

REPUBLIC OF PALAU

NATIONAL IMPLEMENTATION PLAN FOR THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS

2007



ABBREVIATIONS AND ACRONYMS

BMPs	-	Best Management Practices
BEPs	-	Best Environmental Practices
BOA	-	Bureau of Agriculture
BOH	-	Bank of Hawaii
CO _x	-	Carbon oxides
COFA	-	Compact of Free Association
DEH	-	Division of Environmental Health
DDT	-	Dichloro-diphenyl-trichloroethane
EQPB	-	Environmental Quality Protection Board
GEF	-	Global Environment Facility
HAZMAT	-	Hazardous Materials
HCB	-	Hexachlorbenzene
JICA	-	Japan International Cooperation Agency
IPM	-	Integrated Pest Management
IWP	-	International Waters Programme
LPG	-	Liquid Petroleum Gas
NatCom	-	National Communication
NEPC	-	National Environment Protection Council
NIP	-	National Implementation Plan
NPC	-	National Project Coordinator
NSC	-	National Steering Committee
NGO	-	Non-Governmental Organization
NO _x	-	Nitrous oxides
OERC	-	Office of Environmental Response and Coordination
PC	-	Project Coordinator
PCBs	-	Polychlorinated biphenyls
PCC CRE	-	Palau Community College Cooperative Research Extension
PCS	-	Palau Conservation Society
PECS	-	Palau Energy Conservation Strategy
PICs	-	Pacific Island Countries
PIEPSAP	-	Pacific Islands Energy Policy and Strategic Action Planning
PISWM	-	Project for Improvement of Solid Waste Management in the Republic of Palau
PNC	-	Palau National Code
PNCA	-	Palau National Code Annotated
POPs	-	Persistent Organic Pollutants
PPUC	-	Palau Public Utilities Corporation
RUPs	-	Restricted Use Pesticides
SO _x	-	Sulfur oxides
SOPAC	-	South Pacific Applied Geoscience Commission
SPREP	-	Pacific Regional Environment Programme (formerly Secretariat of the Pacific Regional Environment Programme)
UN	-	United Nations
UNEP	-	United Nations Environment Program
USEPA	-	United States Environmental Protection Agency
WERI	-	Water and Energy Research Institute, University of Guam

FOREWORD

It gives me great pleasure on behalf of the government and people of the Republic of Palau to endorse this National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs).

The Government of Palau is committed to ensure a safe and healthy environment for its people and future generations. The Palau Environmental Quality Protection Board (EQPB) is mandated with a responsibility “to ensure for all persons in Palau safe, healthful, productive, and aesthetically and culturally pleasing surroundings, and to attain the widest range of beneficial uses of the environment without degradation, risk of health and safety, or other undesirable and unintended consequences in order to fulfill the responsibility of each generation as trustee of the environment for succeeding generations”.

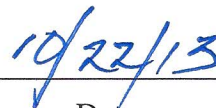
Understanding that POPs are harmful chemicals that persist in the environment and have the ability to travel over a great distance effecting pristine areas, the EQPB appreciates that the Stockholm Convention on Persistent Organic Pollutants (POPs) will enhance the legal and administrative actions required to minimize adverse effects and ensure a socially, economically and environmentally sustainable environment for our people. Recognizing that control mechanisms to eliminate and/or reduce the production and use of most of the pesticides and industrial chemicals and reduce releases of unintentional POPs is the critical element in protecting our natural resources and thus our Palau’s way of life, the EQPB endorses this National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants and commit to its implementation.



Benjamin Adelbai

Chairman

Palau Environmental Quality Protection Board



Date

EXECUTIVE SUMMARY

The Republic of Palau signed the Stockholm Convention on Persistent Organic Pollutants on March 28, 2002. Palau ratified the Stockholm Convention on September 8, 2011. The Convention entered into force for Palau on December 7, 2011.

The Stockholm Convention on POPs is an international treaty signed in May 2001 and became effective in May 2004. The main goal of this convention is to protect human health and environment from the Persistent Organic Pollutants (POPs). Each country is required to eliminate these chemicals 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.

POPs are a group of highly harmful chemicals that persist in the environment, have the ability to bio-accumulate in food and human tissue and travel over a great distance to pristine areas. POPs chemicals affect the well being of humans as well as wildlife.

Conscious of the need to take measures at the country level to prevent adverse effects caused by POPs, Palau had to develop the National Implementation Plan (NIP) in accordance to the provision of the Convention. The Plan outlines control measures for these chemicals through various actions, including elimination, prohibition of future production and use of the twelve Chemicals regulated by the Convention, as well as the application of a range of measures for the reduction of releases of the unintentional POPs. The NIP provides a framework that outlines prioritized issues and actions that need to be taken to reach national objectives and obligations to the people of the Republic of Palau and the global community regarding the management of Persistent Organic Pollutants (POPs) for health and security of present and future generations and the environment. This NIP also provides the framework to meet Palau's obligations as a Party to the Stockholm Convention on Persistent Organic Pollutant.

This Plan was developed with financial assistance from the Global Environment Facility, with the United Nations Environment Programme as Implementing Agency. The funds were provided for an enabling activity project to cover a range of activities which were broadly aimed at creating sustainable capacity and ownership in Palau in relation to the Stockholm Convention, including preparation of a National Implementation Plan. The work for the project was guided by a National Coordinating Committee, which included representation from central government, non-governmental organizations, education and research institutions, and the private sector.

Persistent Organic Pollutants in Palau

There is no evidence of any trade or manufacturing by Palau in POPs chemicals. Most of the POPs are formally banned and/or restricted under the current EQPB regulatory framework.

The policy of the Republic coincides with that of the Stockholm Convention. Deficiencies exist in the lack of prohibition of manufacture; lack of formalized export controls for environmentally sound disposal or for purpose which is permitted for Parties involve; the lack of relevant Customs Regulatory mechanism for detail inventory of imports; and lack of technical capacity within the administrative system. It is essential to ensure collaboration amongst key agencies aimed to improve awareness, monitoring, enforcement, and import controls over management of POPs.

The current situation regarding persistent organic pollutants in Palau is as follows:

POPs Pesticide

Although the EQPB considers all POPs pesticides banned, action needs to be taken to ensure that POPs pesticides are handled and stored properly. Current legislation does not cover intentional production and exportation of POPs pesticide, hence appropriate actions to formally ban manufacture, importation and allow exportation for environmentally safe disposal will be beneficial.

More concerted efforts are needed to coordinate, increase notification and information exchange regarding pesticide regulations, as well as identification of pesticides, among other things.

PCBs

In the past, electrical transformers containing PCB tainted oil were imported for use by the energy sector. Currently, the local energy sector envisages purchasing electrical equipment that contains no/traceable amount of PCBs. A thorough inventory on PCB-containing oil and equipment needs to be carried out. Used transformers have been shipped to disposal facilities outside of the country. Information needs to be exchanged with the public regarding PCB containing equipment and alternative options to their use. Currently, there is no formalized mechanism for public awareness on equipments that are known to contain or possibly contain PCBs, mainly on transformers and capacitors.

Unintentional POPs (Dioxins and Furans)

An estimate of dioxin and furan releases was prepared using the Standardized Toolkit, developed by UNEP Chemicals. The highest source of dioxin and furan releases to air comes from waste incineration, estimated at 408.5 mg TEQ/annum. Waste incineration in Palau is currently little more than open burning. Hospital waste, quarantine waste, and Airai landfill waste are burned in contained systems, however the systems do not meet the standards. The highest source of dioxin and furan releases in residue comes from uncontrolled combustion processes, estimated at 138 mg TEQ/annum.

Stockpiles and Contaminated Sites

There are unconfirmed stockpiles of Annex C chemicals in Palau at this time. However, the existing national landfill is a potential contaminated site. A rehabilitation project at this site and the construction of a new circulation type semi-aerobic system as completed do not adequately address management of POPs wastes. Even with the improvement of the landfill, there is still an absence of appropriate disposal facilities in the country necessitating a comprehensive approach for management of chemical wastes and the disposal at off island facilities.

There are contaminated sites and old stockpiles of PCB and DDT sites that need to further investigated and disposed of as necessary. The Australian Agency for International Development (AusAID) and SPREP undertook a pre-feasibility study of potential waste management project in April 1997. The Persistent Organic Pollutants in Pacific Island Countries (POPs in PICS) project was developed to address the issue of management of waste chemicals. The Project conducted assessment of stockpiles of waste and obsolete chemicals including chemical contaminated sites in July 1998.

Public Awareness, Education and Information Exchange.

Specific POPs public awareness, education and information exchange is lacking in Palau. There is limited understanding within the wider community of threats that are posed by POPs chemicals toward health and safety of the people and environment. There are several agencies with regulatory oversight dealing with the management of POPs that need to strengthen exchange of information amongst the stakeholders.

Research, Development and Monitoring

Palau's technical infrastructure for research, development and monitoring is very limited. Testing is limited to field test kits and samples are sent off-island for any further testing. The field test kits are mostly used for monitoring the use of pesticides and testing for the presence of PCBs in oil.

NATIONAL IMPLEMENTATION PLAN

Palau's National Implementation Plan outlines the necessary strategies, activities, and actions needed to implement the Stockholm Convention while addressing the priorities identified as most important for Palau's current and future needs and concern.

The total estimated cost for implementing all of the planned activities is US\$ 1,451,000, which US\$ 105,000 will be met from in-kind resources and the remainder will be funded externally.

The Action Plans, which are given in section 5, define the goals, objectives and key actions proposed for the implementation of the Stockholm Convention on POPs in Palau. These action plans are blueprints for implementation that can further be defined or expanded upon should the need arise during NIP implementation:

- Action Plan for NIP Implementation (Article 7)
- Action Plan to Address Pesticides (Article 3)
- Action Plan to Address PCBs and Contaminated Sites (Article 3 and 6)
- Action Plan to Address Unintentional POPs (Dioxins and Furans, Article 5)
- Action Plan to Address Awareness, Education and Information Exchange (Article 10)
- Action Plan to Address Research, Development and Monitoring (Article 11)

The determination of NIP priorities was based on a list of priority issues and activities defined during consultations and meetings with multi-sectoral stakeholders. The priorities were consolidated during the priority setting workshop and outline the priority issue and activity identified as most important for Palau's implementation of the Stockholm Convention. The priorities were selected taking into account various criteria including Palau's POPs assessment; the needs and benefits to the public, to economy and environmental health; current activities; infrastructure; and human and financial capacity.

Palau's obligations under the Stockholm Convention were assessed and weighed against the selected criteria. The following priorities list the obligations along with a brief outline of what needs to be addressed in Palau:

1. NIP Implementation (Article 7)
 - Meet obligation of Stockholm Convention; access funding; strengthen agency coordination; and staffing.
 - Meet obligation of Basel Convention; ratification of the Regional Convention of the Transboundary Movement of Hazardous Waste (Waigani Convention).
2. Pesticides (Article 3)
 - Import data; support enabling new Customs regulations; collaborate in sharing of information and training; increase enforcement by EQPB; consistent Pesticide Applicator Training and enforcement; and integrated pest management (IPM).
3. PCBs (transformer, capacitors – Article 3)
 - Ban on future PCB imports and use, update and complete transformer inventory; capacitor identification and management; storage and disposal
4. Unintentional POPs -Dioxins and Furans (Article 5)
 - General actions to reduce emissions; upgrade medical/quarantine waste disposal; upgrade waste management and disposal systems; and better enforcement for stationary sources; controls on vehicle emissions; reconcile controls and enforcement capacities for open burning.
5. Stockpiles, Contaminated Sites, Hazardous Wastes (Article 6)
 - Storage facilities; contaminated site investigations & management; and the adoption of an integrated life-cycle approach.
6. Education, Awareness and Information Exchange (Article 10)
 - Relevant training for government staff; consumer awareness; integrated programmes; information exchange; and promote IPM.
7. Research, Development and Monitoring (Article 11)
 - Monitoring capacity for food, water, soil, air, hazardous wastes, imports, stationary source and vehicle emissions; data collection and analysis for both national and international reporting; and research/promotion of IPM.

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1. INTRODUCTION

The Republic of Palau ratified the Stockholm Convention on Persistent Organic Pollutants on September 8, 2011. Parties to the Convention are obligated to compile an initial inventory of persistent organic pollutants (POPs) and formulate a National Implementation Plan for the proper management and eventual elimination of POPs. The NIP provides a policy framework that outlines prioritized issues and actions that need to be taken to reach national objectives and obligations to the people of the Republic of Palau and the global community regarding the management of POPs. This will help ensure the health and security of present and future generations and the environment are protected. This NIP also provides the framework to meet Palau's obligations as a Party to the Stockholm Convention on Persistent Organic Pollutants.

