Mauritius +5 Status Report: Republic of Palau

Produced by the Office of the Vice President

in cooperation with ESCAP

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Foreword

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Acronyms

ADB	=	Asian Development Bank
AHEC	=	Area Health Education Center
BoA	=	Bureau of Agriculture
BPoA	=	Barbados Plan of Action
BWA	=	Babeldaob Watershed Alliance
CBD	=	Convention on Biodiversity
CEDAW	=	Convention to Eliminate all Forms of Discrimination Against Women
COFA	=	Compact of Free Association
CRC	=	Convention on the Rights of the Child
DHHS	=	(U.S.) Department of Health and Human Services
DOTS	=	Directly Observed Therapy Short Course (treatment modality for tuberculosis)
EEZ	=	Exclusive Economic Zone
EQPB	=	(Palau) Environmental Quality Protection Board
ESCAP	=	Economic and Social Commission for Asia and the Pacific
FAO	=	Food and Agriculture Organization (of the United Nations)
FAS	=	Freely Associated States
FFA	=	Forum Fisheries Agency
FSM	=	Federated States of Micronesia
GEF	=	Global Environment Fund
GIS	=	Geographic Information Systems
GoP	=	Government of Palau
JICA	=	Japan International Cooperation Agency
LMO	=	Living (Genetically) Modified Organisms
m	=	Millions
MDG	=	Millennium Development Goals
MOE	=	(Palau) Ministry of Education
MOH	=	(Palau) Ministry of Health
MSI	=	Mauritius Strategy for Implementation
MTDS	=	(Palau) Medium Term Development Strategy
NASDP	=	National Aquaculture Strategic Development Plan
NBSAP	=	National Biodiversity Strategic Action Plan
NCDs	=	Non Communicable Diseases
NEMO	=	(Palau) National Emergency Management Organization
NGO	=	Nongovernment Organization
NMDP	=	(Palau) National Master Development Plan (“Palau 2020”)
ODA	=	Overseas Development Assistance

OEK	=	Olbiil Era Kelulau (Palau National Congress)
OERC	=	(Palau) Office of Environmental Response and Coordination
OPEC	=	Organization of Petroleum Exporting Countries
OPS	=	(Palau) Office of Planning and Statistics
OTEC	=	Organization of Tuna Exporting Countries
PACA	=	Palau Aquaculture and Clam Association (of producers)
PALARIS	=	Palau Automated Land and Resources Information System
PAN	=	Protected Area Network
PATA	=	Pacific Asia Travel Association
PCC	=	Palau Community College
PCS	=	Palau Conservation Society
PFFA	=	Palau Federation of Fishing Associations
PHSP	=	(Palau) Public Health Strategic Plan
PICRC	=	Palau International Coral Reef Center
PIHOA	=	Pacific Islands Health Officers Association
PNCC	=	Palau National Communications Corporation
PNTFMP	=	Palau National Tuna Fisheries Management Plan
PPEC	=	Palau Pacific Energy Corporation
PPUC	=	Palau Public Utilities Corporation
PREL	=	Pacific Resources for Education and Learning
PVA	=	Palau Visitors Authority
SIDS	=	Small Island Developing States
SOPAC	=	Pacific Islands Applied Geoscience Commission
SPC	=	Secretariat of the Pacific Community
SPREP	=	South Pacific Regional Environment Program
SPTA	=	South Pacific Travel Association
TAP	=	(Palau) Tourism Action Plan
TVET	=	Technical and Vocational Education and Training
UNDP	=	United Nations Development Program
UNEP	=	United Nations Environment Program
UNFCC	=	United Nations Framework Convention on Climate Change
UNESCO	=	United Nations Education, Scientific and Cultural Organization
UNICEF	=	United Nations Children's Fund
USDA	=	U.S. Department of Agriculture
USP	=	University of the South Pacific
WCPTC	=	Western and Central Pacific Tuna Commission
WHO	=	World Health Organization

Executive Summary

Background

Country Context: Palau, like other small island nations in the Pacific, Caribbean, and Indian Oceans, faces big developmental issues. As a nation **small in land mass**, Palau has small domestic markets that inhibit competition, preclude economies of scale, and make it difficult to produce anything – goods or services – at internationally competitive prices. Even though Palau's **ocean area** exceeds its land mass by 1000-fold, this too is small in comparison to the oceans of neighboring island countries thus undermining Palau's competitive edge even among the islands in the lucrative world tuna trade. Located at the western-most end of the Micronesian archipelago, Palau is **remote** from even its near neighbors and even more remote from the world's economic centers. Getting to Palau whether by sea, air, or telecommunications is often difficult and always expensive. Palau also has a small population, made even smaller by out-migration. A **small population** makes it difficult to train and retain the skilled workforce needed for nation building. As an independent nation in a turbulent world, Palau is also **vulnerable** to climate change, sea level rise, natural disasters, rising oil prices, and external disruptions in transport and trade.

Barbados and Mauritius: In 1989, the United Nations recognized that small island nations have special development issues, including but by no means limited to climate change and sea level rise. To focus on these special issues, a Global Conference on the Sustainable Development of Small Island States was convened in Barbados (1994). Attended by 125 nations and territories, including Palau as an observer, the conference produced the **Barbados Plan of Action for the Sustainable Development of Small Island States** (BPOA). This plan was later superseded by the **Mauritius Strategy for Implementation** (MSI) adopted by a second global conference on small island states (2005). Together, the Barbados Plan and the Mauritius Strategy have provided the impetus for national and regional initiatives to reduce vulnerability and remove binding constraints to development while also leveraging bilateral and multilateral resources.

The Mauritius Strategy is broad-based. Its 20 chapters address a wide range of issues that have unique ramifications in the context of small islands. Cross cutting issues include planning for sustainability, climate change, sea level rise, energy, transportation, communications, and information. Environmental issues include biodiversity, water and land resources, and waste management. Economic issues include agriculture, forestry, and marine production, tourism, and trade. Human development issues include health and education. Security issues include disaster prevention and response.

Review of Progress: In 2009, the United Nations General Assembly called for a review of progress made in implementing the Mauritius Strategy. The review is to take place in New York in September 2010 but will be preceded by regional reviews held in the three main island regions – Pacific, Caribbean, and Indian Oceans. Each small island developing state has been asked to prepare a report outlining progress, challenges, and future directions. This report for the Republic of Palau has been prepared by

the Office of the Vice President in cooperation with ESCAP (the United Nations Economic and Social Commission for Asia and the Pacific).

Palau and the MSI:

Overview

Palau can record solid progress in addressing each of the issues highlighted in the MSI. Despite this, however, the MSI has no local "champion" in Palau and as a consequence, has a low profile. Very few Palauan leaders or civil servants are knowledgeable about the MSI; none are knowingly using it as a framework for domestic action; and it has been all but ignored in the draft Medium Term Development Strategy. Nevertheless the MSI exerts a strong indirect influence especially at the Regional level where it has helped to shape the Pacific Plan and through the Pacific Plan, the work programs of the various regional organizations that have in turn used the MSI as a springboard to leverage bilateral and multilateral resources to address national and regional vulnerabilities.

With increasing frequency, Palau is assuming a leadership role in the Pacific Region and in the Micronesian sub-region. Through the Micronesian Challenge, Palau is encouraging and assisting its island neighbors to protect biodiversity; this work has spawned similar initiatives in the Caribbean and the Coral Triangle. Through the Green Energy Micronesia initiative, Palau is leading the drive to promote renewable energies and ultimately, eliminate use of fossil fuels for generating electric power. Furthermore, Palau is leading the OTEC movement (Organization of Tuna Exporting Countries) - a bold and innovative bid for islanders to wrest control of their tuna resources, ensure their sustainable management, and obtain higher economic returns from sales in the lucrative world market. All of these initiatives are in line with the MSI and supported ether directly and indirectly by financial and technical resources made available in response to the MSI.

Climate and seas: Every islander knows that climate is changing and seas are rising for they confront the evidence of these changes on a daily basis. Palau has already had a potent foretaste of coming changes during the 1997-1998 El Nino with its devastating impacts on human well-being, the environment and the economy. Although Palau produces a miniscule amount of greenhouse gases from a global perspective, it is taking action to reduce its "carbon footprint." An **energy policy and action plan** developed in 2009 will cut fossil fuel use by 50% (30% through conservation and 20% through use of renewable energies). Although somewhat slow to take up renewable energy - not from lack of will but lack of access to information, technology, and capital - two major solar projects have recently been completed (at the Capitol and the national hospital) and several others are in the pipeline. With support from the international community, especially SOPAC and European donors, Palau is now poised to advance rapidly toward the long-term 'clean energy only' goal.

Reducing Palau's own greenhouse gas emissions, however, offers no protection against the climate impacts of world emissions. A number of important **adaptation measures** are in progress in the areas of water, land and waste management, agriculture and fisheries production, and disaster preparedness to minimize the impact of future changes. Admittedly, adaptation responses to date are not enough. In particular the process of developing land use plans that consider the future state of climate and seas must be accelerated. Urgent attention is also needed to development of climate-resilient building codes.

Infrastructure - Transportation: Palau, with its international partners, has invested heavily in transportation infrastructure, especially road construction

and airport improvements. The **"Compact Road,"** built by the U.S. as part of its independence agreement with Palau, forms an 85- kilometer loop around Babeldaob Island that opens vast areas for economic development. The Republic of China-Taiwan and Japan have invested heavily in **secondary roads** that open still more land for development. **Maintenance** of this infrastructure is a major challenge that now confronts an increasingly cash-strapped government.

The Compact Road, relocation of the capitol from Koror to Melekeok, and expanded development in Babeldaob all mean that more people are traveling greater distances than ever before. Palau has become an **automobile dependent society** with ramifications for health, the environment, and the economy. Creating an environment conducive to **walking, biking, and public transportation** is a major challenge not adequately addressed in the National Energy Policy or Plan.

Infrastructure - Communications: Palau has invested heavily in **communications technology** which has enabled every sector to take advantage of the **information revolution** thereby significantly mitigating some of the worse effects of geographic isolation. Palau is one of few island countries that can now boast of 100% **internet** connectivity. Furthermore, Palau can also boast of the cheapest **telecommunications** services among independent Pacific Island nations. Communications technology, however, continues to develop. Keeping up with new advances, especially in a remote location, requires money. Public sector investments will not be enough to enable Palau to keep pace with the rest of the world; private investments and especially foreign investments are needed. To attract investment into the communications sector, new government policies are needed to create a **regulatory framework** that ensures a "level playing field" and a reasonable rate of return on investment for all competitors.

Environment: The dual concepts of "wise use" and "respect" are engrained in Palauan culture and traditions. Conservation is therefore a part of the Palauan psyche and consequently, has been at the forefront of public policy even predating independence. Because Palau has a high level of endemicity (25% of species found in Palau are endemics), it has importance for global biodiversity far in excess of its size. Largely for this reason, international community has been generous in helping Palau further its conservation agenda.

Palau has ratified all the major international environmental conventions and agreements and as previously noted, has taken a leadership role in conservation at the Sub-Regional and Regional level. Palau is the **first country** in the world to fulfill **ALL** of its commitments for protected areas under the Convention on Biological Diversity. With 37 legally constituted protected areas, Palau now exceeds the target set by the Micronesia Challenge. Nevertheless the work is not done. The goal is to protect a representative sample of all ecosystems found in Palau and to use the principles of biological connectivity to build resilience against climate change, sea level rise, and higher ocean temperatures. Furthermore, the ultimate goal is not just a network of well-managed protected areas but a management regime in which **ALL resources are sustainably managed ALL of the time**. To achieve this, more investment is needed in research, especially terrestrial research, and a system of land use planning backed by zoning is urgently needed.

