

# REPUBLIC OF PALAU

*National Assessment Report*

## *Barbados Programme of Action + 10 Review*

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*Compiled by*

*Ministry of Resources and Development*

*In Partnership with other Ministries, Agencies and Organizations*

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## LIST OF ACRONYMS

BPOA	Barbados Programme of Action
BEEA	Belau Employers and Educators Alliance
BFSCA	Belau Family School Community Association
BNH	Belau National Hospital
BITTA	Bureau of International Trade and Technical Assistance
BMR	Bureau of Marine Resources
BOA	Bureau of Agriculture
BPH	Bureau of Public Health
BPW	Bureau of Public Works
BTA	Belau Tourism Association
CACC	Conservation Area Coordinating Committee
CDC	Center for Disease Control
CIP	Capital Improvements Projects
C3	Community Centered Conservation
COFA	Compact of Free Association
CoPopChi	Committee on Population and Children
CPG	Community Planning Group for STDs/HIV/AIDS
CRRF	Coral Reef Research Foundation
CNMI	Commonwealth of the Northern Marianas Islands
DEH	Division of Environmental Health
DFWP	Division of Fish and Wildlife Protection
DMLE	Division of Marine Law Enforcement
EDP	Economic Development Plan
EEZ	Exclusive Economic Zone
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENSO	El Niño/La Niña-Southern Oscillation
EQPB	Environmental Quality Protection Board
EVI	Environmental Vulnerability Index
FAO	Food and Agriculture Organization of the United Nations
FEMA	U.S. Federal Emergency Management Agency
FFA	Forum Fisheries Agency
GIS	Geographic Information System
GEF	Global Environment Facility
GDP	Gross Domestic Product
GNP	Gross National Product
HIS	Health Information System
HRSA	Health Resources Services Agency
IBA	Important Bird Areas
ICRI	International Coral Reef Initiative
IWP	International Waters Programme
JICA	Japan International Cooperation Agency
MAP	Management Action Plan
MAREPAC	Marine Resources Pacific Consortium

MCPA	Marine Conservation and Protected Areas Branch
MEERT	Marine Environment Enforcement Response Team
MIC	Micronesians in Island Conservation Network
MOA	Ministry of Administration
MCT	Ministry of Commerce and Trade
MOE	Ministry of Education
MOH	Ministry of Health
MOJ	Ministry of Justice
MPA	Marine Protected Area
MRD	Ministry of Resources and Development
NBSAP	National Biodiversity Strategy and Action Plan
NCA	Ngaremeduu Conservation Area
NEMO	National Emergency Management Office
NEHAP	National Environmental Health Action Plan
NEMS	National Environmental Management Strategy
NEPC	National Environmental Protection Council
NISC	National Invasive Species Committee
NRCS	Natural Resource Conservation Service
NTFIAS	National Task Force on Invasive Animal Species
NTO	National Tourist Office
NCD	Non-Communicable Disease
NGOs	Non-Government Organizations
OTEC	Ocean Thermal Energy Conversion
OERC	Office of Environmental Response and Coordination
OEK	Olbiil Era Kelulau (national congress)
ODA	Overseas Development Assistance
PACER	Pacific Agreement on Closer Economic Relations
PALARIS	Palau Automated Land and Resources Information System
PAN	Protected Areas Network
PATA	Pacific Asia Travel Association
PCAA	Palau Community Action Agency
PIREP	Pacific Islands Renewable Energy Project
PFAC	Palau Fisheries Advisory Committee
PFFA	Palau Federation of Fishing Associations
PICTA	Pacific Island Countries Trade Agreement
PICRC	Palau International Coral Reef Center
PIREP	Pacific Islands Renewable Energy Project
PPHSN	Pacific Public Health Surveillance Network
PCAA	Palau Community Action Agency
PCS	Palau Conservation Society
PICRC	Palau International Coral Reef Center
PIF	Pacific Islands Forum
PNMDP	Palau National Master Development Plan
PNRC	Palau Natural Resources Council
PVA	Palau Visitors Authority
PAN	Protected Areas Network

REA	Rapid Ecological Assessment
ROP	Republic of Palau
SARS	Severe Acute Respiratory Syndrome
SIDS	Small Islands Developing States
SIV	Small Islands Voice
SOPAC	South Pacific Geosciences Commission
SPC	Secretariat of the Pacific Community
SPREP	South Pacific Regional Environment Programme
SCHC	Southern Community Health Center
SHD	Sustainable Human Development
STDs	Sexually Transmitted Diseases
STPAP	Sustainable Tourism Policies and Action Plan
STU	Sustainable Tourism Unit
TCRC	Transforming Coral Reef Conservation in the 21 <sup>st</sup> Century
TEI	The Environment, Inc.
TNC	The Nature Conservancy
TET	Tilapia Eradication Team
TCP	Tobacco Control Program
UNCBD	United Nations Convention on Biological Diversity
UNCLOS	United Nations Convention on the Law of the Sea
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNIA	United Nations Implementing Agreement
USCRTF	United States Coral Reef Task Force
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
URI	Upper Respiratory Infections
WAVE	Welcome All Visitors Enthusiastically
WHO	World Health Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

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## MAP OF PALAU

## EXECUTIVE SUMMARY

The Republic of Palau became an independent nation on October 1, 1994 in part with the implementation of the Compact of Free Association (COFA) between Palau and the United States of America. On December 4, 1994 Palau became a member to the United Nations.

Since Palau's independence in 1994, many aspects of the Barbados Programme of Action (BPoA) have been implemented. Nonetheless, there is a need for greater awareness raising and ownership of the BPoA, as well as greater political commitment to implementation at the national and regional levels.

Palau is on the brink of rapid large-scale development. The "Compact Road," a 53-mile road project, is currently under construction to circumnavigate the island of Babeldaob, (Palau's largest island) and is scheduled to be completed in 2005. This road project is the largest development project in Micronesian history and is expected to bring many social and environmental changes.

Small Island Developing States (SIDS) face particular constraints and challenges in the sustainable development process as a result of their social, economic and environmental vulnerabilities. The issues faced by the Republic of Palau range from cultural inundation by outside influences (both through the close association with the United States, as well as close proximity to Asia) to geographic isolation and small population size. The latter two create diseconomies of scale, which in many ways, impact the nation's economic development potential. Environmental vulnerability in Palau is high due to diverse, but limited natural resources and fragile ecosystems that must withstand the pressures of a rapidly growing population, an increasing tourism industry and the expected rapid and large-scale development of Palau's largest island, Babeldaob.

In short, Palau's greatest challenge in sustainable development is to assure that high-quality environmental planning accompanies economic development planning and that economic development is pursued through a shared vision that takes into account the social and cultural needs of the Palauan people.

This report was developed through broad consultation with numerous agencies and organizations from the public and private sectors including non-governmental organizations and presents Palau's progress in working towards sustainable development. The following 6 key areas comprise the body of the report.

### I. KEY SOCIO-ECONOMIC CHALLENGES AND RESPONSES

The Compact of Free Association (COFA) is a 50-year treaty between Palau and the United States of America, which entered into force on October 1, 1994. Under the Compact, Palau conducts its own domestic and foreign affairs as any sovereign nation would, while the United States retains control of defense and security matters as well as exclusive strategic access to Palau's waterways. For this exclusive access, the United States is to pay the government of Palau \$670,000,000 in the first 15 years. (BOH, 2003) The aid package from the Compact leads to what some consider to be an inflated GDP, with an average annual household income of between \$5,000 and \$6,000. This translates into a standard of living enjoyed by Palauans that is higher than all of its neighbors with the exception of the US Territories – Guam and the Commonwealth of the Northern Mariana Islands (CNMI). There is a strong national dependency on foreign imports to sustain current lifestyles as well as on general

import tax for revenues. The direct impacts of globalization on trade and investment are minimal and **trade liberalization** has not yet had a significant direct impact on trade and export since Palau exports few, if any, manufactured goods. Economic diversification remains slow and is presently focused on developing a successful tourism industry with some development of fisheries.

**Urbanization**, suburbanization and ineffectual management of natural resources has led to increased pressures on public infrastructure, as well as Palau's fragile environment and water supply and the continuing depletion of Palau's natural resources. Lack of capacity, funding and commitment continue to be main constraints. While additional agencies and bodies have been established to address the issues of capacity and coordination, there continues to be the need to improve capacity building and coordination efforts.

**National Security** has become a pressing issue with illegal fishing by foreigners and Palau's being a potential target of terrorism. Technological advances and increased flights to Palau add to these concerns. It will be necessary to improve regional and international strategies to address terrorism. Such regional and international cooperation is presently quite limited.

Limited resources and commitment to fund improvement of health services remains a key constraint with rising incidents of **HIV/AIDS, vector-borne diseases**, as well as non-communicable or "lifestyle" diseases such as diabetes and heart disease. National efforts to raise public awareness regarding safer and healthier lifestyles are ongoing.

## II. NATIONAL FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

Since its independence in 1994, the Republic of Palau has developed and implemented various items set forth in the **National Environmental Management Strategy (NEMS)**, the **Economic Development Plan (EDP)**, the **Palau 2020 National Master Development Plan (PNMDP)**, the **JICA Study**, and the **Sustainable Tourism Policies and Action Plan (STPAP)**, and others. In addition, the primary objective of the 2001 **Presidential Management Action Plan (MAP)** is "to integrate environmental planning into developmental planning efforts."

The ministries most closely associated with sustainability issues as it relates to environment and economic development are the **Ministry of Commerce and Trade (MCT)** and the **Ministry of Resources and Development (MRD)**. Both are mandated to source sustainable economic development opportunities that emphasize minimal negative environmental and social impacts to Palau's people and natural habitats. The MCT's concentration is primarily focused on large-scale economic development while the MRD in general focuses on community-based economic opportunities. In addition, many other agencies and organizations (both government and non-governmental) play key roles in Palau's sustainable development framework.

## III. NATIONAL PROGRESS MADE AND PROBLEMS ENCOUNTERED IN THE IMPLEMENTATION OF THE BARBADOS PROGRAMME OF ACTION

Palau has ratified a number of **regional and international agreements** which include the **United Nations Framework Convention on Climate Change (UNFCCC)** and **Kyoto Protocol**, the **UN Convention on the Law of the Sea (UNCLOS)**, the **UN Convention on Biological Diversity (UNCBD)**, and acceded to the **Cartagena Protocol on Biosafety**, the **United Nations Convention to Combat Desertification (UNCCD)**, **Stockholm Convention on Persistent Organic Pollutants** and the **Ramsar Convention on Wetlands**.

To help protect the health of Palau's **marine resources** the government has placed restrictions on many species of marine life and also ratified several instruments such as the Convention for the Prohibition of Fishing with Long Driftnets in the Pacific (**Wellington Convention**) to prohibit fishing with long driftnets in the South Pacific. Palau is also a Member Country to the **South Pacific Regional Environment Programme (SPREP)**.

One major focal area for Palau is the development and management of **protected areas** and a protected areas network. Currently, there are 23 protected areas recognized in Palau. In November 2003 the Republic of Palau passed legislation to establish a Palau Protected Area Network (PAN). Through the PAN, Palau will be able to better manage their natural resources by coordinating the efforts of the already existing protected areas as well as encouraging state governments to propose new protected areas that are high in biodiversity.

**Renewable energy** is also a major focal area for Palau. Various national projects are currently underway to address increasing demands for efficient and renewable energy. These include the Sonsorol and Hatohebei Solar Energy Development Project, the Palau-Saga University Ocean Thermal Energy Conversion (OTEC) Project and the Palau Energy Code Development.

While Palau has not yet ratified the Basel Convention, Palau ratified the Convention to Ban the Importation into Pacific Island Forum Countries of Hazardous Wastes and Radioactive Wastes and to Control the Transboundary Movement and **Management of Hazardous Wastes** Within the Pacific Region (Waigani Convention) on January 2, 1996.

National and regional projects to address Palau's **solid waste and wastewater management** issues include the EQPB education program, Malakal Wastewater Treatment Plan and the International Waters Programme (IWP – SPREP). Key national constraints to planning, developing and implementing solid waste and wastewater management projects in a sustainable manner include small service area populations and lack of financing, technical expertise and organizational structure and management as well as the overall lack of land use planning and public awareness.

The **major constraints to implementation of the BPOA** are the lack of political and public awareness and the need for more effective efforts targeted at capacity building and coordination.

#### IV. TRADE, INVESTMENT, CAPACITY BUILDING AND COOPERATION AND THE STATUS OF SIDS VULNERABILITY

Like most other SIDS, Palau's **trade development** is challenged by distance, isolation, diseconomies of scale, and lack of capacity. These factors reduce Palau's ability to compete and benefit from trade. Palau's only significant commodity export is tuna, while its greatest "service export" is tourism. In general, Palau does not "add value" to many products. Consequently, Palau exports very few, if any, manufactured goods. Palau is extremely dependent on foreign imports to sustain the lifestyle to which its people have grown accustomed, and consequently, Palau's current trade balance is uneven. Without further economic development and capacity building, **trade liberalization** could tip this imbalance further in the wrong direction.

The Palau Government has instituted several **initiatives and programs** both at the national and community level that aim to improve Palau's economic competitiveness. These include the establishment of a Free Trade Zone, tax incentives for agriculture/aquaculture, the Palau National Development Bank and the Trade Facilitation Committee.

Economic Development in Palau is influenced heavily by **foreign investment**. Major hotels and other large scale developments are majority financed by money originating from outside the Republic. Moreover, many smaller businesses in Palau have a foreign financing component. However, foreign investment in Palau is constrained by several factors such as the foreign investment and labor laws and regulations, the high cost and limitations of telecommunications and land ownership.

Palau is an active member of the **Pacific Island Forum (PIF)**. This group aims to work towards sustainable development of the Pacific Islands through cooperation and trade. This regional group increases greatly the ability of the islands to work together to benefit each member as well as the region as a whole.

Palau's greatest vulnerability related to trade is its **dependence on air travel** to support its tourism industry. Currently, very few airlines fly into and out of Palau, and airfares are very expensive. A new entry into the airline market, Palau Micronesia Air, promises to expand the choice to consumers and provide direct flights between the Micronesian Islands. It is expected that these new routes will transport both passengers and goods between the islands.

#### V. MILLENNIUM DEVELOPMENT GOALS AND SUSTAINABLE DEVELOPMENT IN SIDS

**Poverty** is a sensitive and controversial issue in the Pacific Islands. Where rich tropical soils have traditionally yielded a bountiful harvest with minimal labor; where seas are equally bountiful; and where social and cultural systems dictate that the weak and vulnerable will be cared for by the more able, poverty is somewhat of an alien concept. To acknowledge the emergence of poverty is not simply to acknowledge an economic fact but also to acknowledge a fundamental social and cultural transformation within society.

Palauans enjoy a high level of human development compared to many other Pacific SIDS. The key question is: *“Can this legacy be invested in a way that will provide a sustainable livelihood for future generations?”* In recent years, investment has been concentrated in the urban sector of the economy to the detriment of the rural primary production sector. As a result, the income of the average rural household is less than one-half that of the average urban household.

Article VI of the Palau Constitution mandates provision of free and compulsory public **education** for Palau citizens as described by law. Such free and compulsory education for the public is further defined through Republic of Palau Public Law 5-2, which mandates compulsory education for all children aged 6 to 17, or until graduation from high school. The **Ministry of Education (MOE)** was created by the Palau National Government to implement the public education law. There are two major constraints faced by the Ministry of Education as it delivers its mandate for free and compulsory education. The first constraint is the obvious limited funding allocated for education. This contributes to the second major constraint, which is the critically limited number of well-trained and qualified teachers within the school system.

In the effort to reduce **infant mortality**, the Ministry of Health's Prenatal Health Care Unit has expanded its coverage and public education efforts and is widely utilized by expecting mothers. Infant mortality rate has been reduced from 24.5% in 1990 to 16.7% in 2001. (Ministry of Administration)

Palauan **women** traditionally enjoyed high social status in a spirit of equality with men. However, ground was lost in the post-contact era through their interaction with and partial subordination by

paternalistic colonizers who neither understood nor accepted the concepts of duality and sexual equality. **Currently few women**, with the exception of the Republic’s current Vice-president (the Honorable Sandra Pierantozzi) **hold highest level political positions.**

Palau is fortunate to have thus-far been spared the ravages of the **HIV/AIDS** pandemic and remains one of very few countries in which domestic transmission of the HIV virus has not been detected. Palau, however, is no longer an isolated country. By virtue of its demographics, economics, health status, and behavior patterns, there is a high level of vulnerability to the introduction and spread of HIV/AIDS. In 1999, Palau developed a **HIV/AIDS five-year strategic plan** that outlines broad strategies with variable detailing of specific activities required to implement the strategies. The plan aims to be holistic by linking primary and secondary preventative activities with capacity-building for treatment.

#### VI. EMERGING CONCERNS AND SPECIAL NEEDS

Emerging concerns and special needs include: the illegal trafficking of methamphetamines (“ice”), pesticides and pesticide residues in food and water, increasing air pollution and asthma, unplanned development, loss of cultural values, changing lifestyles, good governance and transparency, injuries, limited resources to accommodate a rapidly growing prison population, and increasing social tensions due to rapid development and increased influx of immigrant labor.

- unplanned development;
- loss of cultural values;
- changing lifestyles;
- good governance and transparency;
- local use and production of methamphetamines (“ice”);
- increasing social tensions due to rapid development and increasing influx of immigrant labor.
- injuries are a major health problem and comprise one of the top three leading causes of death in Palau, especially high for men in particular.
- limited resources to accommodate a rapidly growing prison population

*“Development means not just having more but being more. Growth in income and proliferation of services...must always be subordinate to ...the enhancement of the inner strength of our people. In any development worthy of the name, we cannot afford to neglect people’s non-material needs: their sense of cohesion and belonging, their confidence in themselves, their sense of effectiveness or empowerment, their sense of self-esteem...”*  
 (Father F. Hezel, Micronesian Seminar, 26 March 1996) (Otto,1998)

## 1. SOCIO ECONOMIC CONTEXT

### 1.1 KEY CHARACTERISTICS:

#### 1.1.1 GEOGRAPHY AND AREA

The Republic of Palau, part of the Western Caroline Islands is the westernmost archipelago in the Pacific located approximately 250 kilometers north of the equator and about 340 kilometers east of the Philippines. (Smith, 1983) The archipelago stretches approximately 700 miles on a northeast to southwest axis and is made up of over 586 islands of which 12 are regularly inhabited. There are generally five geological island types found in Palau: volcanic, high limestone, low limestone, atolls, and a combination of volcanic and limestone. (Crombie, 1999)

The main archipelago, which lies 7 degrees north of the equator, comprise 14 of the 16 states of Palau. The grouping extends from Kayangel, the northernmost atoll to the volcanic island of Babeldaob, the largest island in Palau (396km<sup>2</sup>). Koror, is located south of Babeldaob and is the Republic’s administrative and economic capitol. While it is only 18km<sup>2</sup>, approximately 70% of the population resides in Koror. South of Koror are the world famous Rock Islands (several hundred mostly uninhabited limestone islands). These islands are comprised of uplifted limestone reefs stretching over the southern lagoon area. Total lagoon area in Palau is approximately 1,137km<sup>2</sup> and the total reef area is approximately 525km<sup>2</sup>.

**Table 1.0 Socio Economic Conditions**

<i>Currency:</i>	<i>U.S. Dollar</i>
<i>GDP 2000</i>	<i>117.2 Million</i>
<i>GDP Per Capita (2000)</i>	<i>\$ 6,127</i>
<i>Median household income:</i>	<i>\$12,845</i>
<i>per year</i>	
<i>Unemployment (2000)</i>	<i>2.3%</i>
<i>Adult Literacy (2000)</i>	<i>96.9%</i>
<b>Population</b>	
<i>Palauan (2000)</i>	<i>13,209</i>
<i>Non-Palauan (2000)</i>	<i>5,920</i>
<i>Total:</i>	<i>19,129</i>
<i>Annual Population Growth (2000)</i>	<i>2.1%</i>
<i>Infant Mortality (2001)</i>	<i>16.7%</i>
<b>Geographic Characteristics</b>	
<i>Total number of islands:</i>	<i>586</i>
<i>Total reef area:</i>	<i>525 km<sup>2</sup></i>
<i>Total lagoon area:</i>	<i>1137 km<sup>2</sup></i>
<i>Total land area:</i>	<i>535km<sup>2</sup></i>
<i>Total forest</i>	<i>31,259 ha</i>
<i>Total agroforest</i>	<i>1,109 ha</i>
<i>Total nonforest</i>	<i>9,251 ha</i>
<i>Highest elevation:</i>	<i>213.5 meters,</i> <i>Ngerchelchuu</i>
<b>Climate</b>	
<i>Average annual temperature:</i>	<i>27° C (81° F)</i>
<i>Average annual rainfall:</i>	<i>373 cm</i>
<i>Average humidity</i>	<i>82%</i>

The main archipelago ends in the South with the low platform and reef islands of Peleliu and Angaur. Some 200-300 miles Southwest from the main archipelago, accessible only by ship, lie the sparsely populated and ethnically distinct Southwest Islands (Otto, 1998). These islands are made up of reef flats that have been subjected to uplift. The Southwest Islands are the most geographically isolated and comprise the remaining two states of Sonsorol and Hatohobei (Tobi). The population of these two states has been steadily declining since the 1970s mainly due to the lack of employment opportunities as well as basic infrastructure and services including adequate health, education and communications facilities. The cost of transportation to and from the main island group amplifies the challenge of sustainable development for these communities.

With the exception of Kayangel, Angaur, and the Southwest Islands, all of the Palau islands are located within one barrier reef. Palau's exclusive fishing zone is 12 nautical miles, 3 nautical mile territorial seas, with a 200 nautical mile extended fishing zone, which comprises an area of approximately 600,900 square kilometers. (OERC, 2002a)

### **1.1.2 CLIMATE**

The climate of Palau is maritime tropical with an average temperature of 81 degrees Fahrenheit and an average humidity of 82 percent, with virtually no seasonal variation. Rainfall averages 150 inches per year, peaking in July. While there are no clearly demarcated dry seasons, rainfall is generally less during the period of February to May. Palau lies south of the typhoon belt, but nevertheless suffers from occasional typhoons. (Otto,1998)

### **1.1.3 LANGUAGE**

There are two indigenous languages in Palau: Palauan, which is spoken on the main islands and Sonsorolese-Tobian spoken on the Southwest Islands. English is the language of government and commerce and is spoken by the majority of the people. Many older people are also fluent in Japanese. (Otto,1998)

### **1.1.4 RELIGION**

The Christian religion was introduced into Palau by Spanish missionaries in the early years of European contact. Today over 90% of the people are affiliated with a religious organization, including the Catholic (42% of the population), Evangelical Protestant (30%), Modekngai (9%), Seventh Day Adventist (5%), and a variety of other smaller predominately Christian denominations (6.5%). (Ministry of Administration, 2001)

### **1.1.5 SOCIAL STRUCTURE**

Traditionally, and continuing in large measure today, kinship has served as the core of social relations in Palau. Every Palauan has a defined role, status and behavioral pattern based on kinship. Every Palauan defines every other Palauan as kin or non-kin. The basic social unit is a single, ancestral biological kin group comprised of a mother and her children. A number of these basic units related to a specific woman and her female descendants form a family and several related families constitute a clan. Ideally a village, the social and political unit, consists of ten clans. The male leader of each clan is chosen by the ranking female members of the clan, and forms with other clan leaders, the village council. A separate, but equal, women's council is comprised of the ranking female leaders. Clans are ranked and the (male) leader of the highest ranking clan serves as the chief of the village. The chief is not a sole ruler, but must use diplomacy and persuasion to win support from his constituents. Should his rule prove unsatisfactory, there are mechanisms for replacement.

This traditional system of governance retains considerable authority today with customary law recognized by both the Constitution and the legal code as equally authoritative alongside codified law. Customary actions with respect to marriage, divorce and adoption receive full legal sanction. A National Council of Chiefs, consisting of the ranking chiefs from each of the sixteen states, advises the President on traditional and customary matters.

Palauans are highly group oriented – traditionally Palauans were born, lived, and died in a group. Decisions of importance relating to an individual, as well as those to society in general, were made and enforced by the group. Today, Palauans retain a strong group orientation placing high value on: respect; sharing and cooperation; participation in community activities; work; responsibility and self-reliance; spirituality; and humility. Western influence, however, results in ongoing tension between competing and sometimes incompatible values. (Otto, 1998)

### 1.1.6 HISTORY

In the **pre-contact era**, Palauans believed Palau to be a unique and complete world closed within itself and extending to a point just beyond the horizon. To the early Palauans, the culture of Palau was created in Palau. It was not a borrowed set of practices but a distinctly Palauan way of life.

Estimates of Palau's population at the **time of first European contact** range from 20,000 to 100,000 people with 50,000 widely accepted as the most probable estimate. The first recorded European contact occurred in 1564, but it was another 200 years before sustained contact was initiated in 1783, after wreckage of the English vessel, "Antelope," on a reef at Ulong in the Rock Islands. From this time, various colonial powers – Britain, France, Germany, Russia, Japan and America – began to compete for political control, a competition which continued for 125 years. Although not establishing a permanent presence, these early visitors wrought massive changes in Palauan society: from introduced diseases which decimated the population to firearms which intensified intervillage rivalry. By 1900, the Palauan population had declined to 3, 743 persons.

Beginning with the formal establishment of a **Spanish protectorate in 1891**, foreign influence intensified as Palauans were inundated by cultural changes brought by the church, schools, and the foreign imposed government. Change in Palau has been a story of resistance followed by pragmatic acceptance. Resistance resulted from the tenacity of the indigenous view of Palau as a unique and complete world. However, the social power, prestige, and wealth brought by foreigners influenced acceptance by the naturally competitive Palauans.

During a brief eight year reign (1891 – 1899), Spain exercised only nominal political control over Palau. Spain's major contribution to social change was the introduction of Christianity. Change accelerated during **the German period (1899-1914)**. Germany established a resident government, initiated widespread economic development based on copra production and mining, and instituted social reforms which began to transform the nature of traditional Palauan society. German public health measures indirectly undermined the traditional system of village clubs – an important part of the education and socialization process of young people. Many clubhouses were burned to control the spread of communicable diseases, but seldom rebuilt; in part because the population, drastically depleted by foreign- introduced diseases, lacked sufficient labor to undertake traditional community work. German edict outlawed inter-village warfare, discouraged tattooing, and limited the authority of chiefs to collect fines and tribute. By creating an economy based on Western money rather than the traditional "*udoud*," (Palauan money) opportunities were created for lower ranking individuals to obtain wealth and associated prestige, thereby undermining chiefly power which was derived in part from manipulation of wealth. Germany also introduced the first foreign workers to Palau by importing laborers from other areas of Micronesia to offset a shortage of Palauan labor.

In 1914, at the outbreak of the **First World War** (WWI), Japanese naval squadrons took military possession of Palau, the Marshalls, the Carolines and the Marianas (except for Guam). Following WWI, Japan continued to rule Palau under a mandate of the League of Nations. The League's mandate obligated Japan to “promote the material and moral well-being and social progress of Palauans, to abolish slavery, traffic in arms, and alcoholic beverages, to refrain from building military bases, and to permit freedom of worship and missionary activity.”

Japanese rule ushered in an era of tumultuous change. The Japanese attitude toward Palau differed from that of the Germans and Spanish, for Japan intended to permanently integrate Palau into the greater **Japanese Empire**. Palau was to be remade in the image of Japan, and thousands of Japanese colonists were settled in Palau to hasten amalgamation. A formal, albeit limited, system of education was introduced for Palauans (three years of compulsory instruction followed by two further years of optional schooling for the most able). Economic development accelerated. These changes created many new opportunities for young able Palauans to gain relative wealth and prestige independent of their status in traditional Palauan society.

