



Vanuatu National Plan for Implementation (NIP) of the Stockholm Convention on Persistent Organic Pollutants

Prepared for the Vanuatu Government by the POPS Project and finalized by the
Division of Climate Change Adaptation and Environmental Protection of the
Department of Environmental Protection & Conservation

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Australian Government
AusAID



Dedicated to Late Michael Varisipiti

In Memory of Late Michael Varisipiti, the First Coordinator for the Vanuatu Enabling Project on Persistent Organic Pollutants Project in Vanuatu)

Michael Vari as he was called by his peers comes from Tangoa Island, South Santo. He graduated as a Health Inspector from Lae, Papua New Guinea in early 1980 and has been working with the Ministry of Health Environmental Health Programme until the strike in 1993 where he was made redundant. He joined the POPs Project as its coordinator in 1998 and has been very instrumental in facilitating the ratification of the Stockholm Convention in Vanuatu. He passed away in 2006 while working on the POPs project

The Vanuatu Government is grateful for his leadership in the early days of POPs negotiations and the project which he has been managing. When he passed away, the project has had a very high staff turnover and the Department of Environmental Protection and Conservation requested the project back from the Department of Quarantine so it could be completed. The DEPC Team and all who have one way or another been involved with the Project and this NIP dedicate it to Late Michael Varisipiti.

Foreword

Vanuatu like many countries in the world relied on pesticides and other chemicals for its agricultural production as well as its public health programmes. Over the past decades, unregulated and unmanaged amounts of different pesticides and chemicals were imported into the country to address these needs, not knowing the impacts on the environment and the health of populations. As more information became available on the adverse impacts of these chemicals some of which are referred to as the persistent organic pollutants (POPs) or persistent toxic substances (PTS), Vanuatu became a party to the international treaty, Stockholm Convention in 2005 to regulate the use of these chemicals.

In Vanuatu vector borne diseases such as malaria and dengue fever are prevalent and the control of these vectors especially the *Anopheles* mosquito using chemicals such as DDT has been encouraged until recently. As more information on the persistence and toxicity of these chemicals became known, the international treaty called Stockholm Convention was developed, negotiated and adopted by countries throughout the world. DDT for instance has the following characteristics: it is persistent in the environment and does not break down easily or quickly, it is resistant to photolytic (sunlight), chemical and biological degradation, it is highly toxic to humans and wildlife and as a part of the group of chemicals known as POPs, considered to be the most potent cancer causing chemicals known. DDT has low water solubility and high lipid solubility, resulting in bioaccumulation in fatty tissues of living organisms. DDT also has the ability to be transported in the environment in low concentrations by movement of fresh and marine waters and they are semi-volatile and evaporate, enabling them to move long distances in the atmosphere, resulting in wide-spread distribution across the earth, including regions where it has never been produced.

Under the Stockholm Convention, Vanuatu is required to stop or slow down the use of POPs; thereby reducing their effect on the environment. This NIP hopes to facilitate introducing legislative measures, raising more community awareness, capacity building in relevant government departments and implementing effective management plans. Although the Vanuatu NIP is long overdue, it is crucial in ensuring that Vanuatu as a party is able to comply with its commitment under the Stockholm Convention. It is a commitment that provides the strategic guidance for our actions to ensure, not only that Vanuatu will join other global partners in getting rid of the POPS and PTS but also assure our children and their children that their environments are free from persistent organic pollutants and persistent toxic substances.

The plan has been developed through wide consultations and key players in the country from the national government, non-governmental organizations, and private sector are ready to work hand in hand to implement the various action plans in the Vanuatu NIP over the next coming years.

Albert Williams
Director
Department of Environmental Protection & Conservation
Ministry of Lands and Natural Resources

List of Abbreviations

ACP African, Caribbean and Pacific group
ASYCUDA Automated System for Customs Data
CDU – *Curriculum Development Unit*
CLRTAP Convention on Long-Range Transboundary Air Pollution on POPs
COM – *Council of Ministers*
COM Council of Ministers
CRP Comprehensive Reform Programme
DARD Department of Agriculture and Rural Development
DCO – *Development Committee of Officials*
DDT Dichlorodiphenyltrichloroethane
DEPC Department of Environmental Protection and Conservation
DLQS Department of Livestock and Quarantine
DMGSc Department of Meteorology and Geo-Science
DoC Department of Customs
DoF Department of Forestry
DoFA Department of Foreign Affairs
DoFEM Department of Finance and Economic Management
DoFish Department of Fisheries
DoGMRWR Department of Geology, Mines and (Rural) Water Resources
DoHA Department of Provincial Affairs
DoL Department of Labour
DoLands Department of Lands
DoPH Department of Public Health
EEZ Exclusive Economic Zone
EIA Environmental Impact Assessment
EMC Environmental Management Act
EnU Environment Unit
EPC Environmental Protection Act
FAO Food and Agriculture Organization
GDP Gross Domestic Product
GEF Global Environmental Facility
HCB Hexachlorobenzene
HCFCs Hydrofluorocarbons
ILO International Labour Organization
IMF International Monetary Fund
INC Intergovernmental Negotiating Committee
IPPC International Plant Protection Convention
LGCs Local Government Councils

MoJWA Ministry of Justice and Women's Affairs
MTSF Medium Term Strategic Framework
NBSAP National Biodiversity Strategic Action Plan
NCC – National Chemical Committee
NCC National Coordinating Committee
NCSA National Capacity Self Assessment
NDMO National Disaster Management Office
NEC – National Education Commission
NGOs Non-Governmental Organizations
NIP National Implementation Plan
OHS Occupation Health and Safety
OIE Organization Internationale Epizootic
PAA Prioritized Action Agenda
PACER Pacific Agreement on Closer Economic Relations
PCBs Polychlorinated biphenyls
PCU Project Coordinating Unit
PICs – Pacific Island Countries
PICs Pacific Island Countries
PICTA Pacific Island Countries Trade Agreement
POPs Persistent Organic Pollutants
RSE Recognized Seasonal Employment
TOR Terms of Reference
TOT Training of Trainers
UNCBD United Nations Convention on Biodiversity
UNCCD United Nations Convention to Combat Desertification
UNDP United Nations Development Programme
UNECE United Nations Economic Commission for Europe
UNEP United Nations Environmental Programme
UNFCCC United Nations Framework Convention on Climate Change
UNICEF United Nations Children's Fund
VIPA Vanuatu Investment Promotion Authority
VMA Vanuatu Maritime Authority
WCO World Consumer Organization
WHO World Health Organization
WMO World Meteorological Organization
WTO World Trade Organization

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Funds for the project were provided by the Global Environment Facility through UNEP. We also acknowledge the technical and financial support of the Australian Aid Agency (AusAID) which supported some of the input to this work in the Provincial Councils and for the removal of toxic materials from Vanuatu to Australia.

The supports of the Department of Environmental Protection and Conservation and the Department of Livestock and Quarantine have been important in the production of this plan. All schools and private companies who have contributed in working towards making the POPs project a success should also be acknowledged.

It is our sincere hope that all stakeholders that were involved in the development of this NIP will also be involved in its implementation of the various action plans in the Vanuatu NIP over the next coming years.

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EXECUTIVE SUMMARY

This document presents a National Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants in the Republic of Vanuatu. Vanuatu signed the Convention on May 21, 2002 and ratified it on September 16, 2005 after the Convention had come into force on 17 May 2004. Vanuatu has since ensured its national and international commitments to the Convention by working towards adhering to its recommendations and mandates.

In order for POPs to be removed in 2008 under the POPs in PICs project, Vanuatu had to ratify the Waigani Convention. Therefore in 2005, Vanuatu signed the Waigani Convention and ratified it in June 2008. This enabled neighboring countries to aid us in the removal of POPs at the end of 2008.

The objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants (POPs). The convention currently covers the following twelve chemicals: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, toxaphene, hexachlorobenzene (HCB), polychlorinated biphenyls (PCBs), polychlorinated dibenzo-*p*-dioxins, and polychlorinated dibenzofurans. The first nine of these are pesticides. HCB is also classed as an industrial chemical, as are PCBs, while the dioxins and furans are formed as unintentional by-products in combustion processes and some industrial activities. These chemicals are to be controlled through various actions, including prohibiting future production and use of most of the pesticides and industrial chemicals, and the application of a range of measures for the reduction of releases of the unintentional POPs.

This Plan was developed with financial assistance from the Global Environment Facility (GEF), with the United Nations Environmental Programme (UNEP) as the Implementing Agency. The work for the project was guided by a National Steering Committee, which included representation from central government and non-governmental organizations.

Consultation with stakeholders was an important element in the preparation of the National Implementation Plan. This was achieved through a combination of one-on-one consultations, presentations and a number of national workshops.

Persistent Organic Pollutants in Vanuatu

The current situation regarding persistent organic pollutants in Vanuatu is summarized in section 2 of this document along with a more general Country Profile. The key issues relating to POPs chemicals and implementation of the Convention are as follows:

POPs Pesticides

Vanuatu does not intentionally produce or use any POPs chemicals, nor are there any future plans to do so. DDT was used for the control of malaria carrying mosquitoes until it was withdrawn in 1989. There is no legislation governing the intentional production and use of POPs in Vanuatu. Other legislation that can control and manage POPs pesticides are the Pesticides (Control) Act, the Health and Safety at Work Act and the Customs Act. Given the absence of intentional production and use of POPs in Vanuatu, the most appropriate action to consider would be to formally ban all imports and use of POPs pesticides and PCBs in Vanuatu by regulation under one of these Acts.

PCBs

Tests have shown that some of the used stocks of electrical transformers in Vanuatu contained PCBs. There are transformers which are currently being used, that have not been tested so it is

recommended that tests be carried out once they are out of service. The report for the inventory of chemical imports and use in Vanuatu identified a small number of capacitors containing PCBs and noted that more are likely to be found. There are no systems in place for the environmentally sound management of PCBs on Vanuatu.

Findings from the POPs in PICs project funded by the AusAID from 2004-2006 confirmed that UNELCO did not dump these capacitors at the landfill, or burn them as previously thought. They instead stockpiled them in an open space close to a residential area. It is therefore proposed that a system be developed for identifying and managing PCBs in small capacitors and other equipment as they arise, and this system should include their safe storage and ultimate disposal.

Unintentional POPs (Dioxins and Furans)

Dioxins and Furans are formed and released from thermal processes involving organic matter and chlorine and as a result of incomplete combustion or chemical reactions. Estimates of dioxine and furan releases for Vanuatu were prepared using the Standardized Toolkit, which was developed by UNEP Chemicals. These were reported in Quashi's 2004 report on Inventory of Dioxins and Furans in Vanuatu, which has shown that the main sources of releases in Vanuatu are the incineration of quarantine and medical wastes and uncontrolled burning, including those occurring at the landfills and backyard rubbish fires.

Vanuatu lacks the capacity to record, control or monitor the releases of dioxins and furans. The knowledge and application of best available techniques (BAT) and best environment practices (BEP) for new or existing sources in Vanuatu is very limited or non-existent. Consideration of BAT/BEP measures need to be undertaken when any new facility is developed for the disposal of medical or quarantine wastes.

The development of improved waste management systems in Vanuatu is a fundamental requirement for the reduction of unintentional releases from activities such as rubbish burning. This should be based around enhancing the implementation of the draft National Waste Management Plan, which includes improvements to collection services, recycling programmes, and the promotion of alternative methods such as composting. Capacity building and public awareness programmes on POPs will also be a key focus towards the reduction in releases of dioxins and furans.

Chemical Stockpiles and Contaminated Sites

Stockpiles of obsolete POPs and other chemicals in Vanuatu were addressed through an AusAID/SPREP project (POPs in PICs), and most of these were removed from Vanuatu in 2008 (their removal was delayed due to a delay in the country ratifying the Waigani Convention) for disposal in Australia. There are no proper systems in place for dealing with the safe storage of any other chemical stockpiles and hazardous wastes which might arise in the future, so the NIP includes a proposal to develop such a facility, with the flexibility to support all of Vanuatu's waste management needs, such as the recycling programmes.

The POPs Project also conducted a preliminary assessment of 7 potentially contaminated sites. These sites were as follows:

1. The previous rubbish dump site at FreshWota on Efate.
2. The previous rubbish dump site at Manples on Efate.
3. The rubbish dump in Luganville, Santo.
4. The landfill site at Bouffa on Efate.

5. Agricultural plots near Mt. Yasur volcano.
6. Soil around the hospital incinerators in Tanna and Santo.
7. The site where UNELCO stored their used transformers.

There needs to be a proper assessment of these sites to determine the potential risk they pose to nearby residents and to their potential for contaminating groundwater.

Research, Development and Monitoring

The technical infrastructure for POPs monitoring and research in Vanuatu is very limited. There are currently no laboratories adequately equipped to carry out monitoring or analyses.

Implementation Plan

The prioritization of suitable management options to address the requirements of the Stockholm Convention was undertaken during a stakeholder consultation in December 2005. All the following options were considered as high priority during the workshop to fulfill Vanuatu's obligations to the Stockholm Convention;

- Review and assessment of the need for specific chemical management legislation.
- Establishment of a system for identifying and managing POPs such as PCBs in electrical equipment.
- Development of a facility for safe storage of obsolete and unwanted chemicals.
- Consideration of BAT/BEP guidelines for managing dioxin and furan releases and promotion of alternatives.
- Implementation of detailed investigations of contaminated sites, followed by management and remediation as required.
- Design and implementation of a continuing programme for capacity building, education, awareness, monitoring, research, information and data collection on POPs and chemical management.

The National Implementation Plan consists of several specific strategies and action plans each targeting different goals and objectives. The goals and objectives of each strategy and action plan reflect those of the Stockholm Convention on POPs and attempt to address the POPs issues in Vanuatu. . The action plans are as follows:

1. Action Plan to address Annex A, Part II, POPs (PCBs, Article 3)
2. Action Plan to address Unintentional releases of POPs (Dioxins and Furans, Article 5)
3. Action Plan on to address Annex A, Part I, POPs and other pesticides (Article 3)
4. Action Plan for Chemical Stockpiles and Contaminated Sites (Article 6)
5. Action Plan to address Public Awareness, Information and Education (Articles 9 and 10)
7. Action Plan to address Research, Development and Monitoring (Article 11)
8. Action Plan to address Reporting (Article 15)

The action plans have been developed in close consultation with key stakeholders. Much of the work is intended to be carried out by local personnel with assistance from international experts as and when required. This approach is intended to assist in developing local capacity for POPs management and implementation of the Convention. The plans include the following specific proposals for capacity building:

Capacity to manage POPs Pesticides

- Training in legislative review and drafting of regulations.

- Formulation of methodologies for pesticide disposal. In some instances, no international standards are available to adhere to when considering disposal of pesticides. It is prudent for us to develop methodologies ahead of such situations arising.

Capacity to manage PCBs

- Training on identification, removal and storage of PCBs in electrical equipment.
- Training on carrying out national PCB inventory.
- Training on database use and management.

Capacity to manage Unintentional POPs (Dioxins and Furans)

- Development of BAT/BEP information, education and awareness programmes in Vanuatu
- Training on application of BAT/BEP when undertaking an EIA guideline including field training on existing sources around
- Training on collection of information on medical and quarantine wastes.
- Training on incinerator use.
- Awareness and training on other alternatives to open burning.

Education and awareness programme for specific target groups relevant to specific sources of unintentional POPs

Capacity for management of Stockpiles and Contaminated Sites

- Training programmes for the assessment and management of contaminated sites
- Training in sample collection procedures.
- Training in environmentally sound storage, handling, use and disposal procedures.

Capacity for undertaking POPs Research and Development

Establishment of laboratory facilities and staff training for POPs analyses.

The timetable for implementation of these plans is included in a detailed matrix of activities given in Section 3. Most of the activities are intended to be carried out over a period of three to five years although some involve on-going commitments, which will continue on for many years into the future.

The total estimated cost for implementing all of the planned activities is **US\$1.883,950** million-, of which **US\$534,050** will be met from within existing resources, as a contribution in-kind, while the remainder will need to be funded externally.

1.0 INTRODUCTION

1.1 International Action on POPs and the Stockholm Convention

The international community has called for urgent global actions to reduce and eliminate production, use and releases of certain chemicals due to the consequent threats they pose to humans, wildlife and the environment of the globe. This is due to evidence of long-range transport of these substances to regions where they have never been used or produced.

In February 1997, the Governing Council of the United Nations Environment Programme (UNEP) requested in its decision 19/13C for UNEP to prepare and convene an intergovernmental negotiating committee (INC) with a mandate to prepare an international legally binding instrument for implementing international action initially beginning with the 12 POPs. It also requested that an expert group be set up to develop criteria and procedures for identifying additional POPs and which, at the same time, set up a number of immediate actions to address POPs. In May 2001, a convention was adopted by 127 countries and opened for signature at Stockholm, Sweden. The adopted convention became the Stockholm Convention on Persistent Organic Pollutants (POPs). The overall objective of the Stockholm Convention is to protect human health and the environment from Persistent Organic Pollutants as stated in Article 1 of the convention.

To that end, there are now two international legally binding instruments that have been negotiated for the management of POPs. They are:

- The Protocol to the regional United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Trans-boundary Air Pollution (CLRTAP) on POPs, opened for signatures in June 1998 and entered into force on 23 October 2003
- The global Stockholm Convention on POPs, opened for signatures in May 2001 and entered into force on 17 May 2004

These instruments establish strict international regimes for initial lists of POPs (16 in the UNECE Protocol and 12 in the Stockholm Convention). Both instruments also contain provisions for including additional chemicals into these lists. They lay down the following control measures:

- Prohibition or severe restriction of the production and use of intentionally produced POPs
- Restrictions on export and import of the intentionally produced POPs (Stockholm Convention)
- Provisions on the safe handling of stockpiles (Stockholm Convention)
- Provisions on the environmentally sound disposal of wastes containing POPs
- Provisions on the reduction of emissions of unintentionally produced POPs (e.g. dioxins and furans)

1.2 Persistent Organic Pollutants

Twenty-one Persistent Organic Pollutants (POPs) have been identified as extremely harmful to health and the environment and are targeted globally for restricted use and/or elimination. The POPs are toxic chemical substances or organic compounds (all containing chlorine) of natural or man-made origin that are released into the environment by human activities. Direct contact with the POPs chemicals can have an acute effect. Their effects of low level concentrations to human being include; cancer; immune system disruption; damaging the

nervous system; liver damage, memory loss; endocrine disruption; birth defects; other reproductive problems. Studies showed that eating food contaminated by very small quantities of PCBs and other persistent contaminants will cause immune-system abnormalities. These 12 POPs initially covered by the Stockholm Convention are:

- Pesticides used to protect plants from plague insects (aldrin, chlordane, dieldrin, endrin, heptachlor, mirex, and toxaphene) and in the control of vector-borne diseases (DDT);
- Heat-resistant compounds used primarily in electrical equipment such as transformers (polychlorinated biphenyls or PCBs);
- Chemicals involved in industrial processes (hexachlorobenzene or HCB); and
- Substances generated as by-products of incomplete combustion and chemical processes (dioxins and furans)

All of these chemicals pose particular hazards to human health and the environment because of four common characteristics. They are characterized and identified by the following:

- They are persistent in the environment and do not break down easily or quickly, they are resistant to photolytic (sunlight), chemical and biological degradation.
- They are highly toxic to humans and wildlife and are considered to be the most potent cancer causing chemicals known.
- They have low water solubility and high lipid solubility, resulting in bioaccumulation in fatty tissues of living organisms.
- They have the ability to be transported in the environment in low concentrations by movement of fresh and marine waters and they are semi-volatile and evaporate, enabling them to move long distances in the atmosphere, resulting in wide-spread distribution across the earth, including regions where they have never been produced (e.g. the Arctic).