With support from the Global Environment Fund, Palau is implementing a **Sustainable Land Management** project working in partnership with resource owners and the scientific community to develop land use plans and planning structures that will achieve a

workable balance among competing conservation, economic, and social development objectives.

Water: Palau has extensive water resources and has achieved virtually **universal access** to improved water. The water sector, however, has not yet achieved a state of sustainable management. Increasing demand from new developments, the specter of more frequent droughts, and financial instability must all be addressed before Palau can be said to have achieved its water goals. **Watershed management** and **water systems management** must go hand-in-hand and be supported by **Sustainable Land Management**. While there is growing awareness about watershed issues and important work is underway to protect watersheds, development pressures threaten to outpace water management regimes. Water systems need attention to address maintenance and operations issues, improve water quality, and build resilience against drought. Water policies also need to be developed to encourage water conservation and enhance the financial sustainability of water systems. SOPAC, SPREP, and the Asian Development Bank are Palau's leading partners in addressing these water resource issues.

Waste management: Palau has increasingly become a consumption-oriented society and as a result waste management is a pressing concern. With assistance from Japan and SOPAC among other partners, the old public dump at M-Dock in Koror has been transformed into a well-managed **landfill** although one that is rapidly running out of space. Following eight years of effort, a new landfill site has been identified in Babeldaob; work must begin urgently to secure and develop the site in order to facilitate early closure of the Koror site and other public dumps that dot Babeldaob Island.

Creating a state-of-the-art landfill, however, is not enough. Efforts are needed to reduce the volume of waste generated through a nationwide **Reduce-Reuse-Recycle** initiative and to find sustainable solutions to the problems posed by **hazardous (chemical) wastes**. While systems are in place to address some of the big chemical waste issues – pesticides, batteries, oil – there are a whole range of other hazardous consumer products now going into the landfill that need to be managed more sustainably.

Only Koror and Melekeok have **wastewater treatment systems**. Although major investments have been made to improve the Koror system, more work still needs to be done as a matter of highest priority. Apart from Melekeok, all rural areas are un-sewered and on-site treatment poses hazards to health and the environment in many locations. With funding from the An Asian Development Bank, a project will get underway in 2010 to develop a comprehensive wastewater plan for Koror and Southern Babeldaob. Implementation, however, will require substantial new domestic and ODA investment.

Health: Aggressive public health measures combined with progressively improving standards of living – including near universal access to improved water and sanitation - have reduced Palau's burden of communicable diseases although periodic disease outbreaks underscore the need for continued vigilance. It is the rapidly growing burden of non-communicable disease (NCDs), however, that threaten to undermine past achievements in terms of life expectancy, quality of life, and economic productivity. To combat NCDs, the Ministry of Health is working with communities to create health promoting environments that target in particular obesity, physical inactivity, tobacco use, and alcohol abuse. The health sector has a wide range of domestic and international partners although ironically, has identified a number of funding "holes" especially in the high priority NCD control program. Although there is a lot of international and regional support for alco-

hol and tobacco control, obesity and physical inactivity are under-resourced.

Education: Palau has achieved universal access to schooling (preschool through grade 12) and has virtually achieved universal participation in grades 1-12 although drop-outs at the high school level continue to be a concern. The major challenges for the education sector are to improve the quality of education while addressing a growing resource gap. New investments are also needed in the area of technical and vocational training (TVET) but here, a more comprehensive approach is required to address a wide spectrum of labor market issues that extend well beyond the parameters of the education sector.

Economy: There is widespread consensus that Palau needs to create an environment conducive to private sector development and to generate a higher in-flow of foreign investment. To this end, fisheries, agriculture, and tourism have been repeatedly identified as "engines" for economic growth.

The fisheries (or coastal) sector is actually comprised of three sub-sectors: inshore; aquaculture; and deep water (tuna) fisheries. **In-shore fisheries** provide food for household consumption and the domestic market but compete with other resource users including conservation and tourism. There is no policy framework for inshore fisheries at present nor is there a good data base for making management decisions. Work is underway to strengthen the institutional and policy frameworks that support this sub-sector.

Palau has been at the forefront of **aquaculture** development. It was at the Palau Mariculture Center where the technology for farming giant clams was first developed in the 1970's and 1980's. Clam farming is a rapidly expanding small industry in Palau. Other aquaculture products now in production include crabs, milkfish, groupers, and rabbit fish. For the aquaculture subsector to thrive, a number of complex legal, technical, environmental, and marketing issues must still be addressed. A promising start, however, has been made; more local and foreign investment will be needed to advance work already in progress.

Tuna (yellowfin, bigeye, and skipjack species) is Palau's leading export product. To manage this important resource, Palau works in close partnership with other Pacific producing countries, the regional Forum Fisheries Agency and Secretariat of the Pacific Community, and the sub-regional Western and Central Pacific Tuna Commission. The challenge is to sustain the resource while maximizing economic benefits. The major new initiative upcoming in this sector is OTEC (Organization of Tuna Exporting Countries) already highlighted in this summary.

Agriculture: Although all recent development plans have accorded high priority to agriculture as a resource for meeting local food requirements and for limited export, and there has been substantial investment in the agriculture sector by various donors, agriculture has actually declined in economic importance. Agriculture's contribution to GDP is negligible and it employs only a small domestic workforce. As a nation, Palau depends on imports for virtually all of its food requirements; this is a source of economic insecurity and a factor contributing to the epidemic of NCDs sweeping the country. Revitalizing agriculture while balancing agriculture expansion with the need for forest conservation, watershed management, and tourism development is a major development challenge.

Tourism: Tourism is Palau's growth industry contributing 45% of the Gross National Product. Industry, government, and civil society have recently come together to develop and implement a **Tourism Action Plan**. This far reaching document aims to position Palau as the "island of choice for environmen-

tally conscious visitors" by pursuing a destination marketing strategy emphasizing 'high revenues with low volume' and increasing Palauan involvement in the industry. One concrete step toward plan implementation has recently been taken with groundbreaking for a new **Tourism and Hospitality School of Excellence** on the campus of Palau Community College.

The Tourism Action Plan is highly compatible with the MSI call for SIDS to develop "cultural industries" that support tourism and trade. There are some promising starts in developing cultural industries. Wood carving of the uniquely Palauan storyboards is a thriving business and work is underway to expand the range of Palauan agricultural products for both local sale and export. At present cultural industries are an adjunct to the tourism industry and have not received concerted attention. While there is potential for future development, a great deal more work needs to be done to develop a strategic plan and leverage technical and financial resources.

Security: The Pacific Plan identifies a number of security issues facing island nations ranging from an increasing number of domestic tensions to incursions by international criminal cartels and terrorists. The MSI is silent on most of these issues. The only security issue addressed in depth by the MSI is disaster management. With assistance from SOPCA, Palau has recently developed a revised National Disaster Risk Management Framework. This framework promotes an "all hazards, integrated, whole of government, and whole of country approach" that balances risk reduction and response. It also fully considers, to the extent that information is available, the future impact of climate change.

National Strategy for Sustainable Development (NSDS)

It is the national strategy for sustainable development that pulls all the sectoral elements of the MSI into a holistic framework. While Palau has a number of comprehensive planning documents, the only document that meets the criteria for an NSDS **AND** has been formally endorsed at the highest level of government is the National Master Development Plan, known locally as "Palau 2020." This plan was prepared in the immediate post-independence era and published in 1996. This plan, however, is now dated; many of the issues Palau is grabbling with, including climate change, were not even recognized in the NMDP. In 2007, government, in cooperation with the Asian Development Bank, embarked on a project to update and revise the NMDP. The result – "Actions for Our Future" - was completed in 2009 but has not yet received official government endorsement.

When mention is made of an NSDS, there is a tendency to think of a printed document. An NSDS, however, is less a document than a "continuous and cyclical process of participation, development, implementation, monitoring, assessment and revision with an anticipated national vision, clear goals, objectives and targets …. linked to the national budget and external assistance" *(Uherbelau, 2006).* At present, Palau does not have an institutional structure that can support this kind of holistic NSDS process. There is an Office of Planning and Statistics but it is understaffed and underfunded and focused on the statistical function. There is a budget office that is also understaffed focused on public sector finance. There is, however, no fully developed planning office that works with government, private sector, and civil society in pursuit of sustainability. Developing this NSDS process is Palau's immediate short-term challenge that has the potential to significantly advance implementation of the domestic development agenda as well as that of the regional agenda (Pacific Plan) and the global agenda (Mauritius Strategy).

Conclusion

Palau can take a great deal of pride in its many accomplishments under the MSI. It should not, however, be complacent because many accomplishments are "works in progress" and many challenges remain. There is every reason, however, to be optimistic that progress will continue at a rapid pace during the second half of the MSI timeframe. Urgent attention, however, is needed to develop an appropriate structure for managing the NSDS process in concert with the government but also with the private sector and civil society.

CHAPTER 1:
INTRODUCTION -
From Stockholm to Port Vila

Call for review: U.N. General Assembly Resolution 63/213 (February 2009) called for a review of progress made to address the vulnerabilities of small island developing states (SIDS) pursuit to the Mauritius Strategy. Further, "the review should provide the international community with an opportunity to conduct an assessment of the progress made, lessons learned, and constraints encountered in the implementation of the Mauritius Strategy for Implementation (MSI) and agree on what needs to be done to further address the vulnerabilities of SIDS." The review will take place at the 65th session of the General Assembly (September 2010) and will be preceded by regional reviews.

Responding to the General Assembly's call for a mid-term review of the Mauritius Strategy, small island states are preparing reports that highlight their progress, emerging challenges, and future directions. This report for the **Republic of Palau** is jointly prepared by the Office of the Vice President and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). It will be considered at a Pacific sub-regional forum (Port Vila, Vanuatu, February 2010) and subsequently, at the global forum (New York, September 2010).

1.1. From Stockholm to Port Vila

Stockholm: The genesis of the Mauritius Strategy dates to 1972 and the **First United Nations Conference on the Human Environment** (Stockholm, 1972). This was the first world conference to address environmental sustainability as a global issue transcending political boundaries.

Following Stockholm, the **World Commission on Environment and Development** issued its landmark report, *Our Common Future (1987).* Best known for its definition of "sustainable development" the authors…

> *While agreeing that the global economy has to meet people's needs and legitimate desires cautioned that growth also has to fit within the planet's ecological limits … noting that "humanity has the ability to make development sustainable* ***— to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs****."*

Rio: *Our Common Future* was a backdrop for the **U.N. Conference on Environment and Development** ("the Earth Summit," Rio de Janeiro, 1992). Out of Rio came five far reaching agreements of direct relevance to SIDS including Palau.

- The **Rio Declaration** recognized that "peace, development and environmental protection are interdependent and indivisible."
- **Agenda 21** provided the actual blueprint for social, economic, and environmental sustainability.

- Sustainable management principles were adopted to govern f**orests,** recognized as essential for life and development.

- The **United Nations Framework Convention on Climate Change** was adopted to limit climate change and associated sea level rise by stabilizing greenhouse gas emissions.