The objective of the Stockholm Convention is to protect human health and the environment from effects of persistent organic pollutants. 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 chemicals are pesticides. HCB and PCBs are also classified as industrial chemicals. Dioxins and furans are released 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.

Palau's National Implementation Plan was developed with financial assistance from the Global Environment Facility with the United Nations Environment Programme serving as the Implementing Agency. The funds were provided for an enabling activity project to cover a range of activities which were broadly aimed at creating sustainable capacity and ownership in Palau in relation to the Stockholm Convention, including preparation of a National Implementation Plan. Palau's National Implementation Plan was developed using a cross-sectoral consultative process, which included the utilization of both local and international consultants, and support and guidance from several agencies. The NIP incorporates the initial POPs inventory, capacity assessments and other resource documents prepared during the course of the project.

2. COUNTRY PROFILE

2.1 GEOGRAPHY

The Republic of Palau is an archipelago in the Western Pacific Ocean lying between 7 degrees North latitude and 134 degrees East longitude. Palau is roughly 850 kilometers east of the Philippines and at its closest point, the Southwest Islands, is less than 200 kilometers north of Indonesia. Palau is westernmost among the six major island groups that make up the Caroline Islands.

Palau has a total land area of 458 km² and 19,000 inhabitants and comprises of over 700 islands, stretching 7000 km [435 miles] from the atoll of Kayangel to the islets of Helen Reef and Hatohebei. However, only twelve islands are continuously inhabited. Palau's territorial sea is 12 nautical miles, in addition to a 200 nautical mile exclusive economic zone.

There are four distinct geological island types found in Palau: atoll islands (Kayangel, and Helen Reef in Hatohebei State), high limestone islands (Rock Islands), low platform islands (Peleliu, Angaur, Southwest Islands), and volcanic islands (Babeldaob, Ngerkebesang, Malakal, western Koror). The terrain varies from the low mountainous main island of Babeldaob to low coral islands fringed by large barrier reefs.

Palau's geographical and geological disposition has fostered the growth of over 7,000 terrestrial and 10,000 marine species (NOAA CoRIS, 2010). Consequently, Palau has the most species diverse terrestrial ecosystem in Micronesia and one of the most biologically diverse underwater environments in the world. For centuries the Palauan people have depended upon their natural resources for subsistence living. This is now being challenged by the competing demands of globalization, which needs to be balanced with sustainable environmental development.

2.2 POPULATION

Palau's current population is 19,907 with an annual growth rate of 0.8 percent (Office of Planning and Statistics 2005). Seventy-three percent of the population is of Palauan descent, while foreign workers from the Philippines, Taiwan, and other countries comprise the remaining twenty-seven percent (Census 2005). The estimated average rate of natural increase is 1.2 percent.

The 85% of Palau's population lives in the states of Koror and Airai. Koror is currently the most urbanized area in Palau. The smallest populated areas are the Southwest Island group, which together host only sixty people. Most of the people from the Southwest Islands have moved to Koror for work and education opportunities.

2.3 ENERGY SECTOR

The Palau Public Utilities Corporation (PPUC) provides energy to nearly all the inhabited islands. The PPUC is a semi-private corporation that manages all of Palau's major on-island energy production via eighteen and six megawatt energy plants. The main energy plants are located in Aimeliik and Malakal and provide power to Babeldaob and Koror.

PPUC currently operates six plants using 18 diesel powered generators with eighteen and six megawatt capacities to provide energy. The largest plants are located in Aimeliik on Babeldaob Island which provides power to Babeldaob and parts of Koror; and the second is in Malakal which provides power to the islands of Malakal, Arkabesang and parts of Koror State.

There are two major companies supplying petroleum to Palau, Shell Oil and Mobil Micronesia. Both companies store fuel near Malakal Harbor and provide bunkering services to various airlines and international fishing vessels. Average yearly petroleum imports total nearly 8 million gallons. Alternatively, there are three private companies providing Liquid Petroleum Gas (LPG) used mainly for domestic and commercial cooking. Although retail stores market small canisters of butane, propane, of mixtures of LPG, less than 5kg, the main LPG import is liquefied propane. In 2004, LPG propane importation totaled nearly 10,000 metric tonnes (Div. Customs & Taxation 2004).

2.4 TRANSPORT

Malakal Harbor is the main port of entry and is located in Koror. The port of entry by air is the Palau International Airport (ROR) is located in southern Babeldaob in Airai. Palau currently has 61 kilometer of roadways, however only 36 kilometers are paved (CIP, 2002). The completed Compact Road in Babeldaob adds additional 85 kilometers of paved road. Communities outside of Koror and Babeldaob are reached by outboard motor boats and ferry.

2.5 WATER RESOURCES

Although Palau does have groundwater, the republic relies mainly on its rainfall with water needs largely met by the utilization of surface water. Lake Ngardok is the largest freshwater lake in Micronesia, encompassing 0.18 km and able to hold 15 million gallons. However, it is the Ngerikiil watershed that is currently the main source of water given its proximity to the urban areas of Koror and Airai.

The Ngerikiil watershed, which is located in Airai, in the southern end of Babeldaob supplies water to Koror and Airai, the most densely populated states in Palau. The Koror/Airai Drinking Water Treatment Plant is operated by government and supplies 4 million gallons of potable water daily. Although all states have their own water distribution system and are able to test for chlorine levels, only the Koror/Airai Plant successfully maintains its ability to deliver potable water daily.

Palau's watershed areas are vital not only as a source for freshwater, but also for their ecological value. These watersheds are home to numerous species of plants, freshwater fish and invertebrates, nesting birds, and crocodiles. The two longest rivers in Palau are the Ngerdorch and the Ngermeskang Rivers. The Ngerdorch River drains from Lake Ngardok, meandering for 10 kilometers before it flows to the ocean in Ngchesar State on the east coast of Babeldaob. On the west coast of Babeldaob the Ngermeskang River flows into Ngermeduu Bay, as part the largest watershed in Palau. Both Ngardok and Ngermeduu are protected by law as conservation zones.

2.6 AGRICULTURE

Babeldaob is the largest island in Palau (and the second largest island in Micronesia), comprising 75 percent (365.43 km²) of Palau's total land mass. Babeldaob has highly acidic soils, with a very thin top soil layer, making large-scale agriculture unfeasible. In highly acidic soils nutrients are dissolved quickly and leach away leaving soil unsuitable for large-scale farming. To increase soil fertility the use of fertilizers are essential. Widespread open burning is a common but unsustainable farming practice that releases nutrients and allows the soil to support crops for a short while. Open burning depletes soil organic matter, kills microorganisms, and leads to long-term land degradation.

In 2005, there were over 22 commercial agriculture farms in Palau, with a majority of them located in Babeldaob. Virtually all the farms were located alongside streams and mangroves contributing to surface water contamination from the potential misuse of pesticides and fertilizers, and the release of waste from piggeries and poultry farms. Furthermore, these farms could contribute to land degradation through soil erosion, and atmospheric pollution from the release of pollutants in smoke.

2.7 HEALTH

Basic comprehensive public and medical health care is provided at the Belau National Hospital located in Koror. There are three community health “super” dispensaries strategically located on the main island of Babeldaob and three isolated islands have own “satellite” health dispensaries. There are also two private medical clinics providing outpatient health care. For additional medical needs, Palau has developed a health care referral program to hospitals in the Philippines, Guam, Taiwan and Hawai’i.

2.8 ECONOMY

Palau receives restricted funds for economic and technical support to aid Palau in moving toward self-sufficiency, through the Compact of Free Association (COFA) with the United States. Aside from the COFA funds, Palau relies heavily on tourism and fisheries to support its economy. Tourism has doubled since the early nineteen nineties and reached the new height of 83,041 arrivals in 2004. Palau’s underwater wonders are the primary tourist attraction, with Palau considered one of the top ten dive sites in the world, while the lack of road access has been the key factor limiting the growth of land-based tourism. Development of the Compact Road has remedied this constraint resulting in increased opportunities to visit ecological and historical sites throughout Babeldaob.

Although small, Palau’s commercial fishing industry’s average annual income amounts to nearly \$3.5 million (BOH 2000). There are three commercial fishing companies in Palau, mainly targeting tuna, together operating over 40 foreign long-lining vessels. All fish caught are processed and sold off-island.

3. EXISTING FRAMEWORK FOR ADDRESSING POPS

3.1 GOVERNMENTAL BODIES

The Palau Environmental Quality Protection Board (EQPB) is the main governmental body addressing environmental contaminants in Palau. The EQPB works collaboratively with many agencies to address contaminants including the Division of Customs to monitor the importation and exportation of pesticides and ozone depleting substances; the Bureau of Agriculture to monitor the use of pesticides and fertilizers; the Ministry of Health to monitor and address human and environmental health concerns arising from the use, handling, storage, or disposal of goods; and the Bureau of Public Safety for enforcement and fire control.

PALAU ENVIRONMENTAL QUALITY PROTECTION BOARD

The Palau Environmental Quality Protection Board (EQPB) was created under the authority of the Environmental Quality Protection Act, otherwise known as Republic of Palau Public Law 1-58 (24 PNCA §121 and §129). The EQPB is a statutorily created board under the Office of the President with a broad range of environmental duties. The EQPB is charged with the difficult task of maintaining a balance between economic development and environmental protection.

The EQPB is a regulatory body mandated “to ensure for all persons in Palau safe, healthful, productive, and aesthetically and culturally pleasing surroundings, and to attain the widest range of beneficial uses of the environment without degradation, risk of health and safety, or other undesirable and unintended consequences in order to fulfill the responsibility of each generation as trustee of the environment for succeeding generations”. A Board of seven President appointed and National Congress Senate approved members, is empowered to promulgate and enforce regulations to fulfill this mandate. These regulations currently cover, albeit broadly, earthmoving, marine and fresh water quality, toilet and wastewater disposal facility quality, solid waste management, pesticides, public water supply system quality, environmental planning, and air quality control; including the newly adopted ozone layer protection regulations.

The EQPB monitors and regulates the importation, use, storage, disposal, and export of goods that may pose hazardous to human health and the environment.

DIVISION OF CUSTOMS. BUREAU OF REVENUE, CUSTOMS, & TAXATION. MINISTRY OF FINANCE

The Division of Customs is under the Bureau of Revenue, Customs, and Taxation within the Ministry of Finance. The Division of Customs is under the supervision of the Director of the Bureau of Revenue, Customs, and Taxation. The Director of the Bureau of Revenue, Customs, and Taxation is empowered to promulgate and enforce rules and regulations pursuant to 40 PNC § 1801(e) to carry out the provisions of Division 2 of Title 40 of the Palau National Code (PNC). The administration and enforcement of the regulations shall be implemented by the Minister of Administration, the Director of the Bureau of Revenue, Customs and Taxation and the Chief of the Division of Customs.

These rules and regulations, known as the Customs Regulations, were promulgated to implement and provide uniform enforcement of the Custom laws of the Republic of Palau. The Division of Customs was created to ensure proper enforcement of the tax laws, other laws enforced at the ports of entry and any and all related regulations. The Division of Customs insures the lawful import and export of items, proper assessment and collection of taxes, and intercepts any illicit narcotics, weapons, and other prohibited items.

DIVISION OF AGRICULTURE AND MINERAL RESOURCES, MINISTRY OF NATURAL RESOURCES, ENVIRONMENT AND TOURISM (FORMERLY NATURAL RESOURCES AND DEVELOPMENT)

The Division of Agriculture and Mineral Resources is mandated with the protection of agriculture and the general well-being of the people of the Republic of Palau from the introduction and further dissemination of injurious insects, pest, and diseases into and within the Republic (34 PNC § 2001). The Division of Agriculture and Mineral Resources promulgated the Plant and Animal Quarantine regulations under the authority of 34 PNC Division 3. The Division of Agriculture and Mineral Resources does not have within its mandate any provisions explicitly referring to the regulation of pesticides. However, the Division of Agriculture does provide within its programs assistance in the identification of suitable fertilizers, pesticides, and agricultural practices for both the public and commercial farmer, and handler.

DIVISION OF ENVIRONMENTAL HEALTH, MINISTRY OF HEALTH

Under the authority of the Director of the Bureau of Health Services (34 PNC § 102), the Division of Environmental Health is charged with implementing the Environmental Health

Regulations (2007). The Division of Environmental Health (DEH) is mandated to maintain and improve health and sanitary conditions, to minimize and control the threat of communicable disease and to protect, maintain and improve the life, health and welfare of all the people residing in Palau.

Synergy in addressing solid waste management, liquid waste management, and pollution and hazard control between the Division of Environmental Health and the Environmental Quality Protection Board is further demonstrated through parallel regulations. The Environmental Health Regulations excerpts or adopts in full regulations from the Environmental Quality Protection Board Regulations which refer to the management of solid waste, liquid waste, and air pollution and hazardous material control. To alleviate redundancy, only the EQPB Regulations will be reviewed with the understanding that the DEH also follows the same rules and regulations.