The Convention provides for additional POPs to be added to the present list in future.

1.3 The Enabling Activities for the Stockholm Convention on POPs in Vanuatu

The Department of Livestock and Quarantine was the implementing agency for the Stockholm Convention on Persistent Organic Pollutants until 2010, when the POPs project was transferred to the Department of Environmental Protection and Conservation (DEPC). The DEPC is now the implementing agency. The POPs Enabling Activity project for Vanuatu officially started on August 2003 with the employment of the National Project Coordinator (NPC), the establishment of the Project Coordinating Unit (PCU) and the National Coordinating Committee (NCC). Vanuatu accessed financial assistance from Global Environmental Facilities (GEF) through the United Nation Environmental Program (UNEP). The overall coordinating mechanism was established in accordance to the GEF initial guidelines for Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants as summarized below:

- Determination of coordinating mechanisms and organization of process
- Assessment and strengthening of national infrastructure and capacity, adaptation of national legislation for Stockholm convention implementation and establishment of a POPs inventory
- Setting of priorities and determination of objectives
- Formulation of a National Implementation Plan and specific Action Plans
- Endorsement of the National Implementation Plan by stakeholders

1.4 Establishment of a Coordinating Mechanism and Process Organization

A National Coordinating Committee (NCC) was established comprising of relevant government departments and other stakeholders from NGOs, private companies and educational institutions who were appointed as informed members and Task Teams to carry out specific tasks (Refer to Table 1 for details of the set up of the coordinating mechanism)

The Vanuatu Enabling Project is guided by the Project Coordinating Unit (PCU). The PCU was previously headed by the POPs Coordinator, but on his passing, changes to the PCU had to be made. The PCU then consisted of the Director of Livestock and Quarantine (DLQ), Principal Plant Protection Officer for the DLQ (who became the POPs Coordinator), an Administrative Assistant and the NCC Committee, comprising of various government departments. The major roles and responsibilities of the NCC and PCU is to facilitate the project through conducting awareness and monthly meetings to discuss issues, work plans and other contributions towards developing the country's NIP.

Table 1: Major POPs stakeholders in Vanuatu.

Major POPs Stakeholders, NCC, and Task Teams in Vanuatu.	Other Informed members of the project
The Department of Quarantine and Livestock (Ministry of Agriculture, Quarantine, Forestry, and Fisheries)	Police
Department of Environmental Protection and Conservation	Vanuatu National Council of Women
The Department of Agriculture	Provinces
The Department of Forestry	Vanuatu Christian Council
The Ministry of Trade and Business Development	Vanuatu National Council of Chiefs
The Ministry of Internal Affairs	Educations institutions/Schools
The Ministry of Health	Chamber of Commerce
The Ministry of Lands, Geology and Mines	Vanuatu Agriculture Supplies
The Ministry of Education	Other users and importers of POPs (Such as Pacific Suppliers, Cellovilla, Ezzykill, and Flick)
The Ministry of Infrastructure and Public Utilities	Environmental NGOs such as Vanuatu Associations of NGOs, Live & Learn Environment Education, Foundation of the Peoples of the South Pacific, Reef Check & Wan Smol Bag Theatre Group
The National Statistics Office	The National Disaster Management Office
The Department of Customs and Inland Revenue	

1.5 Vanuatu and the Stockholm Convention on Persistent Organic Pollutants

Vanuatu became signatory to the Stockholm Convention on 21 May 2002 and ratified it on 16 September 2005. The Vanuatu Enabling Project for the Stockholm Convention on Persistent Organic Pollutant is working with the aim to assist Vanuatu to develop its National Implementation Plans (NIP) to control the production, use and release of POPs.

1.6 Objectives and Outcomes of the Vanuatu Enabling Project

The objectives of the Vanuatu Enabling Activities for the development of a National Plan for Implementation of the Stockholm Convention on POPs is intended to create sustainable capacity for the Government of Vanuatu to fulfill its obligations under the Stockholm Convention, particularly the preparation of a National Implementation Plan (NIP) for POPs. The project has so far enabled the Government of Vanuatu to ratify the Stockholm and the Waigani Conventions; however other chemical-related Conventions have yet to be ratified.

Through the NIP the project will further assist Vanuatu in the following areas:

- Assist Vanuatu in meeting and satisfying its reporting requirements and other obligations under the Convention
- Strengthen Vanuatu's national capacity to manage POPs and chemicals generally.
- Assess and strengthen the national capacity to implement the Stockholm Convention
- Carry out preliminary inventories on POPs, POPs contaminated sites and POPs containing equipment

As party to the Convention, each country has to implement control measures through action plans to minimize or eliminate usage, production, import and export of chemicals targeted under the treaty. Therefore, this document presents Vanuatu's action plans for the implementation of the Stockholm Convention on Persistent Organic Pollutants.

1.7 Purpose and Structure of the National Implementation Plan

Article 7 of the Stockholm Convention on Persistent Organic Pollutants requires each Party to commit itself to the following:

1. *Each Party shall:*
 - a. *Develop and endeavor to implement a plan for the implementation of its obligations under this Convention;*
 - b. *Transmit its implementation plan to the Conference of the Parties within two years of the date on which this Convention enters into force for it: and*
 - c. *Review and update, as appropriate, its implementation plans on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties.*
2. *The Parties shall, where appropriate, cooperate directly or through global, regional and sub-regional organizations, and consult their national stakeholders, including women's groups and groups involved in the health of children, in order to facilitate the development, implementation and updating of their implementation plans.*
3. *The Parties shall endeavor to utilize and, where necessary, establish the means to integrate national implementation plans for persistent organic pollutants in their sustainable development strategies where appropriate."*

The Convention requires Parties to develop strategies, measures and action plans to meet the following Convention obligations:

- Measures to reduce or eliminate releases from intentional production and use, (Annex A & B chemicals, Article 3).
- Measures to reduce or eliminate releases from unintentional production, (Annex C chemicals, Article 5)
- Measures to reduce or eliminate releases from stockpiles and wastes, (Article 6)

- Submit a national implementation plan to the Conference of the Parties within two years of becoming a Party and review it on a periodic basis (Article 7
- Designate a national focal point for exchange of information on POPs - Article 9.3
- Provide the public with access to current information on POPs including information relating to health and safety of humans and the environment - Article 10.2.
- Encourage and/or undertake appropriate research, development, monitoring and cooperation pertaining to POPs.
- Provide periodic reports to the Secretariat on implementation of Convention provisions including statistical data on production, import and export of Annex A and Annex B chemicals. Article 15.1, Article 15.2.

These obligations require appropriate action plans to be implemented to meet the requirements for each specific obligation. The action plans developed to meet these obligations are covered in Section 3. They include an overall framework for plan implementation, capacity building and proposals, and an indication of resource requirements. The background information used to develop these proposals is given in Section 2, including current knowledge in the country on POPs issues and the institutional and other capacity available to address these proposals

2.0 COUNTRY BASELINE

This section provides background information on Vanuatu, and more specifically information that were used to develop the proposals.

2.1 Country Profile: Geography and Population

The Republic of Vanuatu comprises of approximately 82 islands, with most forming as a result of past volcanic activities, with about 800 miles (1,300km) north to south distance between the outermost islands. Approximately 4,700 square kilometers is its land base. The islands' topography varies from low coastal plains to rough, mountainous and heavily forested interiors, with the highest peak rising to over 1,800 meters on the island of Espiritu Santo.

The islands lie along the belt of the Pacific Ring of Fire in the Southwest Pacific region. It is part of several other island countries often called the Melanesia. A map of the archipelago is given in Annex 3.

The last population census conducted in 2009 had an estimated total population of 234,023 people. The average annual growth rate calculated from the National Census in 2009 was 2.3%. The indigenous population is Ni-Vanuatu, comprising of over 95%. The expatriate community, which accounts for the remaining 5% come from other Pacific island nations, Australia, New Zealand, Europe, Asia, the United States of America, Canada and Africa. Seventy-six percent of the total population lives in the rural areas.

Vanuatu remains a least developed nation 31 years after gaining independence in 1980 from France and Great Britain. There is a high natural growth rate (2.3% per annum) and an increasingly young population (39% are aged less than 15 years). As a result, dependency ratio for the 0-14 year's population is as high as 88 children per 100 adults of economically active age. The total population of working age citizens (i.e. 15-60 years old) is 129,244 with a median age of 20 years. This number of working age citizens is a 5% increase to the number of working age citizens from the 1999 census.

Education opportunities are low with only a very low percentage of the population having access to tertiary education (there are a total of 57,348 people, who are 5 years and older attending a formal educational institution. Of this amount, 1,527 attend a tertiary institution and 413 attend vocational school). Life expectancy for males is 61.5 years and 64.2 years for women.

2.2 Governance and Politics

The Melanesians were the original people to these islands, arriving several thousands of years ago. The islands were first discovered in 1606 by a Spanish explorer Luis Váez de Torres and Pedro Fernández de Quirós. However, they only discovered the island of Santo, believing it was part of Terra Australis, which they named Espiritu Santo. It wasn't until a century later in 1774 that a British explorer, Captain James Cook sailed the length and breadth of the archipelago, naming many of the islands and places as he went. It was he who named the archipelago the New Hebrides.

French and British interest in this island group led to a joint French–British naval commission in 1887. France and England signed an Anglo-French Condominium in 1906 to enjoy a joint annex over the then New Hebrides. The joint regulation was in force until July 1980, when the

island group got its independence and was renamed Vanuatu. Formally known as the New Hebrideans, the citizenship status of the people of the new island nation is Ni-Vanuatu.

The New Hebrides suffered from the practice of black birding wherein half of the adult male population of some of the islands became indentured workers in Australia. Due to diseases introduced by the new European populations, the native population fell to a mere 45,000 in 1935.

Vanuatu is a Republic with a parliamentary democracy. It has a Westminster-style constitution. The Constitution created a republican political system headed by a President who has the primary ceremonial powers and is elected by a two-thirds majority in an electoral college consisting of members of Parliament, President of the National Council of Chiefs, Malvatumauri and the Presidents of the Provincial Councils. The President serves for a 5-year term. The President may be removed by the Electoral College for misconduct or incapacity. The executive power is vested in the Prime Minister and the Council of Ministers (COM), which is responsible for government departments, national administration and the provision of government services. A government serves a term of four years in office before the nation goes back to the polls to elect a new government. The choice of contesting an election is free to all citizens of this island nation, except the chiefs and public servants who must relinquish their chiefly titles, or resign from public service to contest an election. The acceptance of the democratic process and the right to vote is seen in voting turnouts of 81% of eligible voters in the 1987 election and 71% in 1991.

The Decentralization Act passed at independence established eleven Local Government Councils (LGCs) as the communicating link and executing arm of the government in rural areas, and formalized the formation of the National Council of Chiefs (the Malvatumauri) and island councils, which play an advisory role to local and national government. The LGCs comprised of elected members and representatives from chiefly councils, women's groups and youth groups. The eleven LGCs established at independence were restructured into six Provincial Governments in 1994. They are the TORBA, SANMA, PENAMA, MALAMPA, SHEFA and TAFEA Provinces. Annex 3 shows the demarcation of the territories of each Provincial Governments.

It is anticipated that the Provincial Governments will be vigorous growth centers, in a better position to address the widely different circumstances and needs of rural districts and to ensure that rural areas get an equitable share of government services. Five percent of the 1995 national budget was allocated to build the Provincial Governments into effective units and the devolution of financial and administrative decision-making to provincial Governments is a long-term goal. The country has two urban jurisdictions, the Port Vila Municipal and the Luganville Municipal Councils located on the islands of Efate and Santo, respectively.

The national Government remains responsible for all areas of health and environmental control. The Ministry of Health oversees the activities of the Department of Health, which include curative and preventative health activities; public health services; local medical services; the Vanuatu School of Medicine and Dental Services. The Ministry employs approximately 800 people. The Provinces have only a small role in the administration and management of health services. A similar situation prevails for environmental protection, which is located in the Department of Environment under the Ministry of Lands, Geology, Mines and Rural Water Supply. The Department of Agriculture and Rural Development located within the Ministry of Agriculture, Livestock, Fisheries and Forestry is responsible for agricultural developments and policies affecting this sector. The Department of Livestock and Quarantine is responsible for livestock health and production and plant health and quarantine.

2.3 Economics and the Drivers

Economic growth over the past 20 years has been slow. This is due in part to well over 80 percent of the population not actively engaged in formal economic development activities. The market driven activities are driven by a small group of expatriate community¹. This is clearly portrayed in recent hype in the property market due to the increase in foreigners buying up and developing leased pockets of land on the islands.

The numerous government reshuffles and changes stagnated the economy and created an air of uncertainty for investment. In 2008, the GDP per capita income was VT239, 267. In 2009, the estimated value was VT241,966. This was a 4.0% growth change. It was forecast in 2008 that there would be a 4.1% forecasted change for 2010 (VT251,856).

Unlike many of their Pacific neighbors, Ni-Vanuatu have not ventured out to live and work in other countries. However, the country stands to benefit from the Recognized Seasonal Employer (RSE) scheme signed in 2007 with New Zealand. Under this scheme semi-skilled workers from Vanuatu would be hired to fill in the seasonal labor vacuums on fruit orchards, farms and other areas facing labor shortage. The scheme has the potential to boost economic growth through remittance. These potentials would be even bigger if Vanuatu enters into a similar labor mobility arrangement with Australia. This year, the economy shows significant improvement with an increase in GDP – due to the RSE scheme, construction and tourism industries.

2.4 Development Policies

In recent years, political stability and good governance have become an increasing issue of concern. An effort was made through the introduction of the Comprehensive Reform Programme (CRP), which was endorsed in June 1997 to curtail the instability and initiate a right-sizing and reform in the public sector. Monetary incentives were offered to public servants and many opted for this and ended their services to the government. The intention was that the leaving public servants would use this money to set up their own business thus grow the economy in the private sector. The CRP, while achieving most of its goals, needed a continuation.

During the 2002 CRP summit the Prime Minister announced the Government's commitment to development in five key areas. These are as follows:

- 1. improving governance and public service delivery by providing policy stability and fiscal sustainability via a strengthened law enforcement and macroeconomic management capacity and small, efficient, and accountable government;*
- 2. improving the lives of the people in rural areas by improving service delivery, expanding market access to the rural produce, lowering costs of credit and transportation, and ensuring sustainable use of natural resources;*
- 3. raising private investment by lowering obstacles to growth of private enterprise including lowering cost of doing business, facilitating long-term secure access to land, and providing better support services to business;*

¹ Vanuatu Agriculture and Fisheries Sector Review 2000 – Asian Development Bank

4. *enabling greater stakeholder participation in policy formulation by institutionalizing the role of chiefs, non-governmental organizations, and civil society in decision-making at all levels; and*
5. *increasing equity in access to income and economic opportunity by all members of the community. Specific areas of focus include: enabling universal access to primary education by school-age children, universal access to basic health services, and inducing increased employment opportunity for those seeking work.*

This was the beginning of the Government's new development policy document, the Priorities and Action Agenda (PAA), which is based on the above five priority areas. The Government has set out its development roadmap under the PAA from 2006 to 2015. The development goals aim at the following areas:

- private sector development and employment creation;
- macroeconomic stability and equitable growth;
- good governance and public sector reform;
- primary sector development (natural resources and the environment);
- provision of better basic services, especially in rural areas;
- education and human resource development; and
- economic infrastructure and support services.

2.5 International Relations Policies

Vanuatu is a member of the non-alliance nation group of countries. It frames its international relations policies in line with its commitments to national development goals. Its constant endeavor to address national issues has seen Vanuatu sign and enjoy political diplomacy with regional and several other governments beyond the Pacific region. Vanuatu is a member of several organizations, both regionally and internationally:

- The Commonwealth
- The African Pacific and Caribbean Group (ACP Group of States)
- The Pacific Islands Forum.
- The United Nations and its specialised agencies such as the ILO, FAO, WHO, UNDP, UNEP and WMO.
- Secretariat of the Pacific Community,
- The University of the South Pacific,
- The South Pacific Applied Geoscience Commission,
- The Pacific Regional Environmental Programme and
- The WCO,
- The IMF.

The country has signed up to the PICTA and PACER agreements and is reconsidering revisiting its accession package for WTO membership. It is also a member of other specific scientific international treaties such as the Stockholm Convention, the Protocol to the regional UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP) on POPs, the

IPPC, OIE and Codex Alimentarius. It is a party to other UN Conventions as well such as the UNFCCC, the UNCBD and the UNCCD.

The Ministry of Foreign Affairs is responsible for the overall co-ordination of Vanuatu's membership to these organisations.

2.6 Profiles of Key Economic Sectors

2.6.1 Agriculture

Vanuatu is still largely an agriculture based economy, with kava, copra, cocoa, cattle and coconut oil dominating the sector's activities. Only one third of cultivable land is presently farmed. Success has however been limited. Smallholder agriculture has stalled, in part due to lack of transport and other infrastructure facilities to enable the sale of their produce. Former colonial plantations have succumbed to mismanagement and land disputes rendering most to virtually no productive states. Agriculture, fisheries and forestry contribute about 23 percent of the gross domestic product of the Republic of Vanuatu. Furthermore, products from these activities account for almost all the country's export earnings.

More than 75 percent of the population is predominantly rural, mostly relying on subsistence farming to meet their needs. The contribution of the subsistence sector has never been quantified to determine its contribution to the formal economy. Surplus food items are sold through local food outlets or in the two main urban centers of Port Vila and Luganville. Most farmers grow other cash crops such as kava, coconut and cocoa. Local handicrafts are sold in the urban centers and at the ports where the cruise ships regularly call in.

These rural farmers and craftsmen rarely engage themselves directly with exporting of their products. The products are either sold at the local market or prepared and sold to an exporter. Engagement in these semi-commercial activities is usually prompted by the farmer needing money to purchase basic necessities or to pay for education and medical fees.

The formal agricultural economic sector is mostly driven by large plantation owners and expatriates. Cocoa produced is shipped out in bulk to Germany and France for further processing. Coffee is processed and sold locally with surpluses from local sales sold overseas. Vanilla, pepper and other spices are grown under an organic certification label and processed with the bulk of it exported.

Vanuatu can make significant strides if the rural subsistence population can actively participate in formal economic activities. This will require political and personal willpower that is perhaps unattainable under present atmosphere.

2.6.2 Livestock

Vanuatu boasts one of the best pasture fed beef in the world. The national herd is just over 140,000 heads², mostly on large cattle farms on the islands of Santo in the Sanma province and Efate in the province of Shefa³. The country has the potential to increase this number and has embarked on developing a policy to increase the national herd to 200,000 by 2015.

The government has negotiated trade agreements with virtually all PICTs including New Zealand and Australia to take its beef. However, it continues to export to low value markets in Papua New Guinea and the Solomon Islands. Japan takes a container a month from the Santo

² Personal Communication – Dr. Dale Hamilton, Principal Veterinary Officer of Vanuatu

³ Agricultural Census in Vanuatu 2006- Snapshot – National Statistics Office

Meat Packers abattoir. It exports a container of organic beef per month to Brisbane, Australia. Work is underway to meet the European Union beef export standards so that organic beef can also be exported to Europe.