**Palau was the scene of bitter fighting during World War II.** Little of the pre-war physical development survived in the aftermath. Upon assuming control in 1945, the American naval administration was challenged to respond to the urgent needs of a people on the brink of mass starvation. Development had to resume virtually from scratch.

In 1947, the United Nations established the **Trust Territory of the Pacific Islands**, consisting of what are today the Republics of Palau and the Marshall Islands, the Federated States of Micronesia and the Commonwealth of the Northern Marianas Islands. Administered by the United States, the early years of the Trusteeship were characterized by limited resources and a much slower pace of development than Palauans had become accustomed to during the Japanese era. Beginning in the 1960's, development began to accelerate as the United States “discovered” Micronesia and came to recognize its strategic importance in the escalating cold war.

In the **1970's** with growing international **pressure for decolonization**, negotiations began on post-Trusteeship political status. International and domestic pressures mounted as perceived deficiencies in the American administration were spot-lighted. Budgets and government payrolls expanded. Thousands of islanders were sent abroad, mainly to the United States, for schooling. Increasingly sophisticated health services were made available. The implicit goal became to create within Micronesia a standard of living at least equivalent to that enjoyed by a rural community within the United States. However, social development outpaced economic development as the standard of living came to exceed that which Palauans could realistically pay for from domestic resources. At 1pm on October 1, 1994, after more than twenty years of negotiations, the new nation of Palau was born. Although still closely affiliated with the United States, Palauans now control their own destiny. Under the **Compact of Free Association (COFA)**, the “independence agreement” which governs relations between Palau and the United States, Palau receives trust funds plus fifteen years of budgetary support to decline at five year intervals over the fifteen years. Having achieved political independence, Palau is now faced with the challenge of achieving economic independence. (Otto, 1998)

### **1.1.7 DEMOGRAPHY**

Palau's population in 2000 was 19,129 persons - an increase from 17,225 in 1995. By ethnicity Palauans were 13,120 in 1995 and increased by only 244 individuals to 13,364 in 2000. Non-Palauans however, were 4,105 in 1995 and increased by 1,660 individuals to 5,765 in 2000.

(Ministry of Administration, 2001). Between 1990-1995, Palau's population grew at an average annual rate of 2.4% - high by international standards (global average 1.5%). However, the population is characterized by negligible growth among resident Palauans (average 0.6% per year); this reflects the combined effects of declining fertility and high rates of out-migration to the United States. The resulting scarcity of Palauan labor fuels demand for foreign workers and is reflected in the high rate of growth in the non-Palauan residential population (average growth rate, 9.8% per annum). Of non-Palauan residents, 89% are workers or dependents of workers, the majority being of Asian origin, predominately from the Philippines and China. (Otto, 1998)

## **1.2 KEY CHALLENGES AND RESPONSES:**

### **1.2.1 GLOBALIZATION IMPACTS ON FINANCE AND INVESTMENTS FOR SUSTAINABLE DEVELOPMENT**

Direct impacts of globalization on finance and investments for sustainable development have been minimal. The source of funding for capital improvement projects (CIP) from the Compact of Free Association (COFA) financing schedule continues to be the primary source for infrastructure development in the Republic. This capital account is supplemented by U.S. Federal grants and Department of Interior capital project funding as well as other country funding, most significantly from Japan and the Republic of China-Taiwan.

According to the COFA financing schedule, \$12.07 million of direct funding was made available to Palau in fiscal year 2003. The Compact Section 211(a) Current Account is designated for General Fund operations. The Government received annually \$12 million contributions from Compact Section 211(a), current account from fiscal years 1995 to 1998, \$7 million from fiscal years 1999 to 2004, and \$6 million for the remaining fiscal years, from 2005 to 2009. (Government of Palau, 2004)

While the COFA funding is diminishing, Palau's artificially inflated GDP in some cases limits Palau's ability to access various sources of needed funding for sustainable development.

### **1.2.2 IMPACTS OF GLOBALIZATION ON TRADE AND EXPORTS, IN PARTICULAR AS A RESULT OF TRADE LIBERALIZATION**

Palau's only significant commodity export is tuna, while its greatest "service export" is tourism. In general, Palau does not "add value" to many products and consequently, exports very few, if any, manufactured goods.

Like most other SIDS, Palau's trade development is challenged by distance, isolation, small population size and the resulting diseconomies of scale. In addition, the institutional framework to develop Palau's capacity for trade is lacking. These factors reduce Palau's ability to compete and benefit from trade. As a result, globalization and trade liberalization has not had a significant direct impact on trade and export.

On the other side of the ledger, Palau is extremely dependent on foreign imports to sustain the lifestyle to which its people have grown accustomed, and consequently, Palau's current trade balance is uneven. Without further economic development and capacity building, trade liberalization could tip this imbalance further in the wrong direction. As a non-diversified economy heavily dependent upon tourism, Palau is particularly vulnerable to external events that affect international travel. In 2003, the SARS epidemic seriously impacted Palau's economy. Similarly, Palau's tourism industry has suffered the effects of high fuel costs and reduced travel brought on by fears of terrorism.

Palau is also dependent on a general import tax for substantial amounts of revenue. If this tariff is removed, it is likely that the nation will face a revenue shortfall for some time. It is doubtful that the predicted benefits from trade liberalization will make up for this loss in the near future.

The Republic is currently pursuing opportunities in the international corporate/banking sector. Currently before the Olbiil Era Kelulau (OEK), Palau’s national congress, are three bills that would begin this process by providing lawful tax incentives to large Japanese corporations if they locate in Palau. These Japanese corporations conducting international business have, over the past decade, located in Singapore. However, because Singapore recently lowered its tax rate below the level required in Japan to avoid the application of Japanese taxes on their transactions, they are now looking for a new corporate jurisdiction that is conveniently located and that has appropriate tax rates under Japanese law. With the new proposed laws, Palau would have an opportunity to provide this new venue for these corporations. If successful, Palau would then move to establish the legislative environment to attract Japanese and other international banks to Palau, as well.

### 1.2.3 URBANIZATION

Year	Population	Growth Rate (%)	Urban Population		Rural Population	
			Number	Percent	Number	Percent
<b>1980 Census</b>	<b>12,116</b>	<b>-0.6</b>	<b>7,585</b>	<b>62.6</b>	<b>4,531</b>	<b>37.4</b>
<b>1986 Census</b>	<b>13,873</b>	<b>2.3</b>	<b>9,442</b>	<b>68.1</b>	<b>4,431</b>	<b>31.9</b>
<b>1990 Census</b>	<b>15,122</b>	<b>2.2</b>	<b>10,501</b>	<b>69.4</b>	<b>4,621</b>	<b>30.6</b>
<b>1995 Census</b>	<b>17,225</b>	<b>2.6</b>	<b>12,299</b>	<b>71.4</b>	<b>4,926</b>	<b>28.6</b>
<b>2000 Census</b>	<b>19,129</b>	<b>2.1</b>	<b>13,303</b>	<b>69.5</b>	<b>5,826</b>	<b>30.5</b>

Sources: Various Census Reports, 2000 Palau Census and Office of Planning & Statistics computation, Republic of Palau  
 Notes:  
 (1) Average annual growth rate is the average annual rate of increase in population, which is computed by using the exponential growth formula.  
 (2) Urban population includes Koror State only. The U.S. Bureau of the Census defines “Urban” as places containing 2,500 persons or more.  
 (3) Population in 1973 was 12,673 persons according to 1973 Population Census, Trust Territory of the Pacific Islands (TTPI).

(Government of Palau, 2004)

Palau’s population was 19,129 in 2000. The average annual growth rate declined from 2.6% in 1995 to 2.1% in 2000. According to the 2001 Statistical Yearbook the population density increased from 92 persons per square mile in 1995 to 112 persons per square mile in 2000. Population density in all states is quite low with the exception of Koror, the nation’s urban center which has a very high population density of 1,900 persons per square mile. In terms of percentage of urban population, Palau is considerably urbanized with approximately 70% (13,303) of the population residing in the urban center of Koror. However, total land area is approximately 535km<sup>2</sup>, hence when looking at urban area as a percentage of total land area it is less than 4% (the urban center of Koror is roughly 18km<sup>2</sup>). (Ministry of Administration, 2001 )

**Table 2.2 Land Area and Population Density by State of Residence: 2000**

State of Residence	Land Area		Population	Population Density	
	Sq. Mi.	Sq. Km.		Per Sq. Mi.	Per Sq. Km
<b>Total</b>	<b>171</b>	<b>444</b>	<b>19,129</b>	<b>112</b>	<b>43</b>
Aimeliik	20	52	272	14	5
Airai	17	44	2,104	124	48
Angaur	3	8	188	63	24
Hatohobei	1	3	23	23	8
Kayangel	1	3	138	138	46
Koror	7	18	13,303	1,900	739
Melekeok	11	28	239	22	9
Ngaraard	14	36	638	46	18
Ngarchelong	4	10	286	72	29
Ngardmau	18	47	221	12	5
Ngaremlengui	25	65	367	15	6
Ngatpang	18	47	280	16	6
Ngchesar	16	41	267	17	7
Ngiwal	10	26	193	19	7
Peleliu	5	13	571	114	44
Sonsorol	1	3	39	39	13
Rock Islands	18	47	-	-	-

Sources: 1990 Census Monograph & 2000 Census of Population and Housing, table 6, Republic of Palau

Notes: (1) For computation of population density, the land area of Rock Islands is excluded in the total land area.

(2) Sonsorol includes Pulo Anna and Merir; Hatohobei includes Helen's Reef

(3) Population density is the concentration of population per square mile/kilometer of land area

(Ministry of Administration, 2001 )

The affects of urbanization are being felt in Koror: increased number of vehicles result in morning and afternoon traffic jams, sewage treatment and waste disposal facilities are becoming overburdened, and mangrove areas have been cut and filled to create new land for buildings. With the opening of the Compact Road (a 53-mile road to circumnavigate the island of Babeldaob scheduled to be complete in 2005), the high population density in Koror is expected to stabilize as more people are able to move to Babeldaob and commute to work in Koror. Babeldaob (396km<sup>2</sup>) is Palau's largest island and the second largest island in all of Micronesia (second to Guam).

The impacts of sub-urbanization can be seen in Airai, the southernmost state on Babeldaob. Land and forests are being cleared for housing developments, roads and large farms throughout the state, leading to unprecedented amounts of sedimentation into the nearshore areas. It is feared that the unplanned style of development occurring in Airai will continue throughout the rest of Babeldaob as the road becomes completed.

With increased urbanization car crashes and crimes in the outlying states will become more frequent. Nevertheless, the budget for salaries and equipment for the Ministry of Justice has not increased. Additionally, after becoming independent, the Forestry Service was prohibited from sending valuable fire fighting equipment to Palau. Moreover, the Palau National Congress has not enacted a life safety code. Thus buildings have no legal requirements for implementing safety features that are critical in preventing fires.

#### 1.2.4 NATURAL DISASTERS

Palau lies approximately 900 miles south of the tropical cyclone path, however, climate change effects are likely to cause an increase in the number and proximity of tropical cyclones. In addition, the increase in El Niño/La Niña-Southern Oscillation (ENSO) events due to climate change are likely to increase the frequency of storms and drought. Palau's freshwater resources are extremely vulnerable to drought.

The main constraint for effective planning and implementation of disaster management strategies and risk assessments is the lack of capacity (both technical and financial) as well as, political commitment. In addition, there is no special arrangement or concrete mechanism for disaster management within the region or sub-region.

Pursuant to Executive Order No. 166-99, the Republic adopted a National Disaster Management Plan, which serves as a framework for emergency responses. The plan establishes the National Emergency Committee and specifies that the National Emergency Management Office (NEMO) performs the day-to-day operations associated with disaster management.

The national framework for risk management and disaster preparedness is depicted in the National Disaster Plan. The National Emergency Committee, chaired by the Vice President, is the command, control, and coordinating body for disaster management in the Republic. In terms of preparedness, the National Emergency Management Office (NEMO) is the coordinator of disaster management training activities through annual mock disaster drills and/or other exercises. Current national initiatives include:

- Provision of *Introduction to Disaster Management* training courses;
- Development of disaster plans for various response agencies;
- Participation in the regional disaster manager's annual meeting sponsored by the South Pacific Geosciences Commission (SOPAC).

The Republic has acceded to numerous **United Nations conventions relating to law enforcement** cooperation, counter-terrorism and prevention of transnational crime. In June of 2001, the Republic enacted a series of anti money-laundering laws, and on September 11, 2002, President Tommy E. Remengesau, Jr., introduced **counter-terrorism legislation** which is presently under consideration by the Olbiil Era Kelulau,(OEK), Palau national congress. Additionally, Palau has entered into a subsidiary agreement to the Niue Treaty which provides for law enforcement cooperation between the Republic of Palau, Republic of the Marshall Islands and Federated States of Micronesia.

By Executive Order No. 202, which became effective on October 30, 2001, the President established the **Task Force on Anti-Terrorism and Homeland Security**. The Task Force issued its first report in March 2002. The following factors suggest that Palau may be an attractive target for terrorist activity:

- Palau has supported the war on terrorism and is one of the fifty-six member coalition of the willing;
- Palau is less than four-hundred miles from the Philippines and Indonesia, two Countries which have experienced significant terrorist activity;
- Palau is close in proximity, and has daily flights, to Guam. It is thus a potential gateway to the United States and numerous attempts have been made to smuggle persons through Palau to Guam;

- Palau is lacking in sophisticated equipment, has only a limited ability to conduct investigations, and is insufficiently prepared for acts of mass destruction;
- Sharing of information regarding potential terrorists and transnational crime is limited and not timely.

Nevertheless, due to the small size of the population, the uniqueness of the Palauan language, and the strict immigration and labor laws, every foreigner is noticeable. Suspicious activities are evident to the local community, and it is unlikely that any terrorist group could have clandestine meetings to plan terrorist activity without being noticed. There is no evidence of radical groups located in Palau and only a few Muslims reside in the Country. Additionally, possession of firearms/ammunition is illegal in the Republic, except for law enforcement officers, and no weapons are produced in Palau. Accordingly, any threat would likely come from persons entering by sea or air.

### **1.2.5 NATURAL RESOURCE DEPLETION:**

Palau Conservation Society (PCS) conducted community consultations on resource use as part of a resource use study conducted under the stocktaking and assessment phase of the development of the nation's National Biodiversity Strategy and Action Plan (NBSAP). The community consultations have confirmed that throughout Palau, people are still very dependent upon the rich marine and terrestrial resources of the country. Marine resources, in particular, are heavily used and every area in the nearshore marine environment is important to local resource collection activities. Terrestrial resources are not as heavily exploited as they were in the past, although taro patches and small-scale family farms continue to provide vegetables and starches to people throughout Palau.

Changes have occurred in the ways resources are used, why they are used and who uses them. People are collecting the resources, especially in the marine environment with new and more effective gear. They rarely follow traditional methods that tended to limit catch. More and more, people are collecting or harvesting resources for monetary income rather than solely for local subsistence uses. In addition, projects such as road building, mangrove filling, and dredging have altered the habitats in many areas to such a degree that once abundant marine species are now hard to find and taro patches are not as productive as they once were. Some resources, especially marine fish and invertebrates, are not being used sustainably in most states, and people are concerned about the changes they have observed. However, other resources (farmed crops) are sustainably used in most places and appear to be healthy and thriving. (PCS, 2003a)

#### ***1.2.5.1 Depletion of Marine Resources***

Palau's marine resources include 1,706km<sup>2</sup> of reefs, lagoons, passes and mangroves, at least 70 marine lakes, and the open sea with more than 600,000km<sup>2</sup> of exclusive economic zone. Marine resources include more than 3,500 species. At least 270 fish and invertebrates are sources of food. At least 250 species are sold in the aquarium trade and at least 100 species have medicinal use.

Traditionally, every Palauan family produced much of its protein requirements by the harvest of in-shore and near-shore marine resources. This practice continues today. As is the case for agriculture, much of this productivity is not recorded in official statistics. Statistics on marketed production show that catch rates are generally declining despite growing domestic demand and high market prices. Depletion of inshore fishery resources is a primary reason for declining catches. Depletion results from (1) over-harvest; (2) abrogation of traditional conservation practices; and (3) ineffectual management of fishery resources by traditional, state, and national leaders.

Although Palau has extensive deep-water fish resources, the offshore fishing industry contributes only marginally to the economy. In 1992, fisheries (primarily off-shore) were valued at \$13 million (16%

of GDP). In 1999, fisheries were valued at only \$3 million (2.6% of GDP). Disappointing catch rates, low domestic returns on profits earned by foreign fishing companies operating in Palau, and inability of local entrepreneurs to develop a value-added fish-based industry and shore-based support facilities for foreign fishing fleet are all factors contributing to the low economic value of fisheries to the domestic economy at the present time. (TEI, 2003a)

### **Decline in Reef Yields**

In 2002, 31% of key informants perceived that the inshore fisheries are being harvested unsustainably. They included reef fish as a whole, humphead wrasse, humphead parrotfish, sea urchins, sea cucumbers, crabs, clams, tuna, mangrove clams, and aquarium fish. The community perceived that their catch is at least 3 times less than a decade ago.

Palau's reefs yield an average of 1.0 metric tons of fish and invertebrates/square kilometer in the past two decades. This is based on an average total production of 1800mt/yr for a total reef and lagoon area of 1706 km<sup>2</sup>. The total maximum yield of reef from each State between the periods of 1992-1997 and 1998-2001 shows a decline in yields for 9 States: Ngarchelong, Ngaraard, Ngatpang, Airai, Ngardmau, Aimeliik, Ngchesar, Ngiwal and Angaur. The total landings of the top shell, *Trochus niloticus* (semum) dropped by 72%. This decline may be caused by several factors including large scale pulse fishing operation in 1993-1997, coral bleaching and loss of habitat in 1998-1999 and other human activities such as dredging of reefs and sedimentation from land based activities. New management regulations of certain fisheries may also explain some of this decline. (TEI, 2003a)

### **Women in Fisheries**

In 1991, Matthews and Oiterong interviewed women in 7 States in Babeldaob, these women attributed their decline in harvests primary to dead coral, coral dredging, pollution, few species and too many collectors. This was before the extensive coral bleaching so dead corals referred to corals killed in ways other than a bleaching event. Below were the key concerns of the women from the seven States:

- **Aimeliik** -dead coral, algal fouling, siltation, pollution and too many collectors.
- **Airai** - dead corals, pollution, too many collectors, fewer species, siltation, oil from boats and lower water levels.
- **Koror**- coral dredging, pollution, dead corals and fewer species.
- **Ngaraard**-coral dredging, pollution, dead corals and fewer species.
- **Ngardmau**- dead corals and fewer species and pollution.
- **Ngaremlengui** to fewer species, dead corals, pollution, dredging and too many collectors.
- **Ngatpang** - to pollution, effects of dredging, siltation and dead corals.

In 2002, communities in all 16 States were surveyed regarding their resources and similar results were found. The top threats to their resources were over harvesting in the marine environment (13 States), loss of traditional knowledge and practices (10 States) and sedimentation (10 States).

### **Commercial Pulse Fishing**

Large scale commercial ventures that exploit targeted resources are unsustainable. The pattern in the Pacific is for large scale commercial pulse fishing operations that move from country to country. Once a resource such as live groupers is exploited beyond its sustainable yield in one country, foreign operations move to new location that was not exploited or not recently exploited. At Helen Atoll in Hatohebei State, a large scale live fish business was operating for 2 years. The consequence was a drastic drop in the inshore fishery production. Hatohebei State stopped the operation because of the decrease in its fisheries (Graham, 2001).

Graham (2001) reported that Helen Reef exported 30 to 50mt of predominantly groupers between 1994 and 1995 period. Helen Reef has an area of 163-km<sup>2</sup>, so this is a yield of 0.18 to 0.31 mt/km<sup>2</sup>. Delegate Thomas Patris of Hatohobei State cited the depletion of fish on the reef of both the targeted fish and reef fish in general (fish caught for food) as the number one reason for stopping his local operation of live fish trade. In 1990, 3,000lbs of the humphead wrasse, *Cheilinus undulatus* (maml) was captured live by foreigners and confiscated by the Palau Government (MRD, 1990). No data is available for the humphead parrotfish, *Bolbometopon muricatum*. (TEI, 2003a)

#### **1.2.5.2 Depletion of Terrestrial Resources**

Land-based resources are not as heavily exploited as marine resources, and are thus being used at more sustainable levels. Forest resources are underused in most areas, especially since imported and alternative building materials have become more commonly available and inexpensive. Other land-based activities, such as mahogany use, taro and farm crop cultivation, Pandanus use for baskets, are sustainable because the resource is usually replanted to maintain a sufficient supply. Some agroforestry resources (such as coconuts, betelnut, and fruit trees) are not being replanted in all areas, while in other places they are abundant.

Mangroves are both sustainably used and non-sustainably used, depending on where you look. In some states, the mangroves are rapidly being filled in to create new land. In other states, the mangroves are used as a source of wood for small building projects, and are not being heavily used. However, mangroves may be growing seaward because sedimentation levels have increased in the nearshore waters. (TEI, 2003a)

While people noted that many of the more heavily exploited mangrove species have declined in abundance, some species are showing signs of increase: in particular, people mentioned crocodiles, mangroves trees growing seaward, seabirds in Sonsorol, and mangrove crabs in some areas in Koror where they are not collected. (PCS, 2003a)

#### **1.2.5.3 Depletion of Freshwater Resources**

Palau is fortunate to have abundant freshwater resources, however with increased drought, there is a need to expand storage capacity. Babeldaob is heavily dissected with a stream system that discharges approximately 500 million gallons per day (gal/day). Palau's annual internal renewable water is estimated at 450 billion gallons. Currently, the water supply that provides water to over 80% of the population is from the Ngerikiil Watershed in Airai State, the southernmost State in Babeldaob and discharges approximately 67 million gal/day. The Airai water treatment plant pumps 4-million gallons of water per day, of which, 35-45 percent is lost due to leaks in the piping system.

### **1.2.6 NATIONAL SECURITY AND CRIME, INCLUDING ISSUES PERTAINING TO LARGE EEZS**

Due to the proximity to Indonesia and Philippines, the 600,900 square kilometer EEZ, and the friendly relationship with the United States, national security has become a pressing issue with illegal fishing by foreigners and Palau's being a potential target of terrorism. Technological advances and increased flights to Palau add to these concerns. It will be necessary to improve regional and international strategies to address terrorism. Such regional and international cooperation is presently quite limited.

As the Republic has only one Patrol Boat, the Ministry of Justice has been seeking financial support to deploy unmanned aerial surveillance craft to help address surveillance of the EEZ. Additionally, it will be necessary to improve regional and international strategies to address terrorism. Such regional and international cooperation is presently quite limited.

### **1.2.7 UNEMPLOYMENT AND LABOR**

The 2000 Census Report places the Republic with the unemployment rate of 4%. This rate is relatively low for a developing country. Unlike many other Pacific Island Countries labor is a scarce national resource in Palau as a result of:

- Controlled fertility;
- High rates of Palauan out migration;
- Continuing low levels of labor force participation especially by young Palauans;
- Rapid expansion in the number of formal sector jobs.

The scarcity of Palauan labor has not been considered to constitute a significant constraint on development due to the government's policy of facilitating the seemingly low-cost Asian workers to fill the gap between labor and jobs. This policy, however, has led to a rapid increase in the number of foreign residents and increasing social tensions.

In response to this, the government has developed a policy on "Population and Sustainable Development" which proposes a combination of strategies designed to slow the in-flow of foreigners and the outflow of Palauans. Among the recommendations having a significant economic impact are:

- Reduce out-migration while encouraging overseas Palauans to return;
- Develop Palau's own human resources and increase productivity of Palauan labor;
- Create a technologically rich economy in place of a job rich economy;
- Control commercial development in accordance with the carrying capacities of Palau's environment, infrastructure, and domestic labor force. (Otto, 1998)

Recommendations were submitted to the President in March 1997. However, these recommendations require both controlled economic development and re-direction of current development strategies away from labor intensive growth. As such, the policy implications are enormous. Although the recommendations, and the accompanying report, have heightened the understanding of the link between population and development, neither the Executive nor Legislative branches of government have endorsed CoPopChi's policy recommendations, nor have an alternate set of recommendations been proposed. Palau consequently has no population policy; population parameters are currently driven by decisions made in the economic sectors. (Bishop, 2001)

### **1.2.8 HIV/AIDS, MALARIA, OTHER DISEASES**

#### ***1.2.8.1 HIV/AIDS***

In 1999, Palau remained one of very few countries in the world in which domestic transmission of the HIV virus had not been detected. Two Palauans had died from AIDS but both were infected while resident overseas, returning home in the advanced stages of their disease. However, this is no longer the case. The Bureau of Public Health (BPH) now reports that there are three deaths from AIDS and at least five cases of domestic transmission. By virtue of Palau's demographics, economics, health status, and behavior patterns, there is a high level of vulnerability to the introduction and spread of HIV/AIDS.

For many years, Palau has reported a high rate of STDs. Palau’s reported STD rate is in fact higher than that of most Pacific Island countries and generally equivalent to that of the United States. While “traditional” STDs can generally be treated easily and relatively cheaply, their presence indicates more serious underlying problems of unhealthy lifestyles and unhealthy choices. Unfortunately, all the indicators of vulnerability are present in the community:

- Palau has a high rate of infection with sexually transmitted diseases other than HIV; this alone indicates that a large number of Palauans are not practicing “safe sex;” STD infection also increases the risk of HIV infection in the event of sexual contact with an HIV-infected partner.
- Palauan youth initiate sexual activity at a relatively young age; survey data suggest that about 50% of sexually active high school students use condoms meaning that 50% of sexually active students (or 25% of the student population) are at risk of STD infection;
- Significant numbers of Palauan adults, especially men, have multiple sexual partners and do not practice “safe sex;”
- The risk of infection is amplified by increasing mobility of the resident population and close links between Palau and Asian countries which have moderate to high prevalence rates for heterosexually transmitted HIV infection;
- The risk is further amplified by rapid growth of Palau’s own domestic “sex industry” whose workers are imported from high risk Asian countries to service an ethnically diverse clientele;
- Because of these factors, there are a large number of Palauan women who are at risk of contracting STDs or HIV infections not by their own actions but as a result of the actions of their partners who are neither monogamous nor practice “safe sex.” (Government of Palau, 2000)

### ***1.2.8.2 Malaria and Other Diseases***

Fortunately, malaria is not present in Palau, however, there are several other vector-borne diseases: Dengue Fever, Leptospirosis, and Filariasis. While Palau does have vector-borne diseases, unlike many developing nations the key problem diseases are the non-communicable and lifestyle diseases. Although there has been a definite improvement in the general health standards of the population over the past few decades, changing lifestyles have resulted in different health patterns and new health problems have emerged. Indicators for communicable diseases are continuing to increase at relatively high rates. This indicates a society that is experiencing diseases of both developing and developed nations. Examples of the latter include increases in gastroenteritis, cardiovascular disease (heart attacks and strokes), cancer and diabetes. Diabetes is strongly associated with age, lack of exercise, diet, obesity, alcohol consumption and stress – classic diseases of lifestyle and modernization. (SAGRIC Int., 1996)

## **1.2.9 WATER AND SANITATION IN RURAL AND URBAN AREAS**

*(Solid waste and wastewater management covered in Section 3.1.6)*

### ***1.2.9.1 Sanitation Inspection Services***

The Division of Environmental Health (DEH) within the Ministry of Health (MOH) provides sanitation services to all households in the Republic. The services include regular and comprehensive inspection of all households at least once a year. These inspections focus on identifying any aspect of the environment around the household that may be a potential cause for disease. Penalties and fines may be applied to households that are non-compliant of sanitation regulations.