- The **Convention on Biological Diversity** was adopted to conserve all variety of living species and to ensure that the benefits of biological diversity are equitably shared.

Bridgetown (Barbados): Predating Rio, the 44th U.N. General Assembly recognized the special vulnerability of islands and called for action to address the adverse effect of climate change and sea level rise (Resolution 44/206, 1989). Subsequently, the special situation of islands was highlighted during Rio deliberations and Agenda 21 called for a separate conference to focus exclusively on the unique situation of islands. The **Global Conference on the Sustainable Development of Small Island States** was subsequently convened in 1994 in Bridgetown, Barbados. Attended by 125 states and territories, including 46 small islands,[1] the conference produced the **Barbados Program of Action on the Sustainable Development of SIDS** (BPOA), a fourteen-point program addressing island-specific vulnerabilities.

Copenhagen: The **World Summit on Social Development** (1995) focused on human development with special priority given to poverty reduction. The resulting declaration recognized that environment sustainability is both a prerequisite for and an outcome of human development. The ten action points agreed to at Copenhagen became the forerunners of the Millennium Development Goals (MDGs) adopted by the U.N. General Assembly in 2000, (reference Annex A).

Johannesburg: The **World Summit on Sustainable Development** (Rio +10, 2002) brought together elements of both the Rio and Copenhagen Summits to address poverty eradication, sustainable production and consumption, environmental protection, health, and globalization. The special needs of small island states were once more highlighted.

Mauritius: The Johannesburg Summit called for a review of progress in implementing the BPOA that subsequently took place in **Mauritius** in 2005. The resulting **Mauritius Strategy for Implementation (MSI)** retains the action points of the BPOA but also draws from the islands chapter (Chapter 7) of the World Summit on Sustainable Development action plan. The result is a broad-based twenty-point agenda for action that integrates three pillars of development - social, economic, and environmental.

Table 1-1. Overview of Mauritius Strategy

Chapter 1	Climate change
Chapter 2	Disasters
Chapter 3	Wastes
Chapter 4	Coastal & marine resources
Chapter 5	Freshwater resources
Chapter 6	Land resources
Chapter 7	Energy resources
Chapter 8	Tourism resources
Chapter 9	Biodiversity resources
Chapter 10	Transport & communications
Chapter 11	Science & technology
Chapter 12	Graduation from LDC status
Chapter 13	Trade
Chapter 14	Education
Chapter 15	Production & consumption
Chapter 16	Enabling environments
Chapter 17	Health
Chapter 18	Knowledge & information
Chapter 19	Culture
Chapter 20	Implementation

[1] *Palau was not yet independent and therefore attended the Barbados Conference as an observer.*

Port Vila: 2010 marks the fifth anniversary of the Mauritius Conference and the MSI. During the year, three regional review meetings will be held corresponding with the main island regions – Pacific, Indian Ocean, and Caribbean. The Pacific Review will take place in February at Port Vila, Vanuatu. There, national reports will be synthesized into a Pacific Regional report for submission to the Global Forum in September.[2]

1.2. Pacific Regional Initiative

While Pacific Island countries were reviewing progress under BPOA and preparing national status reports, work was simultaneously underway on the "Pacific Plan." The Pacific Plan, adopted by Forum leaders in 2005, draws from both the BPOA and the MSI. It sets out a roadmap for expansion of regional cooperation around what it terms four pillars of development: economic growth; sustainable development (including social development and environmental protection); good governance; and security. The two documents – Mauritius Strategy with its three pillars of development and the Pacific Plan with its four pillars of development – are highly complementary albeit differing in organization. The Pacific Plan also addresses governance and regional security matters that are not covered in the Mauritius Strategy.

Although this report draws primarily on the Mauritius Strategy, the organization represents a hybrid between the two documents. Chapters 2 and 3 consider the **enabling environment**. Chapter 2 describes the Palau national context and is geared to non-Palauan readers. Chapter 3 is more analytic; it addresses governance and policy issues relevant under MSI Chapters 16 (enabling environment) and 20 (implementation). Chapter 4 addresses cross-cutting issues including **climate change, sea level rise, energy, and transportation** relevant under MSI chapters 1 (climate), 7 (energy), and 10 (transportation). Chapter 5 addresses environmental issues relevant under MSI chapters 9 (biodiversity), 2 (wastes), 5 (freshwater) and 6-A (sustainable land management). Chapter 6 addresses human resources issues relevant under MSI chapters 17 (health) and 15 (education). Chapter 7 addresses ***economic resources*** relevant under MSI chapters 3 (coastal and marine resources), 6-B (agriculture and forestry), 8 (tourism), 19 (culture) and 13 (trade). Chapter 8 addresses **security** relevant under MSI chapter 2 (disaster management).

1.3. MSI and Palau

Palau did not gain independence until October 1994 and was therefore held only observer status at the "Earth Summit" (Rio, 1992) and the first global SIDS Conference (Barbados, 1994). Palau was officially represented in Johannesburg (2002), prepared a status report on implementation of the BPOA (2004), and took an active role in the Mauritius Conference.

At the time of the Mauritius Conference, the world was recovering from a series of economic "shocks" underscoring the economic vulnerability of small

Palau at Mauritius: The five-person delegation was headed by (then) Vice President and Minister of Justice (Camsek Chin), Ministry of Resources and Development representative (Tarita Holm), Office of Environmental Response and Coordination representative (Joel Miles), legal advisor (Larry Goddard), and NGO representative (Tiare Holm, Executive Director of Palau Conservation Society. The Mauritius Declaration and Strategy were signed on behalf of Palau by the Vice President.

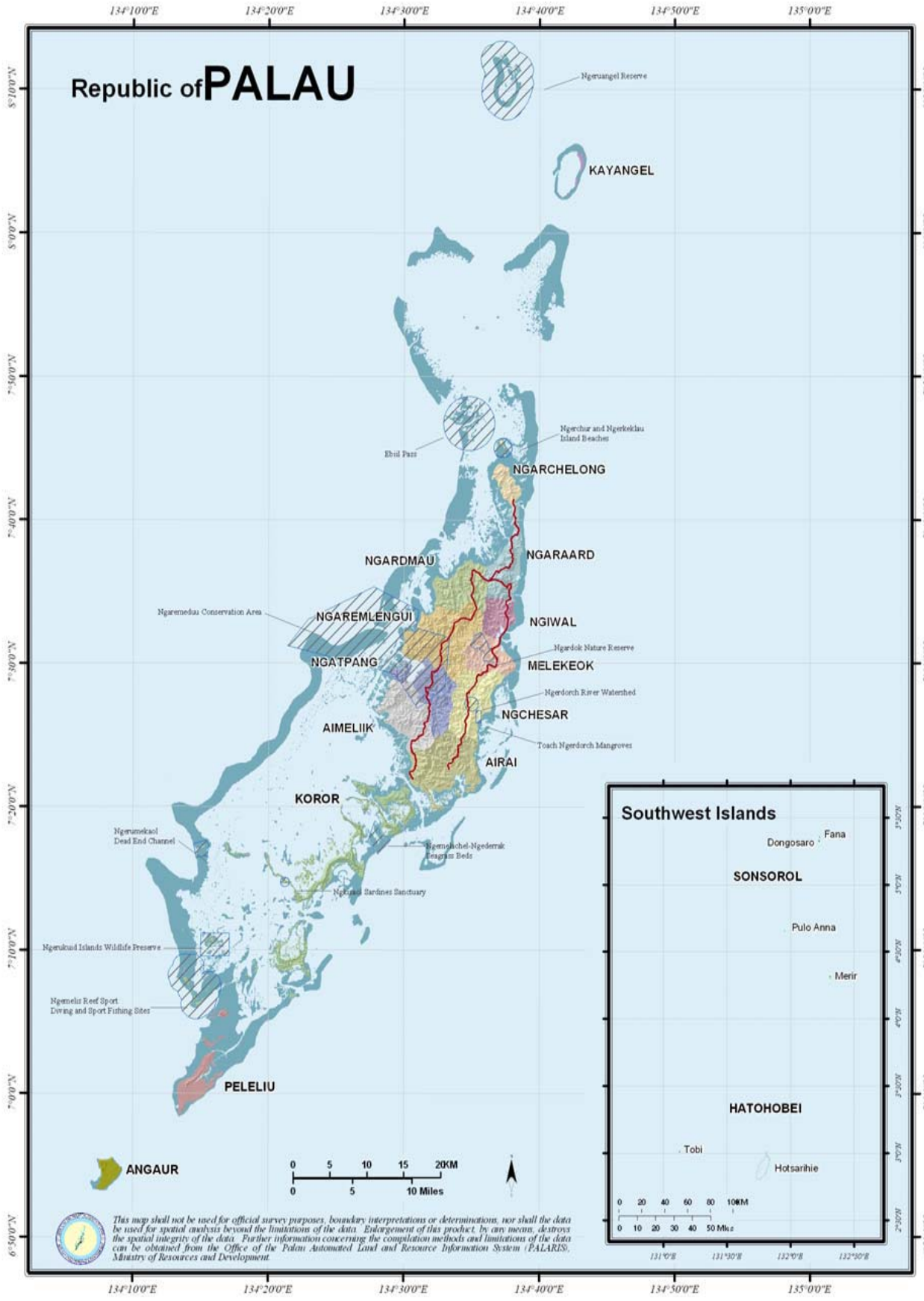
[2] *Other conferences that have shaped the MSI include: the World Summit on Children and Development (1990); the U.N. Conference on Population and Development (1994); the 4th World Conference on Women (1995); U.N. Conference on Human Settlements (1996); as well as other specialized meetings and conferences of the parties to the various international agreements and conventions.*

island states. Furthermore, recovery operations were still in progress following the December 2004 Indian Ocean tsunami that underscored the physical vulnerability of small islands. Consequently, trade, and disasters dominated the conference agenda. Seeking to ensure that the Mauritius declaration equitably addressed ALL elements of sustainable development, the Palau delegation was particularly active in negotiations on biodiversity. Palau successfully led a move by a block of SIDS that resulted in a strong statement on biodiversity being added to the text of the Mauritius Declaration.

The MSI is an overarching document addressing many aspects of sustainability covered piecemeal by parallel declarations, plans, conventions, treaties, and agreements. In this sense, the MSI forms a virtual "one stop shop" for sustainable development. Despite this comprehensive approach, it has a very low profile within Palau. Only a small number of government officials consulted about this report were familiar with the MSI and none reported using it as a guideline in their work. A major two year initiative to draft a Medium Term Development Strategy (MTDS) concluded in 2009 produced 23 separate reports and planning documents; only one made passing reference to the MSI. In contrast, several of the international conventions – climate change and biodiversity in particular – have a very high profile across all sectors, are repeatedly referenced in the MTDS documents, and are actively used to guide domestic action.

There does not seem to be one single reason for the low profile accorded to the MSI. Several factors are possibly at play. While comprehensiveness is a strength of the MSI, its sheer breadth can be intimidating possibly resulting in a situation whereby "everyone's work" becomes "no one's work." Additionally, unlike many other international agreements, Mauritius does not have a designated secretariat, development assistance directly linked to implementation, nor a required reporting schedule. Furthermore, no "champion" for the MSI has emerged within Palau; experience has shown that for a global document to have sustained local impact, a strategically located "champion" is critical *(Otto, 2009).*

Despite the low profile of the MSI, this report will demonstrate that Palau has made tremendous progress toward implementation. Concrete and significant achievements can be recorded for each of the 20 Mauritius chapters. Clearly then, Mauritius is compatible with the global, regional, and domestic development agendas that in turn drive its successful implementation.