The production of smaller livestock such as pork, poultry and goat/sheep is mainly for local consumption. Even so, much of the poultry products are imported from Australia and New Zealand to supplement the local production. The government's policies to address smaller production include improving livestock extension services and better smallholder farmers' credit schemes.

2.6.3 Forestry

Native commercial timber species include kauri (*Agathis macrophyllum*) and blue water (*Ptenocarpus indicus*). Hardwood timber trees include mahogany (*Sweetenia macrophyllum*), natapoa (*Terminalia catappa*) and bean tree (*Castanospermum austral*). Loggers are currently felling natural stands as commercially grown crops have not reached full maturity. Although about 50 percent of the country is forested, much of the timber resource from this is unsuitable for commercial logging due to poor quality timber or the sites are inaccessible. The Department of Forestry has had difficulty in replanting native hardwood timber trees. This is due partly to the difficulty in obtaining seeds and lack of available knowledge on their growing habits and requirements.

All timber harvested are used locally. Even so, much wood is still imported to meet the demand by the construction and building industry.

The forestry sector needs to ensure tree replanting is equal to or exceeds the rate of trees logged annually. Equally, it must encourage and develop value-added processing, especially with the mobile sawmill operators who are mostly rural community groups or families.

There are currently two (2) sandalwood license holders operating in Vanuatu. Requirements of these licenses are that the operators have an extraction quota of 50 cubic metres each per annum and that they must process their wood locally to extract the oil. One of the operators has been importing wood from Papua New Guinea and Fiji to supplement its local quota of wood.

2.6.4 Fisheries

The estimated sustainable tuna yield is 8,000 tons per annum in Vanuatu's exclusive economic zone (EEZ). Other pelagic and deep bottom fish could each contribute similar quantities. Vanuatu has now shifted its focus from that of having its catch within its EEZ offloaded either in Fiji or in other ports in the Pacific where there are fish canneries to one where its catch are offloaded in the country and re-exported to niche markets such as Japan and the European Union. The present arrangements see Vanuatu benefiting both from the foreign vessel registration fees as well as certain percentage of the value of exports. The government has set up a Tuna Fish Processing Plant and another plant is a private investment in Port Vila to facilitate this shift in focus. Reef fisheries are over-fished in some heavily populated areas such as Efate, but generally under exploited near the outer islands. There are no proper marketing facilities to transport fish from the outer islands to the two main centres in good conditions. Almost all fish caught on the outer islands are eaten locally.

2.6.5 Tourism

Since 2004, the tourism and services sector has been the main contributors to the economy. Presently they contribute 80 percent to the national GDP. Tourism is an important source of

revenue for Vanuatu and it account for 40% of the GDP. This activity is almost exclusively concentrated around the two main urban centres of Port Vila and Luganville. Around 50,000 to 55,000 visitors come to Vanuatu every year, and this is rapidly increasing with the introduction of more international flights to Port Vila, frequent cruise ship calls with carrying capacity of over 2,000 tourists. And with the international terrorism activities and political instability in some Pacific Island Countries more and more tourists from New Zealand and Australia have been choosing Vanuatu as an alternative holiday destination.

2.6.6 Private Sector

The estimated population growth rate in 2009 was 2.3 percent with most young people leaving school at the secondary level. The private sector, which also encompasses the tourism and services, agriculture and fisheries are top government priority areas developed to absorb much of these young population.

2.6.7 Chemicals and Petroleum

Vanuatu does not produce its own chemicals. Several companies import their raw products and mix them in the country for the local market. Petroleum products account for 80 percent of the total chemicals imported. The Government has instituted policies that encourage bio-fuel alternatives; in particular the coconut bio-fuel produced from copra. This is still in its infancy stage. The chemicals imported include:

- Household cleaners, including soaps, surfactants, cleaners, lubricants, waxes, polishes, and scouring powders.
- Personal products, including essential oils, perfumes, cosmetics, shampoos, lacquers, dental and shaving preparations, and deodorants.
- Acids and alkalis for schools
- Dyes, tanning agents, brighteners, paint pigments, resins and fillers, for use in the paint and printing industries.
- Various organic chemicals, including toluene and xylene, chlorinated hydrocarbons, hydrochlorofluorocarbons (HCFCs), acetone, acetic acid and quaternary ammonium salts.
- Chlorine gas, hypochlorites, copper sulphate, alum and aluminium sulphate for water treatment and other uses.

2.7 Environmental Overview

The total land area of Vanuatu is approximately 12,200 km². The coastal areas of most of the islands in Vanuatu are utilized for extensive developments, although smaller islands do have developments.

Seismic activities are a regular occurrence with the occasional reaching 6 to 7 on the Richter scale. Several earthquakes measuring between 7.2 – 7.5 have hit parts of the country between 1999 and 2007, causing damage to buildings and other infrastructure.

Its location in the Tropic of Capricorn means Vanuatu gets its fair share of cyclones and hurricanes. Several major cyclones in the past have hit the country and have caused severe damage to the extent that large amount of foreign aid was needed to assist the population.

The Environment Unit (EnU) was initially established under the Ministry of Agriculture, Livestock, Forestry and Fisheries before being moved to the Ministry of Land and Natural Resources. In January 2010 the Unit became the Department of Environment and Conservation. which officially became the Department of Environmental Protection and Conservation in November 2010 (Amendments to the Environmental Management and Conservation Act [Cap 283] in November 2010 changed both the name of the Department and its Principal Act). It is tasked to ensure that Vanuatu complies with its national, regional and international environmental laws and obligations. It coordinates environmental policies, programmes and provides advice to the Government on environmental issues affecting Vanuatu.

The Medium Term Strategic Framework (MTSF) of the PAA recognizes the sustainable use of valuable and limited resources as a priority area. The policy objectives for the environment and disaster management are:

1. promote sound and sustainable environmental management practices;
2. ensure sustainable management and conservation of Vanuatu's biodiversity;
3. integrate hazard and risk management concerns into policies in order to reduce environmental risks; and
4. promote traditional and cultural disaster management know-how and self-help within the community.

Some of the programmes that the DEPC is tasked to coordinate or oversee include:

1. Implementation of the EPC Act [Cap 283]
2. Establishment of the Vathe Conservation Area on the island of Santo including other Community Conservation Areas
3. Develop environment education and awareness programmes;
4. Facilitate the implementation of the Cartagena Protocol on Bio-safety;
5. Implementation of the National Biodiversity Strategic Action Plan (NBSAP)
6. Coordinating the World Environment Day environment campaign in June each year.
7. Review and develop environmental impact assessment process and procedures reports for new developments in the country
8. Coordinate the establishment of the National Research and Scientific Council
9. overseeing the coordination and effective implementation of the POPs project under the DLQS
10. Implement the Action Plan for National Capacity Self Assessment (NCSA) for Environmental Management in Vanuatu on UNCBD, UNCCD, UNFCCC
11. Implement the National Waste Policy, National Waste Strategy and the Waste and litter and Pollution Control Regulations.
12. Implementing Vanuatu's obligations under the UNCBD
13. Implementing Vanuatu's obligations under the CITES
14. Implementing Vanuatu's obligations under the Montreal Protocol on Ozone Depleting Substances
15. Implementing Vanuatu's obligations under the UNCCD

However, due to critical staff shortage in the past and limited budget/funds most of these activities could not be fully undertaken. The DEPC now has 9 permanent staff and 6 project supported staff. At present it is working towards increasing staff members to ensure it can deliver environmental services to the whole of Vanuatu in an effective and efficient way. The lack of man-power in 1998 was the reason that both the (then) EU and the DLQ to agree to have the POPs Enabling Activity Project for Vanuatu to be housed under the DLQ and coordinated by this institution. Now DEPC has taken this project back through the finalization of this NIP and its implementation in the future.

2.8 Institutional, Policy and Regulatory Framework

The development and implementation of the NIP hinges on other institutional, policies and regulatory mechanisms already in existence. Its implementation is crucial for the proper management of POPs chemicals within the scope of the Stockholm Convention.

2.8.1 Environmental Policy and General Legislative Framework

The principle legislation under which the DEPC functions is the Environmental Protection and Conservation Act [Cap 283]. The Act is *'to provide for the conservation, sustainable development and management of the environment of Vanuatu, and the regulation of related activities'*. The significance of environment management is recognized, captured and elaborated upon in the PAA policy objectives, priorities and strategies.

The Act has specific applications for environmental impact assessment, bio-prospecting and community conservations areas. Chemical management, in particular POPs management and environmental management, conservation and sustainable development areas can receive particular attention under the Act through Regulations. Additionally, the following legislations make specific mention of chemical management under various jurisdictions.

Table 2: Summary of Regulations Relating to Protection of Human Health and Environment, and the Sound Management of Chemicals

Legal Instrument	Responsible Agency	Relevant Chemicals	Objective of Legislation
Animal Importation and Quarantine Act (1988)	DLQ	Pesticides, industrial chemicals	Management of veterinary drugs and industrial chemicals used with animals
Business License Act (1983)	DCIR	All chemicals	Regulate licensing of businesses dealing with chemicals manufacture and sale
Customs Act (1999)	DCIR and DoFEM	All chemicals	Control of imports and exports and the collection of duties
CRP Act (1998)	DoHA	Pesticides	Management of extremely or highly hazardous chemicals (WHO Class Ia and Ib)
Environmental Protection and Conservation Act [Cap 283]	DEPC	Impact of all chemicals on environment	Environmental impact assessment, bio-prospecting and community conservations areas
Fisheries Act (1982)	DoFish	Poisons, explosives	Prohibition of use of poisons and explosives in fishing

Food (Control) Act (1993)	DoPH	Pesticides	Regulating use of certain substances in foods
Foreign Investment Act (1998)	DoFA, VIPA	Weapons, chemical and toxic wastes	Prohibition of investment to undertake nuclear of chemicals weapons, or dumping of chemical or nuclear wastes
Forestry Act (2003)	DoF	Chemicals wastes from forestry operation	Provision of guidelines to manage chemicals waste production by a forestry operated business
Health and Safety at Work Act (1987)	DoL	All chemicals	Regulate proper employee occupational health and safety procedures for chemical business operators
Import Duties (Consolidation) Act (1975)	DCIR	All chemicals	Regulation of import duties for imported products
Ports Act (1957)	DPorts and Harbour	Oil	Regulation for oil spill management
Meat Industry Act (1991)	DLQ	Pesticides (veterinary drugs)	Regulation of drug used on animals
Municipalities Act (1983)	Urban Centres	Plastics, wastes	Enforcement of the Act to ensure compliance
National Disasters Act (2000)	NDMO	Oil and chemical spills	Coordination of disaster management relief operations
Penal Code (1980)	MoJWA	Chemical terrorism	Management of criminal terrorist attack using dangerous substances
Pesticides Control Act (1998)	DARD, DLQ, DoF, DoFish,	Pesticides	Regulate importation, distribution and use of pesticides within Vanuatu
Petroleum (Exploration & and Production) Act (1993)	DoLands	Oil	Management of licensing schemes for exploration and production of petroleum
Plant Protection Act (1997)	DQL	Pesticides	Set up of quarantine protocols to use chemicals for plant health.
Ports Act (1957)	Dept.Ports and Harbour	Explosives, flammable goods	Management of flammable goods in international vessels calling into Vanuatu.
Public Health Act (1994)	DoPH	Pesticides	Control of pesticides used in food industry, and health
Shipping Act (1968)	Dept.Ports and Harbour	Explosives, flammable goods	Management of explosives and flammable goods on vessels.
Water Resources Management (2002)	DoGMRWR	Wastes, potential chemical wastes	Establishment of water protection zones and ensure no water pollution

2.8.2 Role and Responsibilities of Government Agencies

The management of chemicals and in particular, the POPs chemicals fall in part under several national authorities' responsibility as indicated in the table above. The day to day management of POPs was recently transferred back to the Department of Environment; however other government stakeholders also have vital roles to play.

Vanuatu does not have comprehensive legislation for the management of chemicals throughout their life-cycle. Even so, the management of POPs chemicals in particular is not specifically mentioned in any of the over 20 separate pieces of legislation discussed above that impact upon the manufacture, import, sale, use or disposal of chemicals. However, in reality the combined effect of this legislation adds up to very little regulation⁴.

Department of Agriculture and Rural Development (DARD)

Agriculture is regarded as the backbone of Vanuatu's economy. DARD plays the most important role of educating Vanuatu farmers on the best farming practices, including the most appropriate methods of using and managing pesticides. Smallholder farmers, who are mostly Ni-Vanuatu, hardly use pesticides. This is due to a number of reasons;

- farmers cannot afford the pesticide chemicals
- many (if not most) smallholder farmers cannot read and/or fully understand the information provided on the labels provided with the chemicals;
- the shifting cultivation system employed allows for previously used plots of land to be left in fallow for a number of years, naturally replenishing soil nutrients and allowing for soil structure improvement
- Vanuatu is relatively free from most harmful agricultural and animal pests and diseases.

The DARD also has a role to play in administering the Pesticides Control Act of 1998. Under the Act the Director of the Department is appointed as the Chairman of the Pesticides Committee.

Department of Environmental Protection and Conservation (DEPC)

The DEPC is tasked to coordinate all activities relating to the environmental management, including ensuring that Vanuatu meets its obligations under the various regional and international treaties. The DEPC's role extends to maintaining contacts with national authorities to ensure national environment strategies are carried out properly and expeditiously. The Department disseminates information to the public through public awareness, and other media outlets.

The role of this Department is often crucial when proposed new developments are likely to impact on the environment. The Government, through the DEPC facilitates the process for the preparation of environmental impact assessments (EIA) for all projects, proposals or development activities that are likely to impact on the environment of Vanuatu. The recommendations of an EIA allows the Government to consciously decide and provide necessary guidelines on developments, taking into account their impact on the environment and the livelihood of its local people.

Department of Livestock and Quarantine Services (DLQS)

Pursuant to the Pesticides Control Act of 1998 the Principal Plant Protection Officer in the DLQS is also appointed as the Registrar of Pesticides. The DLQS has consistently used methyl bromide for treatment of articles for quarantine pests for export and import trade and maintains a small research unit exploring the use of pesticides on certain pest organisms in the

⁴ Shirley Netten, 2004. *Chemical Management in Vanuatu and the Stockholm (POPs) Convention*. A Review of the National and International Legal Contexts, and Recommendations Arising.

country. DLQS had assisted the POPs in PICs project to conduct inventory surveys for obsolete chemicals and contaminated sites in 1996 and 1999.

The Department provides advice to a small number of farmers who are interested in using pesticides to control crop pests. The institution is actively engaged in managing the spread of the Little Red Fire Ant (LRFA) (*Wasmannia auropunctata*) from spreading to other parts of Vanuatu from its present location in the Torba Province. Regular domestic and ornamental pest and disease advisory information is disseminated by its Plant Protection Unit.

The Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants in Vanuatu project is housed under this institution and it co-organized the ratification for the Waigani Convention with the DEPC. This ratification instrument was presented and approved by Parliament at the end of 2007.

The Department of Public Health (DoPH)

DoPH oversees the management and controls of the use of chemicals in industries and on food. The DoPH registers pharmacies under the Sale of Medicines (Control) Act [Cap 48]. Under this Act, a Committee (Pharmacies Practitioners Board) approves the set-up of a pharmacy each year. Vanuatu also has regulations that govern the labeling food products. There is also a Therapeutic Drugs Committee that is involved in decisions regarding which medical products (chemical etc) can be brought into the country.

Local Authorities (Municipal and provincial Councils)

It is the role of Municipal and Provincial Councils to ensure that pesticide users in their jurisdictions are managed, and that used and obsolete chemicals from commercial activities are managed appropriately. There are three municipal councils (Vila, Luganville and Lenakel) and 6 provincial councils (Malampa, Penama, Sanma, Shefa, Tafea, & Torba).

Department of Labour (DoL)

Workers need not get exposed to dangerous chemicals unnecessarily and need to be made aware of the dangers of chemicals in the workplace. The DoL ensures that employers adhere to the occupational health and safety guidelines as provided for under the law. This includes the provision of appropriate clothing to handle the different chemicals used or handled at the workplaces.

Department of Customs and Inland Revenue (DCIR)

It is the duty of this office to work alongside the Pesticides Committee (Committee set up under the Pesticides (Control) Act whose function includes assessing any application for the import of any pesticides) to screen all chemicals that enter the country through the “ASYCUDA⁵” information system. This system allows for better monitoring and control of approved chemicals and those not approved for use in Vanuatu.

It also administers the registration of medicinal and veterinary drugs.

2.8.3 Relevant International Commitments and Obligations

Vanuatu is a member of a number of regional and international organizations as summarized in Table 3 below. Table 4 contains information on relevant international agreements in which

⁵ A computerized customs management system covering most trade procedures. It handles manifests and customs declarations, transit and suspense procedures.

the country participates. The Ministry of Foreign Affairs is often the official Focal Point for many of these organizations. However, the agencies shown in Table 3 are those with most involvement at the operational level. WHO and UNICEF have country liaison Officers based in Vanuatu. In addition, the UNICEF office represents all other United Nations Agencies in Vanuatu.

Table 3: Membership in Relevant International Organizations, Programmes and Bodies

Organization*	National Contact	Related National Activities/Programmes
FAO	Agriculture (MAQFF)	Pesticide legislation, IPM practices, agricultural production
IPPC	DLQS	Plant protection and related activities
ILO	DoL	General support for OHS development
UNEP UNCBD	DEPC	Biodiversity and Conservation, Ozone Depleting Substances, Marine Pollution
UNDP	DEPC, DMGSc	Adaptation to climate change, environmental vulnerability, National Capacity Assessment, sustainable development
WHO	Health (MoH)	Health sector training, primary care, health promotion, disease surveillance, water quality, medical waste, food safety
SOPAC	Mineral Resources	Wastewater, renewable energy, disaster management, GIS
SPC	Agriculture, Health	Pesticide legislation, IPM practices, agricultural production
SPREP	DEPC	POPs disposal,
UNICEF	DoFA	Support for the protection of children

(*see list of abbreviations at the front of this document)

Table 4: Participation in International Agreements/Procedures Related to Chemicals Management

Agreement	Vanuatu Status	Implementation Activities
Agenda 21 – Commission for Sustainable Development	Party	Preparation of the NBSAP, Enactment of the Environmental Protection and Conservation Act, mainstreaming of sustainable development issues into economic planning, establishment of conservation areas etc.
Basel Convention	Not a Party	Control the transboundary movements of hazardous wastes or other wastes for the purposes of disposal in international waters
Chemical Weapons Convention	Party	The CWC aims to eliminate an entire category of weapons of mass destruction by prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons by States Parties. No activities relating to this being carried out.
ILO Convention 170 (Chemicals)	Party	Principles incorporated into OHS Act and regulations
London (dumping) Convention	Party	Controls the pollution of sea by dumping of wastes which would create hazards to human health or to harm living resources and marine life.
Rotterdam Convention (PIC)	Not a Party	Refer to the objectives of the convention. It makes provisions for what country Parties and non –parties should do to fulfill their commitments
Stockholm Convention (POPs)	Party	Development of National Implementation Plan
Montreal Protocol (ODS)	Party	Ratification of Amendments, and legislation passed in parliament. Licensing system developed and being implemented.