The DEH conducted a study to illustrate the link between household sanitation and medical visits. Dr. Ishmael Togamae, Physician at the Southern Community Health Center (SCHC) a dispensary located in Peleliu State conducted a community mapping project and the following are his observations:

- Households in areas with higher population density tend to present more frequently to the SCHC.
- Households with low scores with Environmental Health assessment present more frequently.
- Zones with overall low percentage scores with Environmental Health tend to have a higher household presentation to the dispensary.

### ***1.2.9.2 National Constraints for Sanitation***

As with many other developing countries, Palau lacks much of the resources necessary to accommodate technological and ideological changes that are driven by the desire on the part of the public to rapidly improve the quality of life, leaving the health of the public at risk.

The Republic is developing at a rapid pace, and this will accelerate once the Compact Road is complete in 2005. It is imperative that infectious disease surveillance and control plans be in place and be presented and accepted by the public prior to the opening of the Compact Road. The expected return of many Koror residents to their home States in Babeldaob, along with the influx of tourism into areas formerly inaccessible will result in higher risk of widespread infection of emerging or re-emerging infectious diseases or illnesses into other areas of the nation. The lack of implementation of waste management plans increases the frequency of diseases caused by unsanitary conditions.

### ***1.2.9.4 Water Resources Management***

The primary source of fresh drinking water in Palau is from precipitation, which provides 410 billion gallons of available water each year. Groundwater is found in Palau, but the groundwater lens is believed to be relatively thin and only contributes approximately 40 billion gallons of water annually. The combination of these two sources provides Palau with 450 billion gallons of renewable water annually.

Palau's water supply is extremely vulnerable to droughts. Although rainwater is a renewable source of water, it is subject to seasonal and yearly variations and Palau has inadequate water storage capabilities. The mean rate of water usage in Palau is 100 gallons per person per day. This is considered to be a very high usage rate compared to world averages, and stems from lack of water conservation awareness and low consumer water utility bills.

Another major constraint on water usage is lack of distribution infrastructure. The Airai water treatment plant supplies water to over 80% of Palau's population. This plant pumps 4-million gallons of water per day, of which, 35-45 percent is lost due to leaks in the piping system. The remaining population is supplied with water from small, rural water treatment facilities. There are 17 such systems, each run by individual state governments. Most of these facilities lack filtration units, which are critical to reducing turbidity in drinking water. Only 20% of the facilities are able to provide the public with water that is consistently chlorinated. As a result of this inconsistent water quality and supply, 67% of the population relies on rainwater catchments as their main source of drinking water. This is of concern, since over 90% of tested rainwater catchments are contaminated with fecal and total Coliform bacteria.

Threats to Palau’s water resources include man-made contamination and drought. Increasing development, poor land use, and deforestation in combination with heavy rainfall is leading to increasingly turbid and contaminated water. This water must be purified before being distributed, putting a greater strain on the water distribution system, which is currently operating at capacity.

Although Palau is currently able to meet its water needs, water demand is growing and is expected to increase in the near future. In order to curb this increased demand, water conservation programs and public education will be critical. In addition, public water systems need to be upgraded and repaired in order to maintain water quality. A capitol improvement project currently underway includes upgrades of water systems throughout Babeldaob. A new upgraded waterline is currently underway between Ngaraard and Ngarchelong States.

## **1.2.10 ADDITIONAL CHALLENGES (SUSTAINABLE TOURISM, RURAL AND FOREST FIRES, INVASIVE SPECIES)**

### **1.2.10.1 *Sustainable Tourism***

With the scheduled phase-out of the financial provisions of the Compact of Free Association in 2009, Palau continues to face a unique dilemma: what mix of economic activities is appropriate to ensure strong and sustainable development once basic infrastructure is in place? A consensus on the main objectives of this blueprint, namely sustainable growth and an adequate standard of living would make choices clearer and the commitment to achieving them stronger. Palau’s leadership must therefore grapple with this very important challenge, not only to create a self-reliant market economy, but also to ensure that the benefits are as widely distributed as possible. Although it is more common for market forces to make these decisions, Palau’s smallness, remoteness, and fragile ecosystem call for planned growth, which includes strategic policy controls and planning structures within the context of market principles. The first concern in this planning process must be the establishment of a small, yet dynamic and diversified tourist market within its limited human, natural and capital resources. Whether the future total tourist count is 200,000 or 300,000 is less critical than the selection of the appropriate tourism base and the diversity of tourism options. The definition of this tourism should then result in the development of appropriate amenities and infrastructure. Because travel is more of a qualitative experience than a tangible good, the quality of visitors’ experience becomes a barometer for future tourists and, therefore, of critical importance.

At the same time, it must be remembered that tourism is a highly competitive business, with destinations developing rapidly in and around the Pacific, all with the objective of attracting the most lucrative tourists from around the region. Palau must consequently put into place institutions that allow Palau to establish a competitive tourism industry, within the context of its growth objectives, while maintaining local traditions.

Very importantly, Palau cannot rely on tourism alone, but must diversify its private sector portfolio to allow it to withstand regional and international shocks to tourism. Along with developing a specialized destination, Palau must therefore take advantage of its natural environment and promote commercial activities such as commercial fishing, sports fishing, and primary sectors such as agriculture, agriculture and manufacturing. These activities can be designed in ways to complement the landscape and other characteristics of the destination. What lies ahead in Palau is a challenge, but it also offers a unique opportunity to develop a dynamic, diversified and self-sustaining economy that generates a reasonably high standard of living.

Recent reports on the investment environment in Palau indicate a lack of capacity to respond to a rapidly changing market. The critical task ahead is to establish a clear and transparent foreign

investment environment. Only then will development plans come to fruition. (Government of Palau, 2004)

A government sponsored roundtable discussion took place in 1997 and identified major issues that Palau needed to address if it was to develop a sustainable tourism industry. As a result of this discussion, a **National Committee on Sustainable Tourism Policies** was formed by Executive Order. One of the Committee's top recommendations was to establish a **National Tourism Unit (NTU)**. The NTU was created in 2002 by Executive Order. This Unit is responsible for the implementation of policies and action plans as recommended by the Committee. Specifically, The NTU has the following strategic objectives: *Product Development and Diversification; Labor and Human Resources Development - Capacity Building; Planning and Development; Regulation; Asset Protection; and Increased Palauan Participation*. The NTU will focus on several areas of tourism management including: *Visitor Management; Licensing; Standards/Quality; Information and Data Capture; Product Capture; International Relations and Linkages; Labor and Training; Community Awareness; and Policy and Legislation*. (Government of Palau, 2004)

Tourism is the greatest contributor to Palau's GDP. The key challenges and constraints in Palau with respect to sustainable tourism are:

- Lack of public and political understanding of the concepts of eco-tourism and high-end tourism;
- Lack of public and political support for sustainable, high-end eco-tourism development, including private investors and developers.
- Inadequate Palauan participation in the tourism industry which consequently inhibits the flow of benefits derived from tourism to local communities.
- Lack of support for the Sustainable Tourism Policies and Action Plan and the formation of a National Tourism Unit, possibly due to the above listed constraints in addition to political and private business interests of many government officials.

### **1.2.10.2 Rural and Forest Fires**

The Ministry of Justice, Bureau of Public Safety, **Division of Fire and Rescue**, is responsible for all fire fighting response in Palau and ambulance service. The Division has limited staffing for the magnitude of the needs. Division also is presently required to man the fire/crash trucks at the airport one hour prior to until one hour after each flight. Some fire fighting training has been provided from off-island sources, but training is primarily on the job, although each officer attends the three month Palau National Law Enforcement Academy. The Division also provides some fire awareness education in the schools. The Division will work with the Bureau of Agriculture on forest fire management issues and to explore options for improving fire management capacity in the states (e.g. coordinating volunteers in each state to be trained as volunteer "fire brigades.") (Hinchley, 2004)

At the request of the Ministry of Justice, the Congress introduced a Life Safety Code which would allow for the promulgation of regulations regarding standards for structures and for authority of the officers to inspect structures. Without such authority and requirements there will continue to be substandard construction which leads to increased risk of fires, and diminishes the ability to save property and lives.

### 1.2.10.3 Invasive Species

Invasive species are considered to be possibly the greatest threat to biodiversity in the Pacific Islands and in Palau they are a major threat to terrestrial resources. Palau has many invasive weeds. A recent report (Space et al, 2003) on invasive weed species of environmental concern in Palau found:

- 4 species that are presently subjects of eradication programs
- 53 species that are in Palau are known to be invasive or potentially invasive.
- 95 species that are invasive or weedy elsewhere and are common, weedy or cultivated in Palau.
- 15 native species (or Micronesian introductions) that exhibit aggressive behavior.
- 249 species that are invasive elsewhere in similar ecosystems but not currently known in Palau (potentially invasive).

The four species currently being eradicated are: *Imperata cylindrica* (kasoring, blady grass, cogon grass), *Mikania micrantha* (teb el yas, mile-a-minute weed), *Schefflera actinophylla* (octopus tree), *Spathodea campanulata* (orsachel kui, African tulip tree). At least 3 of these has potential to cause serious damage to forest environments and habitats in Palau, and ongoing control efforts will be needed to fully eliminate them and prevent re-introduction.

Of the other invasive species already widespread in Palau, Space et al (2003) note that eradication or extensive control is out of the question for all of these species, but that control in sensitive, natural and protected areas such as the national parks and reserves may be required. In addition, they stress the need to make every effort to keep out all the species listed as potentially invasive, to monitor for their occurrence and to eradicate them immediately if found. These are all well-documented problem species that have had a major impact on natural ecosystems elsewhere. The potential impact of these species, if they are introduced and become established, can be severe. (Hinchley, 2004)

There are currently two multi-agency groups that address invasive species issues. One group focuses on animals and another focuses on plants. The **Invasive Weeds Committee** of the **Palau Natural Resource Council (PNRC)** is a multi-agency committee that has been active for several years now in addressing invasive plants issues. The **Bureau of Agriculture** now has a full-time Invasive Species Officer committed to working on invasive plants issues in Palau. The second group is the recently established **National Invasive Species Committee (NISC)**, a subcommittee of the **National Environmental Protection Council (NEPC)**. This committee was established to serve as a high level policy body to help coordinate and facilitate invasive species efforts in-country. Prior to the establishment of the NISC, the **National Task Force on Invasive Animal Species (NTFIAS)** was created by Executive Order in 2002. The NTFIAS listed all of the invasive animal species that are of concern in Palau and went through an exercise to assess each species' level of threat in order to prioritize actions. In addition to facilitating the efforts of the PNRC Invasive Weeds Committee, the NISC will be working with relevant agencies to address the prioritized actions related to invasive plants and animals in the Republic, including marine invasives. Both of these groups (PNRC and NISC), however, lack sufficient resources and staff to undertake more extensive invasive control or prevention programs.

## 2. NATIONAL FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

### 2.1 NATIONAL POLICIES, STRATEGIES AND PLANS

Since its independence in 1994, the Republic of Palau has developed and implemented various items set forth in the National Environmental Management Strategy (NEMS), the Economic Development Plan (EDP), the Palau 2020 National Master Development Plan (PNMDP), the JICA Study, and the Sustainable Tourism Policies and Action Plan, and others. In addition, the primary objective of the 2001 Presidential Management Action Plan (MAP) is "to integrate environmental planning into developmental planning efforts." Below are the main strategies and plans relevant to sustainable development.

#### **2.1.1 Palau 2020 National Master Development Plan (PNMDP)**

The 2020 National Master Development Plan was developed in 1996 and adopted by the Olbiil Era Kelulau (OEK), Palau's national congress in December 1997 as the Republic's long term developmental planning document. It is a widely-focused roadmap that articulates economic and social development priorities for the Republic, including infrastructure priorities. The development vision of the PNMDP is to substantially enhance the quality of life of Palauan citizens in both the long and short terms. In order to achieve this primary vision, the PNMDP establishes a number of development goals:

- Increased economic growth per capita on a sustained basis;
- Share the benefits of economic growth on an equitable basis to all different economic sectors, and establish a planning framework for future expenditures;
- Cooperate with foreign interests to establish genuine stakeholder development; and
- Incorporate Palauan development priorities within the global environment to enhance the natural environment.

The 2020 Plan recommends strategies to protect Palau's environment through the development or strengthening of policy mechanisms, legislative frameworks, institutional capacity building, education, research and data collection, waste management, and pollution control, among other development issues. Since its adoption, a number of strategies highlighted in the Plan have been implemented. (Government of Palau, 2003)

#### **2.1.2 The Economic Development Plan (EDP)**

The EDP was prepared prior to the PNMDP, pursuant to Section 231 of the Compact of Free Association (COFA). The plan was defined in Article VI, Section 461(j) of the Compact as:

A documented program of annual development which identifies the specific policy and project activities necessary to achieve a specified set of economic goals and objectives during the period of free association. Such a document should include an analysis of population trends, manpower requirements, social needs, gross national product estimates, resource utilization, infrastructure needs and expenditures, and the specific private sector projects required to develop the local economy of Palau.

The broad objectives of the EDP were to:

- Lay the foundations for achieving economic self-reliance based on a free and vibrant market economy;
- Develop Palau’s human, natural and technological resources in a framework of environmental and cultural protection; and
- Achieve measurable and certain progress toward balanced development of the various states.

The policies and strategies to help implement the development plan were defined as follows:

- Develop a self-reliant production-based market economy;
- Reduce and streamline the public sector;
- Develop natural resources to generate income;
- Develop human resources;
- Balance regional economic integration and development; and
- Conserve environmental and cultural assets.

In order to accomplish these stated objectives, policies and strategies, Volume 2 of the EDP established a list of 11 priority and 20 non-priority infrastructure projects to be undertaken with Compact Section 212(b) funding (approximately \$52 million) over the duration of the COFA. The non-priority projects were to be undertaken upon the completion of the priority projects, if funds remained. A majority of the priority projects and a good number of the non-priority have been completed. (Government of Palau, 2003)

### ***2.1.3 The JICA Study: “Study for Promotion of Economic Development in the Republic of Palau”***

The EDP was a five-year plan intended to address immediate infrastructure needs using Compact Section 212(b) funding. In addition to undertaking many of the priorities set forth in the EDP, other projects were funded out of this Compact funding source as needs arose. As this plan had a life of only 5 years, and as most of the Compact capital funding has been expended or obligated on projects identified in the Plan, it was deemed necessary to undertake a revision of the five-year plan. Because this infrastructure planning effort directly relates to long-term and mid-term economic and social issues, it was determined necessary to undertake the revision of the PNMDP in order to ensure that Palau’s development efforts remained focused.

To accomplish this revision, the Republic sought assistance from the Japanese Government, which resulted in the development of the JICA Study. This comprehensive review and revision of the PNMDP is a three-volume set that sets the following objectives:

- To formulate long-term integrated development strategies and a mid-term infrastructure improvement plan, which aims to harmonize economic development with environmental protection.
- To conduct pre-feasibility studies for priority investment project packages for priority sectors identified in the plan; and
- To assist Palauan counterpart personnel in strengthening their planning capability through the implementation of the Study.

In arriving at its infrastructure recommendations, the Study considered a broad list of ‘key issues,’ including:

- The natural, human and cultural resource base;
- The national interest and national security;
- Institutions for economic development and macroeconomic management;
- The public sector and fiscal issues;
- The labor market;
- The financial sector;
- Foreign direct investment;
- External relations and ODA assistance;
- The terrestrial environment;
- The costal and marine environment; and
- The living environment.

Within the context of these key issues, the JICA Study developed both long term and medium term development strategies. Each of these strategies focuses on both the sectors of the economy in need of development, as well as on social and environmental concerns. Sectors and concerns include:

- Tourism;
- Agriculture;
- Aquaculture;
- Fisheries;
- Land use;
- Environmental management; and
- Social strengthening, including labor, human resource development and health. (Government of Palau, 2003)

#### ***2.1.4 National Environmental Management Strategies (NEMS)***

Developed through the South Pacific Regional Environment Programme (SPREP) and the United Nations Development Programme (UNDP) in 1994, the NEMS highlights strategies for the development of policy and planning mechanisms for sustainable development, human resource management, pollution control, education and information, preservation of cultural, archaeological and historical resources, and recommendations for long-term sustainable management plans for tourism development, marine resources protection, and agriculture. (OERC, 2002c)

#### ***2.1.5 Sustainable Tourism Policies and Action Plan***

The 2001 Sustainable Tourism Policies and Action Plan (STPAP) was developed to implement 24 key issues identified in the 1997 Sustainable Tourism Policies and Action Plan (STPAP). The recommendations include product diversification, capacity building mechanisms, development of a high-end tourism product, diversification of tour attractions on Babeldaob Island, and effective management of natural and cultural resources. A National Tourism Unit (NTU) was to be established within the Office of the President to implement the STPAP by the end of 2002 (OERC, 2002c), however, the STPAP was never approved by the OEK (national congress) and as a result, little has been done to implement the recommendations outlined in the policy and action plan.

#### ***2.1.6 The Management Action Plan (MAP)***

The MAP was developed by the President to serve as the new Administration's strategic roadmap for the reform of the Executive Branch of the government. The MAP incorporated many of the recommendations made in both the PNMDP and the EDP. Like these two plans, it sets forth short-term and long-term recommendations based upon economic and social factors, which are to be

implemented by various ministries, departments, agencies and entities of the Palau National Government. The MAP was adopted by the President through Presidential Directive No. 01-007 in February of 2001. Its primary goals and objectives include:

- The improvement of the quality of life of the Palauan people;
- An emphasis on quality services with an aim of reducing the costs of such services;
- Ensuring the accountability of the government;
- Developing viable governmental structures;
- Fostering a strong sense of community;
- Cost containment;
- Government right-sizing; and
- Incorporating the PNMDP into the planning process.

The MAP recommends the revival of the National Planning Commission with a mandate to provide a cohesive planning structure within the Executive Branch and to ensure the effective implementation of the 2020 Plan. In addition to its primary goals and objectives listed above, the MAP calls for:

- a comprehensive national plan for the management and protection of marine resources;
- the collaborative establishment of marine conservation areas between States and the National Government;
- a strategic plan to implement the Agriculture Task Force recommendations;
- the establishment of guidelines for agro-forestry with the minimization of soil disturbance and environmental impacts as the primary objective;
- development of a comprehensive mangrove, forest, and watershed management and rehabilitation plan; and
- implementation of an effective fruit fly eradication program. (Government of Palau, 2003)

### ***2.1.7 Sustainable Human Development in Palau: Progressing with the Past***

Recognizing the importance of population in development, a Committee on Population and Children (CoPopChi) was created by President Kuniwo Nakamura in 1995 with a mandate to develop recommendations for a national population policy. The policy was developed and presented in this report entitled *Sustainable Human Development in Palau: Progressing with the Past*. This report outlines 21 broad strategies for achieving sustainable human development in Palau. Although the recommendations, and the accompanying report, have heightened the understanding of the link between population and development, neither the Executive nor Legislative branches of government have endorsed CoPopChi's policy recommendations, nor have an alternate set of recommendations been proposed. Palau consequently has no population policy; population parameters are currently driven by decisions made in the economic sectors. (Bishop, 2001)

### ***2.1.8 State Resource Management Regimes***

Each state has a traditional system of resource management as well as legislation to manage their resources. Resource management regimes at the state level include:

- Koror State Rock Islands Management Plan;
- Management Plan for the Ngaremeduu Conservation Area;
- Management Plan for the Ngardok Nature Reserve;
- Ngeruangel Management Plan;

- Helen Reef Surveillance and Deterrence Plan.

All of these management regimes have integrated legislation and traditional management into a management plan. The challenge for most states is to implement their management plans.

## 2.2 SUSTAINABLE DEVELOPMENT MECHANISMS AND FRAMEWORKS

### 2.2.1 KEY AGENCIES AND ORGANIZATIONS ADDRESSING SUSTAINABLE DEVELOPMENT

All of the ministries within the Republic of Palau address sustainable development issues at some level. However, there is a need to improve inter-agency and inter-sectoral communication and coordination between various sectors and their respective ministries. Over the past ten years, non-government organizations (NGOs) have played an increasingly significant role in the nation's progress towards sustainable development, especially in the area of conservation and natural resource management. Outlined below are a few of the key agencies and organizations working on sustainable development issues, mainly in the area of environment and economic development.

The ministries most closely associated with sustainability issues as it relates to environment and economic development are the **Ministry of Commerce and Trade (MCT)** and the **Ministry of Resources and Development (MRD)**. Both are mandated to source sustainable economic development opportunities that emphasize minimal negative environmental and social impacts to Palau's people and natural habitats. The MCT's concentration is primarily focused on large-scale economic development while the MRD in general focuses on community-based economic opportunities. (OERC, 2002c) The **Ministry of Justice (MOJ)** provides critical role in sustainable development enforcement in regards to national security, public safety, as well overall enforcement of the law.

In addition to sourcing community-based economic activities, the MRD has oversight over government initiated agricultural, forestry, fisheries and energy programs and activities. MRD is additionally responsible for all infrastructure maintenance and improvement at the national level (e.g., road maintenance, sewer system operations, capitol improvement projects, etc.) MRD also houses the **Bureau of Lands and Surveys**, which is responsible for all land surveying matters within the Republic and the Office of the **Palau Automated Land and Resource Information System (PALARIS)**, the national GIS unit. PALARIS provides mapping and geographic information system (GIS) services to the Republic including capacity-building activities for potential users from the public sector and civil society. PALARIS also acts as an information depository and clearing-house for the Republic and greatly assists with the standardization of data collection.

#### **Environmental Quality Protection Board (EQPB)**

The EQPB is a semi-government agency created in 1981 to be the environmental regulatory agency for all development activities involving earthmoving and structural development within the Republic. As a semi-government institution the EQPB is not under any Ministry but is governed by a Board of Directors appointed by the President and confirmed by the Senate. In addition to environmental education efforts, EQPB reviews project proposals and issues various environmental permits such as, earthmoving, wastewater discharge, pesticide use, etc. EQPB applies conditions to permits to ensure appropriate environmental control measures are taken. All major development projects are required to conduct an Environmental Assessment (EA). Depending on the scale of the project and its possible environmental impacts based on the initial EA, a full Environmental Impact Statement (EIS) may be required for projects that are likely to have significant negative impacts on the environment.

### **Palau Fisheries Advisory Committee (PFAC)**

In 2001 the President created the PFAC through Executive Order No. 204 to make recommendations to the Minister of Resources and Development and the President regarding national fisheries policies and the implementation of the “*Palau National Tuna Fisheries Management Plan*”. The committee composed of the Minister of Resources and Development, the Minister of State, the Minister of Justice, the Director of the Bureau of Marine Resources and one member appointed by the President from the private fisheries sector. The powers and duties of the PFAC advise the Minister and the President on the following:

- The formulation of coordination of national fisheries policies and programs for the conservation, management and sustainable utilization of tuna resources within the Republic of Palau’s EEZ;
- The implementation of the Tuna Plan;
- The implantation and enforcement of oceanic fisheries policies, laws, rules and regulations;
- Negotiation with domestic and foreign fishing companies seeking to fish within Palau’s EEZ, and the issuance of fishing licenses and permit;
- Negotiations with other potential stakeholders interested in the development of offshore fisheries; and
- In cooperation with the Minister of Justice, the coordination of maritime surveillance and enforcement of applicable fisheries laws, rules and regulations.

### **Palau Public Land Authority (PPLA)**

According to 35 PNCA § 210, PPLA has the power and duty “to administer, manage, and regulate the use of lands and income arising there from in trust for the people of the Republic.” 35 PNCA § 215 also gives the PPLA the power and duty to establish the basic guidelines and procedures for the operation of state public land authorities in each state and to provide technical assistance as appropriate. It states “The government of any state in the Republic is hereby empowered to create its own legal entity to receive from the Authority [PPLA] such public lands within its geographical boundaries.” It also states that “each state authority shall have rights, interests, powers, responsibilities, duties and obligations as may be granted to it by the Authority; provided that said grant and delegation by the Authority is limited only to those rights, interests, powers, responsibilities, duties and obligations inherent in the Authority by virtue of this chapter....” The PPLA therefore plays a critical role in management of public land in Palau, and thus is a key agency to involve in any discussions relating to forest management. (Hinchley, 2004)

### **2.2.2 NON-GOVERNMENT ORGANIZATIONS (NGOS)**

Over the past ten years, NGOs, particularly the **Palau Conservation Society (PCS)** and **The Nature Conservancy (TNC)** have played a significant role in conservation efforts and the protection of Palau's environment.

**TNC** has been working in Palau since 1990, initially in partnership with the national government (primarily with the Division of Marine Resources); moving to assisting establish the Palau Conservation Society (PCS); then ongoing collaboration, support and services to local partner organizations. Examples of activities since 1990 are:

- ❖ Coordinated and conducted rapid ecological assessments (REAs) of the main and southwest islands to identify key species, habitats, and communities requiring conservation.

- ❖ Assisted the Marine Resources Division in advocating for policy and regulatory reform for the harvest of Palau’s marine resources, with an emphasis on the comprehensive Marine Resources Protection Act, passed in 1994.
- ❖ Coordinated surveys and studies into saltwater crocodiles, dugongs, and sea turtles, grouper spawning aggregation sites, and current modeling.
- ❖ Worked with PCS to help states plan and establish conservation areas such as Ngardok Nature Reserve (Melekeok State), Ngeruangel Reserve Management Plan (Kayangel State) and Ngemai Conservation Area (Ngiwal State) and traditional closures (*'bul'*) at the Ngarchelong and Kayangel reef channels to protect fish spawning aggregations
- ❖ Assisted Koror state in management of the Rock Islands area, including development of a comprehensive management plan and establishment of a mooring buoy program for Palau (resulting in the current capability of the Koror State Rangers to install and maintain mooring and demarcation buoys at all major dive and tourist sites, and marine conservation areas).
- ❖ Assisted the development of the Protected Areas Network legislation and currently supporting its implementation.

Since 1994, PCS has been working with Palauan communities to protect natural resources through establishing locally managed conservation areas, developing watershed management strategies and increasing awareness about all aspects of conservation and protection of natural resources. PCS has worked with several states to create, monitor and manage many marine protected areas over the years. In 2002, PCS began to focus more effort on working with communities and partner agencies on conservation and awareness projects on Babeldaob Island, where much of the new development is occurring.

PCS, until fairly recently, was the only local NGO dealing with conservation and environment issues in Palau. In 2002, another local conservation NGO named **C3 - Community Centered Conservation** was established and has implemented several small scale projects. These include a literature review for the Nature Conservancy’s Dugong project, a seagrass mapping project for Ngerderrak Marine Protected Area and a diver impact study, both for Koror State. They also conducted the *Bag for Life* project which focused on minimizing the use of plastic bags.

#### **Palau Federation of Fishing Associations (PFFA)**

The PFFA is a national federation of locally based fishing and farming cooperatives that was initially incorporated as a non-profit organization through the High Commissioner in 1974 during U.S. Trust Territory times. Operating as a non-profit, membership currently consists of 11 chartered community-based fishing and farming cooperatives. PFFA has a Board of Directors, consisting of members from each of the 11 local cooperatives. PFFA was established to serve as both a purchasing and marketing agent for each constituent charter cooperative. While PFFA has the potential to play a critical role in the sustainable development of Palau’s fisheries and agriculture, lack of financial and political support has impaired their ability to carry out their very important function.