Republic of PALAU
Ngeruangel Reserve
KAYANGEL
Ngerchur and Ngerkeklau Island Beaches
Ebiil Pass
NGARCHELONG
NGARAARD
NGARDMAU
Ngaremedau Conservation Area
NGAREMLENGUI
NGIWAL
Ngardok Nature Reserve
NGATPANG
MELEKEOK
Ngerdorch River Watershed
NGCHESAR
AIMELIIK
Toach Ngerdorch Mangroves
AIRAI
KOROR
Ngerumekaol Dead End Channel
Ngemelachel-Ngederrak Seagrass Beds
Ngeruktid Sardines Sanctuary
Ngerukuid Islands Wildlife Preserve
Ngemelis Reef Sport Diving and Sport Fishing Sites
PELELIU
ANGAUR
0 5 10 15 20KM
0 5 10 Miles
This map shall not be used for official survey purposes, boundary interpretations or determinations, nor shall the data be used for spatial analysis beyond the limitations of the data. Enlargement of this product, by any means, destroys the spatial integrity of the data. Further information concerning the compilation methods and limitations of the data can be obtained from the Office of the Palau Automated Land and Resource Information System (PALARIS), Ministry of Resources and Development.
Southwest Islands
Dongosaro
Fana
SONSOROL
Pulo Anna
Merir
HATOHOBEI
Tobi
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0 20 40 60 80 100KM
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134°10'0"E
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134°40'0"E
134°50'0"E
135°0'0"E
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131°30'E
132°0'E
132°30'E

Chapter 2:
Palau National Context

Small islands – big issues: "There are many disadvantages that derive from small size, which are magnified by the fact that many island States are not only small but are themselves made up of a number of small islands. Those disadvantages include a narrow range of resources, which forces undue specialization; excessive dependence on international trade and hence vulnerability to global developments; high population density, which increases the pressure on already limited resources; overuse of resources and premature depletion; relatively small watersheds and threatened supplies of fresh water; costly public administration and infrastructure, including transportation and communication; and limited institutional capacities and domestic markets, which are too small to provide significant scale economies, while their limited export volumes, sometimes from remote locations, lead to high freight costs and reduced competitiveness. Small islands tend to have high degrees of endemism and levels of biodiversity, but the relatively small numbers of the various species impose high risks of extinction and create a need for protection."

"Palau is small, beautiful, fragile, and complicated."

National Master Development Plan, 1996

2.1. Palau is Small and Remote

The archipelago that comprises the Republic of Palau occupies the western-most end of the Micronesian region lying approximately 800km north of New Guinea and 800 east of the Philippines *(see map)*. Comprised of over 500 islands of which only nine are permanently inhabited, Palau has a total land mass of 535km^2 and a maritime Exclusive Economic Zone of 616,000km^2. Over 95 percent of the estimated 21,651 residents *(2010 projection by OPS, 2005),* live on three islands: Koror, the population and commercial center; Babeldaob, the largest island and center of government; and Peleliu, a population center south of Koror. The balance of the population is scattered among smaller islands: Kayangel to the north; Angaur to the south; and in the extreme south, accessible only by ship, the sparsely populated atolls of Sonsorol, Hatohobei, Pulo Anna, and Merir, collectively known as the "Southwest Islands."

Geography and population make Palau one of the world's smallest states, with small domestic markets that inhibit competition, and a narrow production and export base that makes the country highly vulnerable to external shocks *(Fallon, 2009).* However, Palau is less geographically isolated than many Pacific islands and enjoys better, cheaper telecommunications linkages with the world than do most other Pacific *countries (reference Chapter 7).* Palau also enjoys daily international air services, another advantage over many island countries. Furthermore, unlike FSM and the Melanesian countries, Palau's indigenous population consists of a single ethnic and linguistic group. Palau is also one of the more geographically "compact" Pacific Island nations thus avoiding some of the extreme constraints imposed by geographic dispersion that characterize atoll countries. Strong historic links with both Japan and

the United States further mitigate Palau's remote location and have contributed to Palau's high level of Overseas Development Assistance *(Fallon, 2009).*

2.2. Palau is Diverse

Geology: The Palau islands represent five distinct geological formations: volcanic (Babeldaob), high limestone (Rock Islands), low limestone (Peleliu, Angaur, and four Southwest Islands), atolls (Kayangel and Helen's Reef), and a combination of volcanic and limestone (Koror). None of these island types are particularly fertile once native forests are cleared; this represents a serious constraint to commercial agriculture. While Babeldaob has significant surface water resources, ground water is limited throughout the archipelago and is vulnerable to pollution and salt water intrusion.

Biodiversity: Located at the convergence of three major ocean currents that carry nutrients and larvae from afar, Palau is best known for its marine biodiversity that includes 1,500 species of reef fish and over 300 species of scleractinian corals. Palau's terrestrial environment, while less renowned, is equally rich in biodiversity. Palau's still largely intact forests are home to a host of endemic species – 200 plants, 200 terrestrial gastropods, 500 insects, 16 birds, 12 amphibians and reptiles, two freshwater fish, and two species of bat *(OERC, 2004).* All endemic species are vulnerable simply by virtue of their sole habitat being a single Pacific archipelago.

Human diversity: Palau's small population size belies growing ethnic diversity. Nearly one-quarter of residents are non-Palauan including: large populations from the Philippines, Bangladesh, Japan, the United States, and other parts of Micronesia; smaller populations from the People's Republic of China, the Republic of China-Taiwan, and Korea; and a smattering of immigrants from other locales – Canada, Latin America, Europe, Australia, and the Middle East. Immigration brings new languages, new customs, new foods, new religions, and new values. Although beneficial in many ways, diversity also introduces new stresses. Many Palauans believe that too much diversity introduced too fast threatens Palau's own unique cultural and linguistic heritage.

> "We, the people of Palau proclaim and reaffirm our immemorial right to be supreme on these islands of Palau, our homeland. We renew our dedication to preserve and enhance our traditional heritage, our national identity and our respect for peace, freedom and justice…"
>
> *Preamble to the Palau Constitution*

2.4. Palau is Vulnerable

Climate Vulnerability:[3] Palau enjoys a maritime tropical climate with average humidity of 25% and average temperatures of 81^0F degrees with little annual or daily fluctuation. Rainfall is generally plentiful (average 150 inches per year). Although Palau is periodically affected by the El Nino-Southern Oscillation (an ocean-atmospheric circulation that causes drought), until recently, this phenomena has resulted in only short-term disruptions. Most important, Palau lies south of the prevailing typhoon belt and thus avoids the frequent storms endured by many of its neighbors.

There are indications, however, that this favorable climatic situation may be changing. More frequent and severe El Nino events will result in longer droughts and higher ocean temperatures. Droughts

[3] *This section on climate is derived from: OERC (2002). First National Communication to the United Nations Framework Convention on Climate Change. Koror, Palau: OERC.*

will affect ground and surface water supplies, threatening biodiversity, agriculture productivity, tourism, and human health. Higher ocean temperatures will threaten corals which in turn will threaten marine life, food security, fisheries, and tourism. Deep water ocean currents may also change with unknown impact on offshore tuna resources. Moreover, the typhoon belt may shift so that Palau will begin to experience more frequent severe storms *(reference chapter 4).*

Sea level vulnerability: Interacting with climate change is sea level rise caused by a warming of the atmosphere due to "greenhouse gas" emissions. Although Palau's greenhouse gas emissions are miniscule - 0.0004% of world emissions (*OERC, 2002)* - Palau, like other small islands, is disproportionately threatened by the emissions of other countries. A projected one meter rise in sea level over this century will render much of Palau's coastline uninhabitable and seriously impact on biodiversity, human settlements, human health, and the national economy *(reference chapter 4).*

Biodiversity vulnerability: As already noted, Palau's rich trove of endemic and native species is vulnerable by virtue of its limited range of habitat. Threats to biodiversity include climate change and sea level rise accentuated by human activities (*reference chapter 5).*

- Land degradation and poorly managed, piecemeal developments;
- Fragmentation of forests, habitat destruction, erosion, and unsustainable harvest;
- Loss of soil fertility triggered by deforestation and unsustainable land use;
- Loss of freshwater resources caused by unsustainable development within watersheds;
- Proliferation of invasive species;
- Increase in fires;
- Loss of mangroves; and
- Pollution.

Vulnerability of culture and language: As Palau integrates into the world community and is bombarded by foreign influences, including media, its unique culture and language are coming under threat. More resources are needed to preserve Palau's historic, tangible and intangible heritage including the Palauan language *(reference chapter 7).*

Food insecurity: The 2006 Household Income and Expenditure Survey reports that the average household produces only 3 percent of its own food while purchasing 97 percent, most of this imported.

Food in-security: In pre-contact times, Palau's population was in the range of 50,000-100,000 people. Even the low estimate is 2.5 times the current population. All of these people were fed, clothed, and housed using local resources. Today, Palau has embraced a consumption-oriented lifestyle against a dwindling production base. Modern Palau depends on imports for virtually everything including basic food commodities. This is a source of economic imbalance and human insecurity. In the event that international trade was disrupted for any significant

Table 2-1. Key Economic Indicators

	Calendar Year		
	2005	**2006**	**2007**
Nominal GDP (US$000's)	145,428	156,614	$164,289
% Change in GDP	8.9%	7.7%	4.9%
Consumer Price Index	105.03	107.94	111.44
% Change in CPI	5%	2.90%	3.5%
Imports *(US$000 f.o.b.)*	108,083	115,280	107,633

Source: Office of Planning and Statistics, Statistical Annex to ROP Annual Report to DOI, Feb 2009

period, severe hardship would quickly ensue *(reference chapter 7).*

Energy in-security: Palau depends on imported oil for virtually all of its energy needs. With rising oil prices, this is a source of economic insecurity for the nation and hardship for residents. Work has begun to redress energy in-security through conservation, domestic oil exploration, and development of renewable energy but it will take most of the coming decade to realize the benefits of these undertakings *(reference chapter 4).*

Economic in-security: When the Compact of Free Association (COFA) came into effect with independence in 1994, it was envisaged that within 15 years, Palau would be economically self reliant. Despite high rates of economic growth in the period 1994-2006 driven by COFA revenues and ODA investments in infrastructure, economic self-reliance remains an elusive goal. On average, local revenues cover only 60 percent of current government expenditures and virtually all capital expenditures are externally funded *(Table 2-2).*

The economy and government budget are coming under serious stress. Although Palau's long-term economic prospects are good, short-to-medium term prospects are uncertain as they depend on factors only partially within Palau's control including:

Table 2-2. Republic of Palau: National Government Budgetary Operations, 2001/02 -2007/08 1/

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 Est.	2007/08 Budget
	(in thousands of US$)						
Total revenue and grants	**51,225**	**65,866**	**70,819**	**75,352**	**82,239**	**86,222**	**80,943**
Domestic revenue	28,776	31,657	34,764	39,695	38,173	38,024	41,782
Grants	22,449	34,209	36,055	35,657	44,066	48,198	39,161
US COFA	*13,928*	*13,928*	*14,071*	*12,471*	*12,717*	*10,861*	*12,917*
US non-COFA	*7,553*	*8,034*	*12,251*	*10,633*	*18,816*	*14,458*	*10,844*
Third Party	*968*	*12,247*	*9,733*	*12,554*	*12,532*	*22,868*	*15,400*
Total expenditure	**80,032**	**76,291**	**82,093**	**76,466**	**91,506**	**94,210**	**89,644**
Current expenditure	58,994	60,946	62,066	62,830	68,778	71,361	67,297
Capital expenditure	21,038	15,345	20,027	13,636	22,728	22,849	22,347
Errors and Omissions							
Accounts Payable/Receivable	-6,148	8,651	-1,467	-1,896	7,402	-4,310	328
Overall balance	**-34,955**	**-1,774**	**-12,741**	**-3,010**	**-1,865**	**-12,298**	**-8,373**
Financing	**34,955**	**1,774**	**12,741**	**3,010**	**1,865**	**12,298**	**8,373**
Net long-term borrowing	0	-571	857	-1,643	-1,143	5,357	-2,000
Change in NTF assets	29,955	-2,655	6,884	-347	-1,992	1,941	5,373
Withdrawals from Trust Fund	5,000	5,000	5,000	5,000	5,000	5,000	5,000

Source: Office of Planning and Statistics.