BUREAU OF PUBLIC SAFETY, MINISTRY OF JUSTICE

The Bureau of Public Safety was created under the authority of Title 34 of the Palau National Code, Chapter 50 paragraph 5001. The Bureau is directed to maintain order; preserve the peace; enforce all laws; conduct criminal investigations; assist in the conduct of prosecutions in the courts of Republic; act as bailiffs and other court attendants; serve legal processes; operate and administer all penal institution in the Republic; and operate all fire protection equipment within the Republic through its Division of Fire and Safety.

3.2 FRAMEWORK FOR ADDRESSING THE IMPORTATION OF POPs

The primary legal framework covering the importation of persistent organic pollutants, Pesticide, lies in the EQPB Pesticide Regulations and the Division of Customs Regulations. No regulation pertaining to importation of PCBs.

PESTICIDE REGULATIONS

Pesticide regulations are contained in EQPB Regulation Chapter §2401-33. Under the Pesticides General Prohibitions (§2401-33-05) banned, adulterated or mislabeled pesticides cannot be imported, sold, or distributed. The Pesticide Regulations require that any person who intends to import restricted use pesticides (RUPs), who is not an EQPB certified applicator, to obtain a license from the EQPB to import and use RUPs (§2401-33-17). In addition, all persons intending to import pesticides or pesticide devices must file a “Notice of Intent” with the Chairman of the EQPB prior to the arrival of the shipment (§2401-33-23). The shipment must be inspected by the EQPB prior to its release from Customs. Civil and criminal penalties are available including a fine of up to USD\$10,000, and one year

imprisonment.

The EQPB may prohibit the importation of any pesticide when it is deemed likely to produce any substantial adverse effects on human health or the environment. This gives the Board broad authority over what pesticides can enter the Republic. The regulations consider any use suspended or cancelled by the United States Environmental Protection Agency (US EPA) to be a banned use (§2401-33-28). This mechanism allows ease for the Board to update to the regulations to ensure that they are current. This means that currently the ten intentionally produced POPs fall into the banned use category.

CUSTOMS REGULATIONS

All ports of entry are monitored by the Division of Customs within the Bureau of Revenue, Customs, and Taxation. The Divisions' regulations are promulgated under the authority in 40 PNCA § 1801(e). Chapter 4 of the Customs Regulations cover importation, specifically Regulation 4.5 provides for the seizure of any item or items found entering Palau that are prohibited or restricted by law or regulation. The Bureau of Revenue, Customs, and Taxation requires that all imported items be made known to the Division of Customs within forty eight (48) hours of their arrival (Customs Regs § 4.1(a); 40 PNCA §1304 (a)). The Division of Customs also requires that all cargo be disclosed within four hours of its arrival by the master of the vessel or aircraft (Customs Regs § 4.3(a); 40 PNCA §1304 (d)).

The Director of the Bureau of Revenue, Customs, and Taxation promulgates a general list of prohibited items and makes the list available to the public. The list is created and maintained with the assistance of agencies who by law or regulation have prohibited items from entering the Republic. For this reason, the Bureau must receive these lists as well as updates from the Ministry's or agencies' who have prohibited items in order to prevent their entry.

Sanctions against illegal importation include the revocation of business licenses for one year (40 PNCA §1703) and referral to the Ministry of Justice for further civil or criminal actions with fines of not more than \$1,000.00 and/or imprisonment for a period not to exceed one year (40 PNCA §1704). Additional provisions encompassing criminal smuggling generally carry a maximum penalty of \$5,000.00 and five (5) years imprisonment (17 PNCA §3701).

3.3 FRAMEWORK FOR ADDRESSING THE EXPORTATION OF POPs

The Division of Customs monitors the export of prohibited items. Customs Regulations Chapter 6 covers exports and deals mainly with the export of fish. Similar to the import chapter, the Director is to inform the public of prohibited items. Items banned or restricted for export by law or regulation could be placed on this list. There does not appear to be any specific provision covering the manufacturing, production and exportation of persistent organic pollutants. This can be explained by the lack of any persistent organic pollutants related production functions or export activities within Palau.

The EQPB has provisions regarding impounded pesticides that may be exported at the expense of the importer; however, there is nothing explicit on export requirements for POPs other than notification. The solid waste regulations require anyone disposing of waste to do so in a manner approved of by the Chairman. Export for reasons of disposal could be construed as reasonable means for addressing the export of waste POPs. The requirement or guidelines for which would have to be approved of by the Chairman.

When criteria for the export of items are required to be fulfilled by the receiving country, the EQPB, Customs, and the exporter have in the past made arrangements to comply. Usually these requirements fall within international agreements for the movement or trade of chemicals, waste, and pesticides.

3.4 FRAMEWORK FOR THE STORAGE, HANDLING, AND DISPOSAL OF POPs

EQPB PESTICIDES REGULATIONS

The EQPB Pesticide Regulations prohibits storage, transport, mixture, or disposal of any pesticide or containers in a manner which poses a hazard to human health or the environment (§2401-33-05(B) (11)). The pesticide regulations further require that all instructions, and labeling be printed in English and conform to US EPA standards, otherwise be deemed “misbranded” and accompany a penalty. The EQPB requires that all storage, handling, and disposal be made in accordance with pesticide labeling. The existing regulations cover the use, training and licensing of pesticide application and the return shipment of unauthorized import. However, it needs to be strengthened to regulate storage, handling and disposal of unwanted pesticide. The EQPB has the authority to restrict or ban the use of restricted pesticides considered to have adverse effects on human health or the environment.

EQPB MARINE AND FRESHWATER QUALITY REGULATIONS

Marine and Freshwater Regulations are contained in Chapter 2401-11. The Marine and Freshwater Quality Regulations (§2401-11-23) address any activities that may cause

pollutants to enter the waters of the Republic of Palau. Unless approved by the EQPB, it is a violation to store, dispose of, or allow to accumulate, any hazardous substance in such a manner that it may enter surface or ground waters. Pesticides, petroleum products, and toxic chemicals are included among these substances.

All waters are classified as coastal water, fresh water, groundwater, or groundwater areas. These classifications are further defined according to their use to be protected as such. Water quality standards for toxic substances are included in the regulations. These standards may be amended by the Board to add substances or modify the standards as the Board sees fit. Since the regulations became effective in 1996, no additions or modifications to the standards have been made, and only nine of the twelve POPs are addressed.

EQPB SOLID WASTE MANAGEMENT REGULATIONS

Solid waste storage, collection or handling, and solid waste management is addressed under the EQPB Regulations Solid Waste Management Regulations (§2401-31). Explicit criteria or standards are not defined in depth, leaving programs and detailed criteria up to the EQPB to develop and further define with the approval of the Board.

Under EQPB Regulations Chapter 2401-31, solid waste is defined to include liquid waste materials such as waste oil, as well as pesticides, paints, solvents, and hazardous waste. Section 17 of the Chapter further elaborates the disposal requirements for solid waste. Although solid waste includes hazardous waste, Section 21 of Chapter 2401-31 specifically outlines standards for the disposal of hazardous waste. Section 21 allows for the disposal of toxic waste via incineration or in a manner approved of by the Chairman. Additionally, toxic, caustic, volatile and flammable chemical waste may be incinerated or disposed of in a manner approved of by the Chairman (§2401-31-21 (B) (2)).

Under the Solid Waste Management Regulations contained in Chapter 2401-31 of the EQPB Regulations, solid waste disposal must be made under guidelines approved by the Board (§2401-31-17 (A)). However, the tendering of a permit for the disposal of solid waste does not negate adherence to the Marine and Freshwater Regulations or the Air Pollution Regulations. Instead the necessary criteria for compliance of all regulations would be made known and likely stated in the permit conditions.

3.5 FRAMEWORK FOR ADDRESSING POPs USE AND PRODUCTION IN COUNTRY

USE, PRODUCTION AND MANUFACTURING

There are no POPs currently being used in Palau, and the only regulations which specifically cite the proper and allowable use of POPs is covered in the EQPB Pesticide Regulations (§2401-33- 04). The regulations require use consistent with label instructions, the regulations also allow for the EQPB to refer to the US EPA regulations for allowable uses. There are no regulations which specifically limit or identify allowable uses for POPs other than those listed in the Pesticide Regulations. However, other uses, beside those listed in the Pesticide Regulations and those allowable by the US EPA, can be derived from other chapters such as the Marine and Freshwater Regulations. The Marine and Freshwater Regulations outline the basic criteria applicable to all waters in the Republic. Water use is classified into four areas which include coastal water; fresh water; groundwater; and groundwater areas. Any use must maintain water quality standards that are free of substances in concentrations that are toxic and harmful to humans, plant, animal, or aquatic life.

The regulations state that “before any new point source of pollution is allowed to lower the quality of water, the source shall be required to meet and maintain the highest statutory and regulatory requirements. Before a non-point source is allowed to lower the water quality, the source shall establish and use the best, cost effective, and reasonable management practices.” This allows for basic criteria for which the EQPB can consider when a request is made for the use, production, or manufacture of POPs within Palau.

There are no POPs manufacturing plants within Palau. Moreover, there are no chemical manufacturing plants in Palau. Consequently, chemical manufacturing as a single sector or activity is not addressed explicitly within the EQPB regulations. Conversely, plants, whether chemical or otherwise, would still have to abide by EQPB regulations. Hence a permit for the production of any of the POPs pesticides could not be awarded based on their classification as a banned pesticide (§2401-33-28).

The USEPA banned PCB manufacturing and phased-out many of its uses through their 1978 PCB regulations. Palau, however, has yet to address PCB manufacturing or the use of PCB containing equipment explicitly. In the past, most equipment came from the United States and thus Palau was unconcerned with implementing certain policies addressing such substances as PCBs. However, the need for regulations explicitly addressing PCBs is evident as the number of countries Palau trades with increases.

UNINTENTIONALLY PRODUCED

The production of POPs unintentionally from combustion sources is covered under the EQPB Regulations; the Ministry of Health Environmental Health Regulations which

adopts the EQPB regulations for air pollution and hazardous materials; and 34 PNC Chapter 51 Fire Control administered by the Bureau of Public Safety Division of Fire and Safety.

ENVIRONMENTAL QUALITY PROTECTION BOARD

While the release of unintentionally produced POPs from burning can be prevented using provisions under the waste management regulations for proper disposal; and provisions under the marine and freshwater regulations for the prevention of water contamination, the actual act of releasing pollutants into the air from combustion processes is regulated under EQPB's Air Pollution Regulations. The Air Pollution Regulations have provisions for air quality and emissions standards for new stationary sources; incinerators; hazardous air pollutants; the control of particulate emission, motor vehicles; and open burning.

The US EPA standards of performance for new stationary sources employed by the EQPB are designated only for asphalt concrete plant and storage vessels for petroleum liquids. These designates and standards are incorporated from the US EPA standards as they existed at the time EQPB's regulations became effective, May 26, 1996 (§ 2401-71-43).

Particulate emission controls are set forth for both process industries and fuel burning installations based on process weight per hour and ¹BTU's per hour, respectively. Conversely, the particulate emission control set forth for incinerators is standard, not to exceed 0.20 pounds per 100 pounds of refuse burned (§ 2401-71-49(A)).

The standard for incinerator design to control particulate emission requires the use of multiple chambered incinerators for increased performance, thus prohibiting the use of single-chambered incinerators unless approval is obtained from the Chairman. The exception is only granted if the design of the single-chambered unit provides equivalent performance. In addition, all incinerator performance must still adhere to the standards set forth in other parts of EQPB's Air Pollution Regulations; specifically those listed under ²Standards of Performance for New Stationary Sources, and ³National Emission Standards for Hazardous Air Pollutants. Although, the EQPB does not list incinerators for designation as a new stationary source, the US EPA standards for them are still employed when necessary. Designated pollutants under EQPB's National Emission Standards for Hazardous Air Pollutants only include asbestos, beryllium, mercury, and vinyl chloride.

¹ BTU means British thermal unit, a British standard unit of energy. One BTU is equal to the amount of heat required to raise the temperature of one pound of liquid water by 1 degree Fahrenheit at its maximum density, which occurs at a temperature of 39.1 degrees Fahrenheit. One BTU is equal to approximately 251.9 calories or 1055 joules.

² Standards of Performance for New Stationary Sources § 2401-71-43 thru 45.

³ National Emission Standards for Hazardous Air Pollutants § 2401-71-61 thru 63.

The national emission standards for these pollutants are incorporated from the US EPA Regulations on National Emission Standards for Hazardous Air Pollutants (40 CFR, Part 61) as they existed on the date EQPB's regulations became effective, May 26, 1996.