Agreement	Vanuatu Status	Implementation Activities
SPREP Convention (Environment)	Party	Coastal management, waste management, climate change and other environmental management activities
Waigani Convention (Hazardous Waste)	Party	Development of national waste management strategy, participation in POPs in PICs disposal project.
Vienna Convention for the Protection of the Ozone Layer	Party	Action plan to protect human health and the environment from exposure to harmful radiation developed.

2.9 Existing Legislation and Regulations Addressing POPs Chemicals

POPs chemicals management are not specifically covered under any existing legislation. However, mention of general chemicals management in the Pesticides Control Act, Environmental Protection and Conservation Act, the Health and Safety at Work Act, the Food (Control) Act and the Animal Importation and Quarantine Act could provide some guidance for the management of these chemicals. The details of the relevance of these laws to the management of POPs are discussed further below, along with other relevant legislations.

Pesticides Control Act (1993)

This piece of legislation was passed through parliament in 1993. It describes the process of setting up and establishing a Pesticides Committee, including the makeup of this body for the management of pesticide chemicals. It sets out the role and the legal jurisdictions under which the office bearers and members of the committee will operate. This jurisdiction extends to designing procedural systems and managing registration of pesticides imported into Vanuatu. The law requires recognized registered importers to also register buyers and users of the pesticides in the field. It highlights the need for managing obsolete chemicals and how best to store and export them for export and proper destruction.

The Pesticides Control Act No 11 of 1993 was the first of its kind designed specifically for pesticides management. This Act's provisions are similar to those under the FAO Code for Pesticide Management. While it is specific for this group of chemicals, it also makes general references to chemicals at large, under which one could deduce that POPs chemicals can feature.

Health and Safety at Work Act (1986)

The Health and Safety at Work Act applies to all use categories of chemicals, imposing duties on employers, employees, importers and suppliers regarding the safety of substances used at work. This extends to safe storage and transport of substances, as well as their use. Employers have the primary responsibility for ensuring the safety of employees and others affected by substances used, while employees must cooperate on safety matters and follow applicable rules. Importers and suppliers must provide the information and conditions for safe use of substances.

The Department of Labour undertook a review of all workplaces in Vanuatu for legislative compliance, and began highlighting worker safety in 2005. However, it is constrained by limited resources, with only one officer dedicated to health and safety issues, and by a lack of capacity and training. In addition, enforcement efforts are difficult because the safety obligations are vague rather than specific.

Under the Health and Safety at Work Act, the Minister of Internal Affairs may prohibit or restrict the import and use of dangerous substances by regulation (whether or not these

chemicals are used in employment). However, since chemical prohibitions are not all related to employment, it is not an ideal fit. Furthermore, the life-cycle approach to chemicals management requires that import restrictions be located within integrated chemicals legislation. Finally, the Labour Department has proposed to replace this Act with more current legislation, which may or may not allow for chemical prohibitions.

Customs Act (2003)

The Customs Act provides for procedures and offences to control illegal imports. The Customs Department's effectiveness in controlling imports of chemicals is untested, since there are no prohibitions in place at this time (except for the general prohibition on unregistered pesticides, which is inoperative). It appears that its ASYCUDA information system can be used to ensure a reasonably effective import control mechanism. Items within specific tariff codes can be "yellow lane", requiring documentary checks before clearance, or "red lane", requiring physical inspection.

However, documentation of products containing chemicals often excludes the chemical information (e.g. pesticides sold by trade name, vehicles containing refrigeration gases). Cooperation between industry and the relevant government departments will be necessary to establish realistic means of controlling imports at their entry point.

The Customs Act is the second legislative venue currently available for chemical prohibitions. Under the Act, the Minister of Finance can prohibit or restrict imports by Order, subject to the approval of the Council of Ministers. Once again, however, this option would contribute to the fragmentation of chemicals management by locating prohibitions outside of comprehensive chemicals legislation.

2.10 Non-Regulatory Mechanisms

Non-regulatory factors have contributed much more than regulation to Vanuatu's overall low level of chemical use. For example:

- the primary pesticide suppliers' own knowledge and willingness to put health and environmental concerns over profit have ensured that a large number of toxic pesticides have simply been unavailable for purchase
- Vanuatu is fortunate to have had relatively few significant pest problems
- a growing, profitable market for organic products has led to significant reductions in the use of pesticides in the agricultural and livestock sectors
- the relatively high cost of chemicals has forced most ni-Vanuatu to manage without these alternatives
- greater global action on particularly hazardous products has reduced the world-wide supply, with many products simply unavailable for purchase

There are no "Green Business Programmes" or "Responsible Care Programmes" to encourage recycling, pollution prevention and waste minimization by industry through economic incentives. It is hard to imagine an effective programme of this type at this time, given the limited opportunities for tax relief, lack of resources for economic assistance to industry, and absence of recycling and waste separation infrastructure. However, the larger international companies working with chemicals have contributed through internal policies and programmes.

3.0 Key Approaches and Procedures for Management of POPs Chemicals

Vanuatu does not manufacture, import or use any of the POPs chemicals and pesticides covered by the Stockholm Convention. Unintentional production of POPs is an issue that can only be dealt with through continued public awareness and education activities. The voluntary withdrawal and prohibition of the importation of DDT was done in 1989. Monitoring is virtually non-existent for POPs chemicals and pesticides, including unintentional production of POPs.

3.1 Assessment of the POPs issue in the country.

3.1.1 Assessment with respect to Annex A, part I chemicals (POPs Pesticides)

Vanuatu does not manufacture or has ever manufactured any of the POPs pesticides listed in Annex A, Part 1 nor is there any future intention of doing so. In that respect, details of historical, current and projected future production do not apply. None of these POPs pesticides have ever been used in Vanuatu, except for DDT. It is not envisaged that there is a need for these pesticides in Vanuatu and therefore future importation is not considered. Export of these POPs pesticides may be required for the removal and disposal of the existing stockpiles.

No legislation exists that specifically covers the importation of the listed POPs pesticides but there are opportunities for addressing this as a piece of secondary legislation either under the Customs Act 2003 or Health and Safety at Works Act 1986

3.1.2 Assessment with respect to Annex A, part II chemicals (PCBs)

The oils in old transformers used at the Unelco power generation company contain PCBs. These were detected during the POPs in PICs project. Unelco has since stopped the use of the oils containing PCBs. There is still the need for further investigation on the presence of PCBs present in capacitors of old electrical equipment around the country. Hence, at this stage there is some uncertainty on the number of such capacitors in Vanuatu. There is no intention for future importation of PCBs to Vanuatu. At this stage, work will be aimed at identifying existing sources of PCBs as mentioned before and disposing of these. The POPs in PICs Project was responsible for the export of identified PCBs from Vanuatu.

There are no prohibitions or restrictions in place for the manufacture, import, sale and use of specific hazardous pesticides or other chemicals. None of the POPs pesticides and chemicals are banned. The fact that they are not currently imported is primarily due to voluntary action by industry and government.

Domestic transportation of chemicals is very poorly regulated. Most chemicals can be transported by sea and road without meeting any requirements, such as those for packaging, labeling, notification and handling. The limited requirements for explosive and flammable goods transported by ship are not well enforced.

There is no regulation regarding the disposal of chemicals and their containers, except prohibitions on the pollution of water. The management of wastes is not formally regulated, and responsibilities are scattered across ministries and municipalities.

There is no legislation directed towards the release of unintentional pollutants (dioxins, furans, HCBs, PCBs), which in Vanuatu comes primarily from burning of wastes. Although a Waste Management and Minimization Policy was developed in 2000, it has yet to be implemented. Wastes are not separated at the household or business level, so that plastics, along with chemical containers and hazardous waste, are incinerated with biodegradable and waste papers. A designated area for chemical, clinical and hazardous wastes is only used by government departments and others who transport wastes directly to the dump.

A municipal by-law that prohibited the sale and use of plastic bags was never enacted due to the amount of opposition on this by-law.

A review of legislation on Chemical Management in Vanuatu and the Stockholm (POPs) Convention by Shirley Netten in 2004 made the following recommendations:

- a) Management of the POPs chemicals should be regulated through a Ministerial Order under the Health and Safety at Work Act or Customs Act, or by enacting a simple piece of legislation for this purpose alone;
- b) Develop a 'National Chemicals Act' to streamline management of all chemicals.
- c) Repeal the Pesticides Act and transfer positive elements of the Act into the newly proposed National Chemicals Act.
- d) Ensure the DEPC has sufficient and qualified staff to manage the chemicals as it is perceived this unit is the best placed institution to undertake this work.

Since the submission of the report, the DEPC in conjunction with SPREP put together the Waste Operations and Services Bill in late 2009. However the proposed Act does not make specific provisions for medical, quarantine, or hazardous waste. It is concerned more with the management of solid waste. This Bill is hoped to be tabled for discussion in 2011 National Parliament sittings. The draft National Waste Management Strategy produced in March 2009 also covers solid wastes only. To ensure proper implementation of any Act specific to chemical management, the DEPC needs to have sufficient and qualified staff. The newly proposed structure for the DEPC includes a Senior Chemical Management Officer to support the Pollution Prevention Officer under the Division of Climate Change Adaptation and Environmental Protection.

3.1.3 Assessment with Respect to Annex B Chemicals (DDT)

DDT was used in Vanuatu in the past for public health purposes, such as vector (mosquito) control for malaria. However this is no longer the case, with DDT having been replaced by other pesticides such as malathion and permethrin⁶. The use of DDT ceased in 1988 as Vanuatu joined many more countries to ban the use of the chemical.

Vanuatu has no known requirements for any future use of DDT, and therefore no need for an exemption under Annex B, Part II of the Convention. The only significant activities required are essentially the same as those already noted under s2.8.1 above, for strengthening of the monitoring and enforcement of the existing controls on pesticides generally.

⁶ Viran Tovu, 2005. National chemical inventory for private and government health facilities.

3.1.4 Assessment of Unintentional Production of Annex C Chemicals (Dioxins, Furans, HCBs and PCBs)

An initial estimate of dioxin and furan releases for Vanuatu has been prepared using the Standardised Toolkit, which was developed by UNEP Chemicals⁷. The Toolkit is designed to produce a simple and standardised methodology and accompanying database to enable assembly of consistent national and regional dioxin and furan inventories. It may be appropriate to carry out additional work on particular sources at some future date as further information or resources become available.

The results from the initial assessment for Vanuatu were presented in a review report⁸ and are summarised below. The major releases of dioxins to air in Vanuatu are believed to be from waste incineration, power generation, uncontrolled combustion processes and transportation. Landfills may also be a significant reservoir source. However, given the limitations of the toolkit, these conclusions may need to be confirmed through additional source-specific studies.

Table 5: Dioxin emissions estimates for Vanuatu

Source Categories	Annual Releases (mg TEQ/a)					TOTAL
	Air	Water	Land	Products	Residue	
Waste Incineration	764.000	0.000	0.000	0.000	3.8	767.800
Ferrous and Non-Ferrous Metal Production	0.000	0.000	0.000	0.000	0.0	0.000
Power Generation and Heating	48.585	0.000	0.000	0.000	9.7	58.285
Production of Mineral Products	0.000	0.000	0.000	0.000	0.0	0.000
Transportation	3.462	0.000	0.000	0.000	0.0	3.462
Uncontrolled Combustion Processes	5049.494	0.000	6.100	0.000	9908.8	14,964.394
Production of Chemicals and Consumer Goods	0.000	0.000	0.000	0.000	0.0	0.000
Miscellaneous	0.000	0.000	0.000	0.000	0.0	0.000
Disposal/Landfilling	0.000	0.000	0.000	0.000	0.0	0.000
Identification of Potential Hot-Spots						
Total	5865.5	0.0	6.1	0.0	9922.3	15,793.941

(*TEQ = toxic equivalents)

There are currently no specific regulatory controls on the release of dioxins and furans in Vanuatu.

A programme for reducing the releases of dioxins and furans in Vanuatu will require a variety of different activities across the range of possible sources. Below are some alternative key action areas:

- Solid waste management. SPREP has provided financial and technical assistance with consultations to develop a draft NSWM strategy. The department is currently working to secure funds to finalize this draft for implementation of programmes and activities within the strategy.
- Motor vehicle emissions. An amendment (made in 2006) to the Road Traffic Act [Cap 29] should hopefully see the police developing a set of emission reduction systems and on implementing them, will see the reduction to emissions of dioxins and furans, and other hazardous air pollutants from motor vehicles.

⁷ UNEP Chemicals, 2003. Standardised Toolkit for Identification and Quantification of Dioxin and Furan Releases. United Nations Environment Programme, Geneva.

⁸ Carol Quashie-Williams, 2004. Inventory of dioxins and furans in Vanuatu

- Waste incineration. The Ministry of Health has developed an action plan for upgrading the management of healthcare wastes, including the possible use of standardized incinerator technologies for waste disposal. Other sources such as quarantine waste incinerators are in the process of review with a view to adoption of best available techniques and best environmental practices (BAT/BEP).
- Biomass sources, including bush clearing and subsistence farming practices, should be assessed for the potential for emission reductions. Any programmes would most likely involve a significant public education component.
- Discharges from landfills and municipal wastewater facilities (sewage) should also be assessed for their contribution to dioxin/furan releases.

3.1.5 Assessment with Respect to Stockpiles, Wastes and Contaminated Sites (Article 6)

Stockpiles and Wastes

There are some stockpiles of obsolete and unwanted chemicals in Vanuatu. Most of the stockpiles of chemicals are being stored under relatively unsafe conditions. Some have been buried in locations, which are now hard to identify. The stockpiles of obsolete chemicals include an amount of POPs, specifically DDT and PCBs.

Most of the obsolete pesticides were exported to Australia in 2008 for disposal under an AusAID/SPREP project (called 'POPs in PICs project'). This disposal operation is the final phase of a project that was first started in 1997. Funded by AusAID and implemented by SPREP, the project identified stockpiles of POPs and other hazardous wastes in 13 Pacific Island countries and provided training and other assistance directed at upgrading the management of hazardous wastes and contaminated site in these countries. The disposal phase of the project involved the collection and packaging of the stockpiles, and shipping to Australia, where they were treated and destroyed, using a Plasma Arc destruction facility.

The export of these chemicals as wastes is controlled under the Waigani Convention (the regional equivalent of the Basel Convention). Vanuatu ratified this Convention in June 2008. The approval procedures associated with this are administered by the Department of Livestock and Quarantine (DLQ). The DEPC is also responsible for monitoring and enforcing the requirements for management of hazardous wastes, although the country is currently lacking any dedicated facilities for the treatment and disposal of these wastes.

Contaminated Sites

Existing and former municipal dumping areas pose the biggest threat as contaminated sites, although the extent of the problem has not yet been determined. There are a number of sites reported around the country where pesticides were disposed by burial. However, there are no accurate records available on the quantities and types of pesticides involved. It is essential that these sites be investigated and the appropriate remedial action taken.

At a more general level, there is a limited amount of monitoring data to indicate the presence of chemical contaminants in some estuarine sediment, especially those downstream of significant industrial and commercial activities and/or rubbish dumps⁹. There is also a limited amount of data for chemical contaminants in some foods and drinking water. However,

⁹ UNEP Chemicals, 2002. Regionally Based Assessment of Persistent Toxic Substances, Pacific Islands Regional Report. Geneva.

beyond that, there is currently insufficient information to indicate the extent and magnitude of environmental contamination around the country, as a result of agricultural, industrial and domestic uses of chemicals and the disposal of associated wastes.

With the help of SPREP, the DEPC has developed a new waste legislation. However it has yet to be tabled in Parliament. The legislation makes provision for the identification and management of contaminated sites. The Department has also recruited a Waste Management and Pollution Control Officer to regulate waste management activities in Vanuatu.

3.2 Overview of Technical Capacity and Infrastructure for POPs Management

The government lacks technical resources in its agencies for the management of POPs and other chemicals. However, it should be recognized that this is simply an indication of the potential resources, as most of these people would have numerous other duties as well.

There are a number of other institutions and organizations in Vanuatu with expertise relevant to POPs management. This includes other government institutions such as the Geology and Mines, the Rural Water Resources and the National Disaster Management Office. Other regional organizations with relevant expertise are SPREP, SOPAC and SPC.

Technical expertise within the industrial sector is limited to personnel at the Vanuatu Agriculture Supplies, the main supplier of agricultural goods in Vanuatu, a household chemicals formulation outlet, and a range of companies involved in the importing, formulation, distribution and sales of various consumer products. There are also a number of environmental consulting companies in Vanuatu, although only one of these has specific expertise in chemical management.

The technical infrastructure for POPs management in Vanuatu is very limited. There are no specialized facilities for the handling, storage and transportation of hazardous materials, and none for the treatment and disposal of hazardous wastes. There is no laboratory with the capability for POPs monitoring and analysis (pesticides and PCBs) in the country.

3.2.1 Current Levels of Information, Awareness and Education

Information relating to the potential hazards of pesticides and industrial chemicals is rarely collected, although this is part of the requirements under the Pesticides (Control) Act and the Health and Safety at Work Act, respectively. The key government agencies also have reasonable access to the relevant information on all import databases and publications. However, there are no formal systems in place for the exchange of chemical information and data between Ministries or other agencies.

The Environment, Education, Health and Labour Ministries all have well-established roles in education and awareness activities relevant to their particular mandates, but this rarely includes directed at POPs or other chemicals in general. The DEPC requires assistance in developing and raising awareness in the chemicals area. The Department is waiting for approval for the recruitment of a Chemical Management Officer, and on its approval, part of their role will be to plan and carry out awareness activities.

The Education Department, especially through its Curriculum Development Unit, regularly updates secondary school syllabi to include emerging topics such as toxic chemicals and also trains teachers in topics such as chemical and management and safety.

3.2.2 Relevant Activities of Non-Governmental Stakeholders

There are public interest groups in Vanuatu with activities relevant to POPs and/or chemical management generally. Their contributions are noted below.

Live and Learn Environmental Education is a non-profit, non-governmental organisation, which promotes greater understanding and action toward human and environmental sustainability through education and networking. Their work involves curriculum development, teacher workshops, environmental education programmes and the development of educational materials such as pamphlets for use in schools. Current activities in Vanuatu include a Green Schools project, the Discovery Learning initiative, and a River-Care project.

The Wan Smol Bag Theatre (WSBT) group is also a non-governmental organisation, specialising in raising awareness on emerging social issues. The group has been raising awareness on environmental issues through drama, plays, print media, radio and television and clean up-campaigns e.g along the Tagabe River.

3.2.3 Systems for the Assessment and Regulation of New or Existing Chemicals

The only systems in Vanuatu for the assessment and regulation of new or existing chemicals are those available under the Pesticides (Control) Act and the Health and Safety at Work Act. Under the Pesticides Control Act, no pesticide may be offered for sale or use within Vanuatu unless it is first registered with the Registrar of Pesticides. The requirements for the types of data to be submitted in support of registration, and labeling specifications are covered in the Act.

In the case of the Health and Safety at Work Act, all employers or persons in control of a workplace are required to provide and maintain a working environment for his employees that is, so far as is reasonably practicable, safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work. Employers or persons in control must provide such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees.

4.0 Strategy and Action Plan Elements of the National Implementation Plan

4.1 Policy Statement

The Government of the Republic of Vanuatu is committed to ensuring a safe environment for its people and their future generations and has committed itself to protecting its unique environment and its biological diversity. Environmental protection and sustainability is one of the key principles for economic and social development in Vanuatu¹⁰, and the Government has demonstrated its commitment to this principle through actions such as the adoption of the Environmental Protection and Conservation Act [Cap 283].