- Negotiations with the U.S. about future COFA revenues;
- Global oil prices;
- Global economic recovery.

Government has and continues to act to address these problems with policies intended to reduce the size/cost of government while stimulating private sector growth. Progress, however, is slow and uneven *(reference chapter 7).*

Human in-security: Health and education services are highly developed but heavily subsidized by government. Public expectations about the level of services to be provided are high although willingness to pay is generally low. Economic insecurity is putting stress on the social sectors that are struggling to maintain standards, rise to new challenges, while simultaneously reducing costs or raising revenues *(reference chapter 6).*

Although Palau does not have the abject poverty and homelessness found in many countries, nearly 25% of residents live below the basic needs poverty line *(Abbott, 2009).* Further, there are indications that income inequality is increasing. Poor households tend to be rural, headed by senior citizens and/or women, and have a primary wage earner in residence. This suggests that poverty alleviation strategies need to address both unemployment and the situation of the working poor.

Palau has a complex labor situation. With unrestricted entry to the United States, the prospect of higher wages and fewer family/clan obligations make immigration an attractive option for many citizens. Out-migration rose sharply in the years immediately following independence. By 2005, however, the aura of life abroad had begun to dim so that in-migration (Palauans returning to Palau) exceeded out-migration *(Census, 2005)*. Educated young Palauans eager to take part in nation building were returning in greater numbers as were older Palauans wanting to enjoy their retirement years at home. There is anecdotal evidence, however, that with an increasingly difficult economic climate, out-migration is once more on the rise.

One factor that fuels out-migration is competition from foreign workers who are perceived by many employers to be more productive and less costly than Palauan workers. At present, the labor market is loosely regulated. Although there have been various attempts to reform the labor market by limiting the hiring of foreign workers and creating a more "level playing field" for Palauan workers, reform has proven to be challenging. A recent attempt by President Toribiong (2009) to impose a ceiling on the number of work visas issued had to be postponed when it was discovered there is no definitive count of the foreign workers already employed; the data bases maintained by the Labor, Immigration, and Social Security offices yield widely disparate head counts.

Palauan working abroad are a source of remittances back to Palau. Although one estimate puts the annual value of remittances at $20m *(Henry, 2010),* this is at best a "guesstimate." Neither the banking nor household income/expenditure surveys capture the true value of incoming remittances.

2.5. Palauans are Resilient

Although Palau shares many vulnerabilities with other small island developing states, its people have proven to be highly resilient. Palauan society and culture have survived despite being assailed by external forces that have severely eroded the cultures of some neighboring islands. Palau underwent profound social change between the time of initial European contact (circa 1564) and the dawn of the

20th century as a result of foreign influences and severe depopulation. During this period the Palauan population fell from an estimated 50,000 persons to 3,743 *(1900 census)* leading researchers to remark that "it is difficult to conceive of the massive (social) changes which occurred in a population so decimated" *(Force and Force, 1972).* Since 1900, as the population began a slow but steady growth, the Palauan culture has continued to be assailed by successive foreign forces. Spain introduced Catholicism and a new style of education based on the written word. Germany introduced Protestantism and a new economic system based on wage labor. Japan expanded the wage economy while instilling a foreign system of education and ultimately (indirectly) caused Palau to be exposed to the ravages of modern warfare and the devastation of becoming refugees in their own homeland. The United States in the post-war era instilled new ideas about governance and introduced value systems based on capitalism and individualism that diverge sharply from Palauan communal traditions.

Over the centuries, Palauans have become adept at borrowing - language, ideas, and customs - amalgamating the new with the old, while still retaining core Palauan values – respect, responsibility, obedience, kindness, perseverance, humility, care, compassion, sharing, and sense of place. Although assault by the twin forces of modernization and globalization continues, contemporary Palauans embrace their traditions and culture and strive to ensure these survive as a legacy to future generations and the world.

In addition to contributing to cultural diversity, Palauan traditions of "caring and sharing" are an important source of resilience during turbulent economic times. When all is said and done, family cares for family. The customary exchange systems function like personal savings accounts, life and health insurance funds.

> *The Palauan system of cultural obligations acts like a social security system, which is why we never really wanted a U.S. style social security system as part of the Compact (Kermode & Tellei, 2005, 18).*

There are certainly signs that the cultural system is coming under stress. Younger, western-educated Palauans sometimes chaff under tradition. Individualism competes with communalism as a dominate value. Nevertheless the cultural system remains strong, the foundation for social security and a potent barrier against poverty.

Chapter 3.
Enabling Environment for Sustainability

Mauritius Strategy, Chapters 16 and 15: To create the national environment favorable for sustainable development, SIDS should: (1) formulate & implement **NSDS as agreed to in the Johannesburg Plan of Action**; (2) incorporate the principles of sustainable development into nationally owned **poverty reduction** strategies and all sectoral policies and strategies; (3) develop national sustainable development **targets and indicators** to track changes and meet the requirements of internationally agreed goals including the **MDGs;** (4) improve legislative, administrative, and institutional structures to enable development and implementation of sustainable development strategies, policies and plans; (5) create and empower sustainable development **task forces** to work as interdisciplinary and communally representative advisory bodies; (6) develop and implement integrated **planning systems and processes**; (7) involve **youth** in envisioning sustainable island living; and (8) facilitate the 10-year framework on **sustainable production and consumption** called for in the Johannesburg Plan of Implementation *(point 8 is drawn from MSI, Chapter 15).*

Although the Palauan language does not have a word that is precisely equivalent to "sustainability," there can be no doubt that the concept lies at the very foundation of the Palauan culture and social organization. Respect, an all encompassing Palauan value, promotes sustainability as do complementary values emphasizing the wise use of resources, mutual caring and sharing, inter-generational obligations, cooperation, teamwork, and industriousness. These values are in turn supported by traditional systems of governance and accountability.

It is, however, widely acknowledged that Palauan cultural values, along with their supporting social structures, are increasingly threatened by new ideas, lifestyles, and governance structures. Palau, like so many SIDS, faces the difficult task of finding a workable balance – of maintaining the core of Palauaness while accepting the inevitability of globalization and blending the best of the old and the new in order to evolve a unique vision of sustainability and sustainable governance. Strategies for achieving this balance should lie at the heart of the national sustainable development strategy. It is for this very reason that Palau's 1998 Sustainable Human Development Report was subtitled "Progressing with the Past" *(UNDP & CoPopChi, 2008).* A similar concept was expressed in 2006 by the U.N. Commission on Sustainable Development *(see text box).*

> There is value in traditional know-how, and this needs to be both respected and harnessed to today's needs. The challenge is, how can the islands link back to look forward?
>
> U.*N. Commission on Sustainable Development Reported by V. Uherbelau, May 2006.*

3.1. National Strategy for Sustainable Development (NSDS)

The Rio "Earth Summit", the World Summit for Social Development (Johannesburg, 2002) and the Mauritius conferences have each called on countries to prepare a National Strategy for Sustainable Development (NSSD). The Pacific Plan further echoes this call by asking Forum member countries to prepare a NSDS that includes "the mainstreaming of regional policy frameworks or actions plans and using appropriate cross-cutting and Pacific relevant indicators in line with the Millennium Development Goals." While most commonly thought of as a written document, the NSSD is actually a itinerant process embodied by a mindset embracing environmental preservation, human development, economic growth, and participatory democracy (Figure 3-1).

> The NSDS "is a continuing and adaptive process of strategic and coordinated action" *(Agenda 21).*

> A National Sustainable Development Strategy "must be integrative, intergovernmental, intergenerational and participatory, ensuring that all stakeholders are identified and engaged both in developing the strategy and in implementing it. **An NSDS is not a document.** It is a continuous and cyclical process of participation, development, implementation, monitoring, assessment and revision with an anticipated national vision, clear goals, objectives and targets. To be effective, the NSDS must be set within a time frame and linked to both the national budget and external assistance. Objectives and actions may be short-, medium-and long term, but they must always be set within the framework of the long-term vision of sustainable development" *(U.N. Commission on Sustainable Development as reported by Uherbelau, May 2006).*

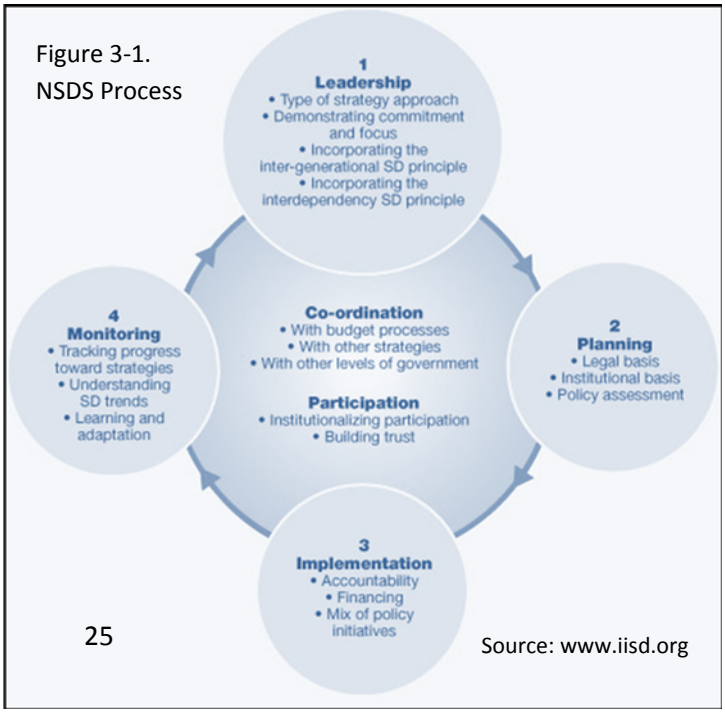
This section begins by reviewing the written documents that satisfy in total or in part the requirements for a NSDS and continues by examining Palau's NSDS processes.

NSSD documents: Palau has no shortage of written documents (plans, strategies, and report) that promote "sustainable development" *(Table 3-1).* Although these documents differ in some details and priority rankings, they are remarkably similar with respect to broad strategic directions.

At this time, however, the only document that meets the criteria for a National Strategy for Sustainable Development **AND** has been formally endorsed by the Palau National Congress (OEK) is the National Master Development Plan ("Palau 2020") released in 1996.