### **2.2.3 ENFORCEMENT AGENCIES AND MECHANISMS**

#### **Division of Fish and Wildlife Protection (DFWP)**

The Ministry of Justice, Bureau of Public Safety, Division of Fish and Wildlife Protection (DFWP), is the primary authority to enforce the criminal laws protecting the environment inside the reef. Notwithstanding limited resources, the Division initiated more than 300 criminal cases/citations in 2003. This is a significant increase from a total of 27 in 2001. The Division also has a significant education and community relations component, providing education in schools, allowing for field trips to the office, and organizing and participating in community clean up events. Because this

Division will handle much of the enforcement aspects, any conservation related legislation that is developed and passed needs to be developed with input and participation of the DFWP.

#### **Marine Environment Enforcement Response Team (MEERT)**

The MEERT Coordinator works under the Minister of Justice and the Chief of the Division of Fish and Wildlife Protection. The Coordinator is responsible for coordinating the efforts of all officers involved in enforcing the marine environment laws. The MEERT coordinator received the “Taro Leaf Award” from the Belau Tourism Association in 2003, for efforts to promote conservation in the Republic.

#### **Division of Marine Law Enforcement (DMLE)**

The Ministry of Justice, Bureau of Public Safety, Division of Marine Law Enforcement, is the primary authority to enforce the criminal laws relating to foreign fishing laws. The Division has one patrol boat, the PSS PRESIDENT H.I REMELIUK, to survey the \$600,000 square kilometer Exclusive Economic Zone. The Australian government provides salaries for a full time Maritime Surveillance Advisor and two Chief Petty Officers from the Royal Australian Navy to assist with the program.

### **2.2.4 COORDINATION BODIES**

#### ***Office of Environmental Response and Coordination***

President Tommy E. Remengesau, Jr., via Presidential Executive Order 189, created the Office of Environmental Response and Coordination (OERC) on January 2, 2001 to fulfill the Republic's obligations under the UN conventions on climate change, biodiversity, ozone, and desertification. The OERC is also mandated to facilitate a coordinated approach to Palau's response measures to environmental degradation, protection, and if possible, rehabilitation of natural habitats at the national level. The OERC is mandated to:

- provide coordinated planning for the Nation's response to issues of global climate change, biodiversity, desertification, land degradation and other internationally identified and funded environmental initiatives;
- develop a broad and coordinated planning approach to issues of environmental response within the Republic of Palau;
- integrate governmental environmental programs into Executive Branch environmental response planning;
- establish a coordinated grant writing capacity on environmental issues that are identified priorities within the Republic;
- assist environmental support agencies in the development of funding assistance for environmental programs in Palau;
- permit economies of scale in the government's staffing of environmental programs funded by international agencies. (OERC, 2002c)

#### ***Palau Natural Resources Council (PNRC)***

Created in 2001, the Palau Natural Resources Council (PNRC) is an action-oriented informal group comprising of all the key land management agencies, both government and non-government including private sector members. The council promotes cooperative efforts working with local communities, governments, agencies, NGO's, and others to achieve our goals and to increase public awareness on issues relating to soil, water, plant, and related natural resource conservation. The major objectives of the PNRC relate to: Agricultural Sustainability, Biodiversity Protection, Invasive Species Control, and Water Quality and Quantity Protection.

The members of Palau Natural Resource Council include: Bureau of Agriculture, Bureau of Lands and Surveys, Bureau of Marine Resources, Bureau of Public Works, Community Members/Farmers, Council of Chiefs, Environmental Quality Protection Board, Natural Resource Conservation Service (USDA), Office of Environmental Response and Coordination, Palau Association of Governors, Palau Community Action Agency, PALARIS, Palau Community College Agriculture Science Program, Palau Community College - Cooperative Research and Extension, Palau Conservation Society, The Environment Inc., and The Nature Conservancy.

### ***MAREPAC***

Palau's Marine Resources Pacific Consortium (MAREPAC) is one of nine entities that make up the Marine Resources Pacific Consortium (MAREPAC). MAREPAC was formed in 1999 to address issues relating to the marine environment in the Pacific. MAREPAC's mission is to work cooperatively to achieve the conservation of coastal and marine environments and the sustainable use of marine resources for the benefit of the present and future generations of our islands.

The local MAREPAC-Palau group has three main goals. 1) To promote the wise, appropriate, and sustainable use of coastal and marine resources to ensure present and future generations enjoy the benefits of these resources. 2) To better understand the status of our commercial and non-commercial marine resources in order to provide policy makers and private sector managers with up-to-date information so they can implement sustainable environmental practices and 3) To enhance communication and coordination between all the stakeholders regarding Palau's marine resources.

The members of MAREPAC-Palau include: the Bureau of Marine Resources, Community Centered Conservation, Community Conservation Network /Helen Reef Resources Management Project, Coral Reef Research Foundation, Global Coral Reef Monitoring Network, Koror State Department of Conservation and Law Enforcement, Division of Fish and Wildlife Protection, Office of Environmental Response and Coordination, Palau Community College Cooperative Research and Extension, Palau Conservation Society, Palau International Coral Reef Center, Office of PALARIS, The Environment, Inc., and The Nature Conservancy.

### ***National Environmental Protection Council***

The National Environmental Protection Council (NEPC) is a high-level policy council recently created in 2002 by Executive Order 205. The NEPC focuses on planning for better coordination of environmental initiatives within the Republic as well as ensuring that Palau fulfills its obligations under various international environmental agreements and treaties that have been ratified.

The NEPC was originally established with the vision of being the environment arm of the National Planning Commission. The establishment of the National Planning Commission still pending. The mandate of the NEPC is to:

- identify and prioritize national environment issues within the context of sustainable development within the Republic of Palau;
- propose a comprehensive sustainable management plan highlighting the Republic's national priorities and policies;
- establish clear, concise, documented and endorsed national guidelines for environmental programs and projects pursuant to established priorities; comment on all proposed public and private development projects to ensure environmental sustainability and integrity;
- propose legislation to protect the environment; and
- serve as the focal coordinating group for all environmental initiatives at the national level.

The NEPC is the National Steering Committee for the United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention on Biological Diversity (UNCBD) and Biosafety Protocol, United Nations Convention to Combat Desertification (UNCCD), and the Vienna Convention for the Protection of the Ozone Layer. The NEPC will act as the National Steering Committee for all future international environment and sustainable development initiatives within the Republic. (OERC, 2002c)

### **3. NATIONAL PROGRESS MADE & PROBLEMS ENCOUNTERED IN THE IMPLEMENTATION OF THE BARBADOS PROGRAMME OF ACTION**

#### **3.1 SECTORAL AREAS: PROGRESS MADE AND PROBLEMS ENCOUNTERED**

##### **3.1.1 CLIMATE CHANGE AND SEA-LEVEL RISE**

Palau ratified the United Nations Framework Convention on Climate Change and Kyoto Protocol on September 10, 1999.

##### ***3.1.1.1 National and Regional Projects Related to Climate Change***

Palau developed the First National Communication to the UNFCCC as part of the Global Environment Facility (GEF) Enabling Activity project. The project entailed a series of community workshops and a national symposium to: 1) create public awareness regarding the causes of climate change and its impacts on Palau; 2) conduct a greenhouse gas inventory for the period of 1994-2000; 3) execute a vulnerability and adaptation assessment to determine the affects of climate change on Palau, identify high areas of vulnerability, and develop a mitigation and adaptation framework to address projected climate change trends; and 4) prepare the Republic's First National Communication to the UNFCCC.

##### ***3.1.1.2 Key National Constraints with Respect to Climate Change***

Key national constraints with respect to climate change are:

- lack of a targeted and holistic awareness program to increase both community and political awareness and participation in climate change issues;
- lack of a comprehensive energy policy to reduce use of fossil fuels and promote alternative energy option;
- lack of a public transportation system to reduce the number of vehicles on the road;
- lack of climate change integration into national development planning processes;
- lack of a comprehensive strategy;
- lack of a coordinated effort for integrated coastal area management including development of land-use master plans;
- limited technical and financial resources for data collection and long-term monitoring of climate change impacts.

##### ***3.1.1.3 National Progress and Problems in the Area of Adaptation***

Much of the work being done to address sustainable energy in Palau can be considered progress in the area of adaptation. As discussed in detail in section 3.1.5. National projects include:

- Sonsorol and Hatohebei Solar Energy Development Project
- Palau-Saga University Ocean Thermal Energy Conversion Project

- Palau Energy Code Development Project

Regional projects include:

- Pacific Islands Renewable Energy Project (PIREP)
- EU-Palau Solar Lighting Project
- Palau-CNMI-Guam-Yap Renewable Energy Initiative

### **Transforming Coral Reef Conservation in the 21<sup>st</sup> Century**

Palau's efforts to develop a nationwide Protected Areas Network will play a significant role in an initiative being led by The Nature Conservancy to address issues such as adaptation to climate change. The Nature Conservancy has joined forces with Conservation International to plan and implement Transforming Coral Reef Conservation (TCRC), a highly collaborative initiative to transform the way marine protected areas (MPAs) for coral reefs and associated habitats are selected, created, designed, managed, and financed. The *goal* is to catalyze a worldwide effort to establish networks of MPAs within high-biodiversity tropical marine ecoregions that are: *designed to survive, managed to last, and connected like strings of pearls across our ocean planet.*

Expert groups that helped design the TCRC program identified Palau as a high priority for establishing a nationwide network of marine protected areas<sup>1</sup> (MPAs) that incorporates the concept of resilience. Palau is a prime choice because it has a solid track record for establishing MPAs, strong political support for the network concept from communities to the highest level of the national government, and access to research and conservation resources, scientists, and facilities. Palau provides an excellent opportunity to apply the concepts of bleaching resistance, survivability, connectivity and sustainability to address both the local resource management concerns and the broader global threats. Experience from Palau will help guide implementation of future MPA networks throughout the world, and will therefore be a centerpiece of the global TCRC initiative.

#### **3.1.2 NATURAL AND ENVIRONMENTAL DISASTERS**

##### ***3.1.2.1 National Framework for Risk Management and Disaster Preparedness***

The national framework for risk management and disaster preparedness is depicted in the National Disaster Plan. The National Emergency Committee, chaired by the Vice President, is the command, control, and coordinating body for disaster management in the Republic. In terms of preparedness, the National Emergency Management Office (NEMO) is the coordinator of disaster management training activities through annual mock disaster drills and/or other exercises. Current national projects include:

- Provision of *Introduction to Disaster Management* training courses;
- Development of disaster plans for various response agencies;
- Participation in the regional disaster manager's annual meeting sponsored by the South Pacific Geosciences Commission (SOPAC).

##### ***3.1.2.2 Vulnerability Assessments and Early Warning Systems***

SOPAC and the Center for Disease Control (CDC) in conjunction with NEMO and the Ministries of Health and Justice have undertaken some assessment in conjunction with projects to enhance capability. The Y2K project also undertook a study of vulnerabilities for the new millennium

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<sup>1</sup> MPAs include the full range of areas under conservation management, from strict no-take sanctuaries to multiple use areas, that are controlled by communities, governments, non-governmental organizations, or private owners.

regarding computers. SOPAC conducted the Environmental Vulnerability Index (EVI) for Palau February 2001. The EVI provides a comprehensive measure of environmental vulnerability of Palau.

In regards to early warning systems, Palau does have a small craft warning system in place, designed to warn boaters of hazardous surfs, especially at famous dive sites in Palau. The warning system consists of red flags raised throughout the island during severe marine conditions, restricting divers, fishermen and other boaters from going out to sea. Other emergency warnings are disseminated to each state government and the public through local radio stations and through existing telephone, fax, and portable radios.

### ***3.1.2.3 Key Constraints Related to Disaster Management***

The main constraint for effective planning and implementation of disaster management strategies and risk assessments is the lack of capacity (both technical and financial) as well as, political commitment. At this time there is no special arrangement or mechanism for disaster management within the region or sub-region. The U.S. Federal Emergency Management Agency (FEMA) will no longer provide assistance to Palau, as the Republic opted out of receiving FEMA assistance for the duration of the Compact and chose to receive funds in lieu of assistance. However, despite the ineligibility for FEMA assistance, Palau did receive assistance from the U.S. Military, when the collapse of the Koror-Babeldaob Bridge caused a state of emergency in 1996. The U.S Navy graciously provided and operated desalination equipment to supply water to the urban center of Koror State.

### **3.1.3 COASTAL AND MARINE RESOURCES**

Palau ratified the UN Convention on the Law of the Sea (UNCLOS) on September 11, 1996, the UN Convention on Biological Diversity on November 4, 1998, and acceded to the Cartagena Protocol on Biosafety to the Convention on Biological Diversity on May 29, 2001.

#### ***3.1.3.1 Projects Related to the Sustainable Use, Management and Conservation of Marine and Coastal Resources***

Executive Order No.203 which divides the former Bureau of Natural Resources and Development into the Bureau of Agriculture and the Bureau of Marine Resources (BMR) clearly states the responsibilities of the Bureau of Marine Resources are to encompass exploring, surveying, developing, managing, and conserving all marine resources. The responsibilities also include the regulation of foreign fishing, including licensing, inspection, port sampling, maintenance analysis of catch reports and observer program.

Operating directly under the Ministry of Resources & Development (MRD), the aim of the BMR is to explore and survey all marine resources, manage and conserve these resources, develop and transfer fisheries and aquaculture technologies, develop and promote the cost-effective marine/aquatic species of potential economic importance, statistical monitoring and give advisory services and technical support to the fishing community.

BMR is acknowledged as the primary government body responsible for fisheries and minerals occurring in the sea. Within the fisheries sector are included all living marine resources which are exploited for subsistence or trade. The work areas of the Bureau cover research and resource assessment on all living marine resources, sites and areas identification for conservation, fisheries and aquaculture development, fisheries management and conservation of fisheries resources.

The Bureau's work program is activated within 4 established branches: (1) The Fisheries Development, (2) Fisheries Management (3) Conservation and Protected Areas, and (4) Aquaculture and Mariculture.

### ***National Initiatives***

One of the four main programs within the BMR is the Marine Conservation and Protected Areas Branch (MCPA). This branch of the BMR focuses efforts on the Ngaremeduu Conservation Area (NCA) and provides assistance to the Conservation Area Coordinating Committee (CACC). Projects include: a monitoring program for reef, water quality, mangroves forest, sedimentation, seagrass, and an awareness program.

### **Protected Areas Network (PAN) Act**

On November 7th, 2003 the Republic of Palau National Congress passed the Protected Areas Network (PAN) Act. This legislation was then approved by the President on November 26th, 2003 and became law. This act creates a mechanism to link all of Palau's protected areas, both marine and terrestrial and begin to coordinate the efforts of many states in protecting Palau's rich ecosystems as well as to help with local resource management issues through establishing an interconnected network of protected areas. A nation-wide Protected Areas Network will allow the national government to assist states in the protection of significant areas of biodiversity, important habitats, and other valuable resources (including cultural) that are crucial to the future stability and health of Palau.

Through the PAN network, Palau will be able to better manage their natural resources by coordinating the efforts of the already existing protected areas as well as encouraging state governments to propose new protected areas that are high in biodiversity. This law will enable state governments to manage, protect and develop the natural resources within their boundaries while giving them access to assistance from the national government through the Ministry of Resources and Development (MRD). This includes technical assistance to states that seek to protect areas of significant biodiversity and unique habitats by allowing access to grant money and programs that the individual states would not normally be eligible.

The term "protected" is defined in the legislation as "maintained, intact, preserved, conserved, or otherwise managed in a sustainable manner." The individual states in the Republic of Palau are responsible for nominating areas within their borders to be eligible for the PAN network, applying for financial aid and technical support to manage the nominated areas and developing and implementing the management plans.

The responsibilities of the national government include providing rules and regulations outlining the process for designating an area to become part of the PAN. It also assists with the enforcement of regulations and develops mechanisms for sustainable financing of the protected areas in PAN. The national government, through the MRD, is also responsible for standardizing the collection of information, record keeping, monitoring and reporting.

**Currently, there are 16 marine protected areas recognized in Palau.** These protected areas occur in areas of high biodiversity and ecological significance. Through the PAN Committee and in conjunction with MRD, regulations will be drafted to develop appropriate criteria for designation of sites in order to maximize the effectiveness of protected area network for conservation and natural resource management. Criminal and civic penalties have been established for individuals who violate regulations set forth for the protected areas. Many of the marine protected areas have restricted seasons for fishing and harvesting of certain species or have traditional moratoriums (*bul*) in place. Regulations that are in place are enforced by the national and state government. Most of Palau's 16

states do not have full time conservation staff or enforcement officers and only one has a full time legal counsel. The states therefore have limited capacity to plan and implement programs and will need technical assistance and further funding support from national government agencies and NGOs to effectively implement conservation programs. Lack of enforcement of conservation laws in general is also a problem in Palau due to enforcement agencies having limited human and financial resources to adequately enforce the laws.

The President created the **Palau Fisheries Advisory Committee (PFAC)** through Executive Order No. 204 to make recommendations to the Minister of Resources and Development and the President regarding national fisheries policies and the implementation made in the “**Palau National Tuna Fisheries Management Plan**”. The committee composed of the Minister of Resources and Development, the Minister of State, the Minister of Justice, the Director of the Bureau of Marine Resources and one member appointed by the President from the private fisheries sector.

The powers and duties of the PFAC advise the Minister and the President on the following:

- The formulation of coordination of national fisheries policies and programs for the conservation, management and sustainable utilization of tuna resources within the Republic of Palau’s EEZ;
- The implementation of the Tuna Plan;
- The implantation and enforcement of oceanic fisheries policies, laws, rules and regulations;
- Negotiation with domestic and foreign fishing companies seeking to fish within Palau’s EEZ, and the issuance of fishing licenses and permit;
- Negotiations with other potential stakeholders interested in the development of offshore fisheries; and
- In cooperation with the Minister of Justice, the coordination of maritime surveillance and enforcement of applicable fisheries laws, rules and regulations

Specifically the Bureau is to:

- Continue efforts to develop inshore fisheries by transferring modern fishing techniques to Palauan fishermen for the purpose of enhancing subsistence and commercial fishing;
- Promote and develop commercialization of fisheries and fishery value added products;
- Assist in the development of fisheries infrastructure and programs at the state level;
- Continue the exploration of other species of high value, such as the deep water fish, crabs, shrimp, and squid for potential commercial development;
- Explore seabed mineral resources within the continental shelf in the Republic of Palau;
- Explore potential joint ventures in long-line fishing and shore-side value added production;
- Conduct pilot programs with the aim of promoting and developing commercialization of fisheries and fishery products;
- Establish programs to hatch and rear identified species of fish, mollusks, crustaceans, and turtles to be returned to their natural habitats at maturity as a means of preventing the depletion of such important marine resources;
- Assess and evaluate the commercial viability of various reef and deep water fish, baitfish, mollusks, crustaceans, turtles and other marine and aquatic life from catch records census and quantitative field measurements;
- Assist the Minister and the Palau Fisheries Advisory Committee (PFAC) in the development and implementation of a comprehensive fisheries policy and in the negotiation of multilateral, sub-regional and bilateral fisheries agreements pursuant to Executive Order No. 204;

- In line with Executive Order No. 204, assist the Minister and the PFAC in formulating, establishing and implementing guidelines and conservation measures to safeguard against the over-exploitation and over-harvesting of marine resources;
- Provide technical assistance and advisory services to local fishing cooperatives in the purchasing, handling, and marketing of fish and other marine products both locally and outside of the Republic of Palau;
- Provide staff support and administrative assistance to the PFAC; and
- Maintain and operate the Palau Mariculture Demonstration Center to enhance marine biological research, study and experimentation of mariculture and aquaculture fisheries.

**Palau’s Marine Resources Pacific Consortium (MAREPAC-Palau)** is one of nine entities that make up the regional Marine Resources Pacific Consortium (MAREPAC). MAREPAC was formed in 1999 to address issues relating to the marine environment in the Pacific.

The MAREPAC-Palau mission is “*to work cooperatively to achieve the conservation of coastal and marine environments and the sustainable use of marine resources for the benefit of the present and future generations of our islands.*”

In order to achieve its goals, the local MAREPAC-Palau developed and is successfully implementing its first 5-Year Plan. An up-to-date bibliography on information regarding marine resources with over 700 documents has been completed. The bibliography includes digitized maps and scanned documents and is available for use at the Palau International Coral Research Center (PICRC) library. MAREPAC members are monitoring the reefs, fish, marine lakes and sea water temperatures; conducting trochus, land crab and dugong surveys and mangrove outreach; mapping the seagrass habitats and biodiversity; conducting studies of currents, bathymetry and sedimentation; and restoring mangroves. Studies on resource use at the national and community level are near completion. Demarcation buoys for protected areas have been installed in several States. An algae and coral collection were established at PICRC. An extensive invertebrate collection is established at the Coral Reef Research Foundation (CRRF). Studies on fish aggregations and a market study on fish are underway as well.

#### **Palau International Coral Reef Center (PICRC)**

PICRC was established in 1998 through with assistance from Japan and the U.S. Their mission is to become a self-sustaining, center of excellence to provide a forum for coral reef studies, research, education and training. PICRC’s main purpose is to provide information to assist and improve the management, the use and the conservation of Palau’s and the world’s marine environment. The Center features a research facility and staff with programs in fish, coral health and seagrass monitoring, marine protected area effectiveness, coral recovery from bleaching and marine environment education. The Center has a world-renowned Scientific Advisory Committee who offer scientific and administrative advice and assistance to the staff..

#### ***Regional Initiatives***

Palau ratified the South Pacific **Forum Fisheries Agency Convention (FFA)** on April 14, 1986 to effectively conserve and utilize the living marine resources of the South Pacific Region and in particular the highly migratory species; to promote regional cooperation and coordination in respect of fisheries policies; and to facilitate the collection, analysis, evaluation and dissemination of relevant statistical scientific and economic information about the living marine resources of the region, and in particular the highly migratory species.

Palau has ratified the Agreement for the implementation of the provisions of the **UN Convention on the Law of the Sea (UNCLOS)** of 10 December 1982 relating to the Conservation & Management of Straddling Fish Stocks UN Implementing Agreement (UNIA) on December 4, 1995 to effectively conserve and manage highly migratory fish stocks within the economic zones.

On January 21, 1999 Palau ratified the **Niue Treaty on Cooperation in Fisheries Surveillance & Law Enforcement in the South Pacific Region** to effectively conserve, manage, explore and promote intra-regional coordination and cooperation in fisheries surveillance and law enforcement covering the exclusive economic zones and fisheries zones of coastal states in the South Pacific Region and the vital economic significance of such zones to the economic development of South Pacific coastal states; and the **Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery** to effectively explore, exploit, conserve, and manage all living marine resources covering the exclusive economic zones and in particularly the promotion of regional cooperation and coordination of fisheries policies and the need for implementation through regional and sub-regional arrangements. This Agreement is also to provide full and verifiable data on their fishing operations.

### ***International Initiatives***

#### **Transforming Coral Reef Conservation in the 21<sup>st</sup> Century**

The Nature Conservancy has joined forces with Conservation International to plan a highly collaborative initiative to transform the way marine protected areas (MPAs) for coral reefs and associated habitats are selected, created, designed, managed, and financed. Our *goal* is to catalyze a worldwide effort to establish networks of MPAs within high-biodiversity tropical marine ecoregions that are: *designed to survive, managed to last, and connected like strings of pearls across our ocean planet*. The Transforming Coral Reef Conservation (TCRC) initiative links with the PAN and is an example of adaptation for climate change.

Expert groups that helped design the TCRC program identified Palau as a high priority for establishing a nationwide network of marine protected areas<sup>2</sup> (MPAs) that incorporates the concept of resilience. Palau is a prime choice because it has a solid track record for establishing MPAs, strong political support for the network concept from communities to the highest level of the national government, and access to research and conservation resources, scientists, and facilities. Palau provides an excellent opportunity to apply the concepts of bleaching resistance, survivability, connectivity and sustainability to address both the local resource management concerns and the broader global threats. Experience from Palau will help guide implementation of future MPA networks throughout the world, and will therefore be a centerpiece of the global TCRC initiative.

The **International Coral Reef Initiative (ICRI)** is a partnership among governments, international organizations, and non-government organizations. It strives to preserve coral reefs and related ecosystems by implementing Chapter 17 of Agenda 21, and other relevant international conventions and agreements. The ICRI was announced at the First Conference of the Parties of the UNCBD in December 1994, and at the high-level segment of the Intersessional Meeting of the U.N. Commission on Sustainable Development in April 1995. ICRI was originally initiated by the governments of Australia, France, Japan, Jamaica, the Philippines, Sweden, the United Kingdom and the United States of America. Additional partners from governments, United Nations organizations, multilateral development banks, environmental and developmental NGOs, and the private sector have subsequently joined the original founders and are currently collaborating in the International Coral

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<sup>2</sup> MPAs include the full range of areas under conservation management, from strict no-take sanctuaries to multiple use areas, that are controlled by communities, governments, non-governmental organizations, or private owners.

Reef Initiative. ICRI directly addresses one of the important issues identified in Chapter 17, Section 17. 86 that calls on states to:

*"identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and should provide necessary limitations on use of these areas, through, inter alia, designation of protected areas. Priority should be accorded, as appropriate, to:*

- a. *Coral reef ecosystems;*
- b. *Estuaries;*
- c. *Temperate and tropical wetlands, including mangroves;*
- d. *Seagrass beds;*
- e. *Other spawning and nursery areas."*

The ICRI emerged out of the recognition that the coral reefs and related ecosystems found in tropical and sub-tropical regions are facing serious degradation, primarily due to anthropogenic stresses. Global estimations point that 10 percent of the Earth's coral reefs have already been seriously degraded and a that much greater percentage of coral reefs is under serious threat. Damaged or destroyed reefs can be found in more than 93 countries, with the coral reefs in South and Southeast Asia, East Africa and the Caribbean facing the greatest risk. It has been recognized that, if allowed to continue, this decline is likely to lead to the loss of most of the world's reef resources during the next century. The significance of ICRI to Palau is the recent selection of Palau as the Co-Secretariat for ICRI along with Japan for the period of 2005-2007.

The **United States Coral Reef Task Force (USCRTF)** is a federally-funded task force that involves all Federal agencies whose actions may affect U.S. coral reef ecosystems and they are to review their participation in the Coral Reef Initiative and the strategies developed under it, including strategies and plans of State, territorial, commonwealth, and local governments, and, to the extent feasible, shall enhance Federal participation and support of such strategies and plans.

Duties of the USCRTF includes (a) *Coral Reef Mapping and Monitoring*, (b) *Research*, (c) *Conservation, Mitigation, and Restoration*, and (d) *International Cooperation*.

**(a) Coral Reef Mapping and Monitoring:** The Task Force, in cooperation with State, territory, commonwealth, and local government partners, shall coordinate a comprehensive program to map and monitor U.S. coral reefs. Such programs shall include, but not be limited to, territories and commonwealths, special marine protected areas such as National Marine Sanctuaries, National Estuarine Research Reserves, National Parks, National Wildlife Refuges, and other entities having significant coral reef resources. To the extent feasible, remote sensing capabilities shall be developed and applied to this program and local communities should be engaged in the design and conduct of programs.

**(b) Research:** The Task Force shall develop and implement, with the scientific community, research aimed at identifying the major causes and consequences of degradation of coral reef ecosystems. This research shall include fundamental scientific research to provide a sound framework for the restoration and conservation of coral reef ecosystems worldwide. To the extent feasible, existing and planned environmental monitoring and mapping programs should be linked with scientific research activities. This Executive order shall not interfere with the normal conduct of scientific studies on coral reef ecosystems.