The Stockholm Convention on Persistent Organic Pollutants (POPs) is one of many avenues by which the Government believes Vanuatu can benefit in improved quality of life and protection of human health and the environment. Therefore, the Government of Vanuatu and its people commit themselves to this National Implementation Plan for the Stockholm Convention, and will take all necessary measures to ensure its effective and timely implementation.

4.2 Implementation Strategy

The DEPC is the focal point and the executing agency for most of Vanuatu's environmental issues and strategies. At the moment, it is also the focal point for POPs and as such would primarily coordinate the execution of the National Implementation Plan for POPs. The joint participation of many other Government Departments will ensure the success of the NIP and it is envisaged that the Plan will be integrated into the activities of each Department without adding to their workload. The DEPC will hold the coordinating mechanism for the NIP and will be responsible for monitoring its progress and reporting accordingly.

Division of Climate Adaptation and Environmental Protection

The DEPC is seeking approval for its proposed department structure for 2011 to 2020 and beyond. Under the newly proposed structure, there will be six (6) divisions; conservation, sustainable environmental planning, finance and administration, climate change adaptation and environmental protection, environmental research and information and compliance and enforcement. There will be a Senior Chemical Management Officer and an assistant including a Solid Waste Officer and a Pollution Prevention Officer. Once recruited these positions will be responsible for POPs and the implementation of all plans in Vanuatu's NIP during the allocated timeframe and beyond.

The Chemical Management Officer will report directly to the Principal Climate Adaptation and Environmental Protection Officer who will be responsible for overseeing the work of the Division under which the Chemical Management Officer is housed. This position (Chemical Management Officer) will be responsible for monitoring, implementing and reporting on actions for the Stockholm Convention as well as being a centre for other chemical related work. The Chemical Management Officer will also be responsible for other chemical conventions such as the Basel Convention, the Waigani Convention and on its signature and ratification, the Rotterdam Convention. The Director of DEPC will be the focal point for international communications relating to POPs.

¹⁰ Priority Action Agenda, 2006. Strategic Development Plan, 2006-2015.

Travelling Workshop

To overcome the spatial difficulties in Vanuatu, it is proposed that a travelling workshop be conducted. This workshop will comprise of a small team of people travelling to each of the Provincial Headquarters of Vanuatu. The benefits of this workshop will be threefold, allowing the following activities:

- conducting effective public education on POPs
- taking samples to more accurately determine the level of POPs in Vanuatu
- promoting BAT and BEP practices relevant to people on the outer islands

The workshops will involve the local governments in each province who will then act as a point of contact for follow-up activities and dissemination of further information.

Addressing Stockholm Convention obligations

- Intentional Production and Use

The intentional production and use of POPs chemicals is non-existent in Vanuatu. As a result, the primary action required to address intentional POPs is implementation of effective border controls. This will be done through amendments to legislation and capacity building of the Vanuatu Border Control officers, and other government agencies including the DCIR, DLQ, DEPC and the Department of Public Health.

- Unintentional Production

Addressing unintentional production of POPs will be the primary focus of POPs related activities in Vanuatu. Specific actions on legislative amendments, education and awareness, and capacity building will be necessary. A specific action plan on unintentional production has been included as required by Article 5 of the Stockholm Convention, however given the breadth of activities that can be included in an unintentional production action plan, the plan is a collation of specific actions that are better organized under 'sub' actions relating to recruitment of a Chemical Management Officer, undertaking a travelling workshop, legislation, education and awareness, and capacity building.

- Stockpiles and Contaminated Sites

Contaminated sites and stockpiles of wastes contaminated with POPs chemicals is a significant issue in Vanuatu. The magnitude of these issues is not well known and at this stage it is not possible to predict the cost of remediation. A specific action plan on priority areas has been included to address this issue.

- Information Exchange

It is proposed that the Chemical Management Officer will meet the information exchange obligations of the Convention.

- Public awareness and Education

Public education and awareness will be critical in promoting general awareness of POPs and in highlighting relevant BAT and BEP in Vanuatu. Public education and awareness will be co-ordinated by the Chemical Management Officer with the assistance of other government and non-government organizations. Education and awareness will be conducted through the travelling workshop and the formal education system will take up much of the awareness through inclusion of chemicals materials in the school syllabus. Mass media awareness needs

also be conducted through the national radio to reach remote communities. There is a specific action plan on education and awareness.

- Research and Monitoring

Research and monitoring is proposed to be undertaken by the Chemical Management Officer under the Division of Climate Adaptation and Environmental Protection with appropriate technical assistance. Costs for research and monitoring are included in the running of the DEPC.

- Reporting on progress and implementing the Convention

Responsibility for reporting will be handled by the Chemical Management Officer under the Division of Climate Adaptation and Environmental Protection.

A full description of the obligations of the Convention and how they are addressed in the Action Plans can be found at Annex 4.3.

4.3. Action Plan to address Annex A, Part II, POPs (PCBs) (Article 3)

Context and Analysis of Issue

Under Article 3 and Annex A, Part II, of the Convention, Parties are required to take the following actions:

- Prohibit and/or take legal and administrative action necessary to eliminate production and use of Annex A, Part II, chemicals (PCBs);
- PCBs in existing equipment, such as transformers and capacitors, is to be eliminated by 2025 and until then is permitted only in a manner that prevents or minimizes human exposure and release into the environment;
- Prohibit the import and export of PCBs, except for the purpose of environmentally sound waste management; and
- Work towards the environmentally sound management of PCB wastes as soon as possible but no later than 2028.

As with most other countries, PCBs were used in the past in Vanuatu, especially as transformer oils. However, there is no “hard” data available on the extent of this. Because of the scarcity of relevant and proper documentation, it is impossible to determine how many PCBs in transformer oils exist in Vanuatu, how many have been removed from Vanuatu and how many are yet to be removed.

The main issue that Vanuatu needs to address in relation to PCBs is the development of a system for the identification and environmentally sound management and disposal of capacitors and other small items of electrical equipment potentially contaminated with PCBs. There is a need for strengthening of the Customs agency to ensure that future imports of PCBs, if any, are identified and stopped at the border. This can happen through the development of a national legislation on POPs, so as to give power to the Customs Department to undertake this activity as part of their responsibility.

Goal

Achieve an effective and environmentally sound strategy with appropriate and relevant documentation to manage the total elimination and removal of PCB-containing products, equipment and wastes.

Objectives

1. Prepare a comprehensive national inventory of PCBs, PCB containing materials, and PCB wastes in the next 2 years
2. Establish and implement a system of safe handling, storage and transport of PCBs, PCB containing materials and PCB wastes. Strategies should include proper labeling in relevant languages – Bislama, English, French e.g. In food regulation.
3. Ensure no further imports and use of PCBs by the end of 2013.
4. Testing of residues of PCBs in suitable media (such as blood and sediments) by the end of 2013.
5. Eliminate and destroy all PCBs (except as need for laboratory analysis) PCB-containing materials and PCB wastes no later than 2028
6. Strengthen the DEPC through formal training to develop specialists in PCBs. This should be a continuous exercise.

Management Options

The goal and objectives for this action plan can generally be achieved through amendments to the existing regulatory and management systems. The main requirements are the prohibition of the importation and use of PCBs. These would need to be supported by well-trained officials in the Customs and DEPC as well as education and awareness programmes to ensure optimum take-up by the target groups. There is a need for strengthening of the existing import control systems to ensure future compliance with the convention requirements.

Objective 2 is a way to ensure that PCBs are easily identifiable in imported. This should also allow for better determination of potential PCB containing products and to ensure compliance with convention requirements.

This plan recognizes the role of a strengthened DEPC.

Implementation Strategy

Lead Agencies: The lead agency for this Action Plan will be the DEPC, working in close cooperation with the DLQ as well as the POPs project team/committee and the DoPH.

Programme Implementation: the key steps involved in implementation are summarized below, while a more detailed list of activities is given in Annex 4.

Objective 1 (Prepare a national inventory of PCBs, PCB containing materials and PCB wastes)

- ❖ Prepare a list of resources and expertise on PCB management and related research
- ❖ Prepare a comprehensive profile of potential sources of PCBs in the country
- ❖ Develop and publish inventory protocol and guidelines
- ❖ Conduct training on identification and sampling electric utilities, servicing facilities and DEPC staff
- ❖ Develop a PCB information database
- ❖ Conduct inventory of PCB materials and wastes
- ❖ Conduct information, education campaign on health issues and technology for PCB management

Objective 2 (System of safe handling, storage and transport of PCB, PCB containing materials and PCB wastes)

- ❖ Develop guidelines for storage and safe handling including transport and dismantling of PCB waste or contaminated material
- ❖ Develop monitoring and evaluation program for handling and storage
- ❖ Develop safe transportation rules and regulations (should include guidelines for preparation of waste shipments, labeling requirements for vehicles and containers as required)
- ❖ Develop guidelines/checklist for the evaluation of potential contaminated sites

Objective 3 (Ensure no further imports and use of PCBs)

- ❖ Review existing legislation to develop Ministerial Order for an immediate ban of PCB-containing products
- ❖ Develop and implement new national legislation for chemical management that ensures a ban on PCB imports and PCB based equipment
- ❖ Develop capacity in Customs, Environment and Quarantine Departments on all potential PCB-containing products

Objective 4 (Sampling of materials potentially containing PCBs)

- ❖ Undertake awareness programs about PCBs and their effects
- ❖ Ministry of Health to liaise with the World Health Organization on program for PCB testing in breast milk to determine sampling methods
- ❖ Training of Health staff on PCB sampling
- ❖ Undertake sampling of potential PCB-containing substances
- ❖ Send samples of blood and sediment to approved laboratories for testing

Objective 5 (Eliminate and destroy all PCBs and PCB wastes)

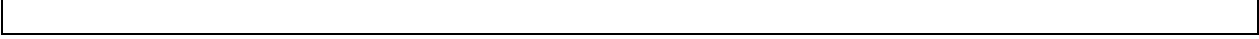
- ❖ Analyze options for PCB waste collection and disposal
- ❖ Evaluate existing environmental financing support facilities to support disposal of PCB waste
- ❖ Assess, document and report results, including proposals for implementation
- ❖ Implement the proposed programme

Objective 6 (Strengthening of the DEPC)

- ❖ Increase staffing of the DEPC
- ❖ Formal training to develop specialists

Resource Needs and Timing: The overall resource needs and timing are summarized below, while more detailed information is given in Annex 5.

Objective	Internal Costs (US\$)	External Costs (US\$)	Total Costs (US\$)	Duration
1	\$500	\$35,000	\$35,500	1 year
2	\$0	\$14,000	\$14,000	2 years
3	\$2,000	\$13,000	\$15,000	2 years
4	\$6,000	\$11,000	\$17,000	
5	\$0	\$7,000	\$7,000	
6	\$3,000	\$80,000	\$83,000	1 year
TOTALS	\$11,500	\$160,000	\$171,500	



4.4 Action Plan to address Unintentional Releases of POPs (Dioxins and Furans, Article 5)

Context and Analysis of Issue

Under Article 5, and Annex C, Parts I, II, and III of the Convention, Parties are required to take measures for continuous minimization of releases of unintentionally produced POPs (PCBs, HCBs, Dioxins and Furans) and where possible, eliminate their releases. The primary source categories are detailed in Annex C of the Convention, and the key requirements for action are as follows:

- Establish and finalise an action plan within 2 years after entry into force
- Require the use of are Best Available Techniques (BAT) for new sources or substantially modified plants as soon as possible but not later than four years after entry into force (for those sources listed in Annex C, Part II)
- Promote the application of BAT and Best Environmental Practices (BEP) for all other sources; and
- Report on the success of proposed strategies every five years.

Vanuatu has yet to undertake an estimate of its dioxin and furan releases. Such a study would enable to responsible authorities to appropriately target groups. It is however, believed that the major releases of dioxins and furans are from waste incineration, power generation and burning of wood for cooking. Domestic rubbish burning and scrub clearing may also be significant contributors, while landfills may be a significant reservoir source. However, given that there is no initial data, these conclusions will have to be confirmed through studies.

While there is application of BAT/BEP, greater awareness on these practices have to be carried out. This action will address how this can be done.

There are currently no specific regulatory controls on the release of dioxins and furans in Vanuatu, although the potential now exists for these controls to be introduced under the proposed Waste Management Policy and the Traffic Control Act; both of which are designed to control emissions from traffic fumes and opening burning in landfills.

Goal

Progressive reduction in the releases of dioxins and furans and other unintentional POPs in Vanuatu based on best environmental practices.

Objectives

1. Review existing incinerators, new units or upgrading by the end of 2013
2. Testing of residues of Dioxins and Furans in blood samples and sediments by the end of 2013.
3. Promote enforcement of Road Traffic Control Act for Smokey Vehicles by the end of 2013
4. Take Action on Waste Management policy/strategy by the end of 2012.
5. Promote non-regulatory mechanisms by 2013
6. Develop Knowledge and expertise in BAT/BEP by the end of 2013but in the meantime, awareness on BAT/BEP could begin.
7. Strengthening of the DEPC (formal training to develop specialists in dioxins and furans. This should be a continuous exercise)

Management Options

The goal and objective of this action plan are intended to develop a database on the presence of dioxins and furans before undertaking progressive steps, by way of regulatory controls as well as non-regulatory mechanisms to control emissions.

There are a number of initiatives already under way in Vanuatu that will be reflected in the development of this action plan; namely the National Waste Management Strategy and Policy, the Road Traffic Control Act, and a programme for upgrading the management and disposal of medical wastes. The activities proposed below are intended to build on and supplement these existing programmes, while at the same time ensuring that the specific requirements under the Convention are adequately addressed.

The first objective under this action plan is intended to address a basic operational need, in the development of better quality information on the current releases of unintentional POPs and also on the technical needs of

acquiring and maintaining information. This is also important from a policy point of view, in clearly identifying the most important source categories to be targeted for future actions.

One of the primary requirements for reductions of unintentional POPs under the Convention is the application of BAT/BEP and this will be addressed through the operational and regulatory measures covered under objectives 5 and 6. These are best based around a progressive approach involving assessment of the most appropriate control measures, development of education and awareness programmes for the relevant sectors.

The programme proposed under objective 2 recognizes the fact that dioxins and furans are a relatively new issue for Vanuatu and there is a need for considerable effort in providing information and technical assistance to communities, regulators and other relevant agencies alike. The development of an information database on this objective is also designed to assist in identifying source categories for targeted future actions.

This plan also perceives the important role that is to be played by the DEPC, planning for stronger, well-trained personnel within the Department.

Implementation Strategy

Lead Agencies: The lead agency for this Action Plan will be the Department of Environmental Protection and Conservation, although the work will require significant inputs from other agencies, including Health, Agriculture, Quarantine, and Transport.

Programme Implementation: the key steps involved in implementation are summarized below, while a more detailed list of activities is given in Annex 4.

Objective 1 (Review existing incinerators, new units or upgrading)

- ❖ Undertake a Needs Assessment
- ❖ Plan and seek donor assistance using results of Needs Assessment
- ❖ Installation and training of operators
- ❖ Develop an emissions inventory
- ❖ Regular monitoring of emissions and update emissions inventory

Objective 2 (Sampling and testing of residues of Dioxins and Furans in media such as blood samples and sediments)

- ❖ Plan and implement awareness programmes about dioxins and furans and their effects
- ❖ Training of Health and Geology and Mines staff on dioxin and furans sampling
- ❖ Carry out sampling of blood and sediment for dioxin and furans residues
- ❖ Send samples of blood and sediment to approved laboratories for testing
- ❖ Develop a dioxin and furans information database

Objective 3 (Amend Road Traffic Control Act to make provisions for control of Smokey Vehicles)

- ❖ Plan and implement awareness programme on the effects of smoky vehicles
- ❖ Amend Road traffic Control Act and enforcement of Act by relevant authorities

Objective 4 (Take Action on Waste Management Strategy and Action Plan)

- ❖ Endorsement of Ad Hoc Committee on Waste Management by Minister responsible for Environment. Committee develops a work programme
- ❖ Identify responsible Ministry for chemical waste management
- ❖ Seek assistance from regional organizations to assist in the Vanuatu Waste Management policy/strategy

Objective 5 (Promote non-regulatory mechanisms by 2013)

- ❖ Conduct an impact assessment on composting in urban areas
- ❖ Plan and implement awareness programs on composting

Objective 6 (Develop knowledge and expertise in BAT/BEP for reduction of release of dioxins and furans (and where possible source elimination))

- ❖ Develop proposal for assistance from regional partners for training in BAT/BEP for reduction in release of dioxins and furans.

❖ Identify BAT/BEP appropriate to the significant dioxin and furan sources and set performance criteria for each BAT/BEP

❖ Assist Municipalities and Provincial governments to enact ordinances to promote BAT/BEP for unintentional POPs

Objective 7 (Strengthening of the DEPC)

❖ Formal training to develop specialists

Resource Needs and Timing: The overall resource needs and timing are summarized below, while more detailed information is given in Annex 4.

Objective	Internal Costs (US\$)	External Costs (US\$)	Total Costs (US\$)	Duration
1	\$3,500	\$60,000	\$63,500	2 years
2	\$7,000	\$6,000	\$13,000	2 years
3	\$2,000	\$ -	\$2,000	1 years
4	\$1,500	\$ -	\$1,500	1 year
5	\$2,000	\$ -	\$2,000	1 year
6	\$30,500	\$ 14,000	\$74,500	1 year
7	\$-	\$10,000	\$10,000	1 year
TOTALS	\$46,500	\$90,000	\$166,500	

4.5 Action plan to address POPS and other Pesticides

Context and Analysis of Issue

As a signatory to the Stockholm Convention on Persistent Organic Pollutants since May 21 2001, Vanuatu is required to take legal and administrative measures necessary to eliminate the production and use of POPs chemicals (Annex A, Part 1 & Annex B); and regulate the trade in these POPs chemicals with both Parties and Non-Parties.

Vanuatu began using DDT (Dichlorodiphenyltrichloroethane) in the early 1970s when the Malaria program started up until 1988 when it was formally banned. Other alternatives for DDT that are currently in use in Vanuatu are Permethrin and Malathion, which are organophosphates. Currently there is no substantiation of any use or trade of these POPs (exception of unintentional POPs substances released through combustion) chemicals in Vanuatu however there are reported findings of stockpiles of DDT and some other pesticides dumped or stored around the country.

Current national legal context concerning chemical management significantly lacks proper regulation of chemicals and the current legal framework is unconsolidated and functional to a minimal extent. Thus a more comprehensive legal framework is essential to address current shortfalls in management, regulations and enforcements. Pesticides users and environmental contamination are also areas which management and monitoring is weak therefore capacity building in relevant agencies is vital to ensure proper enforcements.

Goal

To ensure that the current controls on the importation and use of all pesticides, including POPs, are effectively enforced and all use of POPs pesticides ultimately eliminated.

Objectives

To amend and amalgamate existing legislations by the end of 2013; legislate for immediate ban on use and importation of POPs pesticides; and capacity building for personnel (chemical inspectors) in relevant agencies (Customs & DEPC) for enforcement

To prepare by 2013 a comprehensive chemical inventory for Vanuatu and set up an effective registry system for monitoring of imports (from entry to disposal); includes capacity building for Customs agency in IT and chemistry.