In 2007, as Palau confronted the reality that economic growth was falling short of expectations and

Figure 3-1.
NSDS Process



Source: www.iisd.org

Table 3-1. Sustainable Development Plans, Strategies and Reports			
Document	Year	Focus	Time Frame
Economic Development Plan	1994	Identified 11 priority and 20 non-priority infrastructure projects to be implemented using CIP funds earmarked under the COFA	5 year time frame with periodic updates
National Master Development Plan	1996	A long-range roadmap that articulates economic, social, environmental priorities	25 year time frame
JICA Study "Study for Promotion of Economic Development in the Republic of Palau"	1999	Focus on tourism, agriculture, aquaculture, fisheries, land use, environmental management, and social strengthening (including labor, human resource development, and health).	Open ended
National Environmental Management Strategies	1994	Policy and planning mechanisms for sustainable development, human resource management, pollution control, education, culture-archaeological-historic resources, tourism, marine resources, and agriculture	Open ended
Sustainable Tourism Policies and Action Plan	2001	Long-term road map for tourism sector development focusing on "low volume, high revenue" emphasizing "green management"	5 year
Management Action Plan	2001	Policies for the Remengesau administration (2001-8)	4 years (later extended to 8 years)
State resource management plans	Various	Koror & Airai have developed master plans; other states are working on master plans; protected areas have management plans	Various
Medium term Development Strategy	2009	Focus on agriculture, fisheries, tourism, infrastructure maintenance, foreign investment, and sustainable governance	5 years

there would likely be significant reductions in aid from the U.S. during the second phase of the COFA (2010-2024), government determined that there was need to update the NMPD and accelerate its implementation. The Asian Development Bank offered financial support for this exercise that extended over two-years and resulted in a Medium Term Development Strategy (MTDS) entitled "Actions for Our Future, 2009-2013" together with 23 supporting sector reviews and sector-specific planning documents.

The MTDS was officially completed in 2009. Its current status, however, is unclear. Although widely endorsed by the leadership of both the Executive and Legislative branches of government at a national forum in June 2009, there has been no action by either the Executive or the OEK to formalize this endorsement through executive order, legislation, or OEK resolution.

NSDS Processes: All of Palau's planning documents concur that tourism, agriculture, and fisheries are the engines for future economic growth, that government needs to be smaller and do less while providing a stronger enabling environment in support of private sector growth and a more investor-friendly environment to promote foreign investment. Although other ideas were touted at the 2007 National Economic Symposium (e.g. Palau as a financial center and a Western Pacific education center), these ideas are not reflected in the priority lists of the various planning documents.

It has, however, sometimes been observed that while Palau is very good at producing documents, implementation sometimes falls short. Some of the reasons for this may relate to weaknesses in the institutional structures and processes that support planning.

Institutional issues: Palau has an Office of Planning and Statistics located within the Ministry of Finance. It is understaffed and underfunded and focuses mainly on its statistical functions rather than its planning functions. Most major planning documents are produced with external funding, driven by external consultants, and managed apart from the government structure. Consequently, once a plan is produced, local ownership is weak and there may not be an institutional focal point to advocate for and coordinate implementation. This has been the situation with respect to both the NMPD and the MTDS.

In 2006, following a NSDS consultation in New York, Palau's delegation to the conference recommended: *"the existing Office of Planning and Statistics be moved from the Bureau of Finance to the Office of the President… headed by an overall National Planner assisted by Deputy National Planners for Economic, Social and Environmental Sectors . (The Offic e should) be redesigned and upgraded, to coordinate foreign grant aid… and oversee implementation of Palau's NSDS once finalized…" (Uherbelau, 2006).*

Planning as a process: Planning in Palau has generally been equated with the production of a plan document rather than with an ongoing cyclic process.

Planning links to budgeting: For effective implementation, the strategic directions and targets in the plan must be endorsed and continually reinforced at the highest political level. Beyond this, there must be systematic mechanisms to monitor implementation and results of plan implementation and to link these outcomes to the budget process.

In general, Palau's existing budget process does not adequately support planning or plan implementation. The process emphasizes inputs (people, fuel, supplies, etc) rather than programs and outcomes. There is very little "space" for new initiatives, only weak mechanisms for addressing cross-sector concerns, and weak links to the NMDP (or alternate NSDS).

Vertical linkages: States, NGOs, and the private sector are integral partners in planning. The current structure does not provide a forum for these and other representatives of civil society to be fully engaged in the planning process outside of occasional consultation meetings while plan documents are under production.

Participation and self-reliance: Palau has the human resources to produce its own NSDS planning documents with only targeted external inputs in highly specialized areas. If produced with local leadership, planning documents might enjoy greater ownership and thus, be more likely to be implemented. For the two major comprehensive planning exercises – NMDP and MTDS – Palau has, however, relied on external financing by donors whose administrative procedures require that the exercises be led by international contractors employing mainly international consultants. Although consultation has been a part of the processes, consultation is not the same as local ownership.

The MTDS – an alternate process: Palau's Compact Review Commission (CRC) was a leading proponent for the Medium-Term Development Planning Process. CRC members recognized that only with an up-to-date plan that showed what Palau would do differently in the second 15 years of COFA to achieve self-sufficiency would Palau be in a position to negotiate a favorable extension to COFA financial provisions. During initial planning for the MTDS, the CRC envisaged a planning unit comprised of technical staff from the various sectors temporarily detailed to the unit. These technical staff would facilitate planning at the sector level through a process that fully engaged government, non-government, and civil society stakeholders. Sector planners would be supported by one or more planning coordinators whose main role would be to address cross-cutting issues and compile sectoral drafts into a comprehensive framework. External consultants would be used sparingly for those sectors/issues for which there was inadequate local expertise.

This was probably a workable strategy but it did not fit within the granting agency's structure for doing business. The granting agency works through contracts with approved international venders. Since Palau had no local venders approved for bidding on the contract, only off-shore international firms were invited to bid. This resulted in an externally driven process in which there was consultation but weak ownership of planning outputs. This externally drive process may be one of the impediments to getting the MTDS formally approved and embarking on systematic implementation linked to the national budgetary process.

NSDS - future directions: There is no clear cut policy at present on NSDS plans, structures, or processes. The need for a planning structure located at the highest level of government to lead the NSDS process has been repeatedly stated in various forums. It remains a central need.

At the same time, a lot of time and money – local as well as external – has gone to preparing the MTDS. It is important this document not lie in "limbo" but that it become a living roadmap linked to an implementation structure and the budget cycle. A process – possibly a series of working groups coordinated by the Budget Office – needs to be initiated to review the MTDS. Stakeholders need to understand its contents, "fix" strategies if necessary; and ultimately advocate for the document to be endorsed by cabinet and the OEK.

3.2. Millennium Development Goals

Palau, like most of the world, has endorsed the Millennium Development Goals (MDGs) and produced a baseline status report *(reference Annex A)*. According to the report, of the 20 MDG targets and 60 indicators, 19 targets are relevant in Palau. Palau has added two country-specific targets e.g. universal completion of high school and reducing prevalence of non-communicable diseases.

The baseline report notes that Palau has made impressive progress toward achieving the MDGs. Goals for health (MDG 4, 5, and 6), education (MDG 2), environment (MDG 7), and gender (MDG 3) have largely been achieved. While Palau's poverty situation (MDG 1) is good in comparison to that of many other countries, data are unavailable to track trends and assess progress. Palau is well-integrated into the global community and receives economic

Table 3-2. NMDP and MTDS – Comparison Chart		
	NMDP (Palau 2020)	**MTDS (Actions for Our Future)**
Year produced	1996	2009
Produced with support from	United Nations Development Program and the U.S. Department of Interior	Asian Development Bank
Action	Officially endorsed by the OEK	Verbally endorsed by Executive and Congressional leaders (June 2009) but no official endorsement via Executive Order or Congressional Resolution
Vision	To substantially enhance the quality of life of Palauans and future generations of Palauans	A sustained and widespread improvement in general standards of living while preserving cultural and environmental values for the people of Palau
Overarching strategies	• Increase real economic growth • Share the benefits of economic growth equitably • Enrich and enhance confidence in the Palauan culture, raise national consciousness, and protect the natural environment • Develop a partnership approach with the private sector with government establishing a policy framework to support private sector initiatives	• Paying the "right price" – strategies to promote cost recovery and well-defined, targeted, transparent subsidies • Reducing costs and ensuring conservation • Generating income opportunities
Priority sectors	Agriculture and fisheries (including aquaculture) Tourism Infrastructure Foreign investment and labor Sustainable governance	

and technical benefits from an extensive network of bilateral and multilateral development partners (MDG 8) *(Ministry of Finance, 2008).*

Because the MDGs are repeatedly emphasized by the international community, they have a much higher profile within Palau then the MSI. However, because most the MDGs have been achieved or are on track to be achieved, and there is little serious concern that fiscal or environmental pressures will undermine Palau's status vis-à-vis the MDGs in the foreseeable future, MDGs are not integrated into the planning and budgeting structures. This suggests that further adaptation may be needed so that the MDGs become more meaningful and more challenging targets linked through the NSDS to the budget.

3.3. Poverty

Poverty alleviation is the MDG that presents the greatest challenge for Palau. Although Palau does not have the absolute poverty that characterizes many developing countries, survey data *(HIES, 2006)* show that 18% of households and 25% of individuals

live below the basic needs poverty line *(Abbott, 2006).* Further, there are indications that more people are slipping into poverty as:

- The social safety net comes under greater stress;
- The public safety net is eroded by a "user pays" philosophy;
- Rising fuel prices result in higher costs of living.

Already Palau exhibits substantial income disparity – higher than many other countries in the region *(Table 3-5).* As prices rise and the social safety net weakens, these disparities will increase. Although Palau has elements of a poverty prevention and/or alleviation strategy *(see text box),* it does not have a comprehensive targeted strategy that links economic, environmental, social objectives with poverty prevention/reduction. Nor does it have a system for monitoring poverty. Using data drawn from five-year Household Income and Expenditure Surveys is a good benchmark but it should supplement, not supplant, a monitoring system based on sentinel data generated annually or even quarterly. Only with regular monitoring, will government be positioned to respond quickly and appropriately to the changing circumstances of its people.

3.4. Future Directions

There is an urgent need for official action on the MTDS. A review process to increase local ownership and identify/fix areas of concern could pave the way for endorsement as Palau's official NSDS. A new ADB technical assistance project – "Implementing a Medium-Term Budget Framework" will get underway in March 2010. This project has potential to not only improve public sector efficiency but provide the portal for aligning the NSDS and the MDGs with the budgetary process assuming of course an NSDS has

Table 3-3. Basic Needs Poverty Line 2006
(Adult Equivalent Per Capita)

	Adult Equivalent Per Capita		Household
	Weekly	Annual	Annual
National	$58.05	$3,019	$12,723
Urban	$61.24	$3,184	$13,733
Rural	$52.47	$2,728	$11,144

Source: Abbott, D. (2008), Table 12.

Table 3-4. Incidence of Poverty, 2006
(Expenditures below Basic Needs Poverty Line)

	Households	Individuals
Nation-wide	18.4%	24.9%
Urban (Koror-Airai)	19.2%	26.2%
Rural (all other)	20.8%	28.9%

Source: Abbott, 2008.