**(c) Conservation, Mitigation, and Restoration:** The Task Force, in cooperation with State, territorial, commonwealth, and local government agencies, nongovernmental organizations, the scientific community and commercial interests, shall develop, recommend, and seek or secure implementation of measures necessary to reduce and mitigate coral reef ecosystem degradation and to restore damaged coral reefs. These measures shall include solutions to problems such as land-based sources of water pollution, sedimentation, detrimental alteration of salinity or temperature, over-fishing, over-use, collection of coral reef species, and direct destruction caused by activities such as recreational and commercial vessel traffic and treasure salvage. In developing these measures, the Task Force shall review existing legislation to determine whether additional legislation is necessary to complement the policy objectives of this order and shall recommend such legislation if appropriate. The Task Force shall further evaluate existing navigational aids, including charts, maps, day markers, and beacons to determine if the designation of the location of specific coral reefs should be enhanced through the use, revision, or improvement of such aids.

**(d) International Cooperation:** The Secretary of State and the Administrator of the Agency for International Development, in cooperation with other members of the Coral Reef Task Force and drawing upon their expertise, shall assess the U.S. role in international trade and protection of coral reef species and implement appropriate strategies and actions to promote conservation and sustainable use of coral reef resources worldwide. Such actions shall include expanded collaboration with other International Coral Reef Initiative ("ICRI") partners, especially governments, to implement the ICRI through its Framework for Action and the Global Coral Reef Monitoring Network at regional, national, and local levels. (<http://coralreef.gov/>)

Palau recently joined the **US Coral Reef Task Force (USCRTF)** in early 2004 as one of the Freely Associated States (FAS). Palau's priorities with the USCRTF is to enter discussions with the Task Force regarding Palau's contributions to a network of marine protected areas as a means of protecting coral reef biodiversity on a regional scale; seeking assistance in coral reef mapping and monitoring as well as capacity building; and Palau stands ready to work with the Governors of the US Flag Pacific Islands and the Presidents of the Freely Associated States in developing a regional Sea Grant consortium focused on developing the capacity of the institutions of higher education to train young people and future leaders in coral reef and related marine resource management.

### ***3.1.3.2 Key National Constraints Related to Marine and Coastal Resources***

While the Palauan population is dependent on its marine and coastal resources, multispecies fisheries are difficult to manage. Key challenges include the need for improved commercial development and sustainable use, which are key to maintaining and improving current local lifestyles. The use of marine and coastal resources for subsistence is integral to Palauan life and culture. Palau is also challenged by illegal use of Palauan open water and near shore fisheries by fishing boats originating in neighboring countries. The delineation of Palau's EEZ is currently being negotiated between Palau and the neighboring countries like the Philippines, Indonesia and the Federated States of Micronesia.

The major constraints in the development of the **Fisheries sector** as well as sustainable use and conservation of marine and coastal resources is:

1. Lack of capacities and resources of both the state and the national government
2. Inconsistencies of governance between the state and the national government
3. Restrictive legislation for potential development particularly in sustainable aquaculture;
4. Lack of cohesive information network between the coordinating agencies.

### ***3.1.3.3 Approaches and Tools for Sustainable Marine and Coastal Resources***

#### **Fishing Regulations in Palau**

To help protect the health of Palau's marine resources the government has placed restrictions on many species of marine life. These regulations are enforced by the **Bureau of Marine Resources (BMR)** and the **Division of Fish and Wildlife Protection (DFWP)** and individuals who are in violation of these restrictions can face fines and even incarceration. There are closed seasons for many fish, turtles and invertebrates. The following are regulated marine species: Groupers, Rabbitfish, Bumphead Parrotfish, Humphead Wrasse, Lobster, Coconut Crab, Hawksbill and Green Seaturtles, Giant Clam, Trochus, Blacklip Pearl Oyster, Sea Cucumber, Dugongs, and Sponges.

**Harmful fishing techniques** that have been banned in Palau include fishing while on scuba, hooka or any other underwater breathing apparatus other than a snorkel. It is illegal to use any explosives, poisons or chemical to catch marine life. Using a gillnet, surround net or kesokes net having a mesh size of less than three (3) inches measured diagonally is against the law.

Prior to any export of marine resources out of the Republic of Palau, the individual exporting shall complete and sign 4 copies of a **Marine Export Declaration**. All persons engaged in any marine resource related research, including scientific, maricultural or medical, must have a valid **Marine Research Permit** issued by the Minister of Resources and Development or his designee.

On January 21, 1999 Palau ratified several instruments such as the **Convention for the Prohibition of Fishing with Long Driftnets in the Pacific (Wellington Convention)** to prohibit fishing with Long Driftnets in the South Pacific.

#### **3.1.4 LAND RESOURCES**

Palau ratified the **United Nations Convention to Combat Desertification (UNCCD)** on July 14, 1999. The first national report to the UNCCD was prepared and submitted in April 2002.

The **Stockholm Convention on Persistent Organic Pollutants** was ratified on February 26, 2002. In 1996, a survey of persistent organic pollutants was conducted in Palau. Stockpiles of wastes found included 18 metric tons (mt) of potential PCB contaminated transformer oil, 4mt of bitumen, 10mt of waste oil, 4mt of unwanted hypochlorite, 2mt of old medical drugs, 1.2 mt of DDT and 300 m3 of asbestos pipe. Oil contaminated sites were found at Aimeliik and Ngardmau power stations. A stockpile of about 2,000 lead/acid batteries awaited off-island shipment. In 2002, a less comprehensive inventory of POP's was conducted and additional areas of contamination were found. Palau received an enabling grant of \$358,000 to implement Phase I of the Convention that will begin in 2003. During Phase 1, Palau will conduct more comprehensive surveys for POP's using 100 test kits, develop a management plan for POP's and link up with the regional POP's program. Additional funding will be sought to implement Phase II and III to repackage unsafe chemicals and safe storage as are required and removal and disposal of POP's. No dates are set for these future phases. (The Environment, Inc., April 2003)

Palau became party to the **Ramsar Convention on Wetlands** in 2003. The first wetland of international importance to be designated by Palau was the 1,250 acre Ngardok Nature Reserve in Melekeok. This reserve was designated by Melekeok State in 1997 and is the largest freshwater lake in Micronesia. The Ramsar Convention will enable Palau to receive technical and financial support for the management of this wetland. The lake is part of the headwaters of Ngerdorch River and the water source for Melekeok State. With assistance from Ramsar and several local and international

agencies, Melekeok State is building Babeldaob's first interpretative nature trail. By early 2004, Melekeok plans to begin eco-tours and educational excursions for students in the reserve.

### ***3.1.4.1 Projects and Initiatives Related to Sustainable Use, Management and Conservation of Land Resources Including Terrestrial Biodiversity***

#### **Protected Areas Network Act (PAN)**

Palau recently passed the PAN Act which provides the framework for setting up a nationwide network of marine and terrestrial protected areas. The Act recognizes a range of types of protected areas, from areas with strict protection through to sustainable use areas, and is intended to encourage states to designate protected areas that meet their own resource management needs as well as national biodiversity conservation objectives. The Ministry of Resources and Development is responsible for hiring a coordinator for the PAN Act and developing regulations for the operation of the PAN in consultation with all relevant partners and stakeholders. The Nature Conservancy (TNC) is providing critical technical and financial assistance to support this initiative.

The Ministry of Resources and Development (MRD) is the key institution at the national government level responsible for developing and implementing strategic planning on natural resources. Since native upland forest covers an estimated 75% of the land area in Palau, currently the main agency within the MRD that handles land resources management at the national level is the Forestry Unit within the Bureau of Agriculture. The Forestry Unit has five main sub-programs listed below. All of these programs are supported in full or in part by grant programs through the USDA Forest Service.

#### **1. Conservation Education**

The main purpose of this grant program is to provide support for implementation of conservation education programs that support the needs of the diverse human and natural communities of the States of California and Hawaii and the Pacific Islands. Working in partnership the program promotes opportunities for citizens of all ages to develop an awareness and understanding of environmental issues, so they will act responsibly by caring about and conserving natural and cultural resources. The program fosters awareness of the interdependence of humans and the natural world, develops knowledge about the environmental and natural/cultural resources, and empowers citizens to make informed decisions and take actions to solve environmental problems.

#### **2. Cooperative Lands Forest Health Protection**

The main purpose of this grant program is to provide technical and financial assistance to participating states to survey and evaluate forest insects and diseases and monitor forest health.

#### **3. Forest Resource Management**

This program provides the channel for technology transfer, and technical and financial assistance to non-industrial private landowners to support environmentally sound forest resource management and stewardship.

#### **4. Reforestation, Nursery and Genetic Resources**

The main purpose of this program is to provide high-quality planting stock for reforestation and afforestation efforts and to protect and improve the productivity of the nation's forests and meet the nation's priorities for tree planting.

#### **5. Urban and Community Forestry**

The main purpose of this program is the comprehensive management and enhancement of community forests and related natural resources in any populated area, from the inner city to the developing

urban/rural interface, and to rural communities. It is guided by the Urban and Community Forestry Council made up of local community and government agency representatives. Current emphases include: increasing the number of trees and forested acreage; expanding the diversity and number of community residents informed and involved; strengthening U&CF Councils and Programs; establishing new and strengthening existing programs; promoting self-reliance and support at all levels; focusing on the community forest ecosystem—the relationship between the forest, associated natural resources, and human activity. Local plant nurseries have been set up under this program in several states, including Melekeok, Ngeremlengui and Airai, with the aim of propagating local and endemic trees for forest rehabilitation.

#### **Palau Land and Resources Information System (PALARIS)**

PALARIS is the national GIS office under the MRD. They work to provide data and improve the collection and management of data within the Republic. They also provide GIS and data management support services to government and civil society agencies/organizations. They are currently in the process of digitizing the vegetation survey to be able to use as a layer in GIS projects for better planning, analysis and decision-making. In terms of Forest Management Planning, this office will play a critical role in the collection, management and analysis of information.

#### **Palau Community College-Cooperative Research and Extension (PCC-CRE)**

The PCC-CRE programs mainly focus on agriculture and conservation of agrobiodiversity resources. This agency is staffed with well-qualified agronomists and entomologists and it has a Research and Development station in Ngaremlengui, Babeldaob, that has laboratory facilities for reproducing taro seedlings through tissue culture. They are also working on a germ plasm collection for varieties of banana, sweet potato and taro. Also, as part of their comprehensive conservation management plan, they have planted hundreds of trees to serve as windbreaks and to stabilize the soils in their riparian areas. The trees also serve as educational displays for their Outdoor Science Class for local high school students.

#### **Belau National Museum (BNM)**

The Natural History section of the Museum presently has two on-going projects that support conservation of land resources and terrestrial biodiversity in Palau. Their Ethnobotany project involves documenting traditional uses of plants in Babeldaob; identifying plants that are perceived by local elders to be rare; and identifying traditional terrestrial conservation efforts that may be revived and applied at the state level to protect Palau's forests. The second project is an entomology project that involves assembling a permanent collection of Palau's insects and related arthropods.

#### ***U.S. Federal Government Agencies***

Under the Compact of Free Association between Palau and the United States, a number of US government agencies are able to provide technical and funding assistance to Palau. The main agencies providing support for forest management programs are shown below.

#### **USDA Forest Service**

The United States Department of Agriculture Forest Service supports a number of programs that provide assistance to the Bureau of Agriculture and the Forestry Unit. These are of critical importance in providing capacity for the Bureau to implement forest management activities, as Palau government funding is quite limited, providing mainly for staff salaries with minimal funds for projects or program implementation.

### **USDA-Natural Resource Conservation Service (NRCS)**

The USDA-Natural Resource Conservation Service (NRCS) has an office in Palau, with one full-time staff. NRCS provides technical assistance to landowners, government agencies, and natural resources managers on wise use and protection of natural resources such as soil, water, animals, and plants. Natural Resource Conservation Service has provided direct technical assistance to Palau under the Compact Agreement of Free Association since February 1998 when we opened the Field Office in Palau. The agency emphasizes voluntary, science-based assistance, partnerships, and cooperative problem solving at the community level. Typically, NRCS works with individual land owners producing conservation plans to address the site specific resources management problems. NRCS Palau has also work with others on several large scale projects, including the following:

- **Soil Assessment for Peleliu and Angaur:** NRCS completed an in-depth study of the soil fertility of the islands of Peleliu and Angaur in 2000. These studies looked at the soil fertility levels in relation to the WWII activities which distributed the soils. The finding concluded that though the soils were greatly distributed during WWII the regrowth of vegetation and the building of organic matter which holds the soils fertility on these limestone islands, has resulted in normal soil fertility levels.
- **Ngardok Nature Reserve Conservation Plan (Reforestation Plan):** NRCS worked with the Ngardok Nature Reserve Board to complete a reforestation and erosion control plan for the Ngardok Nature Reserve. The Ngardok Nature Reserve consists of an area of approximately 1505 acres and is located in the Melekeok, Babeldaob. The multi agency community based work to provide special management for Lake Ngardok watershed began in the early 1990's to protect this valuable source of drinking water for the future capital that is presently being built in Melekeok. In December 1997, a law was passed by the Melekeok State to establish the Ngardok Nature Reserve – an area that encompasses roughly the entire watershed draining into Ngardok Lake. The law established a board that prepared a Management Plan for conserving, protecting, and managing the Ngardok Lake watershed area.
- **Soil Assessment for Ngaremeduu Management Plan:** NRCS provided a soil assessment for the use of the community and the national government during the Ngaremeduu Management Planning process.
- **Ngerikiil Watershed Project:** NRCS recently completed a in-depth resource assessment of the Ngerikiil Watershed as a first step in the watershed planning process for the community of Airai, Palau. The Ngerikiil Watershed area covers 11 mi<sup>2</sup> (7,034 acres) of Airai State, Babeldaob Island. The watershed has been an area of importance to Palau as a major water source (water intake built in 1980) and therefore of interest for a watershed protection project for many years. In July 2002 the Palau Natural Resources Council (PNRC) and Governor of Airai, Mr. Tmewang Rengulbai, Natural Resources Conservation Service (NRCS) assistance for the Ngerikiil Watershed Resource Assessment. NRCS completed a field inventory of the watershed in 2003 and presented the findings in a report. The report is a comprehensive resource assessment of the Ngerikiil Watershed with the objectives of identifying pollution sources, identifying sustainable and unsustainable land uses within the watershed, and to make recommendations to address natural resource concerns, especially those affecting water quality within the Ngerikiil Watershed of Airai State, Palau's critical drinking water source. The Resource Assessment is designed to help the stakeholders better understand the resource problems and help find solutions to maintain and/or improve surface and near shore water quality and sustain healthy habitats.
- **Conservation Plan for Nekken Agricultural Station:** NRCS has been working closely with the National Government of Palau since opening the NRCS office in Palau 1997. Recently, the Bureau of Agriculture (BOA) has requested for a complete conservation plan for the

National Government lands at Nekken. Nekken is the Agricultural and Forestry Experimental Station responsible for providing agricultural and forestry technical assistance to farmers and landowners throughout the Republic of Palau. Bureau of Agriculture at Nekken has a forestry nursery providing tree seedlings for forestation, agricultural nursery provide vegetable seedlings, agricultural experiments, and forest plantations.

### **US Fish and Wildlife Service (USFWS)**

The US Fish and Wildlife Service is able to provide limited funding and technical support for biological studies and natural resource management in Palau. PCS in partnership with USFWS and Birdlife International recently held a training on the Variable Circular Plot method for surveying birds in Palau to help build local capacity in monitoring bird population densities. USFWS officers also help Palau with enforcement. Through the Lacey Act, USFWS officers can arrest people for transporting – or importing into the US – any fish or wildlife that was taken in violation of one of Palau’s conservation laws.

### ***Non-government Organizations (NGOs)***

#### **Palau Conservation Society (PCS)**

Palau Conservation Society is a community-based NGO with programs throughout Palau. PCS is a key partner in land based conservation initiatives in Palau. Their current and planned program areas that support or complement terrestrial biodiversity activities include: forest policy development; community consultations on mangroves, forests, protected areas and biodiversity; forest monitoring trials; watershed education and outreach; upper watershed and mangrove conservation area development; riparian buffer zone development in watershed areas; terrestrial conservation area support (e.g., trail development in Lake Ngardok Nature Reserve); and support for state-level natural resource management planning including a community visioning initiative in partnership with UNESCO – Small Islands Voice (SIV). In addition, PCS has recently become an affiliate of Birdlife International and will be working to identify and protect the Important Bird Areas (IBA) in Palau (with funding from the EU through Birdlife International).

#### **The Nature Conservancy (TNC)**

TNC is working closely with the Ministry of Resources and Development and other partners to support implementation of the Protected Area Network (PAN) legislation. Support includes:

- Support for the national Protected Area Network coordination unit
- Sustainable Conservation Financing study, including a social and economic analysis, applying long-term financial and business planning, identifying and implementing appropriate finance mechanisms and cost effective management approaches
- Research relevant to setting up a marine and coastal protected area network, such as scientific studies to better understand current regimes and connectivity, spawning aggregation site dynamics, ecological design principles, and coral bleaching mitigation factors
- Ecoregional biodiversity planning
- Support on-the-ground implementation of protected area management plans in the Rock Islands-Southern Lagoon Area and Ngeruangel Reef.

The Nature Conservancy is also supporting the Bureau of Agriculture Forestry Unit in the development of a nationwide mangrove management plan and comprehensive forest management legislation in conjunction with the 16 states of Palau. . Consultations with each of the states and other stakeholders are underway.

TNC also works closely with PCS, the Palau International Coral Reef Center (PICRC) and other partners on capacity-building and institutional development programs. These include the Micronesians in Island Conservation (MIC) network (which is a peer learning network with members throughout Micronesia), small grants for training or other institutional development programs and technical assistance through TNC staff or volunteers.

### ***3.1.4.3 Key National Constraints Related to Sustainable Management of Land Resources, Forests and Terrestrial Biodiversity***

#### **Lack of Comprehensive Legal Framework**

Like many other small island countries, Palau lacks a comprehensive statutory and regulatory environmental management framework but instead has adopted a number of statutes dealing directly or indirectly with biodiversity and the use of biological resources in a piecemeal fashion. To date, at least two bills related to forests have been introduced into Congress but not enacted. In addition, Palau lacks an overall forest management plan for Palau. The following drafts have been prepared, but not yet approved or implemented:

- 1. Forest Management Plan (1994)** – this draft plan was prepared with the assistance of the USDA Forest Service but was not implemented. It provided discussion of some important forest issues and proposed short-term strategies and actions to deal with these. However, the action plan is now outdated and it did not cover the full range of forest management issues in Palau
- 2. DRAFT Mangrove Management Plan (2000)** – this draft plan was also prepared with the assistance of the USDA Forest Service, and provided a comprehensive coverage of technical issues related to mangrove conservation and management. However it was done with minimal public consultation in preparation of the draft plan and did not deal with state issues. The implementation plan was therefore unrealistic and unlikely to be supported by the states. As mentioned previously, the Bureau of Agriculture Forestry Unit is currently leading consultations with states and communities to develop a national mangrove management plan.

#### **Land Tenure Issues**

Under Article I Section 2 of the Constitution of the Republic of Palau, each state “has exclusive ownership of all living and nonliving resources, except highly migratory fish, from the land to twelve nautical miles seaward of the baseline.” There has been some confusion regarding the interpretation of this section of the Constitution as to whether states have exclusive ownership of all living and nonliving resources on the land or whether this section—“from the land to twelve nautical miles seaward,” only refers to the marine environment. However, the Attorney General’s office has recently advised that Article 1, Section 2 does not grant the States any rights over land based resources.

Matters are further complicated by the fact that traditionally land was not owned by individuals rather by clans and families. Ownership of land by individuals is a fairly new concept culturally for Palau and making the transition from clan/family ownership to individual ownership is not an easy or simple task. As a result of this transition, title to much of the private land in Palau is currently disputed. Palau is in the process of converting to a recorded title system of land ownership, and by statute land ownership was supposed to be determined by December 31, 2000, 35 PNCA § 1302. However, land ownership disputes are still common, often involving lengthy litigation and appeals. Proof of ownership is often established based on oral history. (Hinchley, 2004)

#### **Lack of Capacity and Awareness at the Policy Level**

Agriculture and Forestry are recognized as important sectors to the development of Palau. However, the institutional framework and political support for the development of the sector appears to be fairly

weak. The Bureau of Agriculture currently operates on approximately 50% position vacancies and the annual budget given is often barely enough to cover salaries. The annual budget allocated to the Bureau for 2003 was approximately \$345,000 of which approximately 80% was used to cover salaries leaving very little for operational expenses, equipment maintenance and fuel, etc. Program implementation relies on grants, at this stage primarily from the US Forest Service, and through assistance from partner organizations such as TNC, PCS, NRCS, and FAO. Furthermore, while the MRD is the key institution responsible for biodiversity and resource management in Palau, administration of UNCCD and UNCBD enabling activities were transferred from the MRD to the Office of Environmental Response and Coordination (OERC) in 2001 further reducing the financial capacity of MRD. In view of all of this, there is a strong need to review current and future capacity needs, and develop plans and proposals for upgrading capacity to enable effective implementation of comprehensive land management responsibilities.

In addition, most of Palau's 16 states do not have full time conservation staff or enforcement officers and only one has a full time legal counsel. The states therefore have limited capacity to plan and implement forest management or conservation programs and will need technical assistance (and possibly further funding support) from national government agencies and NGOs to effectively implement forest management programs. Lack of enforcement of conservation laws in general is also sometimes a problem in Palau due to enforcement agencies having limited human and financial resources to adequately enforce the laws.

### **Uncontrolled Fires**

Most of Babeldaob was believed to be forested at one time, and fire is considered to be one of the main reasons why grasslands are now a more prominent vegetation type on the island. Although forests in Palau do not easily burn, and fires burning into forested areas burn out fairly quickly, adjoining grassland areas are burnt regularly. This means that forest species are unable to regenerate in the grasslands and the edges of the forests are gradually impacted by fires. Grasslands originating from abandoned agricultural land have thus failed to return to forest cover, and in many cases have been subject to loss of vegetation cover and subsequent soil erosion. Currently there is very limited capacity for fire management in Palau. The Fire and Rescue Division of the Bureau of Public Safety is mandated to suppress both urban and rural fires, but is understaffed and has very limited resources (both equipment and manpower). In general it is unable to respond to forest fires on most of Babeldaob. The Forestry Unit of the Bureau of Agriculture currently has almost no fire management or suppression capacity.

### **Mangrove Cutting and Filling**

The clearing and filling of mangrove areas is another threat, with a number of areas on Babeldaob already affected, particularly in southern Babeldaob where development pressures have been greatest. Partly due to the complications regarding land tenure issues and disputes in upland areas, mangroves are sometimes leased out by the States for housing or other development simply because land tenure of mangroves are often not as complicated as in upland areas. These pressures are likely to intensify and expand with the completion of the Compact Road in 2005.

The Bureau of Agriculture Forestry Unit, with assistance of The Nature Conservancy and other partners, have begun addressing this issue through the development of a nationwide mangrove management plan in conjunction with the 16 states. There is also a draft mangrove management bill currently being considered by the Palau National Congress that will provide the legislative basis for the plan. Considerable work is needed to complete these plans and to ensure their effective implementation.

### **Lack of Information**

Forest conservation and land stewardship efforts in Palau are also hindered by the fact that few studies have been done on Palau’s terrestrial ecology and as a result there is little known about its forest biodiversity in general (e.g. species populations and distribution, rare and endemic species, habitat requirements for birds and other fauna etc.). This limits the ability to plan developments to minimize impacts on ecosystems or to plan a comprehensive terrestrial protected areas network that conserves representative samples of all ecosystems and habitats in Palau.

### **Carrying Capacity Unknown**

All of the development options now available to Palau – tourism, fisheries, agriculture – depend upon sustained exploitation of Palau’s limited and extremely fragile environmental resources. For this reason, the future viability of Palau as a nation and the sustained well-being of the Palauan people are dependent upon environmental preservation. The National Environmental Management Strategy (NEMS) recommends that population growth be controlled in accordance with the “carrying capacity” of Palau’s environment. However, at the national “macro-level,” the concept of environmental carrying capacity is a difficult one because it requires: (i) a great deal of information about ecological processes (much of which is unavailable), (ii) value judgments about what constitutes a “good life”; and (iii) assumptions about the level of infrastructure and technology which can be tapped to mitigate human impact on the environment. In view of the constraints in assessing environmental carrying capacity at the national level, the Committee on Population and Children recommended in the 1997 report that this concept be utilized at the micro-level – within states or with respect to developments within specified ecosystems.

However, the concept of infrastructure carrying capacity is more easily assessed. Infrastructure (water, sewerage, electricity and roads) now being planned and developed will support the population projected by the Economic Development Plan (EDP) and the Palau 2020 National Master Development Plan (PNMDP). (Otto, 1998)

## **3.1.5 ENERGY**

### ***3.1.5.1 Projects Related to Renewable Energy***

National projects include:

- Sonsorol and Hatohobei Solar Energy Development Project
- Palau-Saga University Ocean Thermal Energy Conversion Project
- Palau Energy Code Development Project

### **Feasibility Study on Ocean Thermal Energy Conversion (OTEC) - (\$250,000)**

Even though the electric power system in Palau has been quite stable for several years, and is predicted to be so for the foreseeable future, the long-term goal for the economic security of the nation is to fully explore the development of renewable and sustainable energy sources. Current power generation in Palau is virtually fully dependent upon the burning of fossil fuels. Due to the expense of shipping fuel oil to Palau and the risk of world events threatening that supply, it is important for the nation to develop energy sources that are renewable and not threatened by outside events. Critical to such consideration are “clean” energy sources that do not pollute Palau’s sensitive tropical environment. Prime among these sources is Ocean Thermal Energy Conversion (OTEC). It is anticipated that OTEC, which is dependent on deep cold water sources, holds great promise for Palau especially due to the location of the Palau Islands, adjacent to the 8,000 meter deep Palau

Trench. This feasibility study will analyze the practicality of funding development of OTEC systems and provide data on eventual planning, design, cost estimating and construction of the system.

**Ocean Thermal Energy Conversion Project (OTEC) - \$80,000,000**

The project will focus on the implementation of recommendations provided in the “Feasibility Study on Ocean Thermal Energy Conversion – OTEC,” (Tier “A” project above). The priority of this project may be raised depending upon the recommendations of the feasibility study. Through the study’s recommendations vital information will be received on specific project requirements to be included in basic design tasks as well as a refined cost estimate for full final design and construction. The development of an energy source such as OTEC which will be clean, reliable, renewable and sustainable would perhaps be the most significant step towards the long-term economic security and development of the nation. Eliminating the dependence on the importation and burning of fossil fuels will also enhance and secure Palau’s future environmental protection.

Regional Projects that Palau is participating in are the:

- Pacific Islands Renewable Energy Project (PIREP)
- EU-Palau Solar Lighting Project
- Palau-CNMI-Guam-Yap Renewable Energy Initiative

**Proposed Regional Renewable Energy Initiative**

The Republic has been designated as a focus state for surveying current energy sources and to identify appropriate eco-friendly alternative energy technologies to help reduce the cost of energy consumption thereby facilitating the sustainable economic growth of the region (CNMI, Guam, Yap and Palau). This is an enormous task as each island is very different in size and energy requirements. At the same time all of the islands are almost completely dependent on the imported petroleum products for commercial energy.