To establish by the end 2013 standard chemical storage facility at port of entry for refused consignments and outgoing stockpiles shipments; integrated standard storage facilities for relevant institutions (users); a national laboratory with analytical capability to support enforcements on illegal imports and environment monitoring

To develop by 2012 a national framework for emergency response

To develop by the end of 2013 specialized human resources in the relevant field through formal training (scholarships); capacity of relevant agencies (Customs officers, OHS Officers, Agriculture Department Officers, DEPC Officers, and Quarantine Officers) through in-house trainings on handling, storage, disposal and use of chemicals; instructions (translated in Bislama, French and/or English) on handling, storage, disposal and method of applications for users by the supplier at point of purchase

Management Options

Although Vanuatu produces very small amounts of pesticides and other chemicals compared to the global figures, there are a number of potential health and environmental risks due to inadequacy of key legislations, mismanagement, inappropriate handling of chemicals as well as lack of awareness. Also control systems on imports and use of pesticides are not much in effect resulting in unregulated life cycle of pesticide chemicals in Vanuatu. This is due to lack of resources and capacity within key agencies, which carry out implementations and enforcements.

Thus this action plan intends to develop a broad-spectrum legal framework inclusive of all aspects of chemical management and devise an effective system on registration, monitoring, regulating and import controls.

Furthermore this action plan focuses on the importance of building the capacity within the key agencies in terms of infrastructure and human resources as well as improves on the operational practices at user level.

Implementation Strategy

Lead Agencies: The proposed leading agency for the implementation of the NIP is the DEPC.

Program Implementation: the implementation is carried out in steps summarized below and detailed in Annex 4.

Objective 1: Amend and amalgamate existing legislations to achieve a more integrated and coordinated legal approach to chemical management (including immediate ban on POPs pesticide importation) and build the capacity of implementing and enforcement agencies.

- Establish taskforce to identify and review (and decide whether to amend certain pieces of legislation or consolidate relevant parts into a more comprehensive form) existing relevant legislations
- Seek technical assistance and prepare terms of reference to assist State Law Office to compile and consolidate. This may require a consultant.
- Consultation process for draft
- Strengthen capacity of DEPC & Customs Department through infrastructure and recruitment of compliance officers
- Identify and establish linkages (information dissemination) between relevant departments and institutions with the two key agencies in ensuring proper enforcement and monitoring
- Seek approval for amendments by DCO/COM
- Process the implementation of the new legislations

Objective 2: Create and develop a national chemical inventory and set up a registry system for regulating the life-cycle of chemicals in Vanuatu which includes capacity building for Customs department in IT and chemistry.

- Recruit officer with relevant background in chemistry and IT within the DEPC and establishing an office with relevant equipments
- Establish linkages between other departments and institutions
- Create and develop national inventory
- Continuous update of database and sharing/dissemination of information (ongoing)

Objective 3: Developing the necessary infrastructure, in this case standard storage facility and chemical testing facility for effective chemical management

- Identify suitable location for storage facility at port of entry and National laboratory (under an identified Ministry)
- Obtain EIA
- Tender for concept design; obtain standard formats from FAO, WHO or UNEP

- Obtain and consult users on integrated designs (for schools, hospitals etc)
- Engage engineer in designing appropriate design for port of entry storage and laboratory
- Identify which of the two key infrastructure will proceed first and secure funding and tender for construction
- Construction of facility overseen by PWD
- Recruit facility personals, technicians and equipments purchase & set-up; training
- Ministry responsible to arrange on going monitoring & maintenance

Objective 4: Develop a national framework for emergency response to chemical disasters

- Assess and identify the most effective strategy for developing a mechanism of response and develop a policy paper
- Submit for approval and mandate by DCO/MOC
- Recruit and train staffs from relevant government departments on necessary skills and knowledge
- Determine ongoing local delivery option and its competence as well as ongoing awareness and delivery exercises

Objective 5: Develop specialized human resources in the relevant field through formal trainings, and in-house trainings to build capacity of relevant agencies on storage, handling, disposal & use of chemicals

- Ministry responsible submits priority field of training to Training & Scholarship Coordinating Unit (TSCU)
- Identify staffs from different Government Departments requiring training
- Determine the best training methods and ensure program is ongoing
- Implement training programs including training of local trainers
- Ensure that suppliers develop for the user instructions material on the use and application method of chemicals in Bislama and either English or French

Implementation Strategy

Resource Needs and Timing: The overall resource needs and timing are summarized below (see Annex4 for more detailed information).

Objective	Internal Costs (US\$)	External Costs (US\$)	Total Costs (US\$)	Duration
1	\$ 61,500	\$30,000	\$91,500	2 years
2	\$190,000	\$40,000	\$230,000	2 years
3	\$107,000	\$65,000	\$172,000	4 years
4	\$60,500	\$0	\$60,500	2 years
5	\$33,500	\$2,000	\$35,500	2 years
TOTALS	\$452,500	\$137,000	\$589,500	

4.6 Action Plan to address Chemical Stockpiles and Contaminated Sites (Article 6)

Context and Analysis of Issue

The primary requirements for stockpiles and wastes, as detailed in Article 6 of the Convention, are as follows:

- Identification of stockpiles that consist of or contain intentionally produced POPs,
- Management of such stockpiles in a safe, efficient and environmentally sound manner,
- Identification of products and articles in use and wastes that consist of, contain or are contaminated, with intentionally or unintentionally produced POPs,
- Measures to ensure safe handling, collection, transport and storage of POPs wastes, and environmentally sound disposal; and
- Identification and management of sites contaminated by POP.

There were stockpiles of obsolete and unwanted chemicals in Vanuatu, including a small amount of POPs. Most of the stockpiles were being stored under relatively unsafe conditions, awaiting action on disposal. Some of the stockpiles, mainly obsolete pesticides, were collected, properly packaged and export, for disposal under an AusAID/SPREP project. The Department of Environmental Protection and Conservation is responsible for monitoring and enforcing the requirements for management of hazardous wastes (even though there is no waste legislation yet in Vanuatu to mandate the DEPC for this responsibility) in Vanuatu, although the country is currently lacking any dedicated facilities for the treatment and disposal of these wastes.

There is believed to be a significant issue in Vanuatu with contaminated sites, although the extent of the problem has not yet been determined. There are a number of sites around the country where pesticides were buried. However, there are no accurate records available on the quantities and types of pesticides involved. It is essential that these sites be investigated and the appropriate remedial action taken. At a more general level, there is a limited amount of monitoring data to indicate the presence of chemical contaminants in some estuarine sediment, especially those downstream of significant industrial and commercial activities and/or rubbish dumps.

Once the Waste Operations and Services bill has been passed, the DEPC will have the necessary authority, to initiate work on identification and management of contaminated sites. However it currently lacks the necessary expertise and resources (technical and personnel) to undertake these activities.

Goal

Vanuatu human health and the general environment protected from contaminated sites, wastes and stockpiles of obsolete chemicals by complete identification of such sites by 2013 and development of appropriate management strategies and remedial actions.

Objectives

1. Review scholarships scheme to include formal trainings to develop local chemical specialists and chemical laboratory technicians.
2. Conduct and prepare detailed inventory assessment for potentially contaminated sites and chemical stockpiles in Vanuatu by 2012, place into safe storage and then arrange export for disposal
3. Construct and establish appropriate and proper standard storage facilities according to standard designs in all new storage facilities until disposed
4. Develop proper and appropriate local disposal facilities (example for laboratory chemicals and some industrial wastes
5. Short-term training to train local expertise in contaminated site identification, assessment and management

Management Options

The existing regulatory and management systems in Vanuatu will require upgrading and improvement for addressing the goal and objectives for this action plan. The main requirements are to develop the knowledge and capacities within DEPC and other relevant agencies, and the operational measures required for implementing these programmes. There is also a need for significant infrastructure development in the form of a secure storage facility.

Implementation Strategy

Lead Agencies: The lead agency for this Action Plan will be the DEPC, but significant inputs will also be required from the Departments of Health and Department of Livestock and Quarantine.

Programme Implementation: the key steps involved in implementation are summarized below, while a more detailed list of activities is given in Annex 4.

Objective 1 Review scholarships scheme to include trainings to develop local chemical specialists and chemical laboratory technicians

- ❖ Department of Quarantine and DEPC to identify suitable personnel for short and long term training
- ❖ Department of Quarantine and DEPC to consult and liaise with the Scholarships office and Donor Partners to identify appropriate Training Institutions
- ❖ Establish financing of training

Objective 2 Conduct and prepare detailed inventory assessment for potentially contaminated sites and chemical stockpiles in Vanuatu by 2012, and make appropriate recommendation for disposal/management

- POPs committee to develop TOR for local consultants to carry out inventory
- Advertise positions through the public service department
- Local consultants to report findings of stockpiles to POPs committee
- Trained personnel to collect handle and store stockpiles into proper and safe storage
- Implement OHS legal requirements during collection, handling and storing of stockpiles
- Arrange for exportation for disposal in compliance with other legal relevant requirements

Objective 3 (Construct and establish appropriate and proper standard storage facilities according to standard designs for all new storages until disposed)

- Obtain information on standard design from other UN member states that have ratified the Stockholm Convention.
- Establish Building Contract and advertise contracts
- Construction of Facilities

Objective 4 Develop appropriate local disposal facilities for laboratory industrial chemical wastes

- Ministry responsible to obtain information on appropriate designs for chemical disposal facilities
- Conduct site assessment on appropriate location
- Seek donor funding
- Tender notices put in paper for appropriate facilities to be constructed by company
- Construct facilities
- Formulate and implement tasks within disposal facilities according to on-site policy and manual
- Quarantine to provide short-term intensive training for site handlers

Objective 5 Need for DLQ in collaboration with DEPC to provide short-term training for local experts in contaminated site identification, assessment and management

- Identify suitable consultant to conduct the train-the-trainers workshop
- Develop the training program
- Develop materials and manuals for training; including manuals for assessment and management of contaminated sites
- Training conducted

Resource Needs and Timing: The overall resource needs and timing are summarized below, while more detailed information is given in Annex 5.

Objective	Internal Costs (US\$)	External Costs (US\$)	Total Costs (US\$)	Duration
1	\$300	\$51,200	\$51,500	3 years
2	\$800	\$373,600	\$374,400	2 years
3	\$1100	\$96,800	\$97,900	2 years
4	\$1500	\$85,200	\$86,700	2 years
5	\$1400	\$33,000	\$34,400	1 year
TOTALS	\$6,300	\$638,600	\$644,900	

4.7 Action Plan to address public awareness, information and education (Article 9 & 10)

Context and Analysis of Issue

The requirements under Articles 9 and 10 of the Stockholm Convention include the following:

- Facilitate or undertake the exchange of information detailed in paragraph 1 of Article 9. This information should be exchanged directly or through the Convention Secretariat.
- Designate a national focal point for the exchange of such information.
- Promote and facilitate public information, awareness and education, as detailed in Article 10. This includes awareness among policy and decision makers, the provision of information to the public, and the development of educational and public awareness programmes on POPs, especially for women, children and the least educated.
- Arrangements for training of workers, scientists, educators, and technical and managerial personnel.

Goal

Full awareness and understanding of POPs and related hazardous chemicals among all stakeholders, and united support for the implementation of the NIP.

Objectives

1. Create widespread awareness and understanding of POPs and related hazardous chemicals and the NIP, including understanding of the potential health, environmental and economic impacts.
2. Develop awareness materials for a better understanding of specific agency roles and responsibilities in implementing the NIP and build and strengthen partnerships/networks to carry them out.

Management Options

Achievement of the goal and objectives for this action plan mainly requires a number of operational measures directed at the development and implementation of communication strategies and education and awareness campaigns. However, there is also an important coordination and management measure under objective 2, in the development of a shared understanding on the roles of all stakeholders and a mechanism for periodic sharing of activities and experiences in implementing the programme.

Implementation Strategy

Lead Agencies: The lead agency for this Action Plan will be the DEPC, and other relevant key stakeholders.

Programme Implementation: the key steps involved in implementation are summarized below, while a more detailed list of activities in Annex 4.

Objective 1: Develop and/create awareness materials on POPs, related hazardous chemicals and the NIP, including understanding of the potential health, environmental and economic impacts.

- ❖ Develop on-going community-based awareness programs on POPs and other chemicals, including the uses and impacts.
- ❖ Develop necessary awareness and educational materials
- ❖ Translation of ICT materials into appropriate and understandable languages (Bislama) and formats
- ❖ Set up Awareness Coordination Groups within the Provinces
- ❖ Carry out awareness in every Province
- ❖ Include Chemical use and safety in the School Syllabus
- ❖ Provide information support to main chemical users including secondary schools and tertiary institutions, and encourage inclusion of units of chemical management especially related to POPs, in the curricula
- ❖ Monitor the effectiveness of activities carried out

Objective 2. Develop awareness and understanding of specific agency roles and responsibilities in implementing the NIP and build and strengthen partnerships/networks to carry them out

- ❖ Continue the awareness presentation for senior interagency meetings of government officials and

Objective 2: Develop awareness and understanding of specific agency roles and responsibilities in implementing the NIP and build and strengthen partnerships/networks to carry them out

- ❖ Continue the awareness presentation for senior interagency meetings of government officials and other relevant stakeholders
- ❖ Hold participatory workshop of relevant stakeholders to identify roles and how needed activities can fit into existing and future sectoral strategic plans
- ❖ Hold regular (annual) meeting of stakeholders to review progress and set objectives and activities for the following year

Resource Needs and Timing: Summarized below are the overall needs and timing.

Objective	Internal Costs (US\$)	External Costs (US\$)	Total Costs (US\$)	Duration
1	\$10,650	\$55,800	\$66,450	2 years
2	\$2,000	\$22,000	\$24,000	3 years
TOTALS	\$12650	\$77,800	\$90,450	

4.8 Action Plan to address Research, Development and Monitoring (Article 11)

Context and Analysis of Issue

Under Article 11 of the Convention, Parties are required to encourage and /or undertake appropriate research, development, monitoring and cooperation, pertaining to persistent organic pollutants and, where relevant, to their alternatives and to candidate persistent organic pollutants.

The technical infrastructure for POPs monitoring and research in Vanuatu is very limited.

Goal

Ability to conduct assessments to determine the magnitude of chemical impacts and to ensure most efficient use of resources

Objectives

1. Carry out chemical impact assessment for areas of significant chemical use
2. Investigate and promote alternatives to dangerous chemicals (e.g.; MeBr)
3. Establish National Chemical laboratory, including testing services for chemical imports and chemical poisoning

Management Options

The implementation of this action plan requires and appropriate mechanism for coordination and management of the activities, along with a moderate amount of capacity building (training and resources) and operational measures in support of the on-going activities.

Implementation Strategy

Lead Agencies: The lead agency for this Action Plan will be the DEPC although other key stakeholders such as DLQ and DoPH should also be involved. Obviously, the programme could not be implemented without the full participation other potential service providers.

Programme Implementation: the key steps involved in implementation are summarized below, while a more detailed list of activities is given in Annex 4.

Objective 1 (Carry out chemical impact assessment for areas of significant chemical use before chemical impact adversely affects the people and general environment:

- Trained personnel to carry out Preliminary Chemical Impact Assessment (PCIA) and draw up necessary recommendations
- Submit recommendations to National POPs Committee for screening and commenting if necessary
- National POPs Committee to submit recommendations to Director of DEPC for decision on recommendation
- Implementation of approved recommendations (PCIA will determine whether a full Chemical Impact Assessment (CIA) is required or no in circumstances where CIA is not required then, only recommendation of PCIA will be observed and enforced. Furthermore, in circumstance where full CIA is required then new recommendations will be drawn up and submitted to Director of DEPC for approval of recommendations after chemical impact has affected the people and the general environment
- Trained personnel to identify and assess the contaminated site
- Submit recommendations to National POPs Committee for screening and commenting if necessary
- National POPs Committee to submit recommendations to Director of DEPC for decision on recommendations
- Implementation of approved recommendations
- Ongoing research

Objective 2 Develop a guideline on alternatives for POPs

- . Investigate other suitable alternatives
- . Implement BEP and BAT guidelines published by Conventions Secretariat.

Objective 3 (Establish a National Chemical Laboratory for chemical testing

- . Seek information on appropriate and standard design for chemical laboratory
- . Seek the required funding
- . Establish building contract and advertise contract
- . Construction of Laboratory
- . Procure Laboratory apparatus for testing chemicals in laboratory
- . Design and establish administration system and draw up positions, duties and responsibilities
- . Employ Laboratory Technicians

Resource Needs and Timing: The overall resource needs and timing are summarized below, while more detailed information is given in Annex 4.

Objective	Internal Costs (US\$)	External Costs (US\$)	Total Costs (US\$)	Duration
1	\$ -	\$53,000	\$53,000	2 years
2	\$2,000	\$24,000	\$26,000	3 years
3	\$1,600	\$150,500	\$152,100	2 years
TOTALS	\$3,600	\$227,500	\$231,100	

4.9 Action Plan to Address Reporting (Article 15)

Context and Analysis of Issue

Under Article 15 of the Convention, parties are required to report to the Conference of the Parties on the measures they have taken to implement the provisions of the Convention and on the effectiveness of such measures in meeting the objectives of the Convention

There are other related obligations under the Convention, such as reporting progress in reducing releases of unintentional POPs, which should also be addressed through this action plan.

Goal

Activities undertaken under the NIP are well coordinated and reported upon.

Objectives

1. To ensure effective gathering of information on the implementation of the NIP by the end of 2011
2. To ensure that information on NIP activities are shared both nationally and internationally

Management Options

The action plan simply requires an initial management activity to establish the national focal point, and number of operational measures to ensure that the necessary information gathering and reporting systems are established and maintained.

Implementation Strategy

Lead Agencies: the lead agency for this Action Plan will be the Department of Environmental Protection and Conservation.

Programme implementation: the key steps involved in implementation are summarized below while a more detailed list of activities is given in Annex 4.

Objective 1 (effective information gathering)

- ❖ Determine preferred mechanism for information gathering
- ❖ Establish a database to store information and responsibility to regularly update it

Objective 2 (sharing of information on NIP activities)

- ❖ Develop strategy to ensure national dissemination of data and responsibility to carry it out
- ❖ Report on activities as determined by the COP

Resource Needs and Timing: The overall resource needs and timing are summarized below, while more detailed information is given in Annex 4.

Objective	Internal Costs (US\$)	External (US\$)	Total Costs (US\$)	Duration
1	\$1,000	\$10,000	\$11,000	1 year
2	\$-	\$9,000	\$9,000	1 year
TOTALS	\$1,000	\$19,000	\$20,000	

5.0 Development and Capacity Building Proposals

The action plans presented above were developed on the basis of agreed priorities for implementation of the Stockholm Convention in Vanuatu. Much of the work is intended to be carried out by local personnel with assistance from international experts as and when required. This approach is intended to assist in developing local capacity for POPs management and implementation of the Convention.

The plans include the following specific proposals for capacity building:

Capacity for managing POPs Pesticides

- Staff training for effective control over imports and use of pesticides
- Staff training for regulation and management of pesticides, including enforcement of the Pesticides (Control) Act
- Education and awareness to improve practices for pesticide handling, storage, use and disposal

Capacity for managing PCBs

- Training in identification and sampling
- Development of guidelines for the storage and safe handling of PCB wastes
- Staff training for effective control of PCB imports

Capacity for managing Unintentional POPs

- Review and strengthening of monitoring systems for all possible sources
- Development of BAT/BEP information, education and awareness programmes
- Establish sampling capabilities for dioxins and furans
- Education and awareness programmes for specific target groups relevant to the specific sources of unintentional POPs (waste operators, health-care and vehicle maintenance personnel)

Capacity for the management of Stockpiles and Contaminated Sites

- Training programmes for the assessment and management of contaminated sites
- Training programmes for the safe management of obsolete and unwanted chemicals
- Training programmes in safe storage, handling and use of hazardous chemicals

Capacity for undertaking chemical Research and Development

- Upgrading of existing laboratory facilities and staff training for POPs analysis.