Table 3-5. Ratio of Expenditures Highest and Lowest Income Quintile

Country	Year	Ratio of Expenditures (Top 20% vs. Bottom 20%)
China	2004	11.4
India	2004	5.5
Indonesia	2002	5.1
Malaysia	2004	7.7
Palau	2006	6.4
Philippines	2003	9.1
Thailand	2002	7.7

Source: PINZ-ADB (2009). "Actions for Palau's Future, paragraph 78, Table 1.

been officially recognized. At the same time, action is needed to identify an appropriate institutional framework for managing the NSDS cycle.

Also in progress is a UNDP-funded project to improve the effectiveness of Congress. The project will

- Improve electronic communications;
- Create a Library of Congress;
- Develop a Congressional handbook;
- Professionalize staff operations.

This project provides a portal for more effectively engaging Congress in NSDS issues including the MDGs, poverty, and population.

Youth and Sustainable Island Living: Through the National Youth Policy (2005), Palau has embraced a "youth development" approach emphasizing intergenerational partnerships in which youth are "resources" not "problems". The youth policy emphasizes youth empowerment and youth rights and is based on 10 guiding principles. Principle 8 calls on the nation to ensure that young people's voices are heard on all matters that concern them and Principle 9 calls on the nation to ensure that youth actively participate in decisions about resource allocation.

Palau formerly had a National Youth Congress that provided an institutional structure for youth to be involved in nation building while traditional youth organizations provided a structure for youth to be involved in community building. The NYC is no longer in operation but traditional youth groups remain strong and there are many opportunities within civil society for youth engagement. While Palauan youth may not yet have an adequate voice in development, they increasingly do have a voice.

Chapter 4.
Cross Cutting Issues

This chapter addresses three closely related cross-cutting chapters of the MSI that directly impact on all other chapters. These three are climate change and sea level rise, energy, transportation, and communications-information technology.

Climate change is simultaneously an environmental issue, a health issue, an economic issue, and a security issue. Energy is closely related to climate change – the use of fossil fuels to create energy is after all the cause of the climate change so profoundly affecting islanders. An adequate supply of affordable energy is in turn a pre-requisite for meeting most other national development aspirations. Similarly, transportation, a major consumer of fossil fuel and producer of green house gases, is also a pre-requisite for most other development.

How the world addresses the energy problem will determine how fast and how profoundly climate will change. Climate change in turn is a binding constraint on every other aspect of development for small islands and has to be considered as a part of every endeavor.

4.1. Climate Change

***Mauritius Strategy, Chapter 1*:** As an integral component of their national sustainable development strategies, SIDS should develop and implement **national adaptation strategies** and facilitate regional and inter-regional cooperation within the framework of the **UN Framework Convention on Climate Change** and with support from the Special Climate Change Fund.

It is for good reason that Chapter One of the MSI focuses on climate change and sea level. The science is increasingly clear - the correct question is not, "Will climate change and seas rise?" but rather, "How fast will these changes occur? Palau is lucky to have geological diversity - low islands and high islands. This affords Palau a wider range of adaptation options and means that its very existence is not threatened as is that of the atoll countries. Nevertheless, with 25% of land below ten meters elevation, even the most conservative scientific predictions portend severe impact on the environment, economy, and people. The implications of climate and sea level permeate every aspect of development.

4.1.1. Situation Overview

Photo credit: Dr. C. Otto

In 1997-1998, Palau was severely affected by an El Nino/La Nina event that caused severe drought and a sharp rise in sea temperatures with devastating environmental and economic results. This event, a precursor of future climatic impacts, galvanized Palau into assessing climate-related vulnerability and starting to plan seriously for adaptation.

> ***Projections:*** Over the next 40 years, Palau temperatures will increase 0.49°C to 1.13°C (0.88°F to 2.03°F). During summer, more rainfall is projected with an increase in daily rainfall intensity – more frequent, heavier rains. For sea level, the prediction is a rise of 0.2-0.9 meter by 2100.
>
> *ADB, 2009*

Palau ratified the United Nations Framework Convention on Climate Change and the Kyoto Protocol in September 1999. Palau had completed its First National Communication to the UNFCCC in 2002, a process that included: a greenhouse gases inventory; four case studies on vulnerability and adaptation; and public awareness activities *(OERC, 2002).*[4]

- ***Greenhouse gases inventory***: Although Palau's absolute level of greenhouse emissions is small (0.0004% of global emissions), emissions per capita are above the world average (4.69 tons per capita against a world average of 4.02). This, together with rising oil prices, has triggered a review of energy policy and government commitment to reducing fossil fuel consumption by 50% (target 2020); 30% through conservation; 20% through renewable energy *(Energy Office, 2009).*
- ***Case Study – Taro Patches***: Taro patches are extremely vulnerable to climate-related flooding and salt water intrusion. Adaptation will include expansion of traditional agro-forestry, renovation of traditional water management systems, selection of salt-tolerant species, improved conservation farming, and management of fire, pests, and invasive species *(OERC, 2002, pp. 49-50).*
- ***Case Study –Ngerikiil Watershed***: The Ngerikiil is Palau's main source of potable water. It, like all other watersheds, is vulnerable to climate-related droughts and El Nino events. Adaptation measures include water conservation, supplementation of public water supplies by private catchments, and diversification of water sources *(OERC, 2002, pp. 49-50).*
- ***Case Study – Mangroves:*** Mangroves are vulnerable to climate-related changes in air temperature, rainfall, and storms as well as to myriad indirect effects caused by climate-related impacts on other ecosystems such as coral reefs. Adaptation measures include increased legal protection of mangroves, establishment of buffer zones, mangrove replanting where forests have been cleared, prevention of erosion, and public education *(OERC, 2002, pp. 54-55; UNEP, 2006).*
- ***Case Study – Sea Level Rise on Coastal Communities:*** Coastal communities will be directly affected by rising sea levels (more frequent flooding) and increased frequency of adverse weather events (property damage and risk to human health). Adaptation requires land use plans that consider sea level rise, use of more

> "The rising sea level is a different form of tsunami coming towards us in slow motion, moving vertically to swallow our islands and coastal regions of continents. Short term economic interests must yield to the efforts to contain the threats of climate change. We must take action now before it's too late."
>
> *President J. Toribiong, Palau*
> *World Ocean Forum*
> *November 2009*

[4] *The draft of a 2nd National Communication was completed by OERC in 2008. The draft is still under review and is unavailable for use in this report.*

resilient construction techniques, and in extreme cases, relocation (*OERC, 2002, p. 58).*

The First National Communication highlighted the synergy between climate change adaptation and other sustainable development strategies. The resulting national adaptation strategy addressed: agriculture; coastal systems; marine resources; biodiversity; fresh water; health; housing; policy and planning, and public awareness and education..

4.1.2. Actions Taken - Lessons Learned

In this section, only brief mention is made of progress since 2002 to implement the First National Communication on Climate Change. Chapters 5-8 contain more detailed information specific to the various sectors.

Agriculture and water: For climate security, economic security, and better health, Palau needs to increase agricultural productivity while simultaneously conserving forest, soil, and water resources. Watershed management is the linchpin that pulls all these objectives together. The Bureau of Agriculture (BoA), Environmental Quality Protection Board (EQPB), Sustainable Land Management (SLM) Project, Palau Conservation Society (PCS), Babeldaob Watershed Alliance (BWA), state governments with other partners are working to improve watershed management *(reference chapters 5.2, 5.3, and 7.1).*

Coastal Systems: Palau is fortunate that its mangrove forests are reasonably intact. Although development is putting some pressure on the mangroves, protective measures have minimized widespread clearance. The major threat to mangroves at present is soil erosion due to unsustainable land use practices. Although a part of watershed management, stronger legislation, regulation, and enforcement are also needed to contain erosion *(reference chapters 5.2 and 5.3).*

Marine Resources: Palau has made spectacular progress in developing a nationwide network of marine protected areas *(chapters 5.1 and 7.2).* Palau has also made progress to develop aquaculture to promote food security while reducing pressure on wild fish stocks. Over-harvest, reef destruction and siltation, however, continue to imperil marine sustainability *(reference chapter 7.2*).

Biodiversity: While biodiversity is threatened on many fronts, progress has been made to create a nation-wide network of marine and terrestrial protected areas and implement the National Biodiversity Action Plan *(reference chapter 5.1*).

Health: The first national communication identifies the major climate-related health impact to be increased threat of vector-borne diseases especially dengue fever. This, however, is a somewhat narrow perspective. Climate change threatens health infrastructure; the Palau National Hospital is located on land that will disappear before the next millennium and is located across a low-lying causeway that will be inundated by any extreme weather event. Climate change threatens economic well-being and will result in increased poverty; poverty threatens health in myriad ways that are well-documented in public health literature. In addition, climate change in Palau threatens to exacerbate food insecurity and increase reliance on imported foods. This will undermine the Ministry of Health's strategy for combating non-communicable diseases by promoting consumption of fresh local foods *(chapter 6).*

Housing: Adaptation responses in the construction sector (including but not limited to housing) lag behind those of other sectors. There have been repeated calls for a national building code that will, among other purposes, help to insure that new

homes/buildings are environmentally friendly and resilient to adverse weather events. Although maps show areas to be adversely impacted by rising sea levels, no measures have yet been taken to control housing and other development in flood plains *(reference chapter 8).*

> ***The message is not getting through***: "…multi-sectoral and line ministry consultations have clearly demonstrated a key gap in the GoP's understanding and reflection of the anticipated impacts of climate change extremes and variability on overall economic development, livelihood security, food security, and infrastructure resilience. Moreover, a review of line ministry documents and multiple agency consultations demonstrate that there is no actual adaptation mainstreaming in GoP policies and actions, nor within private sector and NGOs…"
>
> *ADB, 2009, p. 2.*

Policy and Planning: Positive developments include: heightened awareness of watershed issues and connectivity between land and marine resources; development of a PAN network that improves resilience; initial steps toward land use planning; and progress in disaster planning. Major gaps include failure to consider climate change in spatial planning and failure to develop/implement climate-resilient building codes.

4.1.3. Challenges and Constraints

Many policy makers, planners, and ordinary citizens still consider climate-related forecasts to be too general and too "futures-oriented" to be useful for planning. As a result, infrastructure and economic investments continue with scant concern to future climatic and sea conditions. Airai is the first state to prepare a State Master Plan in the post-climate change era. Planners there relegated climate change to an annex to be revisited in five years time *(personal communications).* This propensity to "wait" is a major stumbling block to adaptation.

Science, however, is a legitimate constraint even if it is sometimes misused as a cover for lack of political will. Palau does not have a lot of scientists and those it does have are stretched in many different directions. Because climate science is highly specialized, Palau cannot afford or sustain sophisticated monitoring and surveillance systems such as those needed to measure greenhouse gas emissions and to analyze real time meteorological data. In many cases though, there is enough information understood by enough people to make decisions that will advance the cause of climate adaptation even if information is incomplete. Building codes are one example.

> ***Adaptation=sustainable development:*** Climate change adaptation in many cases differs very little from sustainable development. In Pohnpei, construction standards call for structures to withstand a 1-in-25 year event. Previously this meant that structures should be able to withstand wind gusts of up to 120 MPH. When climate change is considered, design standards must be revised upward to consider 130MPH gusts *(J._ Konno, Chuuk EPA, 2007).* For Palau the 120MPH versus 130MPH is less important than the need for building codes, something that has been called for in various plans, reports, recommendations extending back many years but still without action.