Numerous reports have indicated that locally available renewable sources of energy have great potential in the long term to provide part of each island’s energy requirements. A 1993 Energy Vulnerability Assessment was mandated by the U.S. Congress as stated in the House Resolution 776-220 of 1992, section 1406: that the U.S. Secretary of Energy shall conduct a study of the implications of the unique vulnerability of the insular areas to an oil supply distribution. Each study shall outline how the insular areas shall gain access to vital oil supplies during times of national emergency. The study was undertaken by the East-West Center and covered CNMI, Guam and Palau.

Even though the main purpose of the study was vulnerabilities of the islands to an oil supply disruption, it also was to look at ways to reduce dependence on imported oil in the longer term. In this context renewable energy was mentioned as a resource available in all of the islands but has not been comprehensively studied or analyzed on its potential contribution to the overall energy requirements of each island.

To date only a handful of demonstration projects on solar energy or wind technology have been undertaken and no real effort has been expended to look at a renewable energy as a source of a firm or base load power system on each island.

Previous sectoral studies have focused on the existing energy situation and how it might be improved. Improved has often been interpreted in policies and budgets to mean finding an alternative to

imported petroleum. This is unfortunate because the interpretation has resulted in funds and attention being allocated to renewable energy projects which do not significantly contribute to base load power.

This indicates that there is a need for more surveying on each island's energy resources and to collect more detailed data on renewable energy and to do analysis of the energy sector and its linkage with the economy and to institute integrated resources planning. In summation there is a considerable need to improve the overall management of the energy sector. Improved management and more efficient use of energy could be greatly facilitated if resources planning activities are funded.

Due to the very limited statistics and data on renewable energy, it is recommended that each island should put considerable effort to acquire as much data on energy as soon as possible, do an analysis of the data with respect to their implications for the energy sector and the economy as a whole, develop a comprehensive picture of the energy – economy linkages, provide a basis for future analysis and identify practical renewable programs that can be implemented by each island government. Renewable energies such as solar, wind, biomass, OTEC and geothermal all add to the reliability of our energy systems.

Development of our regional locally available renewable source base provides important energy diversity, protects the environment and promotes economic development, while making each of our countries energy systems more reliable.

### ***3.1.5.2 Key National Constraints Related to Sustainable Energy Resources***

Based on the reports so far on the National level projects, the key constraints has been the lack of institutional and technical capacity at the local level. Often only one or two persons are tasked with the management of the Energy projects or programs with no financial support from the local government except of the funds from the donor agency.

Financing is also a key constraint for the maintenance of the projects once they are in place. Projects are often implemented with just enough funds for implementation and no funds are made available for the follow up maintenance, which is very important for the life of the project and its purpose in the first place.

The Regional projects are on going and the reports are still being prepared which will address key constraints in relation to the planning, production and distribution of sustainable energy resources and systems for the rural and outer islands.

One of the greatest concerns of the islands especially Palau is that the provision of renewable energy project is almost always as a Demonstration or as a Pilot project. In order to achieve sustainability, renewable energy project should be planned and implemented as permanent long term project that will help alleviate poverty and provide employment opportunities for the less developed and developing countries.

## **3.1.6 MANAGEMENT OF WASTES AND WASTEWATER TREATMENT**

*(Sanitation Services and Water are covered in section 1.2 .9)*

### ***3.1.6.1 Solid Waste Management***

While Palau has not yet ratified the Basel Convention, Palau ratified the Convention to Ban the Importation into Pacific Island Forum Countries of Hazardous Wastes and Radioactive Wastes and to

Control the Transboundary Movement and Management of Hazardous Wastes Within the Pacific Region (**Waigani Convention**) on January 2, 1996.

The management strategies for solid waste in Palau are loosely based upon its demographics, or its distribution of population and development. As mentioned earlier, Koror State is the most developed and urbanized state in Palau. The remaining states and islands are much more rural in nature. This being the case, in Koror State the solid waste and wastewater management systems are larger and more centralized and are operated and managed by the National Government. The solid waste systems in the remaining states and islands are much smaller and decentralized in nature and are the responsibility of the particular state in which they are located. All solid waste operations are regulated by the Environmental Quality Protection Board (EQPB), Palau's environmental regulatory agency of the national government. Currently, the vast majority of solid waste in the Republic is collected and disposed of in landfills.

#### **A. Koror State Solid Waste Management**

**Collection:** Solid waste in Koror is collected once/week by 5 mechanical collection vehicles operated by the Koror State Bureau of Public Works. Rubbish is generally contained in 55-gallon drums. All other solid waste is transported to the landfill by private individuals or businesses.

**Disposal:** All collected waste is disposed of into the M-Dock landfill, located in Koror in the hamlet of Ngerbeched. The M-Dock landfill, which is approximately 15 acres in size, has been in operation for about 50 years and is located in an area of former shallow reef and mangrove wetland. There is no overall management plan for operation and maintenance of this landfill site. Garbage trucks used by Koror State as well as trucks from commercial businesses and private individuals deposit their rubbish from a dirt access road in a central dumping area. A bulldozer then spreads the waste. The majority of the site is uncovered. There are no environmental controls such as: a leachate liner, regular daily compaction and placement of soil cover, surface drainage system, or any type of sedimentation controls. Problem conditions at the site include, strong odors, periodic fires, insects, rats and other vectors for disease, pollution from storm water runoff, litter, lack of leachate control and groundwater protection, poor access roads, scavenging, lack of security, fire and safety concern and aesthetically it is an eyesore. The responsible body for operation and maintenance of the M-Dock landfill is the National Government through the Bureau of Public Works (BPW), Ministry of Resources and Development, although Koror State is charged with collection and transportation. The Office of Environmental Response and Coordination is coordinating the International Waters Programme (IWP) which focuses on Solid Waste Management.

**Waste Diversion and Recycling:** Aside from limited recycling of waste oil, aluminum cans, green waste and automobile/marine batteries, there are no formal long term programs for the minimization, diversion and recycling of non-hazardous and hazardous wastes in Koror. Koror State owns a mobile chipping machine that was purchased to recycle small amounts of green wastes. Waste oil is accepted by the Palau Public Utility Corporation where it is stored in a 750,000 gallon bulk storage tank for shipment off island. EQPB also collects and stores small amounts of oil, and used batteries. Aluminum cans are collected, crushed, baled and shipped off-island by a private business. The Belau National Hospital and three other private medical clinics generate hospital/health-care waste, some of which are segregated and disposed of through incineration.

#### **B. Rural States Solid Waste Management**

**Collection:** Some of the 15 other rural states have a simple system for collecting rubbish from households. Generally, rubbish is collected once/week using a pickup or flatbed truck. The majority of waste generated by residents is self hauled to the respective state landfill sites.

**Disposal:** The rural states are each responsible for siting, planning, developing and operating their own individual solid wastes dumps. These landfills are much smaller in scale than Koror's landfill because waste generation rates are much smaller; however the problems are similar because they are poorly sited and designed, and are not properly operated and maintained. Garbage is disposed of in dumps that are often located next to mangroves or garbage is dumped down ravines where waste is left un-compacted and uncovered. Problems associated with these landfills are similar to those of the Koror landfill: lack of soil cover, strong odors, periodic fires, insects, rats and other vectors for disease, pollution from storm water runoff, litter, lack of leachate control and groundwater protection, poor access roads, scavenging, lack of security, fire and safety concern and aesthically they are eyesores.

**Waste Diversion and Recycling:** Again, there are no formal long term programs for the minimization, diversion and re-cycling of non-hazardous and hazardous wastes in the rural states, except for very limited recycling of waste oil, aluminum cans and batteries. Two of the outlying states (Kayangel and Angaur) have limited programs for the collection of aluminum cans, which are transported back to Koror for recycling.

### **C. Future Solid Waste Management Plans**

The National Government is currently working with the government of Japan to secure technical and financial assistance in upgrading the existing M-Dock Landfill in Koror, and in implementing certain waste minimization and diversion mechanisms. The National Government also intends to construct a new National Landfill in Aimeliik State on the island of Babeldaob, for which the Environmental Impact Statement (EIS) and design plans are currently being prepared. Once the new landfill is constructed, all state landfills in Koror and the largest island of Babeldaob (10 states total) will be closed and replaced with waste transfer stations. The remaining five outlying states will continue to operate landfills however, with improved collection and segregation of recyclable wastes for transport back to the national landfill.

#### ***3.1.6.2 Wastewater Management Systems***

##### **A. Koror State Wastewater Management**

Most domestic sewage (wastewater) from households, private businesses and institutions in Koror State (over 75%) is collected and treated by a centralized sewage collection and treatment system owned and operated by the National Government. Sewage flows into a publicly owned system of buried pipes or sewers, which carry the sewage by gravity to a central wastewater treatment plant located in Malakal. Due to the topography of Koror, the sewage collection system has 48 pump or booster stations to pump the sewage through force mains towards the treatment plant when it cannot flow by gravity. Treated effluent from the wastewater treatment plant is discharged through a deep-water outfall pipe into the lagoon offshore from Malakal island in Koror. The Malakal Wastewater Treatment Plant is currently being reconstructed and the work is scheduled to be completed by mid-year 2004. Once completed, it will provide secondary treatment for an average daily design flow of 2.0 million gallons and a peak flow of 5.2 millions of gallons/day. The treatment processes will be comprised of the following:

- **Primary clarification or primary settling:** This process removes solid and floating settleable materials and will be accomplished in a primary settling pond.
- **Biological or secondary treatment:** Biological treatment breaks down dissolved organic matter. This will be achieved by diverting the flow from the primary settling pond into two trickling filters where the wastewater filters over a rock filters and microbes eat or digest the organic and dissolved matter.
- **Secondary clarification:** Wastewater effluent from the trickling filters flows to a secondary settling basin to remove any microbial floc from the trickling filters.
- **Nutrient Removal and disinfection:** The effluent from the secondary settling basin then will flow into two wetland cells in series. The wetland cells will be used to further treat or “polish” the effluent to lower nutrient levels (nitrogen and phosphorus) and microbial pathogens.
- **Sludge:** The primary pond will also function to store and partially digest the settled solids for a number of years before removal is necessary. Settled and degraded sludge will then be periodically pumped out, dewatered and disposed of to a landfill or processed as a soil additive.

## **B. Rural States Wastewater Management**

Domestic sewage in the remaining states and islands is treated and disposed of by either (1) septic tank and leaching field systems (2) pit latrines (locally referred to as *benjos*), or (3) to a much lesser extent composting toilets. Septic tanks/leaching fields, *benjos* and composting toilets are decentralized individual onsite wastewater treatment units that are built by the state governments or property owners to treat and dispose of their sewage on their own property. The septic tank removes sewage solids by settling them to the bottom of the tank and removes floating materials by skimming. The solids and scum that are captured in the septic tank are digested to some extent, generating sludge that must be pumped out and disposed of every one to three years. Treated effluent from the septic tank is disposed of into the leaching field, which consists of buried perforated pipes surrounded by gravel in trenches or beds. The effluent flows from the pipes and percolates down through voids in the soil particles where it receives natural filtration and biological and chemical treatment in the soil. *Benjos*, or pit latrines, are simply trenches or excavated pits enclosed by a shed. Sewage is disposed directly into the pit that should be vented to control odors. After long periods of use, the pit latrine may need to be abandoned and covered and a new one built. Composting toilets are similar to pit latrines, however, sewage is discharged into an above ground container which is designed to naturally bio-degrade by composting under controlled conditions.

### ***3.1.6.3 National Constraints with Respect to Solid Waste and Wastewater Management***

Key national constraints to planning, developing and implementing solid waste and wastewater management projects in a sustainable manner are described below:

- **Small Service Area Populations and Lack of Financing:** Palau has a chronic shortage of adequate funds for capital and operation and maintenance costs for both solid waste and wastewater management. Currently, there are no service or disposal fees to cover costs; all costs are currently paid for from either the General Fund, capital improvement projects (CIP) funding or foreign grants. In order to finance solid waste and wastewater management services and facilities in the future, Palau will have to look towards instituting user service and disposal fees, impact fees and other financing options.
- **Overall Lack of Land Use and Master Planning:** Currently there is no long term vision for Palau’s development, and there are no comprehensive land use and development master plans

for the states. This makes it extremely difficult to appropriately implement public infrastructure projects and services such as solid waste, water and wastewater management.

- **Lack of Technical Expertise:** The shortage of professional and technical skilled people in Palau needed to properly plan, design, manage and operate solid waste and wastewater management facilities and services makes it difficult for Palau to proactively address these issues. Recruitment of qualified individuals is difficult because of the lack of opportunities and lower salaries in Palau.
- **Lack of Organizational Structure and Management:** The current administrative structure for the management of these operations and facilities is essentially the same system implemented under the Trust Territory program that began after the second World War. Unfortunately, Palau's current situation with regard to finances and expertise is very different from that which existed during those times, and efforts to modify and augment the administrative structure have not been forthcoming. The Republic will need to revamp its administrative structure to be more in line with modern needs, possibly including the implementation of alternative organizational structures such as public utility corporations similar to those that manage Palau's telecommunication and electrical generation infrastructure.
- **Inadequate Operations and Maintenance System:** Operations and maintenance protocols and attitudes were formulated under the Trust Territory administration, and were based on resources that were subsequently phased out or lost. Consequently, too little emphasis is currently placed on ensuring that existing and new infrastructure components are operated correctly and adequately maintained to allow for long term usage. Along with the procurement of new capital improvements to augment or replace existing infrastructure, the Republic must establish the necessary technical and financial resources that will allow the improvements to provide maximum sustainable benefit to Palau and its residents.
- **Geographic Isolation and Limited Land Resources:** Palau's geographic isolation in the Western Pacific Ocean results in higher costs due to the requirement for shipping. As a result, both the procurement of capital improvements and the materials and equipment necessary to operate and maintain them are that much more difficult. Additionally, opportunities for off-island shipment of waste products, such as hazardous wastes and recyclable wastes, are more limited when compared to larger, more centrally located countries. Palau must, along with its neighboring island nations, seek an appropriate regional solution for shipping that will bring costs down to a reasonable level and allow for the implementation of modern waste management practices.
- **Removal of Waste:** Palau must also look to the shipping off of waste materials as its land mass is quite limited, making the establishment of new landfill sites difficult from a practical and political perspective. Exacerbating the problem of limited land mass are land disputes which add a layer of complexity to the process of finding suitable landfill sites. By reducing the amount of waste actually deposited into the landfills, the service life period of landfill sites can be extended.
- **Lack of Public Awareness:** A broad public education and outreach effort needs to be instituted in Palau to raise public awareness and increase public participation to formulate solutions to Palau's solid waste and wastewater management issues and problems in a sustainable manner. In addition, more social marketing work needs to be done to address the widespread littering in the lands and waters of every State in Palau, by both Palauans and foreigners.

#### ***3.1.6.4 National, Sub-regional and/or Regional Projects Related to the Waste Management***

National projects include:

In 1995, the Ulimang Elementary School had an **aluminum can recycling campaign**. Recycling bins were built and set up throughout the community. At the end of the aluminum can drive, the cans were sent by boat to the Malakal recycling center. A step by step recycling handbook was developed to replicate the campaign in other villages. EQPB and the Earth Day Committee which consists of many key agencies (both government and non-government) conducted this year's Earth Day with the theme of "Watch Your Waste." The campaign aimed at raising awareness about all of the various waste issues and things that could be done that will help to minimize waste. Earth Day activities included a composting demonstration, tree planting, agency booths, many coordinated coastal clean-ups (including invasive weeds clean-ups) throughout Palau and a battery and aluminum can drive. Mock Congress is another tradition for Earth Day in Palau. This year Mock Congress involved five students from each of the high schools in Palau to discuss environmental issues and draft appropriate legislation. As a result of this year's Mock Congress (2004), two bills related to waste management were developed by the high school students (one creating a recycling center and transfer facility and another proposing a tax on waste per cubic feet have been introduced). Both bills have been introduced at the OEK and both are likely to pass.

C3 (Community Centered Conservation), a local conservation NGO implemented the **Bag for Life Project** in 2002 with the help of a small grant received from Global Green Grants which aimed to minimize the use of plastic bags by offering alternatives, such as, reusable canvas and nylon shopping bags.

As stated above, the **Malakal Wastewater Treatment Plant** is currently being reconstructed and the work is scheduled to be completed by mid-year 2004. Once completed, it will provide secondary treatment for an average daily design flow of 2.0 million gallons and a peak flow of 5.2 millions of gallons/day.

Regional projects include:

Palau's **International Waters Programme** is one of fourteen (14) Pacific island countries' programs that is under the Strategic Action Programme for International Waters of the Pacific Small Islands Developing States (International Waters Project or IWP) which is funded by the Global Environment Facility (GEF) and implemented by the United Nations Development Programme (UNDP) and executed in the region through joint collaboration of the South Pacific Regional Environment Programme (SPREP) with the fourteen (14) Pacific island countries.

IWP focuses its efforts on working to build skills in planning and designing community-based participatory natural resource management projects. The ultimate goal of IWP is to minimize harmful human impact on the environment and natural resources of Pacific island communities.

To achieve this, IWP is focusing in four focal areas:

- Quality of Fresh Water
- Sustainable Coastal Fisheries
- Marine Protected Areas
- Community-based waste reduction

Palau selected "Community-based waste reduction" as its focal area and is currently working with two communities to pilot activities to reduce its community-based waste, Madalaii Hamlet, Koror State and Ngarchelong State.

Understanding the Community-based waste” is not an isolated issue, IWP approaches the issue with a two-pronged approach. At the community level, IWP attempts to facilitate the community efforts to identify “root causes” of the focal area and in doing so, develop pilot activities to address the “root causes” focal area. Additionally, IWP understands that state and national institutions contribute to the “root causes” but are instrumental partners to achieve the goal of the community. So with this mind, IWP will work with state and national entities to ensure coordination is provided for better opportunities in the sustainability of the program at the community, state and national levels.

Community consultations have been completed for Ngarchelong State with Madalaii Hamlet to be completed in August of 2004.

### 3.1.7 TOURISM

#### *3.1.7.1 Projects Related to Development and Implementation of Sustainable Tourism Practices and Services*

Palau Visitors Authority (PVA) conducts annual public education programs to raise awareness about tourism and Palau’s tourism industry. The three foremost programs are the WAVE program (Welcome All Visitors Enthusiastically), the Tourism Awareness Week programs, and the Palau Green Fair.

- **WAVE (Welcome All Visitors Enthusiastically)** – Public education program with a special focus on elementary school students. The program aims to raise public awareness about tourism and the need to promote hospitality and friendliness towards visitors, while ensuring a clean natural environment.
- **Tourism Awareness Week** – This annual, week-long event entails many different programs, including high school student debates or seminars, a themed cook-off competition for community members and food service specialists, and an open forum for members of the tourism industry to address concerns or questions to tourism professionals.
- **Palau Green Fair** – This annual event has only grown since its formation in 2001 as an opportunity to raise public awareness about local plants and flowers. The Green Fair includes seminars on botany, conducted by botanists and other professionals, and themed plant exhibitions for community members

PVA recently contracted a team of professionals from the **University of Hawaii – Manoa College of Business Administration** to conduct an assessment of three potential sites for a world-class botanical garden. The assessment report, done in April 2004, identified Ngirwal State as the site having the most potential to host a botanical garden. The **Botanical Garden project** was introduced by PVA as an opportunity to diversify Palau’s tourism product and extend a focus on the big island of Babeldaob as a venue for tourism development.

In a September 14 to 17, 2004 meeting of the **Pacific Asia Travel Association (PATA) Micronesia Chapter** in Pohnpei, the Chapter made an unprecedented move towards providing technical assistance and training for National Tourist Offices (NTO) in need of **training in different areas, from landscaping to food and customer service**. The NTOs were given the opportunity to identify training needs and a time frame for the training and submit an application to the PATA Micronesia Chapter for approval. PATA would then assist in the dispatch of voluntary trainers to islands. The

NTO would need only bear the cost of land transportation, accommodations, and meals, and provide a fee of \$200 to \$250 to the PATA Chapter, which would also provide complimentary or 75% agent-discounted air tickets. The program is a great opportunity to enhance service standards in the islands through proper training from experienced professionals in the Micronesian region.

A **Sustainable Tourism Policies and Action Plan (STPAP)** has been created and implementation mechanism identified, but actual implementation has not taken place due to a lack of political will on the part of the policy makers to enable the implementation to take place

**NGOs** such as **Belau Tourism Association (BTA)** and **Palau Conservation Society (PCS)** and government agencies such as EQPB, PVA, Ministry of Justice – Division of Fish and Wildlife Protection, Marine Law Enforcement, Ministry of Health – Environmental Health Division, Ministry of Resources and Development and State governments such as Koror State and Peleliu State are doing what they can to promote sustainable tourism through public education, resource management plans and regulations. Lack of effective coordination of key regulatory agencies as well as lack of a holistic and comprehensive national planning mechanism greatly affects the efforts of the few agencies and NGO's that work to promote sustainable tourism.

#### **Efforts to nominate cultural and natural sites as World Heritage Sites**

Through the National Commission on UNESCO World Heritage Sites, Palau is making efforts to register cultural and natural sites in the National Registry and identify those sites with potential to be World Heritage Sites.

#### ***3.1.7.2 Community Based Initiatives***

Several projects have been undertaken to promote conservation of natural resources and diversification of tourism products. These include, for instance, the ongoing PCS project to encourage traditional conservation practices in various states and PVA's growing promotion and support for the development of local horticulture through the Green Fair in addition to capacity building activities such as nursery management trainings, etc. in collaboration with other key partner agencies and organizations.

#### **State Tourism Representatives:**

In August of 2003, Palau Visitors Authority officially launched its relationship with 16 tourism representatives of each of the states of Palau. The partnership focuses on rehabilitation of cultural and natural sites in each of the states and uniform state entry fees for visitors. The main purpose of the State Tourism Representatives is to work with Palau Visitors Authority to identify potential tourism sites for development in each state. Palau Visitors Authority's goal is to diversity the tourism product with an emphasis on each of the states strengths, whether it's in the area of food, dances, or cultural and natural sites.

#### **Efforts to develop Conservation Areas as Eco-Tourist Sites**

Palau Conservation Society has made, and is making efforts with the Ngardok Nature Reserve Board, to develop the Ngardok Nature Reserve (Palau's first Ramsar Site) as an eco-tourist destination. Lake Ngardok is the largest natural freshwater lake in all of Micronesia and provides critical breeding habitat to the endangered saltwater crocodile. Ngardok Nature Reserve is located in the future capitol state of Melekeok. Plans call for the construction of a trail around the lake and a boardwalk for better viewing of crocodiles, birds and other wildlife. Furthermore, the states of Ngaremlengui, Ngatpang and Aimeliik along with the Marine Conservation and Protected Areas Program under the Bureau of

Marine Resources is currently initiating a kayak ecotourism project in the Ngaremeduu Conservation Area, in conjunction with cultural tours within these states. The Ngardok Lake Reserve and the Ngaremeduu Conservation Area (NCA) would be potential ecotourism sites along with other cultural and natural sites in Babeldaob that are in the process of refurbishment and should become an island-wide network of visitor attractions, especially once the Compact Road, which circumnavigates the island, is completed in 2005.

### **Environment Friendly Restaurant Program**

The “Environment Friendly Restaurant” program is a collaborative program between the Division of Fish and Wildlife Protection (DFWP) and PVA. The program aims to give greater incentive to local restaurants for complying with the Republic’s conservation laws and regulations. The program is simple – restaurants that promise to comply with the Republic’s laws and regulations and keep track of the fish and wildlife they purchase, as well as, cooperate with regular, routine inspections by the DFWP of their facilities will in return, have their names published on a list of the cooperative restaurants that will be disseminated through PVA. PVA and DFWP will also advertise these restaurants in other ways.

#### ***3.1.7.1 Top Priority for Palau’s Tourism Industry***

There are several key immediate actions necessary to enhance the progress towards developing a sustainable tourism industry in Palau. Top priority actions include:

- 1—Pursue legislation currently before Congress approving the Sustainable Tourism Policies and Action Plan (STPAP) and forming the National Tourism Unit (NTU) through public education and Tourism Industry Partnerships for Lobbying
- 2—Establish clear implementation priorities for Palau once a direction for Tourism Industry Development (in the form of the STPAP) has been adopted.

The following are key objectives and actions (derived from the STPAP) required to achieve objectives:

- ❖ AIM TO ENSURE THAT THE STPAP IS INTEGRATED INTO NATIONAL POLICY AND PLANNING AT ALL LEVELS BY THE OFFICE OF THE PRESIDENT.
- ❖ AIM TO ENSURE THAT THE NTU IS LAUNCHED AND SUPPORTED ON A GOVERNMENT AND COMMUNITY LEVEL.
- ❖ AIM TO ENSURE THAT BOTH TRADITIONAL AND ELECTED LEADERS WILL DEMONSTRATE SUPPORTIVE ACTION THAT PROMOTES THE LONG-TERM SUSTAINABILITY OF TOURISM.

Actions required include:

1. Prepare a code of conduct to define the role of elected officials in the tourism industry and other sectors. (*Palau National Congress, Office of the President*).
2. Implement Recommendations made by the Task Force on Sustainable Tourism Development, dated March 31, 1998. (*National Congress, Office of the President*)

3. Transfer the Foreign Investment Board’s duties and functions to the Economic Development Division of the Ministry of Commerce and Trade. (*National Congress, Office of the President*)
4. Establish uniform statutory procedures for license application review and license issuance or denial. (*National Congress, Office of the President, State Governments, Ministry of Commerce and Trade, Foreign Investment Board, Environmental Quality Protection Board, Ministry of Justice*)
5. Establish and implement an effective system of penalties and incentives. (*Ministry of Justice, Environmental Quality Protection Board, Foreign Investment Board, Ministry of Commerce and Trade, State Governments, Ministry of Finance, Belau Tourism Association, Ministry of Resources and Development*)

❖ AIM TO ADDRESS THE LACK OF SUSTAINABLE TOURISM DEVELOPMENT KNOWLEDGE.

Actions required include:

1. Develop brochures on sustainable tourism concepts and practices in multilingual forms as necessary. (*Palau Visitors Authority*)
2. Work with local governments to ensure residents are made aware of sustainable tourism requirements. (*Palau Visitors Authority*)
3. Conduct a poster contest on sustainable tourism. Selected entries will be chosen for distribution to strategic locations throughout Palau as well as private homes. (*Palau Visitors Authority*)
4. Develop a program of awards or incentives to promote, advance, and sustain green management practices. (*Palau Visitors Authority*)
5. Conduct a monthly radio contest on sustainable tourism practices. Prizes need not be expensive, but must promote sustainable tourism. (*Palau Visitors Authority*)
6. Strengthen community outreach programs. (*Palau Visitors Authority*)
7. Assess the effectiveness of the public education campaign and make necessary changes to strengthen the program. (*Palau Visitors Authority*)

❖ AIM TO ADDRESS THE LACK OF TOURISM PLANNING AND TOURISM DEVELOPMENT GUIDELINES

Actions required include:

1. Enact a national law providing guidelines and regulations for sustainable tourism planning and development. (National Congress)
2. Recommend planning and zoning laws for all 16 states. (Governors’ Association, Environmental Quality Protection Board)
3. Require all states to submit a tourism strategy. (Governor Association)
4. Develop human resources through tourism education and training. (Palau Visitors Authority, Palau Community College)
5. Identify all services to be developed following the set guidelines and regulations. Each state’s tourism commission shall work with the National Tourism Unit. (Palau Visitors Authority, Belau National Museum, Ministry of Community and Cultural Affairs, Belau Tourism Association)
6. International marketing and promotion of Palau as an eco-friendly tourism destination requires joint efforts between Palau Visitors Authority and all other tourism-related businesses. (Palau Visitors Authority, Belau Tourism Association)

- ❖ AIM TO REQUIRE ALL TOURISM COMPANIES TO SUBMIT AN ENVIRONMENTAL POLICY AND A CORPORATE GREEN MANAGEMENT STRATEGY WITHIN A REALISTIC TIME PERIOD. PVA WOULD COLLECT AND DISTRIBUTE INFORMATION TO SUPPORT THE GREEN MANAGEMENT INITIATIVES.