The EQPB also incorporates the US EPA Regulations on Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engine into the Motor Vehicle Pollution Control regulations (§ 2401-71-58(A)). However, the EQPB regulations does not limit the standards incorporated to include only those established on or before May 26, 1996 as with regulations incorporated for hazardous air pollutants and stationary sources. This allows for the regulations to be automatically updated should the US EPA adopt new standards for motor vehicles and motor vehicle engines. EQPB's motor vehicle pollution control regulations also explicitly prohibits the tampering of exhaust emission controls, crank case ventilation, or any other air pollution control device installed in any vehicle or combustion engine; in addition to prohibitions on visible emission standards.

Open burning for any purpose other than for the preparation of food is prohibited unless a permit is obtained from the Chairman. Conversely, open burning for purposes of refuse management is prohibited on residential properties except in any area where public or commercial refuse collection is not available so long as no other existing laws are violated (§ 2401-71-40). Additional exceptions are available for which a permit may be obtained. However, guidelines outlined as conditions within the permit must be followed. These conditions encompass such things as containment; allowable hours for burning (conditions for weather and times of day); allowable locations and proximities; allowable types of refuse to be burned and moisture content; allowable visible smoke emissions; allowable starter fuels; and management procedures and requirements.

BUREAU OF PUBLIC SAFETY

Under Title 34 of the PNC, the Bureau of Public Safety's authority over fire control prohibits the setting of fires for clearing land without first obtaining a permit from the President or his authorized representative (34 PNC Chapter 51). Permits are obtained via the EQPB. The Bureau of Public Safety also has enforcement provisions governing the application of penalties for violations.

3.6 LICENSING FRAMEWORK

Under the EQPB regulations, every person engaged in the sale or distribution of restricted use pesticides, and any person importing restricted use pesticides who is not a certified applicator must obtain a license from the EQPB (EQPB Pesticide Regulations 2401-33-

17). Any violations of the pesticides regulations in the previous three years may serve as grounds for the denial of a license. Users of restricted use pesticides must be certified under the provisions of 2401-33-07 through 2401-33-16 or be supervised by a certified applicator. Use of restricted or banned pesticides for experimental use is permitted under section 2401-33 paragraph 33.

With the exception of open burning for food preparation, every other activity dealing with POPs use, production, or release is prohibited unless approval is obtained from the Chairman of the EQPB, and in certain circumstance the Division of Environmental Health, and the Bureau of Public Safety.

3.7 MONITORING FRAMEWORK

NATIONAL MONITORING OF POPs RELATED ACTIVITIES

The EQPB monitors activities in tandem with the enforcement of its regulations and implementation of its licensing framework, which require the permittee to furnish the EQPB with performance reports. The EQPB routinely inspects activities for compliance through its Compliance, Hazmat, and Engineering Divisions. Thus monitoring of POPs related activities is part of a collective compliance effort and not established as an independent program.

The EQPB tests all used oil for the presence of PCBs prior to transport to the Palau Public Utilities Corporation's. The EQPB also tests public water and marine water routinely, albeit only for chlorine, turbidity, and coliform bacteria content. The only other testing the EQPB currently performs is testing for the presence of pesticides on produce, which is carried out in partnership with the Division of Environmental Health.

The Bureau of Public Safety is responsible for monitoring and managing wild fires, and in partnership with the EQPB monitoring permitted fires.

STATE MONITORING

States do not have the capacity to monitor activities other than waste management thus far. Each state has put in place regulations regarding waste management; however, most refer back to requirements set forth by the EQPB regarding hazardous materials. For this reason state regulations on waste management were not reviewed in depth.

3.8 GAP ANALYSIS, CONFLICTS IN REGIME AND AREAS OF AMBIGUITY

ENFORCEMENT AND IMPLEMENTATION

Only the EQPB has a resident legal counsel. All other ministries refer to the Attorney General's Office, which is under the Ministry of Justice, for legal counsel. Thus the EQPB only forwards legal proceedings to the Attorney General's Office when criminal penalties are to be assessed. This allows ease for the EQPB to assess matters and collect penalties with the assistance of legal counsel with minimal delays.

Palau has limited industrial production or uses of chemicals listed in Annex A and B, with no records of any import or export of these items, and consequently no history of enforcement proceedings. There have been enforcement actions taken by the EQPB for the improper use and import of restricted use pesticides. These have resulted in the payment of civil penalties. The use of criminal sanctions is available to the EQPB in egregious cases, but has not been recently needed.

Competent enforcement of the import-export regulations pertaining to POPs requires coordination between the EQPB staff and Customs inspectors. The prohibited items should be clearly listed on a registry that is kept updated, and training should be provided, when needed, to help inspectors identify prohibited items or chemicals.

Competent enforcement of the motor vehicle and open burning regulations requires coordination between the EQPB and the Bureau of Public Safety. It is necessary to incorporate the EQPB regulations for motor vehicle requirements into the application requirements for vehicle registration by the Bureau of Public Safety, a mechanism for enforcement that currently is not being utilized.

Although the permitting mechanism for open burning is effective, the capacity for enforcement is inadequate and slightly ambiguous. The reason for ambiguity is divergence in regulations on enforcement between the EQPB and the Bureau of Public Safety, specifically those addressing penalties for non-compliance. The current open burning permitting mechanism relies on the use of EQPB's regulations, thereby recognizing the EQPB as the authorized representative of the President. However, the EQPB penalizes violators with civil penalties not to exceed \$10,000 per day of violation, while the Bureau of Public Safety considers violators guilty of a misdemeanor with a fine not to exceed \$100.00 or a one month jail sentence. This has left the agencies unclear as to whom should take the lead in enforcement. A clear partnership between the two agencies needs to be established.

While it would be easier for the Bureau of Public Safety to administer citations, just like

speeding tickets, it needs to be resolved between the two agencies as to whom will take the lead in enforcement. In the past, a resolution was discussed between the two agencies whereby some of EQPB's personnel were to be deputized in order to administer citations. However, this never went into fruition. Amendments need to be made to either the EQPB's or the Bureau of Public Safety's regulations and/or laws, or an agreement needs to be made between the two agencies. Otherwise the current mechanism for enforcement will continue to prove an exercise in futility when the need for enforcement action arises.

COMPARISON WITH THE STOCKHOLM CONVENTION REQUIREMENTS

The Republic of Palau is fortunate in that there is no known import or export of POPs due to the lack of any industrial capacity for their use. The only known stockpile of any POPs consists of less than a dozen out of service transformers that have been identified as containing PCBs. They are being stored until arrangements are made for their export to a country with proper disposal technology. There is only one small medical waste, and two small waste incinerators in Palau, with the only other sources for the unintended production of POPs being residential and agricultural open burning, and emissions from motor vehicles.

The current regulatory structure is adequate to prevent the importation of chemicals listed in Annex A. There is no current scheme covering the export of Annex A chemicals. However, this becomes only a matter of form since there is no production or explicit use at the present time in the Republic. The EQPB regulations espouse the same objective articulated in Article I of the Stockholm Convention. The lack of import or export of any POPs meets the requirements of Article 3. There is no need at this time for any exemptions under Article 4. The Republic will need to develop an action plan to reduce or eliminate releases from unintentional production as required by Article 5. The single PCB transformer stockpile is being properly managed and is slated for eventual transport for disposal. This meets the requirements of Article 6. The plans, education, and reporting covered by the remaining Articles will need to be accomplished as required under the Convention.

The policy of the Republic is parallel with that of the Stockholm Convention. Deficiencies exist in the lack of formalized export controls; the lack of technical, human resource, and financial capacity within the administrative system; limited enforcement regulations; and the need for increased coordination, partnership, and information exchange among involved agencies and the general public.

4. NATIONAL POPS ASSESSMENT

The first POPs assessment was conducted, in July 1998, as part of the POPs in Pacific Island Countries (PICs) project managed by the South Pacific Regional Environment Programme, now renamed the Secretariat of the Pacific Regional Environment Programme (SPREP). The information detailed in the following sections provides the most recent information collected through a series of consultations and surveys updating the information collected from the previous SPREP assessment reports (SPREP, May 2000 and January 2003).

4.1 POPS PESTICIDES (ANNEX A, PART I CHEMICALS)

There is no record of any historical uses of POPs pesticides. Additionally there are no current or future uses for these chemicals as their use, sale or import is prohibited by the EQPB. Consequently, there is no monitoring data or documented health impacts from POPs pesticides. The Division of Customs continually monitors imports and notifies the EQPB of any questionable pesticide imports for possible action to be taken. In the past, seizure of illegal imports has occurred; however, upon inspection by the EQPB it was revealed that the illegal imports were all non-POPs pesticides.

4.2 PCBs (ANNEX A, P II CHEMICALS)

Palau ceased using PCB containing transformers in 1975. The POPs in PICs project identified a number of PCB contaminated transformers that were found an area of unmanaged savanna after it caught fire. Removal of these transformers was identified as priority task for the succeeding removal and disposal phase of the POPs in PICs project.

The most recent investigation revealed that the transformers were removed without permission or permit from the EQPB and were sent off-island as part of a scrap metal recovery project. The project was conducted by a private scrap metal company that was permitted to remove scrap metal and other transformers; however the permit did not include the contaminated transformers. Consequently, Palau no longer has any documented PCB contaminated transformers stockpile on-island. This information will need to be updated and verified with the PPUC, the sole importer of transformers in Palau.

However, additional transformers may be uncovered as more areas are cleared for development in Babeldaob. Should this occur it is important for Palau to have a mechanism in place for reporting, inspection, testing, and storage until proper disposal arrangements could be made.

4.3 DDT (ANNEX B CHEMICALS)

The EQPB permits only USEPA certified pesticides for use in Palau. The last known use of DDT was after WWII, in the late 1940's and early 1950's, for use in vector control. However, since then DDT has not been used in Palau and there is no data available on the exact details of its usage after WWII.

There is no reported usage of DDT presently, nor is there any data or reports of imported products containing DDT. However, Palau is unable to test for the presence of DDT in imported products. Any information regarding products containing DDT is obtained from international partners. There have been no reported instances of products containing DDT ever being imported into Palau. Conversely, there has been no active effort to develop a mechanism for information exchange, inspection, detection or testing, or prohibition of these types of products.

4.4 UNINTENDED PRODUCTION OF ANNEX C CHEMICALS (PCDD/PCDF, HCB AND PCBs)

There is no air quality testing equipment or capacity to test for Annex C chemicals in Palau for incinerators, the power plant and other similar activities or equipment that have a potential to emit Annex C Chemicals. An estimate of dioxin and furan releases prepared using the Standardized Toolkit, developed by ⁴UNEP Chemicals, may be used to estimate release of dioxins and furans in Palau.

Data was collected during a series of consultations and meetings with the Division of Customs of the Ministry of Finance, the Office of Statistics of the Ministry of Finance, the EQPB, the Palau Public Utility Company, as well as with other various other agencies, importers, community groups, businesses, and consumers. Many of the figures are based on best estimates.

Unsurprisingly, the highest source of dioxin and furan releases to air comes from waste incineration, estimated at 408.5 mg TEQ/annum. Waste incineration in Palau is currently little more than open burning. Hospital waste, quarantine waste, and some landfill waste is burned in contained systems, however the systems do not meet the standards required under the EQPB regulations for waste incinerators. The highest source of dioxin and furan

⁴ UNEP Chemicals, 2003. Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases. United Nations Environment Programme, Geneva.

releases in residue comes from uncontrolled combustion processes, estimated at 138 mg TEQ/annum.

Table 1. Estimated Releases of Dioxins and Furans

Source Categories	Annual Releases (mg TEQ/a)				
	Air	Water	Land	Products	Residue
Waste Incineration	408.500	0.000	0.000	0.000	2.0
Ferrous and Non-Ferrous Metal Production	0.000	0.000	0.000	0.000	0.0
Power Generation and Heating	7.370	0.000	0.000	0.000	0.0
Production of Mineral Products	0.533	0.000	0.000	0.000	3.6
Transportation	11.389	0.000	0.000	0.000	0.0
Uncontrolled Combustion Processes	78.100	0.000	0.080	0.000	138.0
Production of Chemicals and Consumer Goods	0.000	0.000	0.000	0.000	0.0
Miscellaneous	0.001	0.000	0.000	0.000	0.0
Disposal/Landfilling	0.000	0.000	0.000	0.000	0.0
Identification of Potential Hot-Spots					
Total	505.9	0.0	0.1	0.0	143.6

(*TEQ = toxic equivalents)

4.5 STOCKPILES, CONTAMINATED SITES AND WASTE

There are no stockpiles of Annex C chemicals in Palau at this time. However, the existing national landfill is a potential contaminated site. In 2005, a rehabilitation project for this site commenced with the construction of a new circulation type semi-aerobic system. It is contemplated that any contaminated wastes will be contained and shipped to a facility that can properly process and dispose of these wastes.

