance research, information gathering and dissemination on POPs and available alternative technologies.
5. Develop and implement training programs for key target groups on the control of POPs and information dissemination through identification of target groups, development of IEC materials and implementation of IEC programmes.
6. Strengthen collaboration with the media with regard to information dissemination.
7. Develop a POPs communication strategy.
8. Collaborate with the National Curriculum Centre (Ministry of Education and Training) in order to incorporate POPs issues in school curriculum

It is estimated that the implementation of this Action Plan will cost E775 000.00, an equivalent to US $101 341.63.

3.3.7. Action Plan: Participation in the International Activities and Programmes in the field of POPs.

Swaziland is Party to the SC, and by virtue of article 8, 15 and 16, she is expected to participate in the national, regional and international programmes in the field of POPs and in Conference of the Parties (COP). The country is already participating in the COP even in the absence of the NIP. With the completion of the NIP, there will be need for capacity building in terms of meeting reporting and COP meeting requirements to enable the country to gain maximum benefit from the Convention.

This Action Plan seeks to build the capacity of the SEA and key stakeholders dealing with chemicals to effectively participate and contribute to the SC activities and the NIP implementation.

An estimated E1 300 000.00 an equivalent to US$169 992.42 will be required to implement this aspect of the plan**.**

3.3.8. Action Plan: Reporting, Monitoring and Evaluation

This Action Plan is, in part, in line with other activities at the international level under new POPs identification and Global Monitoring Plan. However, article 16 of the SC stipulates that four years after NIP implementation at country level, there should be regular reporting and proper evaluation of the status of the POPs. Article 11 and 15 then articulates requirements for monitoring POPs and reporting mechanisms to the COP on measures that have been taken by Parties to implement the provisions of the Convention and on the effectiveness of such measures in meeting the objectives of the Convention.

The inventories undertaken by Swaziland revealed that the main POPs of concern were PCBs, DDT, Dioxins and Furans. POPs pesticides were on the main, purely obsolete stocks. Swaziland uses DDT for vector control and in terms of the SC she is required to provide to the Secretariat statistical data on total quantities imported, conditions and relevance to the Malaria disease management strategy. The reporting format is decided by the COP in consultation with the WHO. Concerning dioxins and furans, there is generally lack of monitoring capacity, lack of standards and guidelines for monitoring, limited institutional capacity in terms of specialised skills, equipment and financial resources for carrying out the monitoring function.

To implement the Action Plan, an estimated amount of E2 005 000.00, an equivalent to US$262 180.61 will be required.

3.3.9. Strategy: Research and Development

As a Party to the SC, Swaziland is bound by article 11, paragraph 1 to participate, within her capabilities, in research & development activities related to POPs.

The POPs inventories conducted in 2009, as part of developing the NIP, identified significant deficiencies and gaps for the sound and safe management of the few POPs found. As an example, the country does not have a reference laboratory to test POPs in the various environmental matrices. The analytical capabilities in terms of personnel, skills, infrastructure, equipment and materials are limited and costly. However, the limitations can be improved with national, regional, and international technical and financial assistance.

The status of exposure to POPs by Swaziland's population through local and imported food is unknown. As such, there is no information available on what the concentrations levels might be and their possible health effects. The same applies to concentrations of POPs on the environment. Research on POPs is very scarce due to the fact that POPs issues are not high on the country's agenda. The University of Swaziland, which serves as one of our research institution and the private sector are not well versed about BAT and BEP approaches.

Potential risk areas on POPs in Swaziland, requiring research and monitoring pertains to imported materials used for making animal feed that may be possibly contaminated with POPs. There is need to undertake research on the environment, food, breast milk, human blood, soil sediments, imported animal feed, vegetation, leachate, emissions source investigation, and their impacts on health. Other research areas could be on PCDD/Fs' emissions resulting from the burning of sugarcane and bagasse.

In order to holistically address these problems, there is need to identify and suitable equip (technical and human resource infrastructure) a technical laboratory of national interest and have it accredited to conduct analysis and research on POPs and other persistent toxic substances.

An estimated E7 290 000.00, an equivalent to US$953 265.61 will be required to implement this aspect of the plan**.**

3.3.10 Strategy: Technical and Financial Assistance

This strategy is based on the provisions of articles 12, 13 and 14 of the Stockholm Convention that deal with the technical assistance and financial resources and mechanisms needed to achieve the objectives of the Convention. The inventory on POPs noted that there was need for support from GoS and the International Community for national capacity strengthening and funding to implement the NIP. The GoS is committed to avail resources to the extent possible to kick start the process. However, it is necessary to obtain additional resources from national private sector entities, bilateral donors and the Convention's financial mechanism to ensure successful implementation of the NIP.

The overall cost of implementing the strategy for technical and financial assistance is estimated at E1 640 000.00, an equivalent to US$214 451.97.

3.4 Development and capacity-building proposals and priorities

Infrastructure and human resource development form the core of capacity requirements in Swaziland. These capacity building requirements have been variously addressed in previous action plans. Top on the list of infrastructure requirements is the need for laboratory capacity to undertake complex analyses such as PCDDs/PCDFs, PCBs, POPs pesticides and DDT. This is followed by capacity to manage hazardous and domestic waste including construction of landfills. A modern hazardous waste facility and temporal storage sites for PCBs equipment needs to be constructed including the disposal of obsolete pesticides and hazardous waste. From the human resources point of view, stakeholders require training ranging from POPs monitoring, research, and analysis. One salient proposal is to include issues of POPs in school curricula and in institutions of higher learning. Training should also be conducted for SWASA to develop the appropriate standards and Customs and Excise officers based at the points of entry into the country to identify and curb the influx of POPs.

The following represents priorities to be followed by the country in the course of NIP implementation:

1. Development of a national policy for chemicals management in line with the SAICM
2. Strengthening of the legal, regulatory and institutional framework
3. Management of PCBs and introducing a phase out programme
4. Identification and management of contaminated sites
5. Mitigation of UPOPs releases from waste
6. Introduction of BAT/BEP in industries
7. Introduction of cleaner production technologies
8. Environmental education programmes
9. Introduction of the concept of cleaner waste management in the national waste management system

3.5 Resource Requirements

Details of funds and resources for implementation of specific action plans and strategies are tabulated in Section 3.6. Potential sources of support for the implementation of the NIP were identified to be GoS, UNIDO, UNEP, GEF, and relevant local private institutions, national and international cooperating partners. It is envisaged that a third of the total budget will be covered by GoS and its agencies, another third by private institutions and the remaining amount will be sourced from external bilateral and multilateral institutions. Resources required for the implementation will include expert human resources, information, equipment, finances and infrastructural developments. Table 3.5 below shows potential contributions from national and external sources to fund the action plans.

Table 3.5: Estimated Contributions for Action Plans

N°	Action Plan	Estimated Cost	National Contribution (%)		External Funding Needed (%)
			GoS	Private Sector	
01	Strengthening of Institutional, Policy and Regulatory Frameworks	E655 000.00	30	-	70
02	Import and Export, Use, Stockpiles and Wastes of Pesticides POPs (Annex A, Part 1 Chemicals)	E4 555 000.00	10		90
03	Import and Export, Use, Identification, Labelling, Removal, Storage and Disposal of PCBs and Equipment Containing PCBs (Annex A, Part II Chemicals)	E325 550 000.00	10	30	60
04	Import and Export, Use, Stockpiles and Wastes of DDT (Annex B Chemicals)	E5 155 000.00	10		90
05	Unintentional Production of PCDDs/PCDFs, HCB and PCBs	E25 930 000.00	10	20	70
06	Public Awareness, Information and Training	E775 000.00	30		70
07	Participation in International Activities and Programmes in the field of POPs.	E1 300 000.00	20		80
08	Reporting, Monitoring and effectiveness Evaluation of the Convention	E2 005 000.00	10		90
09	Research and Development	E7 290 000.00	5		95
10	Technical and Financial Assistance	E1 640 000.00	0		100