5.1 Timetable for Plan Implementation and Measures of Success

The timetable for implementation of these plans is included in the detailed matrix of activities given in Annex 4. Most of the activities are intended to be carried out over a period of five years, although some involve on-going commitments, which will continue on for many years into the future.

The measures of success are indicated in the performance indicator columns within the matrices in Annex4.

5.2 Resource Requirements

The total estimated cost for implementing all of the planned activities is US\$2,085,850. The breakdown of these costs against each of the action plans is shown in table 6. This also gives an indication of those costs which are intended to be met from within existing resources (internal) and those for which additional funding will be required (external).

Table 6: Summary of Resource Requirements for Implementation of the Action Plans

No.	Action Plan	Cost Estimates (US dollars)		
		Internal	External	Total
1	Action Plan for PCBs	\$11,500	\$160,000	\$171,500
2	Action Plan for Unintentional POPs	\$46,500	\$90,000	\$136,500
3	Action Plan for POPs and Other Pesticides	\$452,500	\$137,000	\$589,500
4	Action Plan for Stockpiles and Contaminated Sites	\$6,300	\$638,600	\$644,900
5	Information Exchange, Public Information, Education and Awareness	\$12,650	\$77,800	\$90,450
6	Research, Development and Monitoring	\$3,600	\$227,500	\$231,100
7	Action Plan for Reporting	\$1000	\$19,000	\$20,000
	TOTALS	\$534,050	\$1,349,900	\$1,883,950

Bibliography/References

1. Alatoa Hannington. Socio-Economic Analysis/Assessment of POPs Chemicals in Vanuatu, December 2004 (Prepared for the Vanuatu Government under the POPs Project-Vanuatu)
2. Amos Moses. Vanuatu Fishery Resource Profile. Apia, Samoa, SPREP, 2007.
3. Jimmy Robert A. National Chemical Inventory for the Industrial Sector in Vanuatu, September 2004 (Prepared for the Vanuatu Government under the POPs Project- Vanuatu)
4. Netten Shirley. Chemicals Management in Vanuatu and the Stockholm (POPs) Convention: A Review of the National and International Legal Contexts, and Recommendations Arising, September 2004 (Prepared for the Vanuatu Government under the POPs Project-Vanuatu)
5. Williams Quashi Carol. Inventory of Dioxins and Furans in Vanuatu, December 2004. (Prepared for the Vanuatu Government under the POPs Project-Vanuatu)
6. Vanuatu Agriculture and Fisheries Sector Review 2000, Asian Development Bank.
7. Vanuatu Statistics taken from the Vanuatu National Statistics Office (website: <http://www.spc.int/prism/country/vu/stats>)
8. Information about Vanuatu Government taken from website: <http://www.governmentofvanuatu.gov.vu>
9. Information about Vanuatu geography taken from website: <http://www.reefbase.org>
10. Information from Shirley Laban, Environmental Health Officer, Department of Public Health, Port Vila.
11. GDP Information from Reserve Bank of Vanuatu, July 2010.
12. Information from Lucy Joy, Fisheries Department, March 2011
13. Information from Donna Kalfatak, DEPC, February/March 2011

Annex 1. Descriptions of the 12 POPs¹¹

Aldrin – A pesticide applied to soils to kill termites, grasshoppers, corn rootworm, and other insect pests.

Chlordane – Used extensively to control termites and as a broad-spectrum insecticide on a range of agricultural crops.

DDT – Perhaps the best known of the POPs, DDT was widely used during World War II to protect soldiers and civilians from malaria, typhus, and other diseases spread by insects. It continues to be applied against mosquitoes in several countries to control malaria.

Dieldrin – Used principally to control termites and textile pests, dieldrin has also been used to control insect-borne diseases and insects living in agricultural soils.

Dioxins – These chemicals are produced unintentionally due to incomplete combustion, as well as during the manufacture of certain pesticides and other chemicals. In addition, certain kinds of metal recycling and pulp and paper bleaching can release dioxins. Dioxins have also been found in automobile exhaust, tobacco smoke and wood and coal smoke.

Endrin – This insecticide is sprayed on the leaves of crops such as cotton and grains. It is also used to control mice, voles and other rodents.

Furans – These compounds are produced unintentionally from the same processes that release dioxins, and they are also found in commercial mixtures of PCBs.

Heptachlor – Primarily employed to kill soil insects and termites, heptachlor has also been used more widely to kill cotton insects, grasshoppers, other crop pests, and malaria-carrying mosquitoes.

Hexachlorobenzene (HCB) – HCB kills fungi that affect food crops. It is also released as a byproduct during the manufacture of certain chemicals and as a result of the processes that give rise to dioxins and furans.

Mirex – This insecticide is applied mainly to combat fire ants and other types of ants and termites. It has also been used as a fire retardant in plastics, rubber, and electrical goods.

Polychlorinated Biphenyls (PCBs) – These compounds are employed in industry as heat exchange fluids, in electric transformers and capacitors, and as additives in paint, carbonless copy paper, sealants and plastics.

Toxaphene – This insecticide, also called camphechlor, is applied to cotton, cereal grains, fruits, nuts, and vegetables. It has also been used to control ticks and mites in livestock.

¹¹ From UNEP (2002)

Annex 2: List of People and Organizations Involved in the Preparation of the National Implementation Plan

1. Membership of the National Coordinating Committee

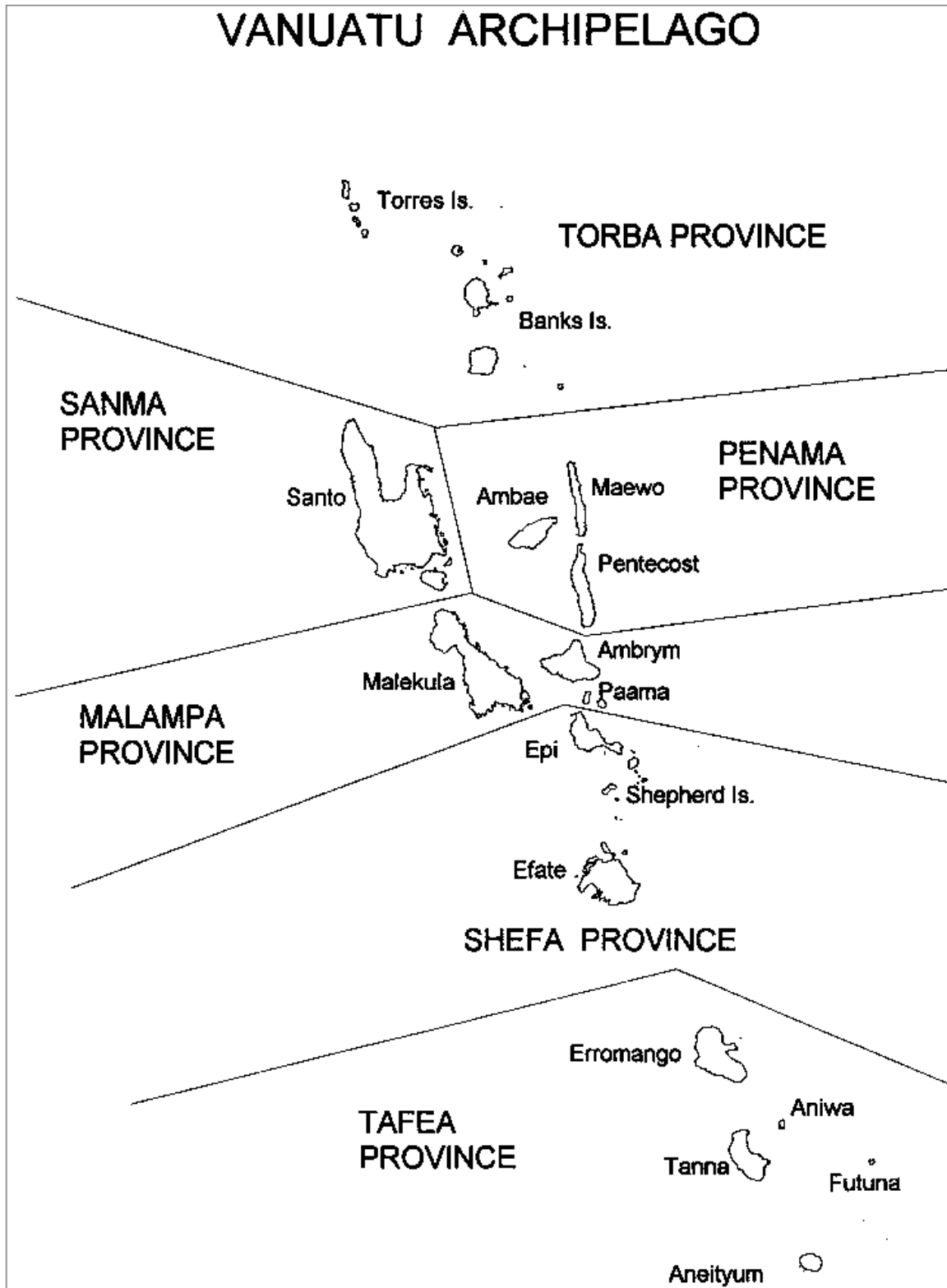
Department of Customs & Inland Revenue	Ministry of Health
Food Technology Development Centre	DEPC
Government Pharmacy	Ministry of Women's Affairs
Greenpeace	National Disaster Management Office
Institute of Applied Sciences, USP	DoPH
Land Transport Authority	Pacific Supplies (Vanuatu Ltd)
Live & Learn Vanuatu	Port Vila Municipality
Ministry of Agriculture	State Law Office
Ministry of Education	Wan Smol Bag Theatre

2. Other People and/or Organizations Consulted

NAME	ORGANIZATION	LOCATION
Albert Toa	POPs, Department of Livestock & Quarantine	Vila
Alick Berry	Forestry Officer, Vanuatu Chamber of Commerce	Vila
Alick Terry	Reserve Bank of Vanuatu	Vila
Barton Besiwei	Sola Agriculture Station, Torba Province	Banks Is.
Benjamin Miqueu	Department of Livestock & Quarantine	Vila
Benuel Tarilongi	Department of Livestock & Quarantine	Vila
Bruce Graham	International Consultant	NZ
Daffodil Tari	Pacific Suppliers Limited	Vila
Donna Kalfatak	DEPC	
Emil Mael	Shefa Provincial Council	Vila
Ephraim Raymond	National Disaster Management Office	Vila
Francois Metmetsan	Prime Minister's Office	Vila
Gideon Tabius	Planner, Penama Provincial Council	Ambae
Jack Masingnaleng	Enforcement Officer, Luganville Municipal Council	Santo
Jean Pierre Nirua	Coordinator, USP Extension, Emalus Campus	Vila
Jean-Luc Tawi	Compliance Officer, Department of Labour	Vila
Joe Pakoa	Trades Officer, Department of Trades	Vila
John Stephens	Legal Officer, State Law Office	Vila
Jude Tabi	Senior Forestry Officer, Department of Forestry	Santo
Kennery Alvea	Landholders Conservation Initiative Project	Santo
Leisel Masingiow	Curriculum Development Center	Vila
Leslyn Malsungai	Vanuatu National Council of Women	Vila
Lucy Joy	Department of Fisheries	Vila
Mary Jack	Assistant Planner, Tafea Provincial Council	Tanna
McCartney Aga	Food Technologist, Food Technology Development Centre	Vila

Mr. Tony Ata	Environmental Officer, Port Vila Municipality	Vila
Mrs. Susie Jacobus	POPs, Department of Livestock & Quarantine	Vila
Narelle Hallion	DEPC	Vila
Nellie Wouloseje	Department of Health	Vila
Pakoa Rarua	Department of Health	Vila
Palen Ata	Malampa Provincial Council	Malekula
Robinson IamIam	Reserve Bank Of Vanuatu	Vila
Rodney Aru	Melcoffee Sawmill Limited	Santo
Ronald Noah	Department of Customs & Inland Revenue	Vila
Ronsley Lowonbu	Vanuatu Broadcasting & Television Corporation (VBTC)	Vila
Roslyn Arthur	Desk Officer, UN Division, Department of Foreign Affairs	Vila
Rossette Kalmet	Geology & Mines	Vila
Tari Molisale	Department of Agriculture	Santo
		Vila
Tekon Timothy Tumukon	POPs, Department of Livestock & Quarantine	
Trinison Tari	DEPC	Vila
Willie Toa Ngwele	National Workers Union	Vila
Zecharia Daniel	Sanma Provincial Council	Santo

Annex 3: Map of the Vanuatu Archipelago.



Annex 4: Detailed Action Plans in the Vanuatu NIP

Action Plan 4.3: Detailed Workplan for PCBs (Article 3, Annex A, Part II)

Detailed List of Activities	Key Contributing Agencies*	Timeline (Duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Objective 1: Ban imports and use of PCBs (by end of 2013) Lead Agency: DEPC					
Develop a new national legislation for POP	DEPC DCIR DoLabour DLQ	Months 12-18	New legislation governing POPs to include banning of imports of PCB	Internal: \$500	Office supplies needed for printing papers for DCO, COM and parliament
Ensure labeling of PCB and PCB-containing materials in national language under the OHS Act		Months 12-18	All products imported to Vanuatu must have proper labeling in bislama and either english or french	External: \$6000	Consultancy for translation Cost of printing new labels
Develop capacity for Officers in relevant stakeholder government agencies		1 year	Customs, Environment and Quarantine Departments all aware of PCB containing products	External: \$4000	Consultancy Cost of printing the checklist and conversion to CD-ROM
Objective 2: Testing of residues of PCBs in blood samples and sediments Lead Agencies: MOH& MOL&NR					
Plan and implement awareness programs about PCBs and their effects	MOH MOL&NR DLQ DEPC DoGM	Months 12-18	Awareness materials developed and disseminated	Internal: \$1000	Printing of materials for awareness and use of different media outlets such as theatre groups

Detailed List of Activities	Key Contributing Agencies*	Timeline (Duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Training of Health and GM staff on PCB sampling		Months 6-12	Health and GM staff trained	External \$3000	Logistics of Training workshop Facilitators Sampling Kits
Blood and sediment samples collected		Months 6-12	Samples collected	Internal \$2000	Sampling kits
Send samples of blood and sediment to approved laboratories for testing		Months 6-12	Samples sent to approved laboratories for testing Report produced on test results	Internal: \$3000 External: \$3000	Exporting samples to overseas laboratories for testing
Develop a PCB information database		Months 12-24	Information database on PCB developed	Internal: \$1000	Office equipment and software for establishment of database
Objective 3: Strengthening of the Department of Environmental Protection and Conservation Lead Agency: MOL&NR					
Increase staffing of the DEPC		Months 12-24	Staffing in the DEPC increased	Internal: \$30,000	Administrative costs associated with hiring new staff (such as advertisements etc)
Formal training to develop specialists		Months 12-24	Staff trained specializing on PCBs	External: \$10,000	Scholarships for specialized training

Action Plan 4.4: Detailed Workplan for Unintentional POPs (Dioxins and Furans, Article 5).

Detailed List of Activities	Key Contributing Agencies*	Timeline (Duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Objective 1: Review existing incinerators, new units or upgrading (by the end of 2013) Lead Agency: DEPC, DoPH, DLQ, Port Vila and Luganville Municipalities					
Undertake a Needs Assessment	MOL&NR DEPC DLQ MoH/DoPH	Months 2-4	Report on condition of existing resources, on current releases of unintentional POPs. Report highlights areas targeted for future action	Internal: \$2000	Resources for assessment and recording of needs
Plan and seek donor assistance using results of Needs Assessment		Months 5-12	Funding for implementation of NA report, which includes purchase of new incinerators	External: \$10,000	Incinerators and other materials needed as a result of NA
Installation and training of operators		Months 12-18	Incinerators installed and operators trained	External: \$50,000	New incinerator(s) Incineration technician trainers
Develop an emissions inventory		Months 12-18	Emissions inventory developed	Internal: \$1000	Office equipment and software relevant to establish database
Regular monitoring of emissions and update emissions inventory		Continuous after inventory developed	Periodic reports on monitoring	Internal: \$500	Office supplies
Objective 2: Sampling and Testing of residues of Dioxins and Furans in blood samples and sediments (by end of 2013) Lead Agency: MOH and MoLNR					
Plan and implement awareness programme on dioxins and furans and their effects	MOH DEPC DLQ DGM	Months 1-12	Awareness materials developed and disseminated	Internal: \$1000	Printing of materials for awareness and use of different media outlets such as theatre groups
Training of Health and Geology and Mines staff on dioxin and furans sample collection		Months 6-12	Health and GM staff trained on furans and dioxins sampling methods	External \$3000	Logistics of Training workshop Facilitators Equipment (sampling kits)

Detailed List of Activities	Key Contributing Agencies*	Timeline (Duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Blood and sediment samples for dioxin and furan testing collected		Months 6-12	Samples of blood and sediment acquired	Internal \$2000	Sample collection kits
Send samples of blood and sediment to approved laboratories for testing		Months 6-12	Samples sent to approved laboratories for testing Report on results of testing produced	Internal: \$3000 External: \$3000	Exporting samples to overseas laboratories for testing
Develop a dioxin and furans information database		Months 12-24	Report used to compile database on dioxins and furans	Internal: \$1000	Computer, printer and other equipment to establish database
Objective 3: Amendment of Traffic Control Act to allow for provisions on controlling Smokey Vehicles Lead Agencies: Police, DEPC					
Plan and implement awareness activities on the effects of smoky vehicles	MOIA (Municipality) MIPU, DEPC Police SLO	Months 1-12	Awareness materials produced and disseminated	Internal: \$1000	Printing of materials for awareness and use of different media outlets such as theatre groups
Amendment of Traffic Control Act to make provisions for control of Smokey vehicles		Months 1-12	Act amended and enforced. Reduced number of smokey vehicles.	Internal:\$1000	Consultation cost for Amendment Office supplies (paper, printing etc) for submissions to DCO, CMO, parliament
Implementation of Act by relevant authorities					
Objective 4: Take Action on Waste Management Strategy and Action Plan Lead Agencies: DEPC MOIA (Municipality)					
Endorsement of Ad Hoc Committee on Waste Management. Committee to develop a work programme	MOIA Ad Hoc Committee on Waste Management	Months 12-18	Committee endorsed by Minister Waste Management Programme developed	Internal: \$500	Office supplies for preparation of a submission to the DCO/COM for a status upgrade
Identify responsible Ministry for chemical waste management		Months 6-12	Report produced on consultation process for identifying Ministry responsible	Internal: \$500	Logistics for consultation meetings

Detailed List of Activities	Key Contributing Agencies*	Timeline (Duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Seek assistance from regional organizations to assist in implementation of the Vanuatu Waste Management Strategy and Action Plan		Months 6-18	Proposal developed for regional assistance. Assistance received.	Internal: \$500	Office supplies for proposal development
Objective 5: Promote non-regulatory mechanisms by 2013 Lead Agency: MAF					
Impact assessment of composting in urban areas	MAF	Months 1-3	Report produced on potential to use composting as non-regulatory mechanism in urban areas	Internal: \$1000	Logistics for survey Office supply for report Consultation for introduction of composting in urban areas
Plan and implement awareness programs on composting		Months 4-12	Awareness materials developed and disseminated	Internal: \$1000	Printing of materials for awareness and use of different media outlets such as theatre groups
Objective 6: Develop knowledge and expertise in BAT/BEP for reduction of release of dioxins and furans (and where possible, source elimination) Lead Agency: MAF, DEPC					
Develop proposal for assistance from regional partners for training in BEP and BAT for reduction in release of furans and dioxins	MAF, DEPC	Months 1	Proposal developed and submitted Assistance approved	Internal: \$500	Office supplies for proposal development Consultation with stakeholders for proposal
Formal training to develop specialists		Months 6-12	Specialists trained	Internal: \$3000	Logistics for training workshops Facilitators
Objective 7: Strengthening of the DEPC Lead Agency: MOL&NR, DEPC					
Formal training to develop specialists		Months 12-24	Staff trained specializing on dioxins and furans	External: \$10,000	Scholarships for specialized training

Action Plan 4.5: Detailed Workplan to Address POPs and Other Pesticides.