Additionally, the site where the PCB contaminated transformers were found was tested as part of the POPs in PICs project. The results of the testing revealed the amount of PCB present in the soil was negligible. It was recommended that the top layer of soil be removed and properly disposed of, however this had never happened. The most recent inspection of the site revealed that the soil had already been disturbed and the area cleared in order to provide parking for various vehicles and equipment.

4.6 REQUIREMENTS FOR EXEMPTIONS

Since there are no current or projected uses of POPs in country there are currently no requirements for exemptions.

4.7 AWARENESS AND EDUCATION

Public awareness and education regarding chemicals are perceived to be assumed by the EQPB as part of effort to protect human health and environment. The EQPB is charged with regulating all aspects of chemical usage and disposal. During the course of the NIP development the EQPB consolidated programs and established the Hazardous Materials (Hazmat) Division, under the supervision of the Hazmat Coordinator. The Hazmat Division had instituted several public awareness and education efforts geared specifically toward pesticides and used oil waste management. Unfortunately, many of the programs are no longer being implemented; those that remain are detailed below along with some programs of other agencies that relate to chemicals and public awareness and education.

The EQPB is the lead national agency handling hazardous materials. The EQPB endeavors to coordinate information exchange and develop education and training programs for all target groups in cooperation and partnership with other agency partners. One example is the annual Earth Day celebrations. The EQPB coordinates the efforts of all stakeholders involved in information exchange and awareness raising. A theme is chosen each year to represent the overall educational focus for the year. During the event various education booths are open to the public to participate in and learn about agency efforts, Palau's environment and what the general public can do to help preserve Palau's environment.

The EQPB also works closely with USEPA, SPREP, SOPAC and JICA to develop and implement programs to better manage and dispose hazardous materials. There are regular trainings for people who handle pesticides and other hazardous materials. The Palau Conservation Society (PCS) has an ongoing program on watershed protection and sustainable use including information about pesticides. Locally developed pamphlets and booklets about pesticides have been developed and are available at the EQPB.

The Environmental Education Department of EQPB collaborated with the National Coordinator of the International Waters Programme, the Koror State Government Solid Waste Management Office and the Ministry of Education to draft a booklet entitled "Dilbuil's Trash Exploration" that was distributed nation-wide. These agencies are collaborating in the development of a curriculum for the elementary schools that deals with waste management.

The Ministry of Education in cooperation with the technical expertise of the Taiwan Technical Mission developed a school farm project in Airai Elementary School. About 75 students from 3 grade levels planted crops and designed their own gardens. The fields are pesticide free and all produce is safe and clean (Hesue Ming Lii, 2006). Although these

gardens are pesticide-free, it is equally important to demonstrate to the use of traditional rather than commercial fertilizers.

4.8 MECHANISM FOR INFORMATION EXCHANGE WITH OTHER PARTIES TO THE CONVENTION

The Office of Environmental Response and Coordination is currently the focal point for the POPs Stockholm Convention and tasked with information exchange and is obligated to develop a POPs National Implementation Plan (NIP) in collaboration with all stakeholders. Through this process information is exchanged within Palau and to Party Members.

4.9 EXISTING POPs RELATED PROGRAMS

There is no program specifically developed to address POPs in Palau. The monitoring and regulation of POPs is addressed collectively with other individual programs such as waste, pesticide and chemical management. Nonetheless, most POPs are currently banned in Palau for importation and use. National monitoring is done as part of a collective compliance effort by the Environmental Quality and Protection Board, the Division of Customs, the Division of Environmental Health, and the Bureau of Public Safety. The International Waters Program together with the Bureau of Public Works National Solid Waste Management Program area is also dealing with the management of hazardous wastes.

EQPB HAZARDOUS WASTE PROGRAM

The EQPB is the regulatory body mandated to ensure that all persons in Palau live in a safe and clean environment. A Hazardous Materials (Hazmat) Coordinator is needed at the EQPB to coordinate programs including testing, monitoring, data analysis and information exchange. The compliance officers of the EQPB conduct routine inspections of suppliers and consumers to ensure no banned substances are in use.

The EQPB accepts all used batteries and conducts an annual recycling drive during Earth Day each year. Batteries are processed and stored in containers and shipped off-island. Permits issued for construction projects have conditions for waste management and compliance. An example is the construction of the Compact Road in Babeldaob, a 53 mile long road encircling the island. The contractor, the Daewoo Corporation is required to remove all hazardous wastes used during the construction of the Compact Road. The

Daewoo Corporation recently shipped out processed batteries from their project activities and batteries stored at EQPB.

INTERNATIONAL WATERS PROGRAM

The International Waters Program under the Office of Environmental Response and Coordination has implemented two waste management projects in Medalaii Hamlet, Koror and Ngarchelong State. These projects included environmental assessments, waste stream studies, and community consultations. A waste stream analysis was recently completed in Melekeok State. Educational materials about wastes are being developed for the elementary schools.

BUREAU OF PUBLIC WORKS NATIONAL SOLID WASTE MANAGEMENT PROGRAM

The Bureau of Public Works has a Solid Waste Management program that is working in partnership with Koror state to improve the National Landfill. In addition it is working with all States to introduce the rehabilitation plan for the National Landfill and assist other states with waste management program at a smaller scale.

THE DIVISION OF CUSTOMS

The Division of Customs screens all products entering the country and confiscates banned or hazardous materials. Customs officers have a listing of banned chemicals and will confiscate any substance that is not properly labeled in English. All vessels are inspected thoroughly and all containers are opened.

DIVISION OF ENVIRONMENTAL HEALTH

The Division of Environmental Health is mandated to maintain and improve health and sanitary conditions in Palau. The Division of Environmental Health works with EQPB Pesticide Officer to inspect local farms. The focus of DEH is safe and sanitary conditions at a farm. DEH informs the Pesticide Officer if there are any banned pesticides on site during sanitation inspections.

BUREAU OF PUBLIC SAFETY

The Bureau of Public Safety is mandated to make sure the public is safe from danger of any kind, including vehicle safety and the release of hazardous wastes. The Bureau with the Division of Fire and Rescue regulate fires and open burning.

4.10 RELEVANT ACTIVITIES OF NON-GOVERNMENTAL STAKEHOLDERS

The farming community includes a large group of individuals who are often physically isolated due to location of their farms. Most farms are owned by Palauans, but operated by foreign labor, usually Chinese farmers. The language barrier makes communication difficult as many do not understand Palauan or English and have no understanding of existing information about POPs. Farming methods used for large scale tilling, using pesticides and fertilizers are inappropriate in Palau.

The auto repair shops involves a large group of foreign laborers who do not understand Palauan or English and are unaware of existing EQPB regulations regarding testing, proper storage, and disposal of hazardous materials.

The Palau Conservation Society with partner agencies has an ongoing a Watershed Conservation Program. The program promotes conservation of upper watersheds and mangroves, sustainable use of fertile agroforestry lands with vegetation buffers and mangrove conservation. Best practices for sustainable agroforestry include use of EPA approved pesticides. This program is promoted through pamphlets, posters and videos that need to be translated for foreign workers on farms.

4.11 OVERVIEW OF TECHNICAL INFRASTRUCTURE FOR POPs

MEASUREMENT

PESTICIDES

During the course of NIP development and in coordination with efforts under the Hazmat Division, the EQPB's pesticide program began using field test kits to test for the presence of pesticides in the water and on plants. The testing occurred at the farms as well as at the point of sale at local produce shops. The testing at the point of sale ensured that the produce was handled properly prior to consumer contact, while the testing at the farms ensured that the farmers were using the pesticides at the appropriate times prior to harvesting.

The Agri-Screen Ticket Pesticide Detection Kits produced by Neogen were used for pesticide testing. The Agri-Screen Ticket is used to detect all major organophosphates, thiophosphates and carbamates in the air, water, soil, produce, food, spills, surfaces and custom applications. The common pesticides detected by this kit are: Malathion, Sevin, Furadan, Systox, Vapona, Phosdrin, Metasystox, Guthion, Actellic, Dursban, and

Diazinon. These kits cannot be purchased in bulk because the chemicals expire after a 2 year period.

Unfortunately, the EQPB no longer is conducting these tests and no longer has a Hazmat Coordinator.

POLYCHLORINATED BIPHENYLS (PCBs)

The EQPB is mandated to test all used transformers and used oil for the presence of PCBs prior to transport out of Palau. The EQPB uses the DEXSIL CLOR-N-Oil test kit to measure PCBs as chloride for transformer oils and is detectable to 50 parts per million using a fixed endpoint colorimetric titration that conforms with US EPA SW-846 Method 9076. A DEXSIL CLOR-D-Tect 1000 is used to measure Chlorine Halogens in use oil within a range of 1000 parts per million and conforms to EPA9077.

CARBON OXIDES (COx) NITROUS OXIDES (NOx) AND SULFUR OXIDES (SOx)

The only air quality testing equipment available on island was belongs to the Airai State Government and is part of a pilot scale incinerator scale incinerator project that will be used for a 6 month trial period to incinerate municipal wastes including only cardboards and wood scraps and kitchen waste as tires and plastic produce toxic ashes. The incinerator was a donation from a non-government Organization called Rice Japan. The donation was made through the Office of the Vice President. The purpose of this project is to demonstrate how this incinerator operates and train at least one local operator in Airai State. Other States are also welcome for training on the installation and operation of this incinerator. The incinerator is to reduce the stream of solid waste into Airai State.

As part of the permitting process, the ambient air quality for this site was tested and measurements at the smoke stack were as follows: Nitrous oxides (NOx) = 0ppm, Sulfur oxides (SOx) = 0ppm and Carbon oxides (COx) = 0%. Particulate matter was visually inspected and determined to be zero. To ensure that the equipment was working properly the equipment was tested on sources of pollution. The exhaust from the donated Japanese garbage compactor truck was measured within the exhaust pipe and Nitrogenous oxides (NOx) measured 250 ppm and Sulfur oxides (SOx) measured 10ppm. Carbon oxides (COx) were measured from the EQPB truck exhaust pipe and were found to be 5% which exceeds the Japanese requirement of 3%. The tests showed that the ambient air conditions at the site were satisfactory and the equipment was working properly. It also showed that the vehicles tested at the time were measuring below the standard allowed by the EQPB.

There are limited sealed chemical testing vials for nitrous and sulfur oxides (50 testing tubes each) therefore Nitrous oxides and sulfur oxides will be measured at the smoke stack during days of full operation and at a 10 meters distance from the incinerator. As part of the permit conditions the project is to keep logs of all recorded data to be made available to the EQPB for inspection.

ANALYSIS

In order to conduct quantitative analysis for organic contaminants, the EQPB must send samples off-island for testing. There are no facilities in Palau to test for persistent organic pollutants. As of May 2006, the Water and Energy Research Institute (WERI) at the University of Guam does not have laboratory technician to test for POPs. The Department of Environmental Health had grant funds to purchase a gas chromatography unit for measuring organic chemicals, however one has not been purchased.

In 2000, water samples from the Koror-Airai Public Water Supply System were sent to the Montgomery Watson Laboratory in California for a full chemical analysis for contaminants. Contaminants were either non-detectable or within EPA standard levels for all substances tested. The cost of contaminant tests was approximately \$13, 000 for three sample. Palau has 14 public water systems. The budget needed to do the required contaminant testing for the 14 public water systems would run over a quarter of a million dollars every 3 years and the ground water would be even higher.

ALTERNATIVES

Palau, as with many island nations are limited in both human and financial capacity to fully address POPs. The following proposed alternatives were identified as ways to build partnerships, increase regional capacity, and address POPs in the midst of limited human and financial capacity:

- Secure regional funds to operate one well-equipped regional laboratory with qualified technicians to analyze and properly dispose hazardous chemicals.
- Set up a Pacific hazardous waste clean-up fund that Pacific Island member countries and donor countries contribute to on an annual basis to provide necessary analytical services to the nearest laboratory in their region
- Have a regionally funded HazMat team consisting of regional experts to conduct surveys and clean-up in the Pacific on a regular basis. The team should have the

ability to assess, repackage, and either destroy on site or take hazardous wastes off-island during each visit. The HazMat team should include qualified national HazMat technicians from member countries and serve as a hands-on training program.

- Impose a national fuel tax to generate funds to mitigate for used oil and other hazardous material.