3.6 Logical Framework of Action Plans

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.1 Action Plan	**Institutional, Policy and Regulatory Framework**			
Goal 1.	**Under the leadership of SEA, strengthen the legislative, institutional and regulatory framework no later than 2015 in order to comprehensively cover POPs issues.**			
Objective 1.1: To update/amend existing laws in order to incorporate POPs issues by 2012				
Activity 1.1.1: *Collect and review all existing national legislation and regulations dealing with chemicals.*	Collection of relevant legislation and regulations related to chemicals, consultants contracts.	Legislative review reports	SEA	E50 000.00
Activity 1.1.2: *Incorporate in the existing legislation POPs matters where relevant*	POPs mainstreamed into existing legislation	Government Gazette, Amended laws	All Government Ministries, SEA.	E50 000.00
Activity 1.1.3: *Publicize the amended legislation*	Meetings and workshops	Newspaper articles, workshop reports and minutes	SEA.	E25 000.00
Objective 1.2: To domesticate the Stockholm Convention by 2015				
Activity 1.2.1: *Formulate a draft bill on chemicals management to capture all the general issues on persistent toxic substances including POPs*	A Draft Bill piloted in Parliament	Draft bill,	MoA, SEA, MJCA	E50 000.00
Activity 1.2.2: *Convene a stakeholder meeting to validate the draft bill.*	Number of Stakeholders identified and attending the workshops and meetings	workshop reports, meeting reports	MoA, SEA, MJCA	E30 000.00
Activity 1. 2.3: *Promulgate Chemical Management Bill.*	Promulgated laws	Government Gazette	Parliament, and National consultants	E50 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Activity 1.2.4: *Publicize the Chemical Management Bill*	Number of Meetings and workshops,	Newspaper articles, workshop reports and minutes	SEA, MoA.	E25 000.00
Activity 1.2.5: *Review relevant legislation to incorporate reporting obligations to the Stockholm Convention.*	A number of relevant legislation reviewed	Review reports	SEA.	E40 000.00
Objective 1.3: To establish an Intersectoral Coordinating Mechanism for hazardous chemicals management by 2011.				
Activity1.3.1*: Establish a national chemical committee in charge of chemical issues including POPs.*	Committee established and meetings taking place	Minutes	MoA, SEA, NGOs.	E25 000.00
Activity1.3.2: *Train key ministerial staff members on hazardous chemicals management including POPs*	Number of training workshops	Workshop reports, Ministries Annual reports	SEA, MoA, MoH.	E30 000.00
Activity1.3.3: *Develop MOU between SEA and relevant governmental and non-governmental institutions for the implementation of the SC.*	Number of MOUs between SEA and other stakeholder ministries in the implementation of the SC	Registered MOUs	All government Ministries, Private sector companies, NGOs.	E25 000.00
Activity1. 3.4: *Identify relevant private Companies and NGOs for their employees to be educated on POPs and cleaner production concept, including international and regional standards.*	Number of companies and NGOs educated and trained on cleaner production and standardization	Training Reports	SWASA, SEA and stakeholders.	E40 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Activity 1.3.5: *Establish incentives to encourage voluntary compliance with international standards and adoption of the concepts of "cleaner production" and "cleaner waste management" in the country.*	Number of incentive schemes established and number of companies subscribing to standards in the country.	Reports	SEA, SWASA, Companies.	E50 000.00
Activity 1.3.6: *Establish a working group with membership that includes the private sector, the NGOs and SWASA to work on national standards*	Working Group meetings comprising SWASA and NGOs community.	National Standards on cleaner production	SEA, SWASA.	E40 000.00
Activity 1.3.7: *Introduce and promote integrated chemicals management strategies among key stakeholders according to SAICM principles*	Meetings to review SAICM principles and Integrated Chemicals Management	Minutes	SEA, stakeholders	E25 000.00
Activity 1.3.8: *Formulate guidelines on pesticides management*	Experts engaged to formulate guidelines	Guidelines document commissioned	MoA, MoH and SEA.	E100 000.00
TOTAL		**E655 000.00 (US$85 650.02)**		

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.2 Action Plan: Production, Import and Export, Use, Stockpiles and Waste POPs Pesticides				
GOAL 2:	**To eliminate possible residual usages of Annex A, Part I chemicals and dispose of their stockpiles by 2012 under the leadership of the Ministry of Agriculture.**			
Objective 2.1: Possible residual usages of Annex A chemicals eliminated by 2012				
Activity 2.1.1: *Conduct an in-depth national survey on usages of chemical pesticides in all relevant sectors.*	Countrywide baseline survey undertaken	Survey reports	SEA	E200 000.00
Activity 2.1.2: *Create a database on alternatives to POPs pesticides for their various applications*	Consultant engaged to research and create database.	Reports on alternatives	MoA, SEA.	E75 000.00
Activity 2.1.3: *Identify, test, select, promote and avail alternatives to POPs pesticides in agriculture, construction and other sectors.*	Number of tests undertaken, List of alternatives	Research reports, Scientific articles, Ministries annual reports	UNISWA, MoA, SEA, private companies who use, import and distribute pesticides	E250 000.00
Activity 2.1.4: *Train agricultural producers on integrated pest management (IPM) with focus on the reduction of reliance on synthetic chemical pesticides.*	Number of training workshops on IPM	Workshop reports	MoA, SEA.	E125 000.00
Objective 2.2: To regulate import, use, distribution and disposal of POPs pesticides by 2012.				
Activity 2.2.1: *Develop IEC materials on pesticides and train stakeholders and Customs Officials on the Stockholm Convention.*	Number of officials trained, Number of training programs, Number of IEC materials developed and used.	List of IEC materials. Training program reports, Certificates of attendance	SEA, Partner NGOs, Customs and Excise, MoA.	E100 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Activity 2.2.2: *Formulate a POPs pesticides regulation under EMA 2002 to cover the listing of all banned POPs pesticides.*	Number of meetings of drafting team .	Government Gazette	SEA, MJCA, MoA.	E200 000.00
Activity 2.2.3: *Convene a stakeholder meeting to validate the regulations.*	Validation meeting held	Minutes and reports	SEA	E100 000.00
Activity 2.2.4: *Promulgate the POPs pesticides regulations.*	Legal Draftsmen engaged, Draft regulations presented to Parliament by the Minister	Government Gazette	SEA, Private sector, MJCA, MoA.	E100 000.00
Activity 2.2.5: *Develop list of POPs pesticides that are exempted and can be imported, and incorporate in IEC material.*	Number of consultations held to determine the list	SEA and MOH reports and Guidance documents,	SEA, MoH, NGOs, MoA.	E50 000.00
Activity 2.2.6: *Design a permanent warning system for illegal imports, commercialisation, use, storage and waste of POPs pesticides in order to prevent future accumulation of POPs pesticides by capturing data on imports of POPs Pesticides at points of entry*	Experts to design the system engaged. Warning system operational	Expert reports on system	Ministry of Finance (Customs and Excise), MoA, SEA.	E200 000.00
Activity 2.2.7: *Capacity building on POPs pesticides management for key stakeholders*	Training, Technical assistance and Capital in puts made available to stakeholder	Mission reports, Financial reports	SEA, MoA	E150 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Objective 2.3: To dispose of obsolete stockpiles by 2012				
***Activity 2.3.1*:** *Update the national inventory on obsolete pesticides stockpiles*	Consultants engaged to undertake inventory	Updated Inventory reports	SEA, MoA	E100 000.00
Activity 2.3.2: *Centralize the various stockpiles into one site (KaLanga site)*	Number of trucks bringing obsolete stocks to KaLanga	Stockpile reports from KaLanga	MoA	E175 000.00
Activity 2.3.3: *Prepare and implement obsolete stocks disposal project under the Africa Stockpiles Programme (ASP) with the assistance of FAO.*	Funding request to FAO for the ASP project. Project proposal approved by the ASP, funding to implement disposal obtained Obsolete pesticides eradicated	FAO Obsolete Stocks Disposal report ASP reports	SEA, MoA, Finance, FAO, ASP	E1 000 000.00
Activity 2.3.4: *Improve infrastructure, train and equip personnel at the KaLanga site.*	Number of improvements made and number of staff trained at KaLanga	MoA Reports on KaLanga	MoA, SEA	E100 000.00
Activity 2.3.5 *Build a proper facility for interim storage of obsolete pesticides stockpiles.*	Built interim storage	Interim storage of obsolete pesticides structure commissioning report	MoA, FAO, ASP	E1 500 000.00
Activity 2.3.6: *Carry out risk assessment at all ex-storage sites and in the surroundings*	Consultants engaged to carry out risk assessment	Risk analysis reports, ministries annual reports, Vice Chancellors reports	SEA, UNISWA	E50 000.00
Activity 2.3.7: *Train stakeholders on the ESM of contaminated sites including remediation with low cost technologies*.	Number of officials trained	Training programs reports	SEA, MoA	E80 000.00
TOTAL			**E4 555 000.00**	**(US$595 627.27)**