Actions required include:

1. Enact legislation requiring all tourism operators and employees to attend a short-term green management certification-training program. (National Congress / Palau Government)
  2. Require all tourism businesses to create or designate someone within the company as a green or environmental officer. (National Congress, Palau Visitors Authority, Belau Tourism Association)
  3. Require all government agencies to establish green/environmental management guidelines. (National Congress / Palau Government)
  4. Implement a public education campaign for the green management program. (Palau Visitors Authority)
  5. Implement an award program for citizens, agencies, and organizations demonstrating green management practices. (Palau Visitors Authority)
- ❖ AIM TO FORM A PRESIDENTIAL TASK FORCE TO ASSESS ENVIRONMENTAL CONSERVATION REGULATIONS AND DIRECT THE MINISTRY OF JUSTICE IN THE DEVELOPMENT OF LAWS TO ENSURE THAT RESOURCES ARE PROTECTED.

Actions required include:

1. Close loopholes in existence regulations of the Palau National Code. (Attorney General's Office, Office of the President, Palau National Congress, Palau Visitors Authority)
2. Secure support and assistance from traditional leadership. (Office of the President, Palau Council of Chiefs)
3. Establish laws to regulate and control bio-prospecting activities in Palau, e.g. a) Intellectual Property Rights Law, b) Protection of Traditional Knowledge and Expressions of Culture. (Office of the President, Palau National Congress, Ministry of Resources and Development, Environmental Quality Protection Board, Foreign Investment Board, Ministry of Community and Cultural Affairs)
4. Provide training and funding for effective implementation of enforcement programs and capacity building. (Office of the president, Environmental Quality protection Board, Ministry of Resources and Development, Ministry of Justice, Palau Visitors Authority, State Governments)
5. Mandate regulatory agencies to improve their education / public awareness programs. (Environmental Quality Protection Board, Palau Visitors Authority, Ministry of Justice, Ministry of Resources and Development)
6. Amend laws to ensure set-aside funds collected through enforcement activities go directly to enforcement agencies to finance enforcement programs. (Office of the President, Attorney General's Office)
7. Ensure that enforcement agencies are accountable to the public for their performances. (Office of the President, Palau National Congress)
8. Require enforcement agencies to identify and assess needs and measures essential to fulfilling their mission, and short and long-term goals. (Palau National Congress, Office of the President, Attorney General's Office, Palau Visitors Authority)

9. Provide incentives for enforcement agencies. (National Tourist Unit)

- ❖ AIM TO ESTABLISH A COMPREHENSIVE MONITORING SYSTEM AT ALL SITES RECEIVING MORE THAN 500 TOURISTS A YEAR. CARRYING CAPACITY LIMITS WOULD BE SET AND EVALUATED EVERY TWO YEARS UNDER THE GUIDANCE OF THE ENVIRONMENTAL QUALITY PROTECTION BOARD (EQPB).

Actions required include:

1. Conduct research and monitoring to determine carrying capacity of tourism sites. To set carrying capacity limits at each site and evaluate these limits every two years. (Ministry of Resources and Development)
  2. Develop mechanisms to ensure that carrying capacities are not exceeded. (Ministry of Resources and Development)
- ❖ AIM TO INVENTORY AND REGISTER ALL CULTURAL AND ENVIRONMENTALLY SENSITIVE SITES AND THEIR NATIONAL AND STATE SIGNIFICANCE DOCUMENTED. TOURISM IMPACTS TO THESE SITES AND PROTECTIVE MEASURES WOULD BE IDENTIFIED AND PVA WOULD MEET WITH THE TRAVEL TRADE TO GENERATE AWARENESS OF THE LONG-TERM VALUES OF AND POTENTIAL THREATS TO EACH SITE.

Actions required include:

1. Undertake a comprehensive inventory and register all natural and cultural sites. (Ministry of Community and Cultural Affairs)
  2. Establish comprehensive legislation setting aside and protecting cultural and natural sites. (Palau National Congress, Ministry of Community and Cultural Affairs, State Governments)
  3. Select sites that are appropriate for site development for tourism purposes; develop these sites according to a timetable to be developed by designated offices. (State Governments, Ministry of Resources and Development)
  4. Designate state / national offices to collaborate in the management of conservation and cultural sites. (Office of the President, State Governments, Ministry of Resources and Development, Ministry of Community and Cultural Affairs)
  5. Ensure monitoring of and enforcement at sites. (Ministry of Resources and Development, Ministry of Community and Cultural Affairs)
  6. Establish standard visitors' guidelines. (Palau Visitors Authority, Ministry of Community and Cultural Affairs)
  7. Establish management guidelines to be implemented by tour guides and disseminate information to the general public and schools and all related tourism businesses. (Ministry of Community and Cultural Affairs, Palau Visitors Authority)
- ❖ AIM FOR THE OFFICE OF THE PRESIDENT TO SEEK SUPPORT FROM AMERICAN, ASIAN, AND EUROPEAN NGO'S AND DONORS INTERESTED IN CONTRIBUTING TO THE PROTECTION OF PALAU'S NATURAL AND CULTURAL RESOURCES.

Actions required include:

1. Prepare a package for Non-Governmental Organizations and international support. (Office of the President, Ministry of State, Palau Conservation Society)

2. Identify an individual(s) to actively market environmentally relevant projects to donors. (Office of the President, Palau Conservation Society, Ministry of State)
  3. Identify priority projects for international support including preparation of a Sustainable Tourism Development Strategy, reef protection, creation of a sustainable tourism institute, management of Jelly Fish Lakes, and interpretive planning for heritage, historic, and cultural features. (Office of the President, Palau Conservation Society)
- ❖ AIM TO RETAIN PALAUAN PARTICIPATION IN THE TOURISM INDUSTRY AT OR ABOVE 50% IN THE SHORT TERM AND AIM TO RESTORE PALAUAN PARTICIPATION IN THE TOURISM INDUSTRY TO 75% WITHIN A REALISTIC TIME PERIOD.

Actions required include:

1. Assess current levels of Palauan versus non-Palauan participation in all tourism related businesses. (Bureau of Human Resources Development)
2. Determine by position titles the number of filled, vacant, and projected vacancies for the next five years. (Bureau of Human Resources Development)
3. Develop a competency table in order to interview managers and supervisors to determine skills for filled, vacant, and projected vacancies. (Bureau of Human Resources Development and Palau Community College)
4. Survey unemployed youth to determine their skills and level of interest in acquiring jobs. (Bureau of Human Resources Development)
5. Assess the current human resources in Palau with regards to training, expertise, and skill competencies. (Bureau of Human Resources Development)
6. Maintain a computer database of human resources supply and demand. (Bureau of Human Resources Development)
7. Submit a report to the inter-agency coordinating committee. (Bureau of Human Resources Development)

### **3.2 CROSS SECTORAL AREAS: PROGRESS MADE AND PROBLEMS ENCOUNTERED**

#### **3.2.1 FINANCING AND INVESTMENT FOR SUSTAINABLE DEVELOPMENT**

##### ***3.2.1.1 Initiatives in the Area of Finance and Investment for Sustainable Development***

The **Public Sector Investment Program (PSIP)** establishes Palau's public sector infrastructure priorities over the next five years. The Program is in line with, and incorporates, prior planning infrastructure documents, including the '*Palau National Master Development Plan*' (PNMDP) and the '*Economic Development Plan*' (EDP). The PSIP also incorporated recommendations from the more recent '*Study for Promotion of Economic Development in the Republic of Palau*' (JICA Study) and the *Management Action Plan (MAP)*. The report also takes into account various sectoral reports where relevant to infrastructure development issues.

In 1994, the Republic developed an **Economic Development Plan** in response to a requirement in the Compact of Free Association (COFA) and therein established a prioritized list of infrastructure projects deemed necessary to carry forward economic development to insure the appropriate expenditure of COFA Capital Improvement Project (CIP) funding. Since the publishing of that

document, most of the projects on the primary priority list have been completed or are in the process of implementation.

Because most of the COFA funding earmarked for capital expenditures has already been spent or obligated on past and current projects, it is essential that the Republic establish a **revised public sector investment plan** that takes into account current economic realities and extrapolates from prior plans and completed projects. This effort is essential due to the lack of a current funding plan to meet the nation's near and long-term infrastructure needs and in order to parallel infrastructure development efforts with other development plans. It is also essential in order to officially document prioritized funding requirements when seeking overseas development assistance (ODA).

In 1996, the Republic further published the **Palau 2020 National Master Development Plan (PNMDP)**, which has subsequently been adopted by the Olbiil Era Kelulau (OEK) as the nation's official development plan. This document also established a list of infrastructure projects that were deemed essential to a coherent development of Palau's economy in addition to establishing macro and micro economic strategies for such growth.

In addition to these primary planning documents, numerous sectoral reports have been written since the inception of the Compact that enunciate infrastructure needs in line with sector development plans. These recommendations were taken into account in the development of the PSIP.

The PNMDP further establishes **infrastructure development strategies**.

- **Infrastructure Institutions** -- To provide, on a sustainable basis, the required infrastructure funding and services in an economically efficient manner, and of a high standard throughout Palau, to improve equitable access and to underpin the expansion of economic activities.
- **Infrastructure Performance** -- To create a more commercial and competitive national economic environment by formalizing the relationship between the private and public sectors and integrating public infrastructure planning with clear objectives.
- **Public Sector Improvement Program** – To enhance the performance of public sector investment programs and projects through improved evaluation, prioritization and monitoring techniques, as incorporated in a comprehensive public sector investment program process.

Within the context of these development strategies, the PNMDP then establishes **infrastructure priorities** in a number of areas, including:

- Road Transportation;
- Sea Transportation;
- Air Transportation;
- Electric Power;
- Water Supply;
- Wastewater;
- Solid Waste;
- Telecommunication;
- Infrastructure; and
- Land Use Planning.

### ***3.2.1.2 Key Problems and Constraints Encountered in Securing Financing/Investment for Sustainable Development***

While the COFA funding is diminishing, Palau's artificially inflated GDP in some cases limits Palau's ability to access various sources of needed funding for sustainable development.

### **3.2.2 CAPACITY BUILDING AND COORDINATION**

The need for more effective efforts specifically targeted at building local capacity is urgent. The Republic spends considerable resources recruiting, housing and employing expatriates to fill gaps in higher-paying senior and professional positions available in Palau. In addition, most technical positions are also filled by labor imported from overseas. Capacity building efforts are currently limited to those associated with external funding however each sector has identified limited qualified local human resources as a key constraint.

Areas needing specific focus for capacity building in Palau include:

- Health and Medicine
- Law
- Small Business
- Environment and Conservation
- Engineering
- Education
- Research
- International Relations
- Information Technology (IT)
- Banking and Investments

Coordination among stakeholders in Palau is critical in achieving sustainable development goals. Due to limited resources and strong community links, Palauans generally coordinate informally. In addition, there are many various committees, task forces and working groups established through programming in each sector that provide greater opportunity to coordinate among agencies and individuals. National efforts to encourage and enhance coordination include the establishment of:

- Community Planning Group for HIV/AIDS and STDs
- Palau Natural Resource Council
- Palau Marine Resources Pacific Consortium
- National Environment Protection Council

Constraints to coordination include lack of political will, capacity and resource support to most effectively coordinate.

## 4.0 TRADE, INVESTMENT, CAPACITY BUILDING AND COOPERATION AND THE STATUS OF SIDS VULNERABILITY

### 4.1 KEY TRADE RELATED CONCERNS, NEEDS AND VULNERABILITIES RELATED TO SUSTAINABLE DEVELOPMENT

#### Nominal GDP (1997-2003)

Particulars	Nominal Gross Domestic Product						
	1997	1998	1999	2000 1/	2001 1/	2002 /1	2003 /2
Agriculture	1,312	1,398	1,358	1,372	1,399	1,385	1,399
Fisheries	2,057	2,038	3,148	3,274	3,372	3,271	3,271
Mining & Quarrying	138	176	218	229	240	233	236
Manufacturing	1,403	1,702	1,609	1,690	1,774	1,650	1,666
Electricity, Gas and Water	-388	2,360	3,393	3,563	3,741	3,591	3,663
Construction	8,834	10,389	8,249	8,661	9,181	8,722	8,896
Trade	23,913	24,837	23,165	23,860	24,337	22,390	22,838
Hotels and Restaurants	13,986	12,370	11,938	12,057	12,419	11,301	11,527
Transport and Communication	8,734	9,191	9,846	10,338	10,855	10,095	10,297
Finance and Insurance	6,573	5,706	4,297	4,511	4,647	4,368	4,412
Real Estate and Business Services	6,298	6,555	4,611	4,842	5,036	4,683	4,777
Public Administration	29,401	28,462	29,374	30,255	30,860	31,478	31,478
Other Services	9,211	9,907	9,691	9,982	10,381	9,550	9,741
<b>Subtotal</b>	<b>111,471</b>	<b>115,091</b>	<b>110,897</b>	<b>114,634</b>	<b>118,242</b>	<b>112,717</b>	<b>114,201</b>
Less: imputed bank service charge	2,101	2,640	2,384	1,250	1,250	1,250	1,250
Plus: import duties	3,842	4,869	4,972	3,842	3,842	3,842	3,842
<b>Gross Domestic Product</b>	<b>113,212</b>	<b>117,320</b>	<b>113,485</b>	<b>117,226</b>	<b>120,834</b>	<b>115,309</b>	<b>116,793</b>
GDP growth rate	4.6%	3.6%	-3.3%	3.3%	3.1%	-4.6%	1.3%
Population (mid-year) /3	18,061	18,494	18,882	19,129	19,626	19,976	20,304
GDP per capita (\$)	6,268	6,344	6,010	6,128	6,157	5,772	5,752
	Percentage						
Agriculture	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Fisheries	1.8	1.7	2.8	2.8	2.8	2.8	2.8
Mining & Quarrying	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing	1.2	1.5	1.4	1.4	1.5	1.4	1.4
Electricity, Gas and Water	-0.3	2.0	3.0	3.0	3.1	3.1	3.1
Construction	7.8	8.9	7.3	7.4	7.6	7.6	7.6
Trade	21.1	21.2	20.4	20.4	20.1	19.4	19.6
Hotels and Restaurants	12.4	10.5	10.5	10.3	10.3	9.8	9.9
Transport and Communication	7.7	7.8	8.7	8.8	9.0	8.8	8.8
Finance and Insurance	5.8	4.9	3.8	3.8	3.8	3.8	3.8
Real Estate and Business Services	5.6	5.6	4.1	4.1	4.2	4.1	4.1
Public Administration	26.0	24.3	25.9	25.8	25.5	27.3	27.0
Other Services	8.1	8.4	8.5	8.5	8.6	8.3	8.3
<b>Subtotal</b>	<b>98.5</b>	<b>98.1</b>	<b>97.7</b>	<b>97.8</b>	<b>97.9</b>	<b>97.8</b>	<b>97.8</b>
Less: imputed bank service charge	-1.9	-2.2	-2.1	-1.1	-1.0	-1.1	-1.1
Plus: import duties	3.4	4.2	4.4	3.3	3.2	3.3	3.3
<b>Gross Domestic Product</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Sources: UNDP-Public Sector Development (PSD) Project Office, Ministry of Finance, and IMF staff.

1/ Provisional.

2/ Forecast.

3/ Population for 2000 is actual; 2001, 2002, and 2003 are projections.

(Government of Palau, 2003)

It remains difficult to accurately measure Palau’s economy due to the **lack of dedicated survey information or comprehensive administrative data**. However, the expanded effort to broaden Palau’s statistical base has resulted in more reliable data and permits more accurate estimation. Data sources include: annual reports provided by corporations, partnerships and non-profit institutions to the Registrar of Corporations; social security data; and other government records. The government is aggressively working to address some of the key legislative needs to further enhance the compilation of accurate economic data. Critical bills before Congress include a ‘Statistics Act’ and Banking law amendments and regulations. The table above, compiled in conjunction with the International Monetary Fund Article IV team, sets forth Gross Domestic Product figures for the period 1997 to 2003.

Like most other SIDS, Palau’s trade development is challenged by distance, isolation, diseconomies of scale, and lack of capacity. These factors reduce Palau’s ability to compete and benefit from trade. As stated in Section 1.2.2, Palau’s only significant commodity export is tuna, while its greatest “service export” is tourism. In general, Palau does not “add value” to many products. Consequently, Palau exports very few, if any, manufactured goods.

On the other side of the ledger, Palau is extremely dependent on foreign imports to sustain the lifestyle to which its people have grown accustomed, and consequently, Palau’s current trade balance is uneven. Without further economic development and capacity building, trade liberalization could tip this imbalance further in the wrong direction.

## **4.2 NATIONAL AND COMMUNITY-BASED INITIATIVES RELATED TO TRADE PRACTICES**

The Palau Government has instituted several initiatives and programs both at the National and Community level that aim to improve Palau’s economic competitiveness. These include:

- **Free Trade Zone** – Recently, a national law created a Free Trade Zone in Ngardmau State, on the island of Babeldaob in Palau. The law allows for imports into the FTZ free from import and other taxes. It is expected that this incentive will spur development in the area, and create favorable conditions for the production of exportable goods.
- **Tax Incentives for Agriculture/Aquaculture** – National law provides tax incentives for those who import the materials and equipment for agriculture, aquaculture, and mariculture projects.
- **Central Market** – In an effort to promote competition and reduce Palau’s dependence on foreign produce and packaged foods, Palau is currently developing a plan for a Central Market where farmers, fisherman, and other vendors can sell their goods. Coupled with the tax incentives set forth above, it is hoped that these initiatives will increase Palau’s production of food, making the nation more self-sustaining, and possibly capable of exporting produce in the future.
- **National Development Bank** – Provides guaranteed loans and direct financing to persons for housing and for the development within Palau of industry, agriculture, tourism, marine resources and other ventures, with priority emphasis given to those ventures which involve the development of new enterprises and import substitutes.
- **Trade Facilitation Committee** – By Executive Order, the President has created a Trade Facilitation Committee to identify and offer recommendations for resolving Palau’s trade capacity issues. The Committee will help to direct capacity building funding offered through

the Regional Trade Facilitation Program. Much of this assistance will go toward building capacity in the areas of Customs, Quarantine, and Standards and Conformance.

### **4.3 KEY INVESTMENT RELATED CONCERNS AND NEEDS RELATED TO SUSTAINABLE DEVELOPMENT**

Economic Development in Palau is influenced heavily by foreign investment. Major hotels and other large scale developments are majority financed by money originating from outside the Republic. Moreover, many smaller businesses in Palau have a foreign financing component.

#### **4.3.1 Foreign Investment**

Foreign investment in Palau is constrained by several factors:

- **Foreign Investment Law** – The ownership of a foreign business in Palau is regulated by the Foreign Investment Board, an executive agency that considers the economic benefit of proposed foreign businesses, and gives permits for their operation. In order to be permitted, a foreign business must invest at least \$10,000, and not be a wholesale, retail, or tourist related enterprise. If approved, the Board typically gives permits of up to 50 years for the operation of foreign businesses. While this time period is sufficient to encourage the investment of capital in most instances, it is likely that large scale developers are wary of this limitation, and choose not to invest for this reason.
- **Labor Laws and Regulations** – Palau’s labor laws require that companies hire Palauan citizens when possible, and to pay fees for any non-resident worker that they do hire. This requirement aims to promote employment among Palauans. However, it does subject foreign businesses to either a limited workforce, or significant costs.
- **Telecommunications Expenses and Limitations** – Telecommunications in Palau are limited and expensive. At present, there is only one provider for all telephonic and internet communications in the Republic. Consequently, while Palau’s telecommunications infrastructure is more advanced than many other regional islands, consumers cannot benefit from competition among providers.
- **Shipping and Travel Costs** – Palau’s isolation and distance make shipping and travel very expensive as well as time - consuming.
- **Land Ownership** – Land ownership issues are a major hindrance to foreign investment. Since Palau gained full independence in 1994, it has undertaken to return previously occupied lands to their rightful owners. Currently, however, a majority of the land in Palau has yet to be formally and finally adjudicated. In addition, only Palauans may own property in Palau. Foreign investors are allowed to lease land for a maximum of 50 year terms, and this limitation factors negatively into any major foreign investment decision.

#### **4.3.2 Regional Cooperation**

- **PACER** -- Palau has signed the Pacific Agreement on Closer Economic Relations (PACER), and the accession is currently being ratified by the legislature.
- **PICTA** -- Palau is considering joining the Pacific Island Countries Trade Agreement (PICTA). This trade pact would pave the way for the eventual establishment of a Free Trade Agreement among the Pacific Island Forum Countries. It is expected that the Free Trade Agreement would increase trade among the Pacific islands, bringing with it cheaper goods, and positively influencing the diversification and specialization of the member economies.

- **Cotonou** -- Palau is a member of the African/Caribbean/Pacific (“ACP”) grouping of nations working toward trade with the European Union under the Cotonou Agreement. At the present time, Palau is not likely to take advantage of any trade with Europe that might be developed under this agreement. The E.U. is taking steps to address these capacity deficiencies by providing grants and technical assistance to the ACP countries.

#### ***4.3.3 Principal Vulnerabilities***

As a non-diversified economy heavily dependent upon tourism, Palau is particularly vulnerable to external events that affect international travel. In 2003, the SARS epidemic seriously impacted Palau’s economy. Similarly, Palau’s tourism industry has suffered the effects of high fuel costs and reduced travel brought on by fears of terrorism.

Palau is also dependent on a general import tax for substantial amounts of revenue. If this tariff is removed, it is likely that the nation will face a revenue shortfall for some time. It is doubtful that the predicted benefits from trade liberalization will make up for this loss in the near future.

#### ***4.3.4 Cooperative Ways to Address Vulnerabilities***

**Pacific Island Forum** — Palau is an active member of the Pacific Island Forum. This group aims to work towards sustainable development of the Pacific Islands through cooperation and trade. This regional group increases greatly the ability of the islands to work together to benefit each member as well as the region as a whole. For example, under the PACER agreement, Forum members are eligible for substantial assistance in building trade capacity under the Regional Trade Facilitation Program. This assistance will help improve Palau’s Customs, Quarantine and Standards and Conformance procedures.

**New Regional Airline** -- Palau’s greatest vulnerability is its dependence on air travel to support its tourism industry. Currently, very few airlines fly into and out of Palau, and airfares are very expensive. A new entry into the airline market, Palau Micronesia Air (PMA), promises to expand the choice to consumers and provide direct flights between the Micronesian Islands. It is expected that these new routes will transport both passengers and goods between the islands.

PMA is a private corporation that is capitalized through individual investors within the Micronesian islands as well as from the Palau National Development Bank. Other Micronesian islands governments have also expressed interest in investing in the airline. Its operations are further supported by the efforts of the Palau government to create the legal foundation for its operation and to secure landing rights throughout the region and beyond.

Palau Micronesia Air represents a beneficial relationship between government and the private sector. The Palau Government believes that private sector development holds the key to economic growth and expanded trade, and it seeks to assist and promote that development whenever possible.

#### **4.4 KEY CONCERNS AND NEEDS RELATED TO CAPACITY BUILDING FOR SUSTAINABLE DEVELOPMENT AND HOW CAPACITY DEVELOPMENT ISSUES AFFECT NATIONAL SOCIO-ECONOMIC AND ENVIRONMENTAL VULNERABILITY CONCERNS**

As with all developing countries, and especially with Pacific island countries, financial, technical, and human resources are limited. Agencies both at the national and state levels must fulfill their mandates with limited financial, technical, and human resource capacity. Often, agencies are expected to address internal and external environment and economic issues with little technical support and modest funding.

Palau is a small island nation with limited capacity to allocate significant financial resources to pertinent issues pertaining to pollution control, human resource management, population control, environmental preservation and protection, waste management, infrastructure development, education, and community health management.

In attempt to gain additional support for sustainable development initiatives, Palau is a Party to various international conventions and agreements that have implicit linkages to the environment and human health. However, the requirements of convention Party status coupled with internal environment and economic issues place added stress on already limited resources (including human and financial).

As stated in section 3.2.2, the need for more effective efforts specifically targeted at building local capacity is urgent. The Republic spends considerable resources recruiting, housing and employing expatriates to fill gaps in higher-paying senior and professional positions available in Palau. In addition, most technical positions are also filled by labor imported from overseas. Capacity building efforts are currently limited to those associated with external funding however each sector has identified limited qualified local human resources as a key constraint.

Areas needing specific focus for capacity building in Palau include:

- Health and Medicine
- Law
- Small Business
- Environment and Conservation
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- Education
- Research
- International Relations
- Information Technology (IT)
- Banking and Investments

Coordination among stakeholders in Palau is critical in achieving sustainable development goals. Due to limited resources and strong community links, Palauans generally coordinate informally. In addition, there are many various committees, task forces and working groups established through programming in each sector that provide greater opportunity to coordinate among agencies and individuals. National efforts to encourage and enhance coordination include the establishment of:

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- Palau Natural Resource Council
- Palau Marine Resources Pacific Consortium
- National Environment Protection Council

Constraints to coordination include lack of political will, capacity and resource support to most effectively coordinate.

## **5. MILLENNIUM DEVELOPMENT GOALS AND SUSTAINABLE DEVELOPMENT IN SIDS**

### **5.1 POVERTY ERADICATION: NATIONAL CONSTRAINTS AND EFFORTS RELATED TO POVERTY REDUCTION**

#### **5.1.1 *Poverty in Palau***

Poverty is a sensitive and controversial issue in the Pacific Islands. Where rich tropical soils have traditionally yielded a bountiful harvest with minimal labor; where seas are equally bountiful; and where social and cultural systems dictate that the weak and vulnerable will be cared for by the more able, poverty is somewhat of an alien concept. To acknowledge the emergence of poverty is not simply to acknowledge an economic fact but also to acknowledge a fundamental social and cultural transformation within society. A contemporary Pacific definition of poverty is said to be “insufficient resources to meet the basic needs of the immediate household and customary obligations to the extended family and the church.”

Palauans enjoy a high level of human development compared to many other Pacific SIDS. This is made possible by a combination of: (i) abundant natural resources; (ii) a cultural tradition of sharing, caring, and respect; and (iii) the fortunes of history which bestowed upon Palau significant (but temporary) monetary wealth. Palauans are guardians of a rich legacy – cultural, environmental and historic. The key question: “Can this legacy be invested in a way that will provide a sustainable livelihood for future generations.”

In recent years, investment has been concentrated in the urban sector of the economy to the detriment of the rural primary production sector. As a result, the income of the average rural household is less than one-half that of the average urban household. Primary production has continuously diminished as a proportion of goods consumed, thus creating a potentially de-stabilizing dependency on imports and creating a serious balance of trade deficit. (Otto, 1998)

#### **5.1.2 *National Efforts Related to Poverty Eradication***

The Palau Community Action Agency (PCAA), a semi-autonomous government agency is committed to reduce poverty in all its dimensions among all sections of the people through promoting growth, especially of such sectors, which will expand opportunities for the needy and build their human capital to enable them to participate effectively in the growth process. The agency has and will implement empowerment approach to poverty reduction by facilitating the social mobilization.