PREVENTIVE MEASURES

General preventative measures that relate to best available techniques and best environmental practices include the following:

- The use of low-waste technology
- The use of less hazardous substances
- The promotion of the recovery and recycling of waste and of substances generated and used in a process
- Replacement of feed materials that consist of POPs or where there is a direct link between the materials and releases of POPs
- Good housekeeping and preventive maintenance program
- Improvements in waste management with the aim of the cessation of open and other uncontrolled burning of waste, including the burning of landfill sites. A waste management plan be put in place.
- Minimization of these chemicals as contaminants in products
- Avoid elemental chlorine or chemicals generating elemental chlorine for bleaching

PREVENTIVE PROGRAMS, ACTIVITIES AND MANAGEMENT

PROJECT FOR IMPROVEMENT OF SOLID WASTE MANAGEMENT IN THE REPUBLIC OF PALAU (PISWM)

The Project for Improvement of Solid Waste Management in the Republic of Palau (PISWM) is a joint initiative between the Governments of Japan and Palau. The project commenced work in 2005. The overall goal of this bilateral project is to be a model for other states in Palau as well as other countries in the region. The Project not only endeavors to renovate the M-Dock Landfill, but also to develop a national waste reduction management plan, to improve waste disposal practices in order to reduce environmental

and health risks in Koror State, and to increase capacity for solid waste management in Palau and the region through training.

SOLAR PROJECTS

Nearly all of Palau's energy needs are met through the use of diesel powered generators operated by the Palau Public Utilities Corporation. In light of increasing oil prices and various concerns with using oil, Palau has taken steps to try and reduce Palau's energy consumption as well as promote energy alternatives.

The Palau Energy Conservation Strategy (PECS) is being developed by the Energy Office, Ministry of Resources and Development in cooperation with the Pacific Islands Energy Policy and Strategic Action Planning (PIEPSAP) and the South Pacific Applied Geoscience Commission (SOPAC). The general energy policy framework for the National Government of Palau is defined in Executive Order 132 "Establishing Energy Conservation Policies". In accordance with Executive Order 132, the PECS will outline a strategic plan with activities, lead agencies, indicators of success, assumptions and risks, and time frames. It is envisioned that the PECS will compliment Palau's development strategies and goals providing for reliable, safe, environmentally acceptable, and cost-effective energy services.

There are also a number of small scale solar power projects coordinated by the Energy Office. These solar power projects, funded through government programs, have involved outfitting single homes with photovoltaic solar panels and batteries where public utilities are unavailable. There has been no demonstration of the technology on a large scale with or without grid tie options. As such consumers are unaware of the technologies viability and its potential for long term cost savings. Conversely, alternative fuel technology of any kind has never been demonstrated in Palau even as our neighbors in the Pacific have begun utilizing virgin coconut oil as a diesel fuel substitute.

REGULAR MONITORING OF COMMERCIAL AGRICULTURAL FARMS

The EQPB is mandated to conduct regular monitoring of commercial farms. Monitoring of farm activity includes inspection of pesticide storage facilities; inspection of pesticide usage and disposal practices; inspection of produce and pesticide handling equipment; as well as routine monitoring of pesticide importers and sellers. The EQPB works with the Division of Environmental Health (DEH), Ministry of Health, to monitor farm activity.

PRIVATE PESTICIDE APPLICATOR TRAINING

The EQPB requires all private pesticide applicators receive training and be certified in order to use restricted pesticides. Private Pesticide Applicator Training has been conducted through the EQPB, and is required to occur every 3 years. The last Private Pesticide Applicator Training occurred in 2003, as part of the efforts of the Hazmat Division.

Current EQPB law stipulates that all commercial farms must have at least one person certified pesticide application. There is concern that the trainings may be too infrequent based upon the turnover of farmers and relocation and start-up of farms. All farmers upon hiring and at least annually should be required to be trained on pesticide application. A fee needs to be set up to cover costs of this process. The training should include a booklet on proper pesticide application and translated into languages of the farmers and include several follow-up visits to ensure proper application of pesticides is occurring.

USED OIL STORAGE AND TRANSPORT BEST MANAGEMENT PRACTICES

In response to growing concern over used oil management by large construction companies, hotels, and automotive shops, the EQPB formulated a Used Oil Storage and Transport Best Management Practices (Used Oil, BMP) in 2005. This plan provides basic requirements for compliance with EQPB regulations to prevent illegal discharges of harmful substances into Palau's environment.

The Palau Public Utilities Corporation (PPUC) is the only used oil collector approved by EQPB to accept used oil for processing in Palau. The PPUC Aimeliik Power Plant is located at Ngchemiangel Hamlet, Aimeliik State where used oil is accepted and processed. All employees upon hiring and at least annually are required to be trained in best management practices. Spill on land in excess of 50 gallons need to be reported to EQPB immediately and in writing within 3 days of the spill. The booklet on Used Oil BMP includes guidelines on storage and handling of used oil, designs for secondary containment systems and used oil storage areas, transport of used oil and record keeping.

OPEN BURNING

During the development of the NIP, the EQPB produced a pamphlet in which the EQPB's open burning permit was attached. Every person applying for a permit to conduct open burning is required to read the pamphlet. The pamphlet outlines the alternatives to open burning and the benefits associated with using those alternatives.

RESEARCH AND DEVELOPMENT

No research or development is occurring in Palau regarding POPs. However, biological controls as an alternative to pesticides are being tested at Palau Community College Cooperative Research Extension (PCC CRE) and through regional programs at the SPC and the USDA. Research on biological controls using safe organisms to control invasive and destructive organisms rather than pesticides is underway at the PCC CRE.

LINKAGE TO INTERNATIONAL PROGRAMS AND PROJECTS

The Stockholm Convention on Persistent Organic Pollutants is linked to the Basal and Waigani Convention. The Basal Convention entered into force in 1992. Palau ratified the Basal Convention in September 2011. The key objectives are to minimize the generation of hazardous wastes in terms of quantity and hazardousness, to dispose of these wastes as close to the source of generation as possible and to reduce the movement of hazardous wastes.

The Waigani Convention bans the importation into Pacific Forum Countries including Palau of hazardous and radioactive wastes and controls the trans-boundary movements and management of hazardous wastes with the Pacific Region. The Waigani Convention was opened for signature by Members of the Pacific Forum at Waigani, Papua New Guinea in September 1995. Palau signed in September 16, 1995 but is not a party to the convention. These conventions are a source of technical and financial assistance to better manage and remove hazardous wastes.

DATA ACCESS AND USE

The Bureau of Planning and Statistics is the location for the national database in Palau. All imported items are recorded and analyzed by the Division of Customs who then provides the information to the Bureau of Planning and Statistics for further documentation. Existing data on imported chemicals indicates that none of the 12 POPs are being imported into Palau. However, there is a 2 year lag in data entry due to lack of trained personnel to enter and analyze data effectively.

The Division of Customs inspects all imported items, however, unless the EQPB and other agencies regulating substances provides the Division of Customs with a list of prohibited items these items may enter Palau unknowingly. Knowledge of these imports may not reach the appropriate agency until data is requested for reporting purposes. The lag time in

data collection and analysis furthers the delay in information exchange and may provide an additional avenue for POPs and POPs containing equipment to unwittingly enter Palau.

Improvement of Customs laws to enable use of harmonized numbering system is a necessity for collection of data on specific POPs items entering Palau. More collaboration is needed between the agencies to ensure this does not occur. Additionally, periodic inspections of importer and seller stock are needed to ensure that consumers do not unknowingly purchase a product that contains POPs.

TECHNICAL INFRASTRUCTURE

Current technical facilities, equipment, and installations available to manage POPs in Palau are minimal. Palau doesn't produce or use POPs. Palau mainly prevents POPs from entering the country and conducts periodic surveys and test with regional support to identify potential harmful chemicals and have these items shipped off island. The USEPA and consultants commissioned by regional support agencies have conducted surveys and supplied test kits to EQPB to test for POPs. The bulk of hazardous materials have already been shipped off island. Existing storage areas for hazardous materials including batteries need to be upgraded.

4.12 SYSTEMS FOR ASSESSMENT CHEMICALS

SYSTEMS FOR ASSESSMENT AND LISTING NEW CHEMICALS

The Office of Environmental Response and Coordination (OERC) is the focal point for the Stockholm Convention and responsible to assist in the development of a mechanism for assessment and listing of new chemicals. As party members, Palau has access to updated information about new chemicals through regular party meetings and information posted on the website. This information should be distributed by the OERC to all partner agencies: the EQPB, the Division of Customs, the Bureau of Agriculture and the Office of Planning and Statistics.

With this information the EQPB through its mandate can determine what necessary action is needed and proceed accordingly. Once this is determined and appropriate action is taken to either ban or regulated the chemicals, a list of prohibited items is generated and provided to the Division of Customs as well as other agency partners. The list is also made available to the general public for notification.

SYSTEMS FOR ASSESSMENT AND REGULATION OF CHEMICALS ALREADY IN THE MARKET

The EQPB permits only USEPA certified pesticides for use in Palau. The EQPB conducts routine inspections of farms and retail stores for chemicals. Pesticides that are not USEPA certified are removed from the stores and farms. At the port, custom officers confiscate any pesticide that is not USEPA certified and refers it to the EQPB for further action.

A random inspection of pesticides was conducted on May 22, 2006 by Ann Kitalong at Surangel & Sons Company and Ace Hardware. The active ingredients of counter pesticides were recorded. No POPs were found in the products inspected. The active ingredients of mosquito coils were d-cis trans allethrin and toxic inert pyrethrum or pyrethroid. Insect sprays contained permethrin, tetramethrin and also d-cis trans allethrin and pyrethroid. One insect repellent was written in a foreign language so one could not determine what the active ingredients were.

Although this mechanism is in place to prevent the import of items not listed in English, some over the counter insecticides labeled in other languages are still found in small quantities in Palau. More monitoring is needed to prevent these occurrences.

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

5.1 POLICY STATEMENT

It is the continuing policy of the Government of the Republic of Palau in cooperation with State Government to use all practicable means and measures to create and maintain conditions under which human kind and nature can coexist in productive harmony, and fulfill the social, economic and other requirements of the present and future generations. Article VI of the Palau Constitution also states that “the National Government shall take positive actions to implement these national policies: conservation of a beautiful, healthful and resourceful natural environment.”

The Stockholm Convention on Persistent Organic Pollutants (POPs) is one of many avenues by which the Government believes Palau can benefit in improved quality of life and protection of human health and the environment. Therefore, the Government of Palau 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.

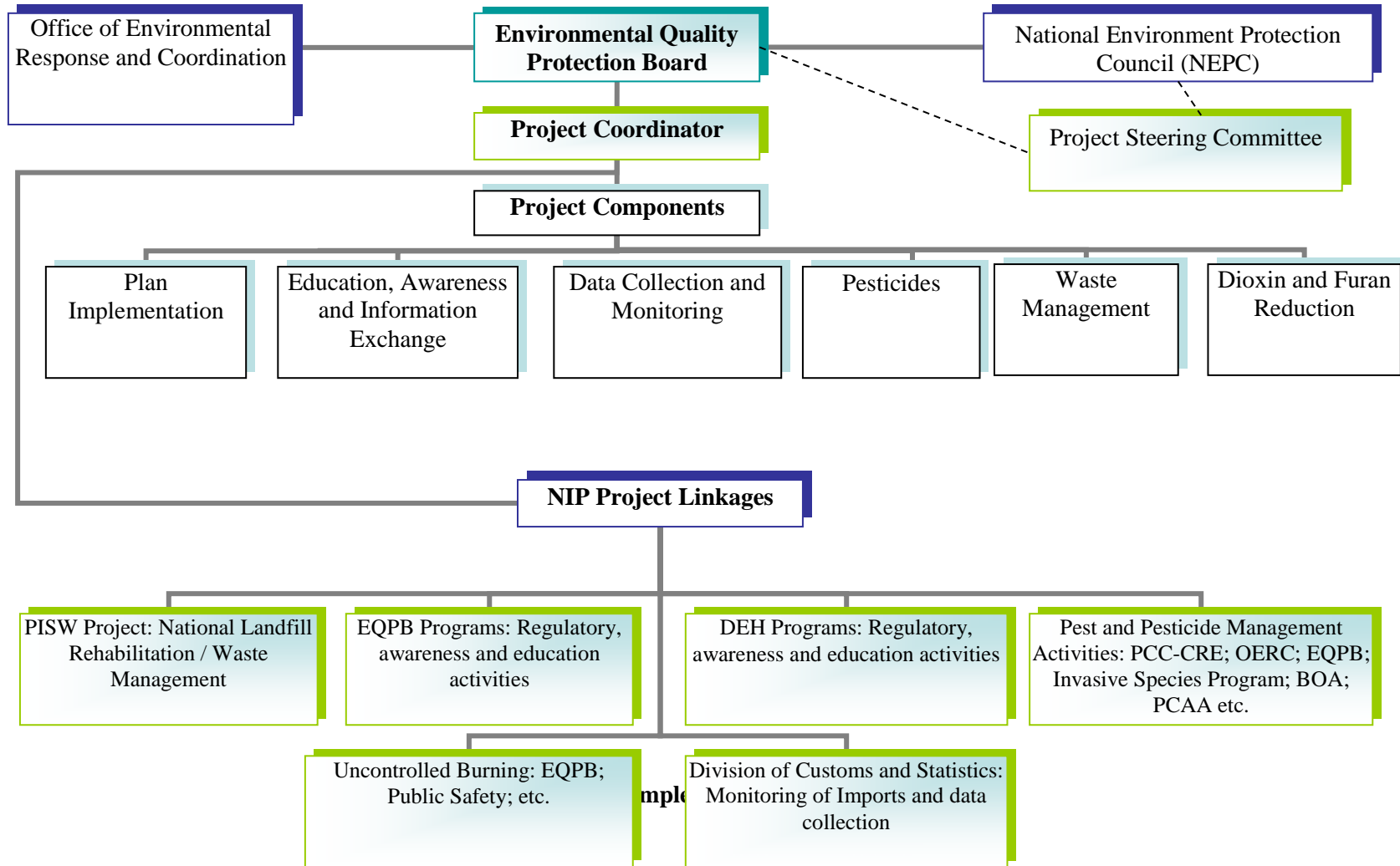
5.2 IMPLEMENTATION STRATEGY

The Environmental Quality Protection Board (EQPB) will implement the NIP. The EQPB will appoint a Project Coordinator (PC) who will be responsible for the overall operational management of the project. Successful plan implementation will be achieved through close cooperation between identified stakeholders and the Stockholm Convention focal point.