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.3 Action Plan: Production, Import and Export, Use, Identification, Labelling, Removal, Storage and Disposal of PCBs and equipment containing PCBs.				
Goal 3:	**To take effective measures to phase out PCB containing equipment by 2025 and make determined efforts to achieve ESM of wastes containing PCBs by 2028.**			
Objective 3.1: To phase out PCB containing electrical equipment no later than 2025.				
Activity 3.1.1*: *Consolidate the national inventory of electrical equipment by testing them and labelling them as appropriate.	Commissioned consolidation, testing and labelling study	Inventory and consolidation report	SEC, SEA, and other electrical organizations	E5 000 000.00
Activity 3.1.2: *Develop a comprehensive database on electrical equipment and weld gears in Swaziland*	Consultants engaged to carry out the inventory	Report and database on electrical equipment and weld gears in Swaziland	SEC	E300 000.00
Activity 3.1.3: *Establish and implement a programme to bring all operating PCB-based electrical transformers in conformity with the Basel Conventions guidance*.	Implementation of management plans for PCB-based electrical transformers	SEC progress and activity reports	SEC, SEA	E150 000.00
Activity 3.1.4: *Establish and implement a programme to systematically replace all PCB contaminated equipment.*	A sufficiently resourced replacement program in place	Replacement Programme reports, SEA annual reports,	SEC, Processing industries	E300 000 000.00
Activity 3.1.5: *Support the importation of PCB free equipment and oil through appropriate incentives.*	A number of incentives schemes established	Annual Import reports from Customs and Excise, SEC order report.	Customs and Excise, SEA, SEC.	E500 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Objective 3.2: To establish an Import & Export mechanism for PCBs suspected materials by 2016.				
***Activity 3.2.1*:** *Establish PCBs testing procedure for suspected equipment entering the country.*	Number of PCB suspected equipment tested before entering the country.	Annual Import reports from Customs and Excise	SEA, Customs and Excise	E1 000 000.00
Activity 3.2.2: *Procure PCB testing equipment and train users and other relevant stakeholders including Customs Officers on PCBs testing procedures.*	Number of PCB testing equipment in place and Number of trained stakeholders on the testing procedure	Inventory list of testing equipments, certificates of proficiency among stakeholders on testing procedures	SEA, SEC, Customs and Excise.	E1 000 000.00
Activity 3.2.3: *Develop Import and Export guidelines and procedures for PCBs suspected materials.*	Import and Export guidelines documents used by Custom Officials on suspected PCB equipments	Customs and Excise reports on imports and exports	Customs and Excise, SEC, SEA.	E200 000.00
Activity 3.2.4: *Upgrade a suitable laboratory to analyze POPs, including PCBs.*	Funds secured & suitable laboratory identified and upgraded	Newly upgraded Laboratory Commissioning report	SEA, SEC, UNISWA, Swaziland Water Services Corporation	E1 300 000.00
Activity 3.2.5: *Promulgate regulations aimed at prohibition of the importation of PCB based equipment.*	Promulgated regulations in operation.	Ministries annual & progress reports.	SEA	E200 000.00
Activity 3.2.6: *Train key stakeholders on the management of PCB contaminated sites and equipment.*	Specialist engaged to train Key stakeholders on management of PCB contaminated sites & equipment	Training reports, PCBs contaminated sites registers and guidelines	SEC and SEA.	E400 000.00
Objective 3.3: To dispose of all PCB contaminated materials no later than 2025				
Activity 3.3.1: *Construct a central facility for interim storage of PCBs*	Site & funds procured Construction plans developed,	Site commissioning report	SEC and SEA	E4 000 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
contaminated equipment.	temporary storage site built.			
Activity 3.3.2: *Undertake collection of PCBs materials to interim storage.*	Number of PCBs contaminated equipment getting to the interim storage site	PCBs Haulage statistics.	SEC and other Electrical organizations	E300 000.00
Activity 3.3.3: *Develop and implement a project for the disposal of PCBs contaminated equipment.*	Number of PCBs contaminated equipment disposed off	disposal reports, company annual reports	SEC and other Electrical organizations	E10 000 000.00
Activity 3.3.4: *Develop and implement a project for low cost remediation of PCB contaminated sites.*	PCBs contaminated sites register in place, and a number of sites remediated	company activity reports	SEC, other Electrical organizations and wood treatment plants (Tonkwane)	E1 000 000.00
Activity 3.3.5: *Maintain an updated register of sites contaminated* with PCBs	Number of PCB contaminated sites	Contaminated sites registers	SEC & SEA	E50 000.00
Activity 3.3.6: *Develop and implement guidelines on handling PCBs contaminated equipment.*	Guidelines used when handling PCBs contaminated equipment	Guidelines documents	SEC & SEA	E100 000.00
Activity 3.3.7: *Purchase of specialized protective clothing for handling PCB contaminated equipment*	All Employees handling PCB contaminated equipment using specialized equipment	PPE invoices, SHERQ reports	SEC and other Electric organizations	E50 000.00
Total			**E325 550 000.00 (US$42 570 023.79)**	

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.4 Action Plan: Import, Storage, Use , Stockpiles and Wastes of DDT				
Goal 4:	**To minimize the use, human exposure to and environmental contamination from DDT by the year 2015 with the view of eliminating its use and importation.**			
Objective 4.1:To minimize the use of DDT for disease vector control by 2015				
Activity 4.1.1: *To support the work of NMCP in the use of alternatives.*	DDT being used solely for vector control and increased use of IVM	NMCP annual reports	SEA, NMCP	E2 000 000.00
Activity 4.1.2*: To facilitate research and development on alternatives to DDT.*	ongoing research and development activities seeking DDT alternatives,	Research findings	UNISWA and other institutions of higher learning	E800 000.00
Activity 4.1.3: *To strengthen existing integrated vector management interventions.*	Number of sites using IVM instead of DDT	NMCP annual reports	NMCP	E100 000.00
Activity 4.1.4: *To select most affordable, effective, assessible, sustainable and environmental friendly alternatives for DDT.*	Environmentally friendly alternatives used and promoted.	NMCP progress reports.	NMCP	E100 000.00
Activity 4.1.5: *To conduct workshops on integrated vector management and solicit the views of stakeholders.*	Number of workshops conducted. Views of stakeholders taken into consideration.	Workshop reports	NMCP, SEA	E60 000.00
Activity 4.1.6: *To train officials to continuously evaluate and monitor effectiveness of vector control methods*	Number of training sessions on evaluation and monitoring. Use of better methods.	NMCP training reports.	SEA, NMCP.	E80 000.00
Activity 4.1.7: *To initiate the process of registering for specific exemption in case there is continuing need for DDT use.*	Number of request made for exemptions	Exemption grants from WHO.	NMCP	E10 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Objective 4.2: To minimize risks on environment and human health from DDT by 2015.				
Activity 4.2.1: *To establish data base of all DDT suspected contaminated sites.*	Coordinates of DDT suspected contaminated sites.	Register of DDT contaminated sites.	NMCP, SEA	E25 000.00
Activity 4.2.2: *To conduct training workshops for communities and spray operators on the dangers of DDT contamination*	Number of people who have attended workshops.	Workshop reports by NMCP.	NMCP.	E80 000.00
Activity 4.2.3: *To undertake epidemiological studies on communities and spray operators.*	Health Status of communities and spray operators.	medical exam reports on spray operators and communities in endemic areas	NMCP	E250 000.00
Activity 4.2.4: *To develop a project to remediate DDT contaminated sites.*	Project completion and number of sites remediated	Remediation reports	NMCP, SEA, NGOs	E1 000 000.00
Activity 4.2.5: *To improve DDT handling and disposal methods.*	Proper DDT handling and DDT waste disposal methods implemented.	DDT waste disposal reports, activity reports, ministries annual reports.	NMCP, Spray operators	E150 000.00
*A**ctivity 4.2.6:*** *To build national capacities in DDT management in terms of manpower and infrastructure.*	Number of capacity building trainings held	Manpower training reports and infrastructure commissioning reports	SEA, NMCP	E150 000.00
Activity 4.2.7: *To design and promote environmentally sound technologies for the disposal of DDT wastes.*	Use of environmentally sound technologies for the disposal of DDT wastes.	DDT waste disposal reports NMCP reports to WHO	NMCP	E80 000.00
Activity 4.2.8: *To purchase test kits for spray operators and community members*	Number of kits available and testing spray operators and some community	Receipts, number of tested stakeholders.	NMCP	E150 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
	members			
Activity 4.2.9: *To establish and promote DDT networking.*	Active membership and affiliation to a DDT network group	Membership certificates	SEA & NMCP	E20 000.00
Activity 4.2.10*:* *To strengthen the Occupational Health and Safety (OHS) programs related to DDT use.*	An OHS plan being followed in using DDT	An Occupational Health and Safety annual report of the NMCP.	NMCP	E100 000.00
TOTAL				**E5 155 000.00 (US$674 085.31)**