In conjunction with the government, the agency has adopted a **multi-fold strategy to reduce poverty**. The key elements of the strategy are interlinked and build on each other. They consist of:

- Pursuit of rapid and sound economic growth;
- Promotion of human development;
- Enhancing social capital of the needy by fostering organizations of the poor and their capacity building.

Initiatives implemented by the agency to promote the needs of the poor are summarized below:

PCAA's **Community Development Program** is comprised of both grassroots rural development, as well as promoting urban employment and business development. Over the past fifteen (15) years, PCAA has established an apprenticeship program that provides on-the-job training in skill based trades related to construction, equipment operation, mechanics, medical assistants, office clerks, etc. In addition, PCAA has developed a strong track record in providing technical assistance to both rural and urban individuals interested in either creating or expanding a small business. Technical assistance has taken the form of facilitating in the loan application process, feasibility studies and business plans and participation in workshops to promote business management skills.

Through PCAA's **extension program**, outreach activities are conducted for rural communities to assist in improving their standard of living. This is accomplished by emphasizing a return to consumption of local products. Much of PCAA's efforts have focused on assisting rural community members improve their agricultural practices by providing training and technical assistance on appropriate planting and pest management and other techniques.

PCAA makes an effort to support "**special projects**," or those small-scale projects that are considered important but which do not fit within the agency's primary functions, or the primary functions of other existing agencies or organizations.

The first category of "special project" is **Emergency Assistance**, through which PCAA supplies immediate, limited assistance to those affected by fire or other natural disasters. The program caters to ensure that people have immediate resources needed to meet their basic needs (blankets, food, short term shelter, etc.) while they await assistance from other organizations.

The second category are the **Village Improvement Projects**. This area of work was established to respond to priorities of rural communities that are not necessarily within the priorities of local governments or agencies. PCAA's role is to act as a liaison between the villages and appropriate government agencies, provide small scale complementary funding to assist villages in obtaining their goals. Past projects have included improvements to or development of water catchments, purchasing of pipes to connect water system to segments of the community that lack access to their local water system, restoring docks, providing materials to construct waiting houses, as well as providing funding for instructors to conduct community trainings, etc.

### **5.1.3 National Constraints Related to Poverty Eradication**

The main national constraint related to poverty eradication in Palau is the lack of funding to expand the scope of the programs, increase outreach and increase staff capacities of the relevant agencies and organizations to effectively address poverty issues.

## **5.2 EDUCATION AND REDUCTION OF CHILD MORTALITY: NATIONAL CONSTRAINTS AND EFFORTS RELATED TO EDUCATION AND THE REDUCTION OF CHILD MORTALITY**

### ***5.2.1 Education in Palau***

Article VI of the Palau Constitution mandates provision of free and compulsory public education for Palau citizens as described by law. Such free and compulsory education for the public is further defined through Republic of Palau Public Law 5-2, which mandates compulsory education for all children aged 6 to 17, or until graduation from high school.

The **Ministry of Education (MOE)** was created by the Palau National Government to implement the public education law. Currently, the Ministry of Education operates 19 public elementary schools and one public high school providing free education for Palau’s citizens and residents. In addition, the Ministry of Education provides free education services to the disabled and the adult population through Special Education and Adult Education Programs.

The school year for the Republic of Palau is from August to May. By law, there must be at least 180 days of school sessions. Core courses for all students include English, Palauan Studies, Mathematics, Science, and Social Studies. Other courses required of all students are Health, Physical Education, and Career Guidance. Palau High School, the only public high school in Palau, offers five career academies to its students; these academies include Health and Human Services, Natural Resources, Agriculture, Industrial Engineering, and Business Information Systems.

The current 10-year education master plan for the Ministry of Education contains the following six priorities:

- Professional personnel and certification system;
- Improving standards to bring relevant, real world examples into curriculum and instruction;
- Family/school/community partnerships;
- Governance and policy setting for education;
- Pre-school and kindergarten education; and,
- Facilities.

These six priorities constitute the major national strategies for the Ministry of Education to improve its provision of universal primary education to the Palau citizens.

### ***5.2.2 Initiatives Related to Education and the Reduction of Child Mortality***

The **Palau Community Action Agency (PCAA)**, a semi-autonomous government entity operating separately from the Ministry of Education, provides free pre-school education services to children aged three to five through the **Belau Head Start Program**. The Belau Head Start Program and the Ministry of Education collaborate closely, through a memorandum of understanding, in delivering free education services to the public. Areas of collaboration include curriculum development, teacher training, student assessment, student transition, and food service. The Head Start program services over 500 children each year throughout Palau. Head Start centers have been located in each state to ensure children from all the states have access to pre-school education. The program also exists to

help support low-income families with children 3-5 years old in fulfilling their parental role and to help them move towards self-sufficiency.

PCAA's **Parental Assistance Program** focuses on helping students and their families transition smoothly from pre-school (Head Start) to elementary school, then continue to provide services to improve parents' abilities to help improve their children's participation and achievement at elementary and secondary school.

**No Child is Left Behind**—Supported by U.S. Federal Grant, and administered by the PCAA, this program extends services of the Parental Assistance Program to all parents of school-aged children throughout the country as one of the requirements of the grant to ensure that parents of all children become actively involved in their children's education. As part of the country's education master plan, the Palau Leadership approved the parental involvement in the master plan for the purpose of developing Palau's children to be successful in Palau and in the world.

PCAA's **Child Care and Development Program** provides affordable childcare opportunities to families or individuals wishing to continue their education. It has included families who have few alternatives if they wish to remain employed. It provides services through an appropriate mix of home based and center based settings. It coordinates with other service providers at the local level to ensure that comprehensive ranges of child development services, health, nutrition and other services are provided to low-income children and their families. (info from Irung Ikeda, PCAA)

The Ministry of Education had completed a **consolidation plan for public schools** as a means to cut operating and maintenance costs. The school consolidation is expected to coincide with the completion of the 52-mile road around Babeldaob to allow for efficient movement of students. One or two new public high schools are also being planned for Babeldaob to accommodate students throughout the states in Babeldaob.

Two **professional personnel and certification systems** have been developed; one is for teachers while the other is for principals. The certification system for teachers has been transmitted to the Olbiil Era Kelulau (OEK), Palau national congress for action while the one for the principals is still under review at the Office of the President. Meanwhile, the Ministry of Education has been working with the Palau Community College (PCC) to refine the degree program courses and to establish requirements for teachers' certification.

Work-based activities for Palau High School and private high schools have been established and are being implemented every year. Such activities include **job shadowing, mentoring, and a summer work experience program**, all taking place at job sites throughout the Republic. In addition, Palau High School students participate in a practicum during their senior year to prepare the students to transition smoothly into the work place if they choose not to continue on to tertiary education.

Two important partnerships have been established between the community and the Ministry of Education. The **Belau Family School Community Association (BFSCA)**, which consists of parents, community members, and educators, conducts trainings and workshops for parents and community members on a variety of issues that may help parents and the public to assist students successfully complete their education. The **Belau Employers and Educators Alliance (BEEA)**, with members from the business community and the education sector, assists in placing students at local businesses and agencies to work as part of their learning process.

In 2002, the Ministry of Education restructured to be more effective and efficient in providing education services to the public. Most operations were consolidated and streamlined to eliminate

redundancy and bureaucracy. **Processing time has been reduced by more than 50%.** A comprehensive policy handbook for the Ministry has been drafted and should be fully completed this year.

A few years ago, the Ministry of Education attempted to begin kindergarten at all public elementary schools. However, the Ministry's annual budget was not and is still not sufficient to construct additional classrooms and hire teachers for the kindergarten program. Without the kindergarten program, the Ministry of Education receives children directly out of the Belau Head Start Program administered by the PCAA and various private kindergarten programs. The Ministry of Education executed a **memorandum of understanding with the Belau Head Start Program** several years ago **to build close collaboration** with the Belau Head Start Program in preparing pre-school children for entry into first grade under the Ministry of Education.

The Ministry of Health's Prenatal Health Care Unit is widely utilized by expecting mothers. The Republic is able to advise on best health care practices during the prenatal period which has substantially reduced maternal and infant mortality and enhanced the long-term health of the newborn. Infant mortality rate has been reduced from 24.5% in 1990 to 16.7% in 2001. (Ministry of Administration, 2001) All pregnant women at some point receive prenatal care that is increasingly higher in quality, due to the use of more sophisticated diagnostic and monitoring technologies.

### ***5.2.3 National Constraints with Respect to Education***

There are two major constraints faced by the Ministry of Education as it delivers its mandate for free and compulsory education. The first constraint is the obvious limited funding allocated for education. As in many countries, while teachers arguably fill one of the most critical roles in a society, they are not adequately compensated for their important work. Teachers in Palau are dreadfully underpaid. This contributes to the second major constraint, which is the lack of well-trained and qualified teachers within the school system. PCAA also suffers from a lack of adequate funding to do more outreach and capacity-building activities for their staff.

Every year, the budget for the Ministry of Education is limited to maintenance of the existing programs. There is very little, in any, additional funding to initiate new programs. All teacher and staff training and workshops for the Ministry of Education are supported by federal funds from the United States through competitive grant applications. The work-based experiences for students, for instance, are fully supported by federal grants. It is this limited funding for education that prevented the establishment of the kindergarten program for public schools.

Another constraint is the retirement law for government employees. Palau has a relatively small population of approximately 20,000 people, about a fifth of whom are foreign workers. Yet, there is a public retirement law that requires the retirement of government employees, including teachers, at age 60 or at 30-35 years of government service. There are more educated and experienced teachers retiring than those being hired to replace them as there is such a small pool of qualified educators on island. Consequently, the Ministry of Education has a major pool of teachers without sufficient qualifications, and the only training and capacity-building initiatives that the Ministry is able to provide are those funded by the U.S. federal grants.

### **5.3 GENDER EQUALITY AND EMPOWERMENT OF WOMEN: NATIONAL CONSTRAINTS AND EFFORTS RELATED TO GENDER EQUALITY AND EMPOWERMENT OF WOMEN**

#### ***5.3.1 Status of Women***

Palauan women traditionally enjoyed high social status in a spirit of equality with men. Although the roles and responsibilities of men and women differed, these differences did not constitute a dominant-subordinate relationship between the sexes but rather a duality in which each sex had a defined role but neither was able to progress without the support and cooperation of the other.

Palauan women, however, lost ground in the post-contact era through their interaction with and partial subordination by paternalistic colonizers who neither understood nor accepted the concepts of duality and sexual equality. Beginning in the 1950's, Palauan women began to reassert themselves. Their struggle over the past five decades has been to fully re-claim their former equality, respect and decision-making prominence while simultaneously addressing the many challenges of modernization.

Today Palauan women enjoy high health and educational status and a wide array of economic opportunities in both traditional and non-traditional occupations. Through a network of traditional women's organizations, women are reasserting themselves as guardians of the Palauan culture. As individuals, women are taking an increasingly active role in contemporary politics and business. However, women remain underrepresented at senior management levels in both public and private enterprises and are sparsely represented in elected offices (although the number of women standing for and winning elections increases with each successive election). (Otto, 1998)

Traditionally agriculture fell within the female sphere of influence and was a source of pride, power, and income for women. Although colonial governments have attempted to re-create agriculture under a Western model in which agriculture is a male dominated enterprise, these efforts have been largely unsuccessful. Agriculture generally remains a "female" occupation in contemporary Palau although busy modern women are increasingly employing Asian farm workers to undertake part of their agriculture labor. There is a growing trend in Palau away from the traditional small-scale farming and agroforestry methods used by women. New farms are larger, have cleared fields planted with single, often non-native, crops that are destined for restaurants and supermarkets in Koror. Fertilizer and pesticide use is increasing, as are problems with sedimentation from cleared and poorly maintained fields.

Traditionally and continuing today, women have played important roles in the marine sector, especially in nearshore harvest of invertebrates and fish. Several studies have documented the extent of women's collection activities (Matthews and Oiterong 1995; Lambeth 1999; PCS 2003b). In these studies, women were found to collect a variety of fish and invertebrates (including sea cucumbers, urchins, clams and crabs) for both family consumption and sale in local markets. In Peleliu, the women's sale of prepared land crabs (called ukaeb), has become a major source of income. Some women earn as much as \$1000 per month on the sale and export of ukaeb (PCS 2003b). Women are also involved in the preparation and packaging of bentos, boxes of cooked foods for sale in stores throughout Palau. The income derived from these sales is not known. (Matthews, 1995)

### **5.3.2 National Constraints Related to Gender Equality and the Empowerment of Women**

While Palauan women have considerable traditional authority and Palauan society is matrilineal, this is not reflected by active participation of women in the policy making areas and senior management levels in both public and private enterprise. To address these concerns, the 2020 National Master Development Plan in 1996 recommended that the Bureau of Women’s Interest be appropriately staffed and that the Bureau be proactive in recommending policies that encourage fuller participation of women as policy makers and decision makers.

The key national constraint related to gender equality and the empowerment of women is the clear lack of political support and awareness of the issues. This is reflected in the recent downgrading of the Bureau of Women’s Interest to a Women’s Resource Center within the Bureau of Community Services under the Ministry of Community and Cultural Affairs.

### **5.3.3 National Efforts Related to Gender Equality and the Empowerment of Women**

With help from the Secretariat of the Pacific Community (SPC), a Gender Sensitivity Task Force was recently established and held the first ever Gender Sensitivity Training and Training of Trainers Workshop from May 10 –17, 2004. The main purpose of the workshop was to introduce the issue of gender sensitivity and to develop a pool of individuals that are able to conduct Gender Sensitivity training workshops within country. It is hoped that these workshops will generate more awareness of the issue and help build the necessary political awareness and support for initiatives related to gender equality and empowerment of women.

## **5.4 HIV/AIDS, VECTOR BORNE, AND OTHER DISEASES:**

### **NATIONAL CONSTRAINTS AND EFFORTS RELATED TO HIV/AIDS, VECTOR BORNE AND OTHER DISEASES**

#### **5.4.1 Situation Background and National Constraints Related to HIV/AIDS**

As stated earlier in section 1.2.8, Palau remained one of very few countries in the world in which domestic transmission of the HIV virus had not been detected in 1999. Two Palauans had died from AIDS but both were infected while resident overseas, returning home in the advanced stages of their disease. However, this is no longer the case. The Bureau of Public Health (BPH) now reports that there are three deaths from AIDS and at least five cases of domestic transmission. By virtue of Palau’s demographics, economics, health status, and behavior patterns, there is a high level of vulnerability to the introduction and spread of HIV/AIDS.

For many years, Palau has reported a high rate of STDs. Palau’s reported STD rate is in fact higher than that of most Pacific Island countries and generally equivalent to that of the United States. While “traditional” STDs can generally be treated easily and relatively cheaply, their presence indicates more serious underlying problems of unhealthy lifestyles and unhealthy choices. Unfortunately, all the indicators of vulnerability are present in the community:

- Palau has a high rate of infection with sexually transmitted diseases other than HIV; this alone indicates that a large number of Palauans are not practicing “safe sex;” STD infection

also increases the risk of HIV infection in the event of sexual contact with an HIV-infected partner.

- Palauan youth initiate sexual activity at a relatively young age; survey data suggest that about 50% of sexually active high school students use condoms meaning that 50% of sexually active students (or 25% of the student population) are at risk of STD infection;
- Significant numbers of Palauan adults, especially men, have multiple sexual partners and do not practice “safe sex;”
- The risk of infection is amplified by increasing mobility of the resident population and close links between Palau and Asian countries which have moderate to high prevalence rates for heterosexually transmitted HIV infection;
- The risk is further amplified by rapid growth of Palau’s own domestic “sex industry” whose workers are imported from high risk Asian countries to service an ethnically diverse clientele;
- Because of these factors, there are a large number of Palauan women who are at risk of contracting STDs or HIV infections not by their own actions but as a result of the actions of their partners who are neither monogamous nor practice “safe sex.”

The key national constraint related to HIV/AIDS primary prevention is the on-going challenge of changing the community’s risky behavior to decrease vulnerability. The main constraint related to secondary prevention relates to the need for greater awareness and understanding of HIV/AIDS. More awareness work is needed in order for the public to have confidence that testing is confidential; that they will not face public ostracism in the community should they be HIV positive; and the understanding that HIV infection is not an automatic death sentence but that effective treatments are available which can help infected persons to live productively for many years.

The key national constraint related to HIV/AIDS treatment is cost. The Republic is currently providing treatment to one person. Two different drugs for one person cost around \$3,600 every two months. This does not include the cost of other aspects of treatment such as salaries for doctors and nurses, counseling, lab tests and other tests, etc.

#### **5.4.2 Efforts and Initiatives Related to HIV/AIDS**

In 2000, Palau developed an HIV/AIDS five-year strategic plan which outlines broad strategies with variable detailing of specific activities required to implement the strategies. The plan aims to be holistic by linking primary and secondary preventative activities with capacity-building for treatment. The plan has been adopted by the Ministry of Health and is being implemented with support from financial and technical support from the CDC, WHO, SPC, and UNAIDS.

Through this plan, the Bureau of Public Health (BPH) and the Community Planning Group for STDs/HIV/AIDS (CGP) aim to create a healthy island community – a community which is aware of the threat posed by STDs and HIV; a community which is prepared to change unhealthy behaviors; and a community which cares for people who live with HIV infection.

To achieve this vision, eight strategies are proposed in the strategic action plan:

Strategy #1: To raise awareness and end the silence about the STD problem and the underlying behaviors that cause this problem.

Strategy #2: To build partnerships for change within government, businesses, communities, and families, schools, and churches.

- Strategy #3: To change behaviors by reducing high-risk sexual behavior (e.g., sex without condoms except in committed, monogamous relationships between two uninfected partners).
- Strategy #4: To change behaviors by making committed, monogamous relationships a community norm; in particular to encourage abstinence among school-aged children.
- Strategy #5: To vigorously promote voluntary and confidential screening on the part of at-risk persons.
- Strategy #6: To (virtually) eliminate the risk of HIV (or hepatitis) transmission via blood in health care facilities, beauty and barber shops, tattooing, and on the sports field or elsewhere in the community.
- Strategy #7: To develop capacities within Palau’s health system to treat and manage patients with HIV infections.
- Strategy #8: To continuously monitor and evaluate the strategies and their supportive actions in order to become more effective.

The BPH has an **abstinence education program** which targets 6th, 7th, and 8th grades and high school. The program takes a three pronged approach focusing on promoting: 1) abstinence of school-aged kids, 2) monogamous relationships, and 3) “safe sex.”

The **Health Resources Services Agency (HRSA)**, a sister organization of the CDC has provided \$50,000/year for the past four years for treatment. This funding has been used mainly to purchase medication for treatment. The CDC has also provided funding for BPH to conduct awareness-raising activities through the media - radio, television and newspaper.

#### ***5.4.3 National Constraints Related to Vector Borne Diseases***

As stated in section 1.2.8.2, malaria is not present in Palau, however, there are several other vector-borne diseases: **Dengue Fever, Leptospirosis, and Filariasis**. While Palau does have vector-borne diseases, unlike many developing nations the key problem areas in Palau today are the non-communicable and lifestyle diseases.

Although there has been a definite improvement in the general health standards of the population over the past few decades, changing lifestyles have resulted in different health patterns and new health problems have emerged. Indicators for communicable diseases are continuing to increase at relatively high rates. This indicates a society that is experiencing diseases of both developing and developed nations. Examples of the latter include increases in gastroenteritis, cardiovascular disease (heart attacks and strokes), cancer and diabetes. Diabetes is strongly associated with age, lack of exercise, diet, obesity, alcohol consumption and stress – classic diseases of lifestyle and modernization. (SAGRIC, 1996)

One the key constraints related to control of vector borne diseases are **human resource and financial capacity**. Currently there are very few well-qualified personnel for the Division of Environmental Health’s (DEH) Vector Control Unit. In addition, national funding support does not include equipment and supplies for detection, surveillance, control, and prevention of vector-borne diseases.

#### **5.4.4 National and Regional Efforts and Initiatives Related to Vector Borne Diseases**

The main vector borne diseases of concern in Palau are: Dengue Fever, Leptospirosis, and Filariasis.

National efforts include:

- Development of the National Environmental Health Action Plan (NEHAP) that addresses environmental health issues including vector borne diseases.
- Creation of a Vector Control Unit under the Division of Environmental Health that targets all vectors and vector-borne diseases in Palau.
- Local funding support for the Division of Environmental Health and its programs.
- Local network support to stamp out mosquito breeding grounds (i.e. Tilapia Eradication Team (TET) to eliminate mosquito breeding grounds at old quarry ponds previously infested with Tilapia)

Regional efforts include:

- World Health Organization’s (WHO) efforts to eradicate Filariasis
- Pacific Public Health Surveillance Network (PPHSN) for Dengue and Leptospirosis

### **5.5 ENVIRONMENTAL SUSTAINABILITY: NATIONAL CONSTRAINTS AND EFFORTS RELATED TO ENVIRONMENTAL SUSTAINABILITY**

Generally, the National Government, State governments, community groups, non-governmental organizations and the private sector work together to address issues related to environmental sustainability. This is largely due to the strong community links between individuals in Palau as well as a network of committed local and locally based professionals, agencies and organizations.

Palau faces enormous challenges on the road towards achieving environmental sustainability that include rapid development, climate change and sea level rise, the introduction of invasive species, over-harvesting and pollution.

National efforts include a wide array of programs mainly targeted at public education, planning and natural resource management. Coordinating bodies have been established to address issues collaboratively such as the NEPC and the PNRC. Efforts need to be targeted at evaluating and improving the effectiveness of such coordination. Key constraints towards achieving environmental sustainability include:

- Pressures to Develop a Viable National Economy
- Population Changes
- Critically Limited Capacity
- Limited Political and Public Awareness

### **5.6 GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT: NATIONAL CONSTRAINTS AND EFFORTS RELATED TO DEVELOPING GLOBAL PARTNERSHIPS ON SUSTAINABLE DEVELOPMENT**

The need for improved capacity building and coordination remains a key constraint in most effectively developing and participating in global partnerships for Sustainable Development.

## 6.0 EMERGING CONCERNS AND SPECIAL NEEDS

### 6.1 PESTICIDES AND PESTICIDE RESIDUES IN FOOD AND WATER

The local agriculture industry in Palau has seen significant development over the course of the last twenty years. In the past, vegetables consumed by the residents of Palau came in two forms: local traditional vegetables, starches and fruits, and canned consumables. Household farms for the growing of traditional produce were common, and pesticide use was minimal. Today, local farms provide many varieties of produce such as lettuce, green beans and bean sprouts that are grown on a much larger scale than before. These commercial ventures rely on restricted use pesticides (EPA listing) to increase crop yield and maintain profitability. Furthermore, the new gardens and flowers that have replaced the once prevalent household farms are also maintained using pesticides.

At this point in time, the field use of pesticides has outstripped the ability to comprehensively regulate these practices. As a result, **excessive use of pesticides as well as improper handling and application procedures are commonplace** but the exact extent of these problems has not been quantified as yet. No testing has been done to date on local produce to determine the level of pesticide contamination due to excessive or improper application. Efforts to increase the regulation of restricted use pesticides in the Republic are already underway, but are hampered to some extent by the lack of resources, particularly testing capabilities, on the part of the regulatory agency, EQPB.

Although a system to monitor the importation and distribution of pesticides, as well as to educate the pesticide applicators on proper techniques, has been instituted, the corresponding program to evaluate the success of these efforts in the field and in the produce itself is still lacking. This situation is cause for concern not only for the consumers of the produce and the health and safety of the workers applying the pesticides, but also because of the potential for additional environmental degradation caused by the presence of these toxic substances.

#### **The Way Forward**

Optimization and augmentation of the existing pesticides regulatory framework can be much more readily achieved if the end results are used to drive these efforts. The effects of pesticides on public health are of particular importance. The potential for health related problems are significant for individuals who have direct exposure (farm workers, persons exposed to pesticides contained in runoff water, etc.) as well as consumers of the produce. By identifying existing problem areas, the capacity of the regulatory program can be enhanced in specific ways in order to address them, leading to a more efficient optimization process. A system that links public health problems to aspects of pesticides usage in the Republic would be very beneficial.

### 6.2 INDOOR AND OUTDOOR AIR POLLUTION (ASTHMA)

The Ministry of Health (MOH) Health Information System (HIS) shows that there was a total of 2,019 diagnoses of Upper Respiratory Infections (URI) during Outpatient visits in 2001 and 276 Inpatient stays at the BNH for Diseases of the respiratory system. BPH's Non-Communicable Disease (NCD) Database shows **256 patients with asthma were seen from year 2001-2002** at the Outpatient clinic. Of this number, 111 were males and 145 females with ages ranging from 3 to 81 years of age.

NCD Program Coordinator (2003) comments that “Asthma has been on the rise for the past three years in Koror. People do not quite understand what causes asthma. **Increased levels of air pollutants** have polluted Koror and Airai States.”

Vehicle statistics from the Bureau of Public Safety show more than two-fold increase in the number of registered vehicles, 4,452 from 2001 to 11,792 in 2002. Of this number, 7,780 (58%) were registered for Koror State. Koror State is where 70% of the population currently resides, resulting in a population density of 1,900/sq.mi., as compared to 112/sq.mi. national average. Thus, Koror State possesses the highest **automobile emissions** in the ROP. Additionally, Koror is the only state with high prevalence of particulate matter (i.e. dust) outdoors. It also worth noting that more than 75% of the vehicles in Palau are below US standards (previously owned imported cars from Japan with right-base steering wheels). Vehicle emissions from these below US standard cars could be very well contributing to the increased asthma cases in the last three years.

Indoor air pollution may also be a contributing factor to the increased rates of asthma and other respiratory illnesses. A survey conducted in Palau by the Tobacco Control Program (TCP) called Secondhand Smoke Opinion Survey (2002) showed that out of a total of 206 persons surveyed, **83% indicated frequent exposure to secondhand smoke**. Of the 83%, 30% said other people smoke in the car with them, 28% said other people smoke in their homes, and 25% said other people smoke at their places of work. Filipino responders were more commonly exposed to secondhand smoke in their cars, places of work and homes than all other ethnicities (TCP 2002).

The 2000 Census revealed that fuel used for cooking in Palau are as follows: (A) 23% use electric ranges (B) 22% use kerosene fueled stoves (C) 21% use natural gas (bottled or tank) (D) 10% use both electricity and kerosene (E) 10% use both electricity and gas (F) 8% use both gas and kerosene (G) 5% use all three types and (F) 1% use other fuels. Thus, approximately 45% of the total households in Palau use kerosene as the sole or secondary source for fuel cooking. The concrete wall enclosed indoor kitchens of today, as opposed to outdoor open air kitchens of the past, may be increasing exposure rates to Nitrogen Oxides, which is associated with the burning of kerosene fuel. These environmental hazards of kerosene fuel need further study as possible cause of the increased rates of asthma and other respiratory events.

Needed assistance/resources includes:

- Measurement of indoor and outdoor air to quantify air pollution
- Expertise in air pollution is needed
- Air pollution samples/measurements are needed

## 6.2 OTHER EMERGING CONCERNS

The following is a list of other emerging concerns:

- unplanned development;
- loss of cultural values;
- changing lifestyles;
- good governance and transparency;
- illegal trafficking, local use and production of methamphetamines (“ice”);
- injuries are a major health problem and comprise one of the top three leading causes of death in Palau, especially high in men.
- limited resources to accommodate a rapidly growing prison population
- increasing social tensions due to rapid development and increasing influx of foreign workers.

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