The EQPB will work closely with the Office of Environmental Response and Coordination (OERC) and the National Environmental Protection Council (NEPC) to ensure the full and timely implementation of the NIP. The NEPC is a multi-agency council that determines priority environmental issues within the Republic and is the designated national coordinating committee for all environmental enabling grants at the national level.

The project will establish a Project Steering Committee. The Steering Committee’s responsibilities will entail providing policy and technical advice. The Project Steering Committee will meet quarterly during the project implementation, unless otherwise required. The EQPB will consult and work collaboratively with all relevant national and state stakeholders in the implementation of the NIP.

The EQPB as the implementing agency will review the NIP and consult with the Steering Committee to determine whether further actions or activities are needed, or to further define the action plans to fit Palau's needs as necessary.



5.3 PRIORITY ISSUES AND ACTIONS

PRIORITY SETTING

The determination of NIP priorities was based on a list of priority issues and activities defined during consultations and meetings with multi-sectoral stakeholders. The priorities were consolidated during the priority setting workshop and outline the priority issue and activity identified as most important for Palau's implementation of the Stockholm Convention. The priorities were selected taking into account various criteria including Palau's POPs assessment; the needs and benefits to the public, to economy and environmental health; current activities; infrastructure; and human and financial capacity.

Palau's obligations under the Stockholm Convention were assessed and weighed against the selected criteria. The following priorities list the obligations along with a brief outline of what needs to be addressed in Palau:

8. Plan Implementation (Article 7)
 - Meet obligation of Stockholm Convention; access funding; strengthen agency coordination; and staffing.
 - Meet obligation of Basel Convention; ratification of the Regional Convention of the Transboundary Movement of Hazardous Waste (Waigani Convention).
9. Pesticides (Article 3)
 - Import data; support enabling new Customs regulations; collaborate in sharing of information and training; increase enforcement by EQPB; consistent Pesticide Applicator Training and enforcement; and integrated pest management (IPM).
10. PCBs (transformer, capacitors – Article 3)
 - Ban on future PCB imports and use, update and complete transformer inventory; capacitor identification and management; storage and disposal
11. Dioxins and Furans (Article 5)
 - General actions to reduce emissions; upgrade medical/quarantine waste disposal; upgrade waste management and disposal systems; and better enforcement for stationary sources; controls on vehicle emissions; reconcile controls and enforcement capacities for open burning.
12. Stockpiles, Contaminated Sites, Hazardous Wastes (Article 6)
 - Storage facilities; contaminated site investigations & management; and the adoption of an integrated life-cycle approach.
13. Education, Awareness and Information Exchange (Article 9 and 10)
 - Relevant training for government staff; consumer awareness; integrated programmes; information exchange; and promote IPM.
14. Research, Development and Monitoring (Article 11)
 - Monitoring capacity for food, water, soil, air, hazardous wastes, imports, stationary source and vehicle emissions; data collection and analysis for national and international reporting; and research/promotion of IPM.

5.4 ACTION PLANS

Palau's National Implementation Plan outlines the necessary strategies, activities, and actions needed to implement the Stockholm Convention while addressing the priorities identified as most important for Palau's current and future needs and concerns.

The Action Plans define the goals, objectives and key actions proposed for the implementation of the Stockholm Convention on POPs in Palau. These action plans are not meant to be definitive, but rather blueprints for implementation that can further be defined or expanded upon should the need arise during NIP implementation.

1. Action Plan for NIP Implementation (Article 7)
2. Action Plan to Address Pesticides (Article 3)
3. Action Plan to Address PCBs and Contaminated Sites (Article 3 and 6)
4. Action Plan to Address Unintentional POPs (Dioxins and Furans, Article 5)
5. Action Plan to Address Awareness, Education and Information Exchange (Article 10)
6. Action Plan to Address Research, Development and Monitoring (Article 11)

The above action plans are reflective of the obligations under the Stockholm Convention, and thus the first step in the overall NIP strategy is for Palau to ratify and become a Party to the Convention.

ACTION PLAN FOR NIP IMPLEMENTATION (ARTICLE 7)

Background:

Under Article 7 of the Convention, Parties are required to take measures to develop and implement a plan to meet its obligations under the Convention. Palau's NIP will serve this purpose. This NIP will enable Palau to eligible to receive assistance in its implementation.

Goal and Purpose:

To ensure that Palau becomes a Party to the Convention and meets its obligations under it, including implementing the NIP, reporting to the Parties and addressing POPs in country.

Objectives:

- ✓ To ensure Palau comply with obligation as a Party, as it ratified the Stockholm Convention on September 8, 2011, collaborate with other Parties to comply with its obligations.
- ✓ To meet obligations of Basel, which Palau acceded on September 8, 2011, and to ratify the Waigani Convention to enable Palau to transport out chemical waste.
- ✓ To update and implement the NIP and obtain assistance in doing so
- ✓ To integrate and coordinate NIP activities and priorities with other country programs
- ✓ To promote through stakeholder participation NIP implementation and subsequent review and updating

Activities and Outputs:

1. Review the Waigani Convention.
 - Legal Review of conventions and assess Palau's needs and ability to implement
 - Ratification of most appropriate convention based on legal review and needs assessment
2. NIP implementation
 - Seek assistance for NIP implementation

ACTION PLAN TO ADDRESS POPs PESTICIDES
(ARTICLES 3; ANNEX A, PART I AND ANNEX B, PART I)

Background:

Under Article 3 of the Convention, Parties are required to take measures to reduce or eliminate releases from intentional production and use which include: Prohibit and/or take legal and administrative action necessary to eliminate production and use of Annex A, Part I, chemicals (POPs pesticides), and restrict production and use of Annex B chemicals (DDT); and Regulate any trade in these POPs with both Parties and Non-parties.

Although there are no recorded or identified uses of POPs pesticides in country, monitoring, assessment, inventory, training and capacity building efforts are needed to ensure that POPs pesticides do not enter Palau in the future. Although all POPs pesticides are banned a list needs to be adopted by the Board, promulgated and distributed to all relevant stakeholders for notification.

Goal and Purpose:

To ensure that controls on the importation, exportation, production and use of all pesticides, including POPs are effectively enforced and any existing POPs chemicals are disposed in an environmentally sound manner.

Objectives:

- ✓ To establish an effective and efficient tracking system of POPS to track restricted, banned and allowed pesticides in Palau
- ✓ To develop a program for the regulation, management and identification of pesticides, including POPs and ensure its enforcement
- ✓ To raise awareness of the public and private sector on shipping, sale, proper use, handling, storage and disposal of pesticides
- ✓ To develop and promote integrated pest management and traditional agro-forestry practices.

Activities and Outputs:

1. Monitoring and Tracking of Imports and Exports
 - Review and modify current coding and tracking system to prohibit POPs pesticides from entering Palau
 - Training of Customs, EQPB and relevant stakeholders on the coding and tracking system of pesticides

2. Coordination, Management and Capacity Building
 - Coordination of relevant regulatory agencies on regulation, management and identification (through testing, etc.) of pesticides, including POPs
 - Capacity building for the property processing techniques for the purpose of sending samples off-island for testing.
 - Capacity building of EQPB, Customs and other relevant stakeholders in the enforcement of regulations on pesticides and POPs
3. Education, Awareness, and Information Exchange
 - Education and training of public and private sector on shipping, sale, proper use, handling, storage and disposal of pesticides
 - Materials translated into relevant languages to relevant target audiences through relevant medium (pamphlets, radio, etc.)
 - Increase information available on POPs pesticides and alternatives
4. Pesticide Reduction and Alternatives
 - Conduct training and awareness to the community on IPM and traditional agro-forestry and/or promote existing IPM programs
 - Develop and/or promote an IPM/Traditional Agro-forestry manual in English and Palauan on the methods, and cost/benefits of incorporating traditional agro-forestry and make these are provided in all settings including the private sector and pesticide/fertilizer distributors.

ACTION PLAN TO ADDRESS PCBs AND CONTAMINATED SITES
(ARTICLE 3 AND 6)

Background:

In addition to the obligations under Article 3, under Article 6 Parties are required to develop appropriate measures to reduce or eliminate releases from stockpiles and wastes including taking appropriate measure to identify, remove and dispose of the contaminated wastes in an environmentally sound manner.

There are no longer any PCB containing transformers in Palau, however there are some possibly contaminated sites in Babeldaob that need to be properly assessed and action taken. Additionally, as Babeldaob and other areas are further developed sites may be uncovered. In anticipation of any future identification of PCBs, PCB containing equipment or contaminated sites and stockpiles measures need to be developed for the public to notify the appropriate authorities; proper inspection and identification; removal and/or storage; transport; and disposal among other things need to be developed.

Goal and Purpose:

To ensure the identification, inventory and systematized management of all PCB related equipment/units, hazardous wastes and contaminated sites.

Objectives:

- ✓ Ban the use of transformers containing PCB and other equipment containing PCBs.
- ✓ To develop and establish a comprehensive plan in identifying the location of PCB, items containing residues of PCB such as capacitors, hazardous waste, stockpiles and contaminated sites.
- ✓ Develop mechanism to test equipment for the presence of PCBs, update inventories and properly store and dispose of equipment and wastes through approved measures.
- ✓ Public and private involvement (empowerment) for the identification of contaminated sites and its containment, effective waste segregation of hazardous/contaminated materials and putting it in proper stockpiles for approved disposal.
- ✓ Provision of an integrated life-cycle approach in the management of hazardous chemicals and its derivatives by starting with the consultancy, training, review of laws, formulation of a national development program and its implementation.
- ✓ Enforcement of the laws governing the systematized management of PCB, its derivatives and HAZMAT.

Activities and Outputs:

1. Legal Review and Update
 - Review existing regulations and develop/implement legislation as necessary to ensure that no further import/use of PCB.
 - Review existing regulations and develop/implement legislation as necessary to ensure compliance to best approach to management and disposal of hazardous, and obligations under the Convention
 - Enforcement of existing laws and regulations
2. Capacity Building and Training
 - Prepare a list of resources and expertise and obtain training for personnel on how to detect and test for the presence of PCB in the transformers and test possible contaminated sites using field test kits.
 - Support the hazmat response team, their training and equipment needs
3. Monitoring and Management
 - Public awareness in reporting waste sites for proper identification and further action through appropriate mediums such as radio, village visits, etc.
 - Further assessment and identification of potential contaminated sites.
 - Coordinate regionally in effective waste segregation and disposal efforts.
 - Survey capacitors and/or transformers, develop a removal program for PCB containing equipment, and disseminate information regarding prohibited PCB containing equipment
 - Ensure proper identification, labeling and removal from use all PCB containing equipment
 - Capacity building for the property processing techniques for the purpose of sending samples off-island for testing.
4. Measures for Reporting, Handling, Storage, Transport and Dispose of PCBs and Wastes
 - Improve safe transportation rules and regulations for PCB/THW to include: transport vehicle standards, guidelines for preparation of waste transport, of waste shipments, emergency response capability, authorization of qualified couriers and THW traceability.
 - Movement or transport of PCB/THW shall contain tracking- its originator and the end point
 - Survey and assess the possible locations of PCB, its derivatives, HAZMAT, stockpiles and contaminated sites and appropriate remediation, removal, or disposal steps taken
 - Continue developing Best Management Practices or Best Environmental Techniques

ACTION PLAN TO ADDRESS UNINTENTIONAL PRODUCTION OF POPs
DIOXINS AND FURANS, HCB AND PCBS (ARTICLE 5, ANNEX C)

Background:

Under Article 5 of the Convention Parties are required to take appropriate measures to reduce or eliminate releases from unintentional production of Annex C POPs. Measures include the promotion of Best Available Techniques (BATs) and Best Environmental Practices (BETs) for all sources, promote and/or require the use of alternatives; and to require the use of BATs for new sources under Annex C, Part II.