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.5 Action Plan: Measures to Reduce Releases from Unintentional Production of PCDDs/PCDFs.				
Goal 5:	**To establish a national programme to minimize and ultimately eliminate the release of PCDD/PCDF by 2018.**			
Objective 5.1: To reduce emissions from burning of waste by 2015.				
Activity 5.1.1: *Construct hazardous waste disposal facility*	A hazardous waste disposal facility constructed and used.	Facility commissioning report and Ministry's annual reports.	MTEA, MOH, MHUD	E15 000 000.00
Activity 5.1.2: *Develop, introduce, and promote waste recycling incentives, and economic instruments aimed at increasing recycling, reusing and reducing waste streams.*	Increasing volumes of waste being recycled.	Waste reports	SEA, MHUD, Municipalities	E50 000.00
Activity 5.1.3: *Develop and implement local plans for reducing dioxins and furans emissions.*	Local plans for reducing emissions developed and used.	Municipal waste management reports and plans	MHUD, Municipalities & SEA, Hospitals	E300 000.00
Activity 5.1.4: *Introduce and encourage use of BAT/BEP by industries*	BAT/BEP in use by industries.	Company reports on use of BAT/BEP.	Sugar Industries, Municipalities	E280 000.00
Activity 5.1.5: *Build proper incinerators for medical waste and upgrade efficiency of existing health care waste disposal facilities.*	Number of incinerators efficiently functioning	Reports on efficiency of incinerators for medical waste	MoH, MHUD	E1 000 000.00
Activity 5.1.6: *Research on alternative value added uses of bagasse.*	Commissioned research & findings on alternative use of bagasse	Research findings	Sugar processing industries	E700 000.00
Activity 5.1.7: *Introduce the concept of cleaner waste*	Emergence of micro enterprises in waste	Registration of micro enterprises,	MCIT, SEA, MHUD	E250 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
management into the waste management strategy	management, less waste for landfill /burning	revised waste management strategy		
Activity 5.1. 8: *Project preparation, design and construct specific landfill sites.*	Landfill site constructed	Project report, operational landfill.	MHUD, Municipalities	E6 000 000.00
Activity 5.1.9: *Strengthen the implementation of the Rural Electrification project to scale down on the use of firewood by rural poor communities.*	Increasing number of people benefiting from the rural electrification scheme.	SEC's rural electrification scheme reports, reduced use of fuel wood.	SEC, DPM's office, Forestry	E1 000 000.00
Activity 5.1.10: *Promote harvesting of green cane, through research and learning from other countries.*	Commissioned research on green harvesting, visits to countries using green cane harvesting.	Green Harvesting Cost Benefit Analysis and feasibility studies among individual sugar farmers and major sugar milling companies	UNISWA, Sugar industries.	E700 000.00
Objective 5.2: To establish a monitoring system for UPOPs emissions and their effects on human health and environment by 2015.				
Activity 5.2.1: *Design and implement projects for the adaptation of the UNEP standardized toolkit for emissions monitoring in conformity with realities of the country.*	Monitoring system for emissions & their effects on human health and environment generated and implemented using an updated version of the UNEP tool kit	Emissions monitoring results and statistics	SEA, MNRE	E200 000.00
Activity 5.2.2: *Establish standards for importation of cars with less emission.*	Standards for importation of cars with less emission developed and used.	SWASA annual reports, inspection reports. MCIT, Customs and Excise importation reports.	SWASA, Police, CTA, MCIT, Customs and Excise	E400 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Activity 5.2.3: *Update the dioxins and furans inventory.*	An updated Dioxins and Furans inventory	Emissions Inventory report	SEA, National consultants	E50 000.00
TOTAL				**E25 930 000.00 (US$3 390 694.88)**

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.6 Action Plan: Public Awareness, Information and Education.				
Goal 6:	**From 2011, elaborate and start implementing a strategy for information education and communication (IEC) on POPs, which will serve as the foundation of a national programme for communication and training in the field of chemical safety.**			
Objective 6.1: **To build capacity in key target groups on effects of POPs and information dissemination by 2011.**				
***Activity 6.1.1*:** *Identify organizations to carry out IEC programs and train them on effects of POPs and dissemination of information.*	Number of IEC agencies identified and training workshops undertaken.	List of agencies, Training workshop reports	SEA	E30 000.00
Activity 6.1.2: *Convene a meeting of the thematic group to organize the IEC process.*	A meeting of thematic groups	Minutes	SEA	E10 000.00
Activity 6.1.3: *Identify sources and compile information on POPs into a database.*	Consultancy engaged to identify and collate information on POPs	Compendium or Information Database on POPs	SEA, Environmental Consultancy	E80 000.00
***Activity 6.1.4*:** *Identify and train the various target groups on POPs and their alternatives.*	Comprehensive list of all target groups established in 2011 and number of training sessions.	List of all target groups and reports	NGOs, SEA, short term Consultancy	E70 000.00
Activity 6.1.5: *Establish link between formal learning institutions and SEA*	Review and revise curriculum such that POPs issues are mainstreamed into formal learning	Copies of MOUs and revised curricula	SEA, UNISWA, Colleges	E100 000.00
Objective 6.2: To Publicize the Stockholm Convention to all stakeholders from 2011 to 2015.				
Activity 6.2.1: *Recruit national consultants to simplify the Stockholm Convention and*	A Siswati and Braille version of the simplified Stockholm Convention.	Consultancy report on simplification of the SC and translation into	SEA, consultant	E100 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
translate into SiSwati and Braille.		SiSwati and Braille		
Activity 6.2.2: *Develop and distribute booklets, brochures, ICT based training materials on POPs.*	A number of booklets, brochures, ICT-based training materials readily available and used	NGO Reports on Inventory of booklets, brochures and other training materials on POPs	NGO, SEA	E50 000.00
Activity 6.2.3: *Enhance research, information gathering and dissemination on POPs and available alternative technologies.*	Research findings disseminated to all stakeholders no later than 2015	Reports	SEA, UNISWA, Yonge Nawe	E40 000.00
Activity 6.2.4: *Develop and implement training programs for key target groups in the field of information dissemination.*	A number of awareness raising and training programs available by 2012	List of trained group in information dissemination.	SEA, Yonge Nawe, Media houses	E50 000.00
Activity 6.2.5: *Strengthen collaboration with the media with regard to information dissemination on POPs.*	Sensitized media	MOUs between media and SEA on information dissemination	SEA, Media houses	E30 000.00
Activity 6.2.6: *Develop and implement communication and awareness projects on POPs with the NGO community.*	Number of communications projects on POPs	POPs Communications project reports by the NGO community	NGOs	E50 000.00
Activity 6.2.7*: Mainstream and articulate POPs issues within the Climate Change Programmes.*	Revised Climate Change programmes with focus on POPs	National Climate Project reports	National Climate Change Project Focal Point, SEA	E40 000.00
Activity 6.2.8: *Develop a POPs communication strategy.*	A consultant engaged to develop the strategy and a	The POPs validated communications strategy	SEA/NGOs	E45 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
	number of stakeholders participating in its validation.	document		
Activity 6.2.9: *Collaborate with the National Curriculum Centre in order to incorporate POPs issues in school curriculum.*	Consultative meetings held with National Curriculum Centre	POPs inclusion in school curricula	SEA, National Curriculum Centre, UNISWA	E80 000.00
TOTAL				**E775 000.00 (US$101 341.63)**

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.7: Action Plan: Participation in International Activities and Programmes in the field of POPs				
Goal 7:	**To strengthen the country's participation in the SC programme by 2011.**			
Objective 7.1: **To build capacity of the SEA to effectively participate and contribute to the SC activities and NIP implementation by 2011.**				
Activity 7.1.1: *Seek national budgetary allocation to maintain, train and strengthen the NCC for the implementation of the NIP.*	Meetings, allowances and number of training & exchange programs mounted for the NCC	Reports on training programs. Financial reports	SEA and NCC members,	E300 000.00
Activity 7.1.2: *Prepare NIP Implementation reports.*	Statistical data on total quantities of POPs imported, exported and or produced	SEA Reports to SC Secretariat	SEA	E350 000.00
Activity 7.1.3*: Disseminate new developments on POPs and COP decisions*	Number of Communiqués from the COP reaching to the stakeholders, Newspaper articles	POPs briefing newsletter, newspaper articles	SEA, media	E100 000.00
Activity 7.1.4: *Participation of at least 3 key actors in POPs at regional and international meetings each year.*	Number of stakeholders attending conferences per year	Conference reports	SEA	E250 000.00
Activity 7.1.5: *Carry out POPs surveys.*	Number of consultancies and or NGOs assigned to carry out surveys	Survey reports	SEA	E220 000.00
Activity 7.1.6: *Participate in the work of the POPRC.*	Country's participation in the work of POPRC	SEA reports	SEA	E30 000.00
Activity 7.1.7 *Participate in the Convention's*	Convention's effectiveness evaluation carried	Evaluation reports	SEA	E50 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
effectiveness evaluation as per article 16.	out			
TOTAL		**E1 300 000.00 (US$169 992.42)**		