Detail List of Activities	Key Contributing Agencies	Timeline (Duration)	Performance Indicators	Cost Estimate USD (and Source)	Resources Needed
<p>Objective 1: To amend and amalgamate existing legislations by the end of 2013; legislate for immediate ban on use and importation of POPs pesticides; and capacity building for personnel (chemical inspectors) in relevant agencies (Customs & DEPC) for enforcement Lead Agencies: DEPC, DCIR & DLQ</p>					
Establish taskforce to identify and review (and decide whether to amend certain pieces of legislation or consolidate relevant parts into a more comprehensive form) existing relevant legislations	DEPC DLQ DCIR DoA MoH	Months 1 - 6	Strategies developed	Internal: \$500	Consultative meeting costs
Seek technical assistance and prepare terms of reference to assist State Law Office to compile and consolidate		Month 7 – 9	TOR Developed Consultant hired	External: \$30,000	Hiring of consultant
Consultation process for draft		Month 10 – 15	Draft legislation with stakeholder input	Internal: \$12,000	Consultative meeting costs
Strengthen capacity of DEPC & DCIR through infrastructure and recruitment of compliance officers		Month 16 – 19	Restructuring approved by PSC Capacity of Departments increased	Internal: \$40,000	Personal, Equipments & Operational costs
Identify and establish linkages (information dissemination) between relevant departments and institutions with the two key agencies in ensuring proper enforcement and monitoring		Month 16 -20 (ongoing)	Strategies developed	Internal: \$8000	Consultancy, Communication & office support
Seek approval for amendments by DCO/COM		Month 17 – 18	Mandate by COM	Internal: \$500	Consultancy
Process the implementation of the new legislation		Month 19 – 24	Legislation tabled , discussed and passed in Parliament Gazettal of legislation	Internal: \$500	Consultancy
<p><i>Objective 2: To prepare by 2013 a comprehensive chemical inventory for Vanuatu and set up an effective registry system for monitoring of imports (from entry to disposal). Build Capacity of Officers in DCIR in IT and chemistry.</i> Lead Agencies: DCIR & DLQ, DEPC</p>					
Recruit officer with relevant background in chemistry and IT within the DEPC and establishing an office with relevant equipments	DCIR, DEPC	Month 17 – 19	Restructuring approved by PSC Hiring of relevant Officer	Internal: 40,000	Personal, equipment & operational costs

Establish linkages between other departments and institutions	DCIR DLQ DEPC	Month 19 – 26	IT network established between relevant agencies	Internal: 130,000 External: 40,000	Equipments, consultancy & communication costs
Develop national inventory	DIRC DLQ	Month 26 - 29	Strategies developed and implemented Consultant hired Inventory developed	Internal: 10,000	Consultancy
Continuous update of database and sharing/dissemination of information (ongoing)	DCIR	Ongoing	Periodic reports on monitoring and regulation of life-cycle of chemicals	Internal: 10,000	Operational costs
Objective 3: To establish by the end 2013 a standard chemical storage facility at port of entry for refused consignments and outgoing stockpiles shipments; integrated standard storage facilities for relevant institutions (users); a national laboratory with analytical capability to support enforcements on illegal imports and environment monitoring Lead Agencies: DIRC, DLQ & DEPC					
Identify suitable location for storage facility at port of entry and National laboratory (under an identified Ministry)	DEPC DLQ	Month 14 – 15	Location identified, strategy developed & approved by COM	Internal: 500	Consultancy
Obtain EIA (EIA conducted by outside consultant)		Month 15 – 17	EIA report produced	Internal: 60,000	Consultancy
Tender for concept design; obtain standard formats from FAO, WHO or UNEP		Month 17 – 19	Best standard concept design is identified	Internal: 400	Communication costs
Obtain and consult users on integrated designs (for schools, hospitals etc)		Month 17 – 19	Awareness workshop/program implemented	Internal: 10,000	Consultative costs
Engage engineer in designing appropriate design for port of entry storage and laboratory		Month 19 – 24	Blueprint obtained	External: 50,000	Consultancy
Identify which of the two key infrastructure will proceed first and secure funding & tender for construction		Month 24 – 27	Tender approved by Tender Board	Internal: 600	Communication, office support costs & consultancy
Construction of facility overseen by PWD	PWD	Month 27 – 36	Progress report produced	Internal: 500	Communication, office support costs & consultancy
Recruit facility personals, technicians and equipments purchase & set-up; training	DLQ DEPC	Month 36 - 47	Structure approved by PSC, best training option identified & calibrated methods implemented	Internal: 25,000 External: 15000	Equipment, consultancy, communications & capital costs
Ministry responsible to arrange on going monitoring & maintenance	DLQ DEPC	Month 48 (ongoing)	Ongoing delivery method identified	Internal: 10,000	Operational costs

Objective 4: To develop by 2013 a national framework for emergency response Lead Agencies: NDMO & DEPC					
Assess and identify the most effective strategy for developing a mechanism of response and develop a policy paper	NDMO DEPC DLQ DoPH	Month 4 - 7	Strategy developed	Internal: 2,000	Consultative & office support costs
Submit for approval and mandate by DCO/COM		Month 7 - 8	Mandated by COM	Internal: 500	Communication & office support costs
Recruit and train staffs from relevant government departments on necessary skills and knowledge		Month 8 – 15	Staffs, training options & materials identified	Internal: 50,000	Personal, office support & equipments costs
Determine ongoing local delivery option and its competence as well as ongoing awareness and delivery exercises		Month 8 - 24	Ongoing delivery method identified	Internal: 8000	Operational, office support & communications costs
Objective 5: To develop by the end of 2013 specialized human resources in the relevant field through formal training (scholarships); capacity of relevant agencies (Customs officers, OHS officers, Agriculture Department officers, and Quarantine officers) through in-house trainings on handling, storage, disposal and use of chemicals; instructions (translated in Bislama and French or English) on handling, storage, disposal and method of applications for users by the supplier at point of purchase Lead Agencies: DLQ & DEPC					
Ministry responsible submits priority field of training to Training & Scholarship Coordinating Unit (TSCU)	DEPC	Month 3 - 6	Specific priority fields identified in TSCU priority list	Internal: 500	Communication & office support costs
Identify staffs from different Government Departments requiring training	DEPC DLQ	Month 6 – 10	Staff selected	External: 2000	Consultancy
Determine the best training methods and ensure program is ongoing		Month 8 - 10	Training method developed & materials produced	Internal: 8000	Consultancy, office support & communication costs
Implement training programs including training of local trainers		Month 9 – 19	Training programs developed & workshops implemented (report on workshop produced)	Internal: 15,000	Equipment, office support & consultancy costs
Ensure that suppliers develop for the user instructions material on the use and application method of chemicals in Bislama and either of English or French	DoL DEPC	Month 2 - 24	Toolkit of materials produced	Internal: 10,000	Consultancy

Action Plan 4.6: Detailed Workplan for Chemical Stockpiles and Contaminated Sites (Article 6)

Detailed List of Activities	Key Contributing Agencies*	Timeline (duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Objective 1: Review scholarships scheme to include trainings to develop local chemical specialists and chemical laboratory technicians <i>Lead Agency: DLQ & DEPC</i>					
Identify suitable personnel for training for short and long term	DLQ, DEPC MoALFF* Scholarship Office Donor Sponsors	Months 1-2	Suitable personnel selected	External: \$600	Communication and other office support costs
Identify appropriate training institutions		Months 1-2	Appropriate Training institution identified	External: \$600	Communication and other office support costs
Establish financing of training		Months 2-3	Training Sponsor identified	Internal: \$300 External: \$50,000	Communication and other office support costs
Objective 2: Conduct and prepare detailed inventory assessment for potentially contaminated sites and chemical stockpiles in Vanuatu by 2013, place into safe storage and then arrange for export for disposal					
Develop Consultant's Terms of Reference to carry out inventory	National POPs Committee DLQ, DEPC PSC Local Consultants Trained personnel	Months 1	Terms of Reference produced	External: 500	Consultancy meeting
Advertise position on local contract basis and hiring of local consultant		Months 1	Position advertised Local Consultant hired	Internal:800 External: \$2100	Administration costs Consultancy
Report of findings of chemical stockpiles to National POPs committee		Months 1	Report produced	External:\$1000	Administration costs Meeting costs
Handling and storage of chemical stockpiles into safe storage		Months 1-6	Chemical stockpiles safely stored	External: \$160,000	Transport costs/ Administration cost/ Communication costs
Arrange for disposal of chemical stockpiles		Months 1-6	Chemical stockpiles safely disposed of	External: \$210,000	Communication costs/ Administration costs/ Transportation costs
Objective 3: Construct and establish appropriate and proper standard storage facilities according to standard designs for all new storages until disposed					
Obtain design information from UN member States that have ratified the Stockholm Convention	National POPs	Months 1	Required design information obtained	Internal:\$300	Administration costs

Detailed List of Activities	Key Contributing Agencies*	Timeline (duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Identify appropriate site for establishment with aid of appropriate consultant	Committee DLQ ,DEPC PSC Local Building Contractors	Months 1-2	Report produced on suitability of site identified	External:\$2100	Consultancy costs
Obtain necessary funding through proposal		Months 1-2	Confirmation of funding secured	External:\$600	Administration costs
Establish Building Contract and advertise for tender Tender for appropriate company approved	DLQ, POPs Committee, DEPC, PWD	Months 1-2	Contract advertised Report produced on tender dossiers	Internal: 800 External:\$1000	Administration costs
Construction of facilities		Months 6-12	Facilities constructed	External:\$90,000	Capital costs
On-site Policy & Manual produced with aid from consultant		Months 1	Policy established & Manual produced	External: 3100	Local Consultant costs Printing costs
<i>Objective 4: Develop proper and appropriate local disposal facilities(such as for laboratory chemicals and some industrial wastes)</i> <i>Implementing Agencies: DEPC, PWD, DLQ</i>					
Ministry responsible to obtain information on appropriate designs for acceptable small-scale chemical disposal facilities	DLQ & DEPC	Month 1	Proper design selected	Internal: \$500	Administration costs
Conduct site assessment on appropriate location with aid of local consultant	DEPC	Month 1-2	Report on potential site produced	External: 2100	Consultancy
Seek donor funding for construction of facility	DEPC	Month 1-3	Proposal produced on facility for disposal Confirmation of donor funding	Internal: 500	Administrative costs
Tender notices put in paper for appropriate facilities to be constructed by company	DEPC	Month 3-4	Tender approved for company	Internal:500	Administrative costs
Facility constructed	DEPC & PWD to supervise	Month 12-24	Disposal facility constructed	External:70,000	Capital costs

Detailed List of Activities	Key Contributing Agencies*	Timeline (duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Formulate and Implement tasks within disposal facility according to on-site policy and manual	DEPC & DLQ	Month 12-24	Policy and manual produced	External: 3100	Consultative costs Printing costs
Short term intensive training for site-handlers	DEPC & DLQ	Month 12-24	Handlers adequately trained (certificates received?)	External: 10,000	Training workshop logistics Facilitators of workshop
Objective 5: Short term training for local expertise in contaminated site identification, assessment and management					
Implementing Agencies: DEPC & DLQ					
Identify consultant to conduct the train-the-trainers workshop	DLQ, DEPC	Month 12-24	Consultant identified	External: 3000 Internal: 800	Consultative costs Administrative costs
Identify suitable personnel to undergo training Develop the training program	DLQ, DEPC And Consultant	Month 12-24	Training programme produced Personnel selected	Internal: 600	Administrative costs
Develop materials and manuals for training; including manuals for assessment and management of identified contaminated sites	DLQ, DEPC, consultant	Month 12-24	Material and manuals developed	External: 10,000	Printing of materials
Training conducted	DLQ, DEPC, consultant	Month 12-24	Report of training produced	External: 20,000	Workshop logistics

Action Plan 4.7: Detailed Work Plan for Public Awareness, Information and Education (Articles 9 and 10)

Detailed List of Activities	Key Contributing Agencies*	Timeline (duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
<i>Objective 1: Create widespread awareness and understanding of POPs and related hazardous chemicals and the NIP, including understanding of the potential health, environmental and economic impacts.</i>					
<i>Lead Agency: DLQ, DEPC, MoA</i>					
Develop on-going community-based awareness programs on POPs and other chemicals, including the uses and impacts.	DLQ Relevant stakeholders & NGOs, DEPC	Month 1-4	Programmes developed and implemented	External: 2,100	Consultative meeting logistics x 3
Develop necessary awareness and educational materials		Month 6-8	Materials produced and distributed to users	External: 21,500	Transport, Accommodation, Allowances, Venue and refreshment costs
Translation of ICT materials(existing ones) into appropriate and understandable languages and formats		Month 4-6	No. of programmes supported	External: 5,500	Transport, Meals Venue and refreshment costs
Set up Awareness Coordination Groups within the Provinces		Month 2	Number of groups set up	Internal: 50	Telephone Costs
Carry out awareness in every provinces		Month 5-11 2012	Report produced on awareness carried out	External: 10,700	Transport, Accommodation, Allowances, Meals Venue and refreshment costs
Include Chemical use and safety in the school syllabi		Month 6(depends on when the review of curriculum at CDU begins)	Inclusive of the chemical use and safety in the syllabi	Internal costs: 5,300	Transport, Accommodation, Allowances, Meals Venue and refreshment costs
Provide information support to main chemical users including secondary schools and tertiary institutions, and encourage including units of chemical management especially related to POPs in their curricula		Month 7-12 2012	Info. provided to all main users	External: 16,000	Workshop costs (venue, refreshments, materials)
Monitor the effectiveness of activities carried out		Ongoing	Report prepared	Internal: 5,300	Consultancy Meeting logistics travelling costs

Objective 2: Develop awareness and understanding of specific agency roles and responsibilities in implementing the NIP and build and strengthen partnerships/networks to carry them out Lead Agency: DLQ, DEPC, MoA					
Hold awareness presentation for the remaining government Ministries and other relevant stakeholders (NGOs)		Month 2-7 2012	Awareness made to Ministries and other stakeholders and NGOs	Internal: 2,000	Workshop logistics
Hold participatory workshop of relevant stakeholders to identify roles and how needed activities can fit in to existing and future sectoral strategic plans		Month 5-12 2012 to 2013	At least two workshops held	External: 6,000	Workshop logistics
Hold regular (annual) meeting of stakeholders to review progress and set objectives and activities for the following year		On-Going Annual basis	Meeting held, progress reviewed and plans are made for following year	External: 16,000	Meeting logistics

Action Plan 4.8: Detailed Work Plan for Research, Development and Monitoring (Article 11)

Detailed List of Activities	Key Contributing Agencies*	Timeline (duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Objective 1: Carry out chemical impact assessment for areas of significant chemical use before chemical impact adversely affects the people and the general environment <i>Lead Agency: DLQ and DEPC</i>					
Trained personnel to carry out Preliminary Chemical Impact Assessment (PCIA) and draw up necessary recommendations before submitting the recommendations to National POPs Committee for screening and commenting if necessary	Local Consultant National POPs Committee DLQ, DEPC	Months 1-2	Draft PCIA report produced with recommendations	External: \$2,100	Consultancy
National POPs Committee to submit recommendations to Director of DEPC for decision on recommendation		Months 1-2	Recommendations submitted to the DEPC Director	Internal: \$500 External: \$2100	Consultative meeting cost
Implementation of approved recommendations (PCIA will determine whether a full Chemical Impact Assessment (CIA) is required or not. in circumstances where CIA is not required then, only recommendation of PCIA will be observed and enforced. Furthermore, in circumstance where full CIA is required then new recommendations will be drawn up and submitted to Director of DEPC for approval of recommendations after chemical impact has affected the people and the general environment			Report produced on recommendations for submission to the Director	External: \$3000	Consultancy
Trained personnel to identify and assess the contaminated site		Months 3-6	Report produced identifying contaminated sites	External: \$6000	Travelling costs to contaminated sites Administrative costs
On-going research		On-going	Research reports produced periodically	Internal: \$2000	DEPC staff
Objective 2: Investigate and promote alternatives to dangerous chemicals <i>Lead Agency: DLQ and DEPC</i>					

. Investigate other suitable alternatives to dangerous chemicals - Plan and implement awareness programme on alternatives of dangerous chemicals	Trained Personnel DLQ DoPH DEPC	Months 1-2	Report produced on available alternatives Information on alternatives disseminated	External: \$5000	Administration costs, printing costs of materials developed on alternatives
Objective 3: Establish National Chemical Laboratory, including testing services for chemical imports and poisoning <i>Lead Agency: DLQ and DEPC</i>					
Obtain appropriate and standard specifications for a chemical laboratory	DLQ MoAFF National POPs Committee DEPC	Months 1-2	Required design obtained	Internal: \$500	Communication and administration costs
Develop proposal to seek donor funding for construction of laboratory and for chemical apparatus		Months 2-3	Proposal successful. Funding received	Internal: \$300	Administration costs
Tenders to construction advertised and company selected	DEPC, DLQ, National POPs Committee MoAFF	Months 3-4	Tenders advertised, company selected	Internal: \$800 External: \$500	Administrative costs Meeting (to select company) logistics
Construction of chemical laboratory	Supervised by PWD	Months 12-24	Laboratory constructed	External: \$90,000	Capital costs
Obtain chemical apparatus	DEPC, DLQ, MoAFF	Months 12-24	Chemical laboratory fully function	External: \$60,000	Capital costs

Action Plan 4.9: Detailed Work Plan for Reporting (Article 15)

Detailed List of Activities	Key Contributing Agencies*	Timeline (duration)	Performance Indicators	Cost Estimate (USD) & Source	Resources Needed
Objective 1: Effective information gathering					
Implementing Agencies: DLQ, MoLNR and DEPC					
Determine preferred mechanism for information gathering	DEPC, DLQ, MoLNR	Months 3-6	Mechanism determined	Internal: \$1000	Consultative meeting costs
Establish a database to store information and responsibility to regularly update it	Consultancy	Months 2-3	Database established and assigned	External: \$10,000	IT consultant IT supplies Office space
Objective 2: To ensure that information on NIP activities are shared both nationally and internationally					
Implementing Agency: DEPC					
Develop strategy to ensure national dissemination of data and responsibility to carry it out	DEPC	Months 1-4	Strategy developed and assigned	External: \$3,000	Consultancy Consultative meetings
Report on activities as determined by COP	DEPC	On-going as prescribed by COP	Reports prepared and submitted	External: \$6000	Consultancy