Using the Standardized Toolkit, developed by UNEP Chemicals, it was determined that the highest releases of dioxins and furans are from waste incineration, power generation and transportation. The high levels released from transport are temporary related to the construction of the Compact Road in Babeldaob and will decrease once construction is complete. However, this does not negate the need for measures to address the gradual increase in transportation that will occur as a result in increases in development across Palau. Additionally as Palau's population increases so too will the need to address waste disposal and power generation needs.

Regulatory measures are in place that addresses waste incineration systems, as well as other sources of stationary releases. Additionally there are regulatory measures in place that address transportation and open burning. However gaps and areas of ambiguity need to be resolved in order for proper monitoring, enforcement and reporting to occur.

Goal and Purpose:

Progressive reductions in the release of unintentionally produced POPs in the Republic of Palau through the utilization of best environmental practices and best available techniques (BAT/BEP), and the enforcement of controls on all sources of unintentional POPs production.

Objectives:

- ✓ Prepare inventory of dioxin and furans releases
- ✓ Develop and implement BAT/BEP promotion, adoption and monitoring programs
- ✓ Formulation or improvement of regulations relating to the production of unintentional POPs
- ✓ Develop and implement a strategy to reduce emissions from burning of rubbish, field/forests and medical waste, and promote alternatives such as composting

- ✓ Design and implement a program for recording and reporting information on quarantine and medical waste generation and upgrading current management and disposal methods
- ✓ Develop and implement a program for awareness of environment and health effects of dioxins and furans and ways to reduce or eliminate exposure

Activities and Outputs:

1. Monitoring, Data Collection and Reporting
 - Develop data collection methods
 - Strengthen the monitoring system for industrial and household sources
 - Develop monitoring system for agricultural, commercial, and other sources
 - Develop Palau emission factors
 - Data collection for the updated inventory
 - Inventory reporting, data analysis and program review
 - Review operation for stationary sources at least every two years
2. BAT/BEP Development and Promotion
 - Identify BAT/BEP appropriate to the significant level of dioxin and furan sources and set performance criteria for each BAT/BEP
 - Develop and implement BAT/BEP information, education and communication programs
 - Coordinate with the Department of Education to integrate BAT/BEP in the curricula and extra-curricular activities
 - Develop incentive/rewards system for dioxin and furan sources adopting BAT/BEP where possible and appropriate
 - Develop and adopt financing programs for sources adopting BAT/BEP where possible and appropriate
 - Develop performance evaluation of the application of BAT/BEP
3. Legislative and Regulatory Update
 - Review existing local and international regulations and policies pertaining to unintentional POPs
 - Investigate opportunities to apply BAT/BEP under the Palau Environmental Quality Protection Act 24PNC
 - Establish sampling capability for dioxins and furans
 - Establish ambient baseline levels for dioxins and furans for relevant sources, e.g. stationary sources such as waste incinerators, power generators, etc.
 - Conduct life cycle analysis and risk assessment based on the four major sources of dioxins and furans
 - Set ambient criteria and standards for emissions for BAT/BEP
 - Enforcement of existing regulations for sources of unintentional production of POPs
4. Education and Awareness

- Increase public education and awareness through local resources (Video, brochures and posters)
 - Conduct surveys on awareness on effects of rubbish and field burning and alternatives
 - Develop and implement program on village consultation for awareness and alternatives to burning
5. Waste Disposal, Alternatives and BAT/BEP
- Complete collection information on quarantine, medical and municipal waste volumes and management options
 - BAT/BEP for quarantine, medical and municipal waste volumes, management and disposal options
 - Source new technologies, disseminate information on them and promote their use
 - Coordinator with landfill management to develop appropriate measures for ash disposal from incineration

ACTION PLAN TO ADDRESS INFORMATION EXCHANGE, AWARENESS AND EDUCATION
(ARTICLE 9 AND 10)

Background:

Under Article 9 and 10, Parties are required to facilitate information exchange and develop, promote and facilitate awareness and education programs that include training programs. Information may be exchanged through the Secretariat by the designated national focal point.

There are awareness and education program geared towards activities that relate to POPs such as waste segregation, pesticides and chemicals. However, these programs need to be coordinated and POPs information, education and awareness incorporated wherever possible in addition to the development of POPs specific education programs and training.

Goal and Purpose:

Increase information exchange, awareness and education on POPs, POPs exposure, reduction and possible elimination at all levels and increasing support of NIP implementation.

Objectives:

- ✓ Ensure information exchange through national focal point
- ✓ Develop awareness, education and training programs
- ✓ Build partnership for awareness, education and training programs
- ✓ Monitor effectiveness of programs and modify accordingly

Activities and Outputs:

1. Coordinate education and awareness activities for all action plans and other relative agency activities
2. Develop education material ideal/most appropriate for target groups
 - Comprehensive education/awareness material as well as topic specific, e.g. pesticides, dioxins and furans, contaminated sites, imports, etc.
 - Material also to be target specific. i.e. importers, users, mothers, farmers, etc.
3. Develop information exchange mechanism
 - Internal information exchange and external information exchange

ACTION PLAN TO ADDRESS RESEARCH, DEVELOPMENT AND MONITORING (ARTICLE 11)

Background:

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

Palau's ability to undertake research and monitoring into POPs is very limited. The only POPs testing available on island is the use of field test kits that test for the presence of pesticides and PCBs in oil. However, the test kits are limited due to resource limitations. Therefore much of the work that can be undertaken is monitoring POPs in country.

Goal and Purpose:

To ensure that Palau, within its capabilities, monitors the presence of POPs in country, to reduce and or eliminate releases, promotes research and development in POPs, and to ensure that POPs and POPs containing equipment do not enter Palau and are disposed of in a sound environmental manner.

Objectives:

- ✓ To monitor and report sources and releases into the environment
- ✓ To reduce or eliminate POPs releases
- ✓ To build capacity to monitor POPs

Activities and Outputs:

1. Monitoring POPs in country
 - Identify laboratories most appropriate and cost effective for POPs analysis
 - Support and train personnel in the use of field test kits for testing pesticides and PCBs to detect the presence of POPs
 - Identification of POPs in order to reduce and/or eliminate releases
2. Monitoring Imports
 - Capacity building for customs and relevant agencies to prevent imports

5.5 DEVELOPMENT AND CAPACITY BUILDING PROPOSALS

The action plans presented above were developed based on identified priorities for implementation of the Stockholm Convention in Palau. The NIP is intended to be implemented by local personnel, consultants and experts with assistance from international experts only when needed. 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:

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 Act
- Education and awareness to improve practices for pesticide handling, storage, use and disposal
- Education and awareness on the alternatives to pesticide use and IPM

PCBs & Contaminated Sites

- Training in identification and sampling using field test kits
- Development of guidelines for the storage and safe handling of PCB wastes and wastes that may contain PCBs
- Staff training for effective control of PCB imports
- Training programs for the assessment and management of contaminated sites
- Training programs for the safe management of obsolete and unwanted chemicals
- Training programs in safe storage, handling and use of hazardous chemicals
- Training on the use of field test kits and support of hazmat training programs

Unintentional POPs

- Review and strengthening of monitoring systems, data collection, and reporting for all possible sources
- Development of BAT/BEP information, education and awareness programs emphasizing alternatives
- Establish sampling capabilities for dioxins and furans
- Education and awareness programs for specific target groups relevant to the specific sources of unintentional POPs (waste operators, public, PPUC and vehicle maintenance personnel)
- Legislative and regulatory update

Research and Development

- Upgrading of existing laboratory facilities and staff training for POPs analysis within Palau's capabilities
- Supporting the use of field test kits to detect POPs presence.

5.6 STRATEGIC FRAMEWORK FOR PLAN IMPLEMENTATION

TIMETABLE FOR THE IMPLEMENTATION OF ACTIONS (SIX MONTH INTERVALS)

ACTION PLANS	YEAR 1		YEAR 2		YEAR 3		YEAR 4	
	X	X						
1. PLAN IMPLEMENTATION	X	X						
2. PESTICIDES		X	X	X	X			
3. PCBs AND CONTAMINATED SITES				X	X	X	X	
4. UNINTENTIONAL POPS				X	X	X	X	
5. INFORMATION, AWARENESS AND EDUCATION	X	X	X	X	X	X	X	X
6. RESEARCH, DEVELOPMENT AND MONITORING			X	X	X	X		

ESTIMATED RESOURCE NEEDS

ACTION PLANS	IN-KIND	EXTERNAL	TOTAL
1. PLAN IMPLEMENTATION	6,000	15,000	21,000
2. PESTICIDES	15,000	285,000	300,000
3. PCBs AND CONTAMINATED SITES	15,000	305,000	320,000
4. UNINTENTIONAL POPS	21,000	270,000	291,000
5. INFORMATION, AWARENESS AND EDUCATION	16,000	100,000	116,000
6. RESEARCH, DEVELOPMENT AND MONITORING	17,000	110,000	127,000
7. PROJECT MANAGEMENT	15,000	261,000	266,000
TOTAL	105,000	1,346,000	1,451,000

TABLE OF YEARLY BREAKDOWN OF BUDGET

Action Plans and Activities of the NIP Project	Amount USD (,000) NOT INCLUDING In-kind Contributions				
	Year 1	Year 2	Year 3	Year 4	TOTALS
1. Plan Implementation	15.0	0.0	0.0	0.0	15.0
NIP Review & Update	10	0.0	0.0	0.0	10.00
Information Preparation for OEK	0.0	0.0	0.0	0.0	0.00
Submission to OEK	0.0	0.0	0.0	0.0	0.00
Inception Wkshp	5.0	0.0	0.0	0.0	5.00
2. Pesticides	80.0	130.0	65.0	10.0	285.0
Monitoring/Tracking of Imports/Exports	30.0	50.0	5.0	0.0	85.00
Coor., Man., and Capacity Bldng.	10.0	40.0	20.0	5.0	75.00
Education, Awareness, Info. Xchnge.	20.0	20.0	20.0	5.0	65.00
Reduction and Alternatives	20.0	20.0	20.0	0.0	60.00
3. PCBs and Contaminated Sites	20.0	110.0	125.0	50.0	305.0
Legal Review and Update	5.0	5.0	5.0	5.0	20.00
Capacity Bldng. & Training	10.0	20.0	20.0	10.0	60.00
Monitoring and Management	0.0	10.0	50.0	10.0	70.00
Rptng, Hndlng, Storage, Trnspt, and Disposal Measures	5.0	75.0	50.0	25.0	155.00
4. Unintentional POPs	10.0	105.0	95.0	60.0	270.0
Monitoring, Data Collection and Reporting	0.0	10.0	30.0	10.0	50.00
BAT/BEP Dev. And Promotion	0.0	20.0	10.0	10.0	40.00
Legal Review and Update	0.0	10.0	10.0	10.0	30.00
Education and Awareness	10.0	25.0	15.0	10.0	60.00
Waste Disposal...	0.0	40.0	30.0	20.0	90.00
5. Information Exchange, Awareness and Education	30.0	30.0	20.0	20.0	100.0
Coordinate education/awareness activities	10.0	10.0	10.0	10.0	40.00
Dev. Education material	10.0	10.0	10.0	10.0	40.00
Dev. Information xchnge mech.	10.0	10.0	0.0	0.0	20.00
6. Research, Development and Monitoring	0.0	90.0	20.0	0.0	110.0
Monitoring POPs in country	0.0	20.0	10.0	0.0	30.00
Monitoring Imports	0.0	20.0	10.0	0.0	30.00
Monitoring Equipment	0.0	50.0	0.	0.0	50.00
7. Project Management	67.5	64.5	64.5	64.5	261.0
Project Coordinator	37.5	37.5	37.5	37.5	150.00
Support Equipment (Comp, fax, etc...)	5.0	2.0	2.0	2.0	11.00
Project Assistant	25.0	25.0	25.0	25.0	100.00
SUB TOTALS PROJECT COSTS AND FINANCING	222.5	529.5	389.5	204.5	1,346.00

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