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.8 Action Plan: Reporting, Monitoring and Evaluation				
Goal 8:	**To build capacity for monitoring, evaluation and reporting on POPs information at international, regional, sub regional and national levels.**			
Objective 8.1: To fulfil the reporting requirements of the Stockholm Convention by 2012.				
Activity 8.1.1: *Develop and implement standards for monitoring and evaluation.*	Number of monitoring and evaluation carried out by the monitoring agency using set standards	Monitoring and evaluation reports	SEA	E70 000.00
Activity 8.1.2: *Create partnerships among key actors involved in POPs monitoring.*	Number of partnerships carrying out monitoring and evaluation activities in POPs issues	MOUs and monitoring and evaluation reports	SEA and NGOs	E300 000.00
Activity 8.1.3*:* *Evaluate effectiveness of mitigation measures taken by actors against hazardous effects of dioxins and furans*	Number of dioxins and furans evaluations	Evaluation reports	SEA, industry	E150 000.00
Activity 8.1.4: *Strengthen linkages between POPs organizations at national, regional and international levels*	Sustained and tiered communications between national, regional and international levels	SC Secretariat reports, linkages established	SEA, POPs related organizations	E200 000.00
Activity 8.1.5: *Establish and strengthen institutional capacities for monitoring and evaluation.*	Technical and financial assistance	Reports on technical and financial assistance	SC Secretariat	E500 000.00
Objective 8.2: To strengthen institutional capacities for reporting on the Stockholm Convention from 2011.				
Activity 8.2.1: *Set up a national coordination modality for reporting on POPs information.*	Agencies using a centralized system (POPs Information System) for	Electronic retrieval of reports, Coordination reports	SEA	E150 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
	reporting at SEA POPs office.			
Activity 8.2.2: *Develop projects to strengthen information exchange mechanisms.*	Number of Information exchange projects initiated and implemented	Project reports	NGO, SEA	E50 000.00
Activity 8.2.3*: Carry out capacity needs assessment to identify reporting limitations by stakeholders*	A project undertaken to come up with a listing of reporting limitations by stakeholders	Needs assessment reports	SEA	E10 000.00
Activity 8.2.4: *Identifying financial constraints and financial solutions about reporting to the SC secretariat.*	List of constraints and possible financial solutions identified	Gap analysis report on reporting limitations	SEA, Consultants	E20 000.00
Activity 8.2.5: *Create a POPs information system (database) to make it easy for actors to report periodically on emission rates, imports and disposal.*	Consultants to develop database engaged, data availability, data influencing policy	Stakeholder reports, policy developed	SEA	E100 000.00
Activity 8.2.6: *Create and update focal point website to incorporate POPs information.*	Improved access to information on POPs, Updated websites at SEA	SEA website with link to POPs website	SEA, SC Secretariat	E80 000.00
Activity 8.2.7: *Develop reporting guidelines for local stakeholders to SEA POPs office.*	guidelines and standards in place	Guidelines document	SEA	E50 000.00
Activity 8.2.8: *Systematic reporting of adopted measures taken by actors against hazardous effects of dioxins and furans.*	An inventory of Best Practices	Hazardous waste reports	SEA	E40 000.00
Activity 8.2.9: *Implement voluntary and regulatory*	Compliance with Convention, mandatory	Mandatory and non mandatory reports on	POPs stakeholders	E25 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
systems for reporting on POPs information.	reporting carried out periodically	POPs, COP reports.		
Activity 8.2.10: *Regular publication of POPs news and articles in the local electronic media.*	A number of POPs news and articles in the local electronic media	Media archives	SEA, Media	E50 000.00
Activity 8.2.11: *Periodic press conferences on the national POPs situation and their risks.*	A number of press conferences on POPs	Copies of press releases	SEA, Media Houses	E70 000.00
Activity 8.2.12: *Preparation of POPs documentaries and slots in local radio and television.*	A number of documentaries on POPs being shown on TV	Archive of TV documentaries in the POPs field	SEA,	E140 000.00
TOTAL		**E2 005 000.00 (US$262 180.61)**		

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.9 Strategy: Research and Development				
Goal 9:	**To build technical capacity on POPs analysis and undertake research by 2012.**			
Objective 9.1: **To encourage and undertake appropriate research and development on POPs and their alternatives by 2012.**				
Activity 9.1.1: *Identify and equip one technical laboratory to conduct analysis and research on POPs and have it accredited.*	Operational accredited laboratory with capacity for POPs analysis and research	Procurement of equipment, signed MOU, and Inter laboratory liaison	SEA, UNISWA, SWSC, NWA, MoH	E 5 000 000.00
Activity 9.1.2: *Develop Memorandum of Understanding (MOUs) and Public Private Partnerships (PPP) for research and development with partner industries*	Research and development projects are developed and list of partners to undertake joint research work, research projects conducted between UNISWA, industry, regional and international partners	Signed MOUs to undertake joint research work	SEA, UNISWA, industries and funding agencies	E250 000.00
Activity 9.1.3: *Develop research proposals and commission research projects on various POPs themes.*	Engage consultants to develop proposals, Availability of funds to undertake POPs projects	Approved Research proposals, published articles from the research undertaken Membership certificates	SEA/UNISWA, funding agencies	E250 000.00
Activity 9.1.4: *Establish and promote networks with national, regional, international institutions and organizations on POPs issues.*	Number of established research and development partnerships and networks	Reports from SEA	SEA, POPs agencies	E40 000.00
Activity 9.1.5: *Undertake technical training of staff to conduct POPs*	Number of competent technical staff on POPs sampling	Skills Training reports, SEA reports	SEA, UNISWA, SWSC and MOH	E600 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
sampling and tests, using various techniques.	and testing , staff endowed with technical skills		Mbabane Government Hospital	
Activity 9.1.6: *Provide training on the methodology of risk assessment for contaminated sites.*	Number of contaminated sites being assessed.	Contaminated sites risk assessment reports.	SEA, UNISWA	E500 000.00
Activity 9.1.7: *Domesticate international analytical procedures and methods for POPs***.**	International procedures and methods used.	Elaborated Analytical procedures manual on POPs	SEA, UNISWA, SWSC, Malkerns research laboratory and Mbabane Government referral Hospital	E600 000.00
Activity 9.1.8: *Disseminate research findings to the public.*	Number of research undertaken	Research reports and dissemination of research findings workshop reports	UNISWA, SEA, industry, stakeholders	50 000
TOTAL			**E7 290 000.00 (US$953 265.16)**	

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
3.3.10 Strategy: Technical and Financial Assistance				
Goal 10:	**To mobilise sufficient national and international technical and financial resources to support compliance with the obligations under the Stockholm Convention and NIP implementation by 2011.**			
Objective 10.1: To procure national and international technical and financial assistance for the organizational strengthening of agencies responsible with implementing the Stockholm Convention and its NIP by 2011.				
Activity 10.1.1: *Request government resources to kick-start the NIP implementation.*	Government Budget allocation to the POPs programme	Functional POPs programme established	MTEA, SEA	E500 000.00
Activity 10.1.2: *Explore means and modalities for obtaining technical and financial assistance from developed countries and international cooperation agencies*	Study on how to obtain technical and financial assistance from developed countries and international cooperation agencies undertaken	Procedures manual on technical and financial assistance on POPs issues	SC Secretariat, SEA SEA	E50 000.00
Activity 10.1.3: *Engage consultants to develop project proposals to address national priorities on POPs and strengthen national institutions.*	Consultants hired Funding inflows for POPs projects.	SEA POPs project reports, List of project proposals sent for funding, SEA reports, ToRs, contracts, work reports, written, reviewed and approved proposals	SEA	E400 000.00
Activity 10.1.4: *Identify and create a list of Governments, Non Governmental Organizations (NGOs), and International Cooperation Agencies (ICAs) that can cooperate in the implementation of the NIP via prioritized project proposals.*	Modalities and contact persons drawn up for forwarding project proposals.	List of ICAs and other local regional partner organizations, ICAs database and signed MOUs, signed agreements	Swaziland Government, ICAs and stakeholder industries.	E50 000.00

Intervening Logic	Objectively verifiable indicators	Sources of verification	Agencies	Estimated Cost
Activity 10.1.5: *Encourage investment and contribution into POPs activities through resources and budget by national institutions (public, private and mixed)*	Cost sharing in the implementation of the NIP	National and POPs programme Budget	SEA, ICAs, Swaziland Government.	E200 000.00
Activity 10.1.6: *Dispatch prioritized project proposals to regional, bilateral and/or multilateral agencies*	Number of project proposals prepared & submitted for approval, number of approved projects, established bilateral, multilateral cooperation agreements	Regional, multilateral and/or bilateral agencies briefing notes.	SEA, NCC	E250 000.00
Activity 10.1.7: Visit *ICAs to establish areas of cooperation and obtain feedback on submitted project proposals.*	Number of visits to ICAs undertaken to determine areas of cooperation and feedback on submitted project proposals	dates of visits, minutes from meetings with ICAs	SEA & stakeholder agencies	E150 000.00
Activity 10.1.8: *Submit implementation reports for the financed projects and/or activities, and establish working relationships with the ICAs.*	Number of implemented projects, constant financial inflows and communication with ICAs	completed technical and financial reports	SEA, MoA, other Stakeholders	E40 000.00
TOTAL			**E1 640 000.00 (US$214 4 51.97)**	
TOTAL COST FOR ALL ACTION PLANS		**E374 855 000.00 (US$49 017 313.07)**		

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MINISTRY OF TOURISM AND ENVIRONMENTAL AFFAIRS

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MBABANE H100
SWAZILAND

Our Ref: SEA/INT/15.1

24 November 2010

The Executive Secretary
Secretariat of the Stockholm Convention
11 – 13 Chemins des Anemones
CH – 1219 Chatelaine, Geneva, Switzerland

Dear Sir,

Re: Submission of the National Implementation Plan on Persistent Organic Pollutants by the Government of Swaziland

The Kingdom of Swaziland, through the Swaziland Environment Authority (SEA), requested technical support from UNIDO in its role as a GEF Executing Agency to help the country prepare and submit its proposal on POPs enabling activities to the GEF that were approved in 2008.

The SEA, as an implementing agency, duly followed the procedure recommended by UNIDO and the Stockholm Convention Secretariat. We are happy to report that the participatory process recommended has been completed with the endorsement of the NIP by stakeholders on 28 September 2010.

We note that there are technical and financial challenges that will be encountered towards the execution of POPs related activities. However, we believe our NIP is realistic and the GoS will cherish assistance from cooperating partners to assist us to develop fundable projects to contribute to the fight of eradicating POPs and protecting human health and the environment.

The Government of Swaziland hereby submits its NIP in compliance with the provisions of the Convention and funding considerations to implement the NIP.

Thanking you in advance for your usual cooperation and support.

Sincerely Yours,

MINISTRY OF TOURISM AND ENVIRONMENTAL AFFAIRS
PRINCIPAL SECRETARY
24 NOV 2010
P. O. BOX 2652
MBABANE-SWD

Lucy. M. T. Dlamini (Mrs)
Principal Secretary

CC: The Chief, Procurement Services, UNIDO

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Endorsement Stakeholders Attendance List

Mrs. Lucy Dlamini	P.S. Ministry of Tourism and Environmental Affairs
Mrs. Irma Allen	Chairperson- SEA Board
Mr. J.D. Vilakati	Executive Director- Swaziland Environment Authority
Mr. Mboni Dlamini	Project Director- Swaziland Environment Authority
Mr. V.F. Simelane	National Project Coordinator
Professor Komla Sanda	UNIDO International Consultant
Mr. Delisa Mamba	Assistant POPs Project Coordinator
Mr. William N. Ndlela	National Consultant - University Of Swaziland
Mrs. Constance van Zuydam	Swaziland Electricity Company
Mr. Manene Thwala	National Consultant – Twala Attorneys
Mr. Phangindawo Dlamini	Customs and Excise
Mr. Mduduzi Mathunjwa	National Consultant - University Of Swaziland
Mr. Muzikayise Dube	Swaziland Investment Promotions Authority
Ms. Nombuso Phiri	Swaziland Investment Promotions Authority
Mr. Duma Zwane	Swaziland Sugar Association
Mrs. Phindile Dlamini	Ministry of Agriculture
Mr. Caleb Motsa	Ministry of Commerce, Industry and Trade
Mr. Eric Makhathini	Correctional Services
Mr. Mavela Sigwane	Simay SHEQ Consultancy
Mr. Wilfred Mdluli	Swaziland Standards Authority
Mrs. Millicent Fakudze	Swaziland Environment Authority
Mr. Jeremiah Msibi	Cotton Board
Mr. Angus Mcleod	Swaziland Agricultural Supplies
Mr. Similo G. Mavimbela	Ministry of Agriculture - Research
Mr. Zimisele Simelane	Environmental Scientist
Mrs. Clara Dlamini	Ministry of Agriculture
Mr. Leonard Dlamini	Royal Swaziland Police Service- Forensic Lab
Mr. Phillip White	Royal Swaziland Sugar Cooperation
Ms. Calisile Mhlanga	Swaziland Environment Authority
Mr. Gcina Dladla	Swaziland Environment Authority
Mr. Daniel Khumalo	Swaziland Environment Authority
Mrs. Daisy Dlamini	Swaziland Environment Authority
Mr. Sifiso Simelane	Swaziland Environment Authority
Mr. Elliot Thwala	Ministry of Education
Mr. Boniface Makhubu	Ministry of Agriculture

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LIST OF NATIONAL COORDINATING COMMITTEE (NCC) MEMBERS

No.	Name	Organisation
1.	Mr. Stephen Khumalo	Ministry of Housing and Urban Development
2.	Mr. Sipho Kunene	Ministry of Housing and Urban Development
3.	Mr. Boniface Makhubu	Ministry of Agriculture
4.	Mrs. Bawelile Dladla	Ministry of Economic Planning and Development
5.	Mr. Edmund Dlamini	Ministry of Health (Environmental Health Inspection)
6.	Mrs. Zulisile Zulu	Ministry of Health (Malaria Control)
7.	Mr. Caleb Motsa	Ministry of Commerce, Industry and Trade
8.	Ms. Nombuso Phiri	Swaziland Investment Promotion Authority
9.	Mrs. Constance van Zuydam	Swaziland Electricity Company
10.	Mr. Phangindawo Dlamini	Customs and Excise – Ministry of Finance
11.	Mr. Andile Zwane	Yonge Nawe
12.	Ms. Anita Mukasa	Federation of Swaziland Employers and Chamber of Commerce
13.	Mr Wandile Hlatshwako	SHE Forum
14.	Mrs Thobile Khumalo	Swaziland Environment Authority
15.	Mrs Jabu Myeni	Swaziland Environment Authority
16.	Ms. Thabile Dlamini	Swaziland Environment Authority
17.	Mr. Daniel Khumalo	Swaziland Environment Authority
18.	Mr. Mboni Dlamini	Swaziland Environment Authority (National Project Director)
19.	Mr. Vusumuzi Simelane	Swaziland Environment Authority (National Project Coordinator)
20.	Mr. Delisa Mamba	Swaziland Environment Authority (Assistant Project Coordinator)
21.	Ms. Bhekiwe Hlophe	Swaziland Environment Authority (Former National Project Coordinator)

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Record of stakeholder training and public participation

Date	Activity	Responsible	Number of participants
22 October 2008	NCC and NCMC Training Workshop	Ms. B. Hlophe, Mr. M.Z. Dlamini	27 participants
2-12 December 2008	Inventory Training Workshop	Prof. Urs. K. Wagner, Prof K. Sanda, Ms. B. Hlophe & Mr. M.Z Dlamini	20 participants
16 March 2009	Presentation of Inception Reports for POPs Inventories	Ms. B. Hlophe, Mr. M. Z. Dlamini	18 participants
25 June 2009	Presentation of Preliminary Findings of POPs Inventories	Dr. Derough, Ms. B. Hlophe, Mr. M. Z. Dlamini	9 participants
22 October 2009	Inventories Reports Validation	Prof. K. Sanda, Mr. V.F. Simelane & Mr. M. Z. Dlamini	22 participants
02-03 February 2010	Stakeholder Workshop on Setting Priorities and Determining Objectives	Mr. Mboni Dlamini, Mr. V.F. Simelane, Mr. J.C. Dlamini	28 participants
17 March 2010	Validation Workshop on Priority Setting	Mr. Mboni Dlamini, Mr. V.F. Simelane, Mr. J.C. Dlamini	34 participants
18 May 2010	Training Workshop on Action Plans and Strategies	Prof. K. Sanda, Mr. V. F. Simelane & Mr. M. Z. Dlamini	16 participants
28 September 2010	NIP Endorsement Workshop	Prof. K. Sanda, Mr. V. F. Simelane & Mr. M. Z. Dlamini	35 participants

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PUBLICITY MATERIALS

a) Newspaper Article on the Stockholm Convention on Persistent Organic Pollutants appeared in the Swazi News on 21 November 2009

Background

Having identified the effects of Persistent Organic Pollutant (POPs) on human health and the environment, the Governing Council of the United Nations Environment Program (UNEP) requested a decision 18/32 in May 1995 that an international assessment be undertaken of an initial list of 12 POPs. The list included Aldrin, Chlordane, Dichloro diphenyl trichloroethane (DDT), Dieldrin, Dioxins, Endrin, Furans, Hectachlorobenzene (HCB), Heptachlor, Mirex, Polychlorinated biphenyls (PCBs) and Toxaphane. During the meeting, the Governing Council mandated the Inter-governmental Forum for Chemical Safety (IFCS) to develop recommendations on international action for consideration by the UNEP Governing Council and the World Health Assembly not later than 1997. In June 1996, the IFCS confirmed the need for international action including a legally binding instrument to reduce the risk to human health and the environment arising from the release of the 12 POPs. After a series of negotiations, the Stockholm Convention was signed on 23 May 2001 in Stockholm, Sweden.

What are Persistent Organic Pollutants?

POPs constitutes a class of organic compounds that possess toxic properties, resist natural degradation, bio-accumulates and is transported through air, water, and migratory species. POPs accumulate in fatty tissues of living organisms and their concentration increases higher in the food chain. They have the following characteristics:

- Extremely stable and long-lived;
- Most do not occur in nature but are man-made;
- Once released into the environment, they persist for years or decades;
- Highly toxic and build-up (bio-accumulate) in fatty tissues of humans and animals;
- Continue to pollute the environment for many years;
- Travel long distances (migratory species, tradable products, etc.).

Nine of these chemicals are pesticides (Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Mirex, Toxaphene and Lindane) and are used by the agricultural sector while DDT is used in the health sector as vector control for malaria. Two are Industrial chemical that include Hexachlorobenzene (HCB) and Polychlorinated Biphenyls (PCBs) used in electrical equipments (transformers, capacitors, etc). The remainder is unintentional products known as Dioxins and Furans (PCCD / PCDF) resulting from burning of waste and incineration. The 12 POPs have become commonly known as the ***"Dirty Dozen"*** or ***"Poisons without Passports"***.

Why Worry About POPs?

Exposure to POPs has been associated with adverse effects on human health and environment. Common ailments associated with POPs include fatigue, depression, chloracne, skin lesion, gastrointestinal cancer, skin rashes, hyper pigmentation, headaches, and vomiting. Other side effects are birth defects, dysfunctional immune and reproductive systems, and greater susceptibility to disease and sometimes diminished intelligence.

About the Convention

The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment. The Convention became an internationally binding law in May 2004 when it came into force. Swaziland acceded to the Convention on 13 January 2006. Given their long range transport through migratory species, the food chain or other by-products, no one government acting alone can protect its citizens or its environment from POPs.

Objective

The objective of the Convention is to protect human health and environment from the adverse effects of POPs, bearing in mind the Precautionary approach as stated in Principle 15 of the Rio Declaration on Environment and Development.

Convention Text

The text of the Convention on Persistent Organic Pollutants was adopted on 22 May 2001 and entered into force ninety days after the deposit of the fiftieth instrument of ratification, acceptance, approval or accession by a country to the Convention, as at 17 May 2004. The full text of the Convention can be found on http://chm.pops.int/convention/**.**
The Convention is administered by the United Nations Environment Programme and its Secretariat is based in Geneva, Switzerland.

Parties to the Convention

Parties to the Convention are required to eliminate dangerous POP's starting with the 12 worst as stipulated above. Parties are urged to support the transition to safer alternatives and targeting additional POP's for inclusion in the list of unwanted POPs. Further action requires the cleaning up of stockpiles of POP's and equipment containing PCB's and cooperating with other Parties for a POP's free future.

To become a Party to the Convention a State or regional economic integration organization needs to submit its instrument of ratification, acceptance, approval or accession to the depositary. A list of Parties and Signatories to the Stockholm Convention can be viewed at http://chm.pops.int/convention/**.** Parties nominate official contact points and focal points for the purpose of administrative, communications and information exchange pursuant to Articles of the Convention. All Parties to the Convention agreed & are obliged to make every effort to implement the Stockholm Convention, in particular the preparation of National Implementation Plans (NIPs) and reporting obligations under the Convention.

NIP Preparation Stages

In preparing the NIP each Party has to follow the following stages:

1) Determining of a coordinating mechanism and organisation of the process
2) Establishing of POPs Inventory and assessment of national infrastructure and capacity
3) Setting of priorities and determination of objectives
4) Formulation of a National Implementation Plan, and specific action plans on POPs, and
5) The NIP endorsement by stakeholders.

Where Are We in the NIP Process?

Swaziland is currently undertaking stage 2 through a project titled “Enabling Activities for the Development of a National Implementation Plan as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs) in Swaziland. The project is funded by the Global Environment Facility (GEF) through the United Nations Industrial Development Organisation (UNIDO) and implemented by the Swaziland Environment Authority (SEA) on behalf of the Kingdom of Swaziland. A National Project Coordinator (NPC) and an assistant were employed to implement and drive the project. They report to a National Project Director (NPD), a high ranking SEA official. Similarly, a multi stakeholder National Coordination Committee (NCC) was established to monitor the process. The NCC meets once a month to provide direction and guidance to the NPC. The project and the NCC identified five thematic areas covering ***Institutional, Regulatory and Policy Framework, National Chemical Management Profile, PCBs & Contaminated Sites, Pesticides and Herbicides including DDT, and PCDD / PCDF (Dioxins & Furans)*** as areas needing further action. Consultants were engaged to undertake the inventories on these thematic areas. Draft inventories are expected from consultants to be reviewed by the NCC and an external UNIDO consultant. A workshop where the Consultants will present their draft Inventories will be held at Mantenga Lodge on Thursday, 22 October 2009 starting at 9.00hrs. This is to ensure compliance with the Terms of Reference (TORs) and quality control.

The inventories are a major input in the next stage of Priority Setting and Determination of Objectives for POPs management. The project started in June 2008 and is earmarked for completion in June 2010 where the NIP for Swaziland has to be submitted to the Convention Secretariat. The NIP will identify priority action plans to work towards the phasing out of POPs, including funding requirements. All countries have to work together to collectively save planet earth from POPs. You are requested to assist Swaziland to meet its obligations and fulfil the requirements of the Stockholm Convention.

For further details, contact the National Project Coordinator

b) SEA Newsletter Article that appeared in Volume 1 Issue 1 April 2009

Title: SWAZILAND RISES TO MEET OBLIGATIONS OF THE STOCKHOLM CONVENTION

Concern rose among the international community on the use and effects of persistent organic pollutants. This led to the Stockholm Convention, a Convention which seeks to protect human Health and the Environment from Persistent Organic Pollutants (POPs) by ridding the world of these chemicals. There are thousands of listed chemicals and the list is amended regularly but there are twelve listed as critical, also referred to as the dirt dozen. Swaziland is a signatory of this Convention and is obliged to abide by its regulations and protocols.

Parties to the Stockholm Convention are required to develop NIPs to demonstrate how the obligations of the Convention will be implanted, as per Article 7 of the Convention. The article requires that each party to the Convention shall develop a National Implementation Plan within two years of doing so. Swaziland became party to the Convention to the Convention on 13th January 2006 and was granted the funding for the Enabling Activities for the Development of the National Implementation Plan (NIP) to the Conference of Parties latest June 2010, once approved by stakeholders and government

The overall objective is to strengthen national capacity and capability to prepare a NIP for the management of POPs. This Plan will provide a basic and essential level of information to enable policy and strategic decisions to be made and identify priority activities that Swaziland should undertake in order to meet the obligations and requirements of the Stockholm Convention.

A starting point for Swaziland was setting up the project office. This was done in June 2008 and Ms Bhekiwe Hlophe was appointed as the National Project Coordinator. Subsequent to this, She has through this office, determined the coordinating mechanism and organizing office. Relevant stakeholders were invited to an inception workshop and the project outline, deliverables and time frame outlined to them.

In the very near future, Swaziland will have its preliminary inventory to strategise on the management of these chemicals and its obligation to the Convention.

Pesticides stockpiles

Oil Contamination

The Project Office has since established and trained the project steering committees, the National Chemicals Management Committee and the National Coordinating Committee. Both

committees play a pivotal role in the management of the POPs project at different levels and for a. Committee members come from a wide spectrum of stakeholders in the government and private sectors. The training rose as the Project Office felt there was a need to train the supporting committees to the project, the National Coordinating Committee and the National Chemicals Management Committee to ensure understanding of their role and impacts on the project implementation and success. Committees had the benefit of the discussion of the Convention, project and critique the work plan presented.

Stakeholders at a workshop

To develop the NIP, Swaziland requires taking an inventory of its POPs; assessing her infrastructure and capacity; determining her priority assessment and setting objectives. The accuracy of the inventory and assessment of the infrastructure is critical to the subsequent steps and success of the NIP development. Swaziland has a challenge on the stockpiles and management of these chemicals. In November, as we prepared for the training, sites were visited around the country to establish the extent of the problems, with one of the International Consultants, attached to the project, from UNIDO offices.

The Swaziland Environment Authority has through the project office, hosted International Consultants in December 2008, to train Consultants in the undertaking of the inventory. The accuracy of the inventory is critical for the sustainability and applicability of the National Implementation Plan.

SEA Newsletter Article that appeared in Volume 1 Issue 2 published in September 2009

1) Title: REGULATING PERSISTENT ORGANIC POLLUTANTS (POPs)

Introduction

The Government of the Kingdom of Swaziland is party to the Stockholm Convention on Persistent Organic Pollutants through accession on 13 January 2006. The Stockholm Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife. Exposure to Persistent Organic Pollutants (POPs) can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and even diminished intelligence. The Stockholm Convention was adopted in 2001 and entered into force 2004, and requires Parties to take measures to eliminate or reduce the release of POPs into the environment.

What are POPs?

POPs constitutes a class of organic compounds that possess toxic properties, resist natural degradation, bio-accumulates and is transported through air, water, and migratory species. POPs accumulate in fatty tissues of living organisms and their concentration increases higher in the food chain.

Nine of these chemicals are pesticides (Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Mirex, Toxaphene and Lindane) and are used by the agricultural sector while DDT is used in the health sector as vector control for malaria. Two are Industrial chemical that include Hexachlorobenzene (HCB) and Polychlorinated Biphenyls (PCBs) used in electrical equipments (transformers, capacitors, etc). The remainder is unintentional products known as Dioxins and Furans (PCCD / PCDF) resulting from burning of waste and incineration.

(Improperly Burnt Waste Releasing Dioxin & Furans from an Incinerator)

The 12 POPs have become commonly known as the *"Dirty Dozen"* or *"Poisons without Passports"*.

Current Legislative Framework

Currently, Swaziland does not have the legal framework and/or the capacity to regulate POPs despite that several policies and acts try to address chemicals or POPs albeit in an unholistic manner. It is expected that one of the outputs of meeting the obligations under the Convention and the NIP process will be the establishment of a multi - sectoral National Chemicals Management Committee (NCMC) that will develop a Chemical Substances Policy and draft Regulations for their management.

(Obsolete Pesticides Stocks at KaLanga - Siteki)

As Party to the Convention, Swaziland agreed & is obliged to make every effort to implement the Stockholm Convention, in particular the preparation of National Implementation Plans (NIPs). The NIP process has five stages:

- Determining of a coordinating mechanism and organisation of the process;
- Establishing of POPs Inventory and assessment of national infrastructure and capacity;
- Setting of priorities and determination of objectives;
- Formulation of a National Implementation Plan, and specific action plans on POPs and;
- The NIP endorsement by stakeholders.

Where Are We in the NIP Process?

Swaziland is currently undertaking stage 2 of a project titled "Enabling Activities for the Development of a National Implementation Plan as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs) in Swaziland". The project is funded by the Global Environment Facility (GEF) through the United Nations Industrial Development Organisation (UNIDO) and implemented by the Swaziland Environment Authority (SEA) on behalf of the Kingdom of Swaziland. A National Project Coordinator (NPC) and an assistant

were employed to implement and drive the project. They report to a National Project Director (NPD), a high ranking SEA official. Similarly, a multi stakeholder National Coordination Committee (NCC) was established to monitor the process. The NCC meets once a month to provide direction and guidance to the NPC. The project and the NCC identified five thematic areas covering *Institutional, Regulatory and Policy Framework, National Chemical Management Profile, PCBs & Contaminated Sites, Pesticides and Herbicides including DDT, and PCDD / PCDF (Dioxins & Furans)* as areas needing further action. Consultants were engaged to undertake the inventories on these thematic areas. Draft inventories were presented by national consultants at a workshop held on Thursday, 22 October 2009 at Mantenga Lodge.

(Partial View of Workshop Participants at Mantenga Lodge)

The Inventories were reviewed by the NCC and an external UNIDO consultant to ensure compliance with the Terms of Reference (TORs), quality control and consistency with internationally recommended guidelines. The national consultants are currently finalizing the Inventories taking on board the comments of the NCC and UNIDO consultant.

The next Stage

The Inventories are a major input in the next stage of Priority Setting and Determination of Objectives for POPs management. The project started in June 2008 and is earmarked for completion in June 2010 where the NIP for Swaziland has to be submitted to the Convention Secretariat. The NIP will identify priority action plans to work towards the phasing out of POPs, including funding requirements.

c) Brochures

First Issue: Persistent Organic Pollutants (POPs)

The building blocks of living organisms are organic compounds that contain carbon and hydrogen (and in some case other elements as well). These compounds are never indestructible and many break down relatively easily.
But man has learnt to manufacture organic com-pounds that are extremely difficult to break down and, as a result, have become widely dispersed through the environment. These chemicals are termed Persistent Organic Pollutants (POPs).

POPs are a group of chemicals, which are very resistant to natural breakdown processes and are therefore extremely stable and long-lived. Most do not occur in nature but are man-made. Once released into the environment, many POPs persist for years, even decades. Therefore, even if production of all POPs ceased today, they would continue to pollute the environment for many years to come. Many POPs are also highly toxic and build up (bioaccumulate) in the fatty tissues of animals and humans. These three properties– persistent, toxic, and bioaccumulative, make them, arguably, the most problematic chemicals to which systems can be exposed.

The POPs that we have extensive information on, like PCBs and DDT, are known to cause serious negative impacts on wildlife. There is also evidence to suggest that human health in different parts of the world is influenced by exposure to these well-known POPS.
Because all these chemicals are resistant to breakdown and can accumulate in the environment and organisms, the potential for negative health effects is impossible to avoid once the chemicals are released. In effect, the released of POPs to the environment is like playing a large scale laboratory experiment with the very livelihood of mankind and the environment.

Where do we get them?

These are:
Pesticides: Aldrin, Dieldrin, Chlordane, DDT, Endrin, Heptachlor, Mirex and Toxaphene. DDT had been known for its use in malaria control.

Industrial Chemicals: PCBs, HCBs. PCBs are used in electricity transformers for instance, that were manufactured in olden days.

Unintended By products: Dibenzodioxins, Dibenzofurans. These are products of combustion and incineration of hazardous, clinical and municipal waste. Contributors and to these are also the paper and pulp industry.

The concern about them

They are persistent, do not degrade, indestructible, have both short and long term cancers, affect animal productivity and cause egg shell thinning in birds and chicken oedema, trans-ported by air, land and water.

If animal productivity is affected, so is the animal production industry in Swaziland for eggs, poultry, beef, pork and others. This also threatens our food security when we have already suffered drought in many parts of the country. Should animals be tested and found to contain these, they should be, ideally, destroyed to pre-vent further concentration of these humans.

What are their effects on human?

Depending on which of the POPs are we discussing, they have wide varied effect on humans. These effects could be summarized as: Fatigue, depression, chloracne, skin lesions, increased mortality in adults and children, gastrointestinal cancer, compromised immune and reproductive effects, skin rashes, hyper pigmentation, head-aches and vomiting, neural and development changes in foetuses, short term memory and spatial learning effects in children, low birth weights and skull calcifications to mention a few.

Has such been proven in Swaziland?

According to research POPs have been found in traces in hair, breast milk and bloods of Swazi citizens.

Second Issue: The Development of the National Implementation Plan (NIP) Project in SWAZILAND under the Stockholm Convention

The Government of the Kingdom of Swaziland is party to the Stockholm Convention on Persistent Organic Pollutants through accession on 13 January 2006. The Stockholm Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife. Currently, Swaziland is implementing a project titled "Enabling Activities for the Development of a National Implementation Plan as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs) in Swaziland". The project is funded by the Global Environment Facility (GEF) through the United Nations Industrial Development Organisation (UNIDO) and implemented by the Swaziland Environment Authority (SEA) on behalf of the Kingdom of Swaziland.

The NIP process has five stages:

- Determining of a coordinating mechanism and organisation of the process;
- Establishing of POPs Inventory and assessment of national infrastructure and capacity;
- Setting of priorities and determination of objectives;
- Formulation of a National Implementation Plan, and specific action plans on POPs and;
- The NIP endorsement by stakeholders.

Undertaking the Inventories

The second stage of process entailed the establishment of POPs inventories and the assessment of infrastructure and capacity. Swaziland finished establishing her national inventory in December 2009. The national inventory for the country comprises of five thematic areas, namely;

i) the Institutional, Regulatory and Policy Framework on management of pops,
ii) National Chemical Profile,
iii) PCBs & Contaminated Sites,
iv) Unintentionally Produced Chemicals (PCDD/Fs)
v) Pesticides & Herbicides

During the inventory taking and assessment of national infrastructure and capacity, specific assessments were carried out on the different inventories. Gaps were identified in resources, capacity and knowledge, which prevent them from the complete assessment of POPs. Similarly,

country needs were identified for completing the NIP, including coordination and integration with national sustainable development priorities and institutions.

Priority Settings and Determination of Objectives

The project is presently engaged on stage 3 of the project, which is setting priorities for the country. In this stage, country-specific criteria for prioritizing the identified gaps and barriers will be developed. A brain storming workshop has already been held through engaging stakeholders in a 2 day workshop which was held at Esibayeni Lodge (Matsapha) from the 2 Feb. 2010 to 3 Feb. 2010.

The NIP Development Stage

The output of Stage 3 will feed into Stage 4, the Preparation of the NIP and related action plans to guide the management of POPs. This process will begin around mid March 2010 and earmarked for completion in May 2010.

NIP Endorsement

The last stage of endorsing the NIP is expected to commence in June 2010. Endorsing the NIP completes the current project when Swaziland submits its NIP to the Stockholm Convention Secretariat for funding the identified priority areas in our endeavour to meet the obligations of the Convention. For further information on the NIP development process, contact the SEA through the National Project Coordinator or his Assistant at 404 6960 by telephone or by e-mail at the following addresses: vfsimelane@sea.org.sz & dmamba@sea.org.sz

d) Draft Poster

Persistent Organic Pollutants in Swaziland

The Government of Swaziland acceded to the Stockholm Convention on Persistent Organic Pollutants on the 13th of January 2006. The Stockholm Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, becoming widely distributed geographically and accumulate in the fatty tissue of humans and wildlife.

POPs are a group of chemicals, which are very resistant to natural breakdown processes and are therefore extremely stable and long lived. Many POPs are also highly toxic and build up (bio-accumulate) in the fatty tissues of animals and humans.

Currently, Swaziland is implementing a project to develop a National Implementation Plan as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs) in Swaziland".

Overall findings indicate very little POPs sources in Swaziland with the exception of DDT, Chlordane, Dieldrin and Endosulfan.

These can be found in the following products:

1. **Pesticides** - DDT,Chlordene etc
2. **Industrial Chemicals** - PCBs, HCBs
3. **Unintended By products**- Dibenzodioxins, Dibenzofurans

PCBs can be found in old electricity transformer oils for instance; while Dibenzodioxins and Dibenzofurans are released in ineffective incinerators and open burning of waste in general.

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