4.1.4. Partnerships

The Office of Environmental Response and Coordination is responsible for preparing periodic communications to the United Nations about climate and sea

level issues, for facilitating adaptation planning, and sourcing ODA to support of adaptation responses. In carrying out its work, the office relies on support (technical and financial) from virtually every national ministry, department, and agency, state governments, the NGO community, the private sector, and ordinary citizens.

OERC receives external financial and technical support for climate change planning and coordination from the Global Environmental Facility through SPREP and UNDP. ADB through its regional technical assistance projects has and will continue to assist Palau with climate change adaptation planning.[5] Many other streams of ODA funding support adaptation measures including: piloting community-based adaptation in Ngatpang (GEF, UNDP, SPREP), fisheries (Republic of China-Taiwan, GEF, UNDP, FFA, and others), water resources (GEF, SPREP, ADB), energy (European Union and European bilateral donors); agriculture and forestry (U.S. Forest Service, SPC, Germany); sustainable land management (GEF and UNDP); protected area network (multiple donors); and the list goes on (*reference chapters 5, 7, and 8).*

4.1.5. Future Directions, 2010-2015

There are two medium-term priorities: (1) to integrate climate change and sea level planning into the plans of all sectors, agencies, businesses, and communities; and (2) to accelerate adaptation planning and implementation according to priorities already identified in the national communications.

[5] *ADB regional assistance projects addressing climate change include: Promoting Climate Change Adaptation in Asia and the Pacific (focus coastal and marine resources management); Climate Change Adaptation Program in the Pacific (focus mainstreaming climate adaptation through risk reduction);* and *the Pacific Adaptation to Climate Change (focus capacity development at national and community levels).*

4.2. Energy Resources

Mauritius Strategy, Chapter 7: Energy dependence is a major source of SIDS economic vulnerability. SIDS should take action to address their energy vulnerability, promote access to **energy-efficient** technologies, **renewable** energy, and **advanced clean energy** technologies that are affordable and readily adaptable to the special circumstances of SIDS.

4.2.1. Situation Overview

Although geological characteristics suggest that Palau may have exploitable reserves of oil and gas, exploration is just getting underway. For now, Palau depends on imported petroleum for virtually all energy requirements making it highly vulnerable to fluctuating oil prices and disruptions in international trade. The sharp rise in oil prices in 2007-2008 resulted in higher costs for almost everything creating widespread hardship among lower income households. Food prices alone rose 24% *(Sengebau, 2008).* Because Palau is dependent upon petroleum, its greenhouse gas emissions, although small in total volume, are high on a per capita basis *(OERC, 2002; UNDP/PIREP, 2004).*

Although contributing little to Palau's total energy requirements at present, use of solar energy is increasing. Two high profile solar projects have recently become operational – one at the capitol complex in Melekeok and the other at the national hospital in Koror. Several other solar projects are in the pipeline. By 2020, the National Energy Office projects 20% of Palau's energy will be produced by solar.

4.2.2. Actions Taken - Lessons Learned

Several initiatives with far-reaching implications came to fruition in 2009. An energy policy and plan were drafted; solar projects at the capitol and hospital became operational; and work began on a legislative framework to govern oil and gas exploration/exploitation.

Policy and planning: There have been at least 11 substantive reviews of Palau's energy sector over the past decade, most focused on the electricity subsector *(Palau Energy Office, October 2009).* Most studies make similar recommendations about strategic directions including the need to: increase electricity charges in order to achieve cost recovery of operations and depreciation; improve operational performance in the electricity sub-sector (expanding generating capacity and improving maintenance); expand use of solar power; improve the information base in support of other alternative energy technologies (wind, hydropower, and biogas); develop a sector-wide regulatory framework; and develop a legal framework for the oil and gas sub-sector.

In 2008-2009, a comprehensive sector-wide review was undertaken by the Energy Office in collaboration with 30 domestic stakeholders. The European De-

Greenhouse gases: Although not a significant producer of greenhouse gases in total, on a per capita basis, Palau is the highest producer of greenhouse gases among independent Pacific Island nations. Its per capita emissions are on par with those of Europe *(UNDP/PIREP, 2004)*

velopment Fund provided technical support for this work through the European Union. In addition to an energy report, the review produced a Draft National Energy Policy and supporting action plan *(Table 4-1).* The policy and plan call for a 50% reduction in fossil fuel use by 2020 to be achieved through conservation/efficiency (30%) and renewable energy (20%). In response to this plan, Renewable Energy Office was established in January 2010.

Public Sector Energy Efficiency: A 15-point action plan developed with support from the European Union and Denmark in 2008 identifies opportunities for energy savings in the Executive Branch of Government. Energy Conservation Officers have been appointed and trained in each Ministry and a system of incentives and penalties created to encourage conservation. The goal is to achieve a 10% reduction in government's energy use.

Energy Efficient Homes: With a US$595,000 grant from the Sustainable Energy Program for Pacific Small Island States funded by the Governments of Italy and Austria through SPREP, the National Development Bank (NDP) has established a revolving loan fund to assist homeowners incorporate energy efficiency into new home construction.

CFL Lighting: With support from the European Union, a campaign was launched in 2009 to promote CFL lighting. In addition to media awareness and advocacy, sample CFL bulbs were distributed to every household in Palau.

Transportation: Palau has become an automobile dependent nation, a situation exacerbated by movement of the capitol from Koror to Babeldaob in 2006 and completion of the Compact Road in 2007. These developments mean more people are commuting longer distances than in the past. To meet the demand for affordable vehicles, local dealers import second-hand vehicles from Japan with virtually no government oversight to ensure that vehicles meet minimum standards for energy efficiency, emissions, or safety. Despite several attempts to launch public bus services, services have not proven

Table 4-1. Proposed National Energy Policy

Vision: A reliable and resilient energy sector developing sustainable, low-emissions energy services

Policy Area	Key Policy Provisions
Improve institutional arrangements for sector management	Develop an Energy Administration to implement the energy policy and plan; upgrade the Energy Office to a Division or Bureau and focus its mission on policy, regulation, knowledge management, and planning; transfer project implementation to technical agencies.
Energy efficiency and conservation	Improve energy efficiency through policies (including taxes) that will encourage import and sale of the most energy efficient appliances, vehicles and boats available; develop energy efficiency standards for new buildings and renovations.
Renewable energy	Develop solar; compile data on hydropower and wind resources.
Imported fuels and hydrocarbons	Enforce international standards for storage, handling, and transport of petroleum products; pursue options for obtaining competitive fuel prices; ensure that fuel prices are fair; require suppliers to regularly provide data on imports and sales; develop the legal framework and institutional/human capacity to maximize Palau's benefits from hydrocarbon exploration and production.
Electric power	Ensure secure, reliable, and efficient electricity supply; allow PPUC will to recover all costs associated with the supply of electricity; develop a transparent policy framework to encourage private sector participation in electricity supply.

Source: Palau Energy Policy Development Working Group (October 2009). Republic of Palau (Draft) National Energy Policy. Koror, Palau: National Energy Office.

to be economically viable due to high fuel costs and slow public uptake. To reduce dependency on automobiles, encourage more energy-efficient selection, and promote public transportation, a combination of measures will be necessary to:

- Increase taxes or fees associated with owning a vehicle (especially multiple vehicles);
- Encourage energy-efficiency either through regulation or a differential system of taxes/fees that penalizes owners of inefficient vehicles;
- Introduce economic incentives to help offset the start-up costs of public transportation;
- Make roadways more conducive to walking and/or biking.

Although the draft energy policy calls for more energy efficient vehicles, the transportation sub-sector is not addressed in great detail.

Electricity: Palau has one public utilities corporation – the Palau Utilities Corporation (PPUC) - established in 1994. PPUC is owned by government but operated as a commercial enterprise; it is required to break even on operating and maintenance costs and to supply electricity to all inhabited islands at a uniform cost. Two diesel burning power plants supply electricity to Koror and Babeldaob. Diesel generators supply power on Kayangel, Peleliu, and Angaur. The remote southwest islands are powered by solar.

PPUC has encountered a number of management and operating challenges over its sixteen year life. Current issues include: inadequate generating capacity; aging equipment; inadequate maintenance; non-standardized equipment; inadequate rate structure to recover operating and depreciation costs; difficulty in collecting on delinquent accounts, especially those of government entities; and universal service requirements that undermine profitability. In 2009 following a series of rolling blackouts, PPUC came under new management; concrete steps are now underway to address these issues within the limitations imposed by available resource.

Renewable Energy: Several studies have concluded that the only cost-effective renewable energy application at current production costs is solar for hot water *(Energy Office, 2009).* There are, however, sound reasons other than cost to promote renewable energy including energy security and environmental sustainability. Consequently, the energy policy calls for expansion of renewable energy. Besides the two solar projects already in operation, other work is in progress.

- PPUC will establish a renewable energy unit to market solar technology and undertake a feasibility study for hydropower in Babeldaob (Airai, Ngardmau, and Ngchesar).
- The GEF-Funded SEDREA project will: (1) provide technical assistance to help the Energy Office develop a national policy and program for renewable energy; (2) establish a revolving loan fund within the NDB to finance solar panels for residences and small businesses; and (3) provide start-up financing to the private sector to help launch the sale and servicing of solar products.
- The European Union (European Development Fund 10) will make 2.7m euros available (2010-2013) to further support renewable energy including construction of two monitoring towers to assess wind resources.
- The Japan Cool Earth Facility will install solar panels at Palau's international airport.
- The Republic of China (Taiwan) will expand cooperation in the area of renewable energy especially for health and education applications.

Oil and Gas: There has long been speculation about possible undersea oil and gas reserves in Palau's EEZ. The first exploration license was awarded by the U.S. Department of Interior in 1977. Geological studies have been underway since 1994 and a license to drill test wells was issued in January 2010. Work is also underway to develop a legal framework for domestic oil and gas exploration and exploitation *(reference chapter 7.1).*

4.2.3. Challenges & Constraints

Palau, like the rest of the world, faces two major energy challenges. First is to deliver clean, secure, affordable energy to residents while treating the environment responsibly. Second is to adapt to climate change and mitigate its adverse impacts. In addition, Palau faces a third challenge shared with other SIDS – dependence on imported petroleum.

In the past, energy efficiency and renewable energy have been constrained by lack of access to appropriate technology and insufficient institutional capacity. In addition, there has been a lack of financing to support market-driven development of local, renewable energy resources. These constraints are slowly being addressed so that Palau is now poised to make rapid progress toward reducing its energy vulnerability and its carbon "foot print".

4.2.4. Partnerships

Recent advances in the energy sector are only possible through regional and international partnerships. The European Union and European bilateral donors are active in both the electricity and renewable energy sub-sectors. The Global Environmental Facility is an active partner in the renewable energy sub-sector together with the Republic of China (Taiwan) and Japan. While the private sector has taken the lead in the oil and gas sub-sector, the World Bank is providing technical assistance to help develop the legal and regulatory frameworks to enable exploration to proceed in an orderly manner while safeguarding the interests of resource owners. At the regional level, SOPAC and now SPC, are actively involved as executing agents for regional energy projects, including those funded by the GEF.

4.2.5. Future Directions, 2010-2015

The draft Energy Policy and Plan of Action provides a framework for medium-term development of the energy sector, although as noted, the transportation sub-sector is not fully addressed in these documents.

At the sub-regional level, a major new initiative spearheaded by President Johnson Toribiong is "Green Energy Micronesia." This collaborative effort to reduce (and eventually eliminate) petroleum dependency in the U.S. affiliated sub-region – Palau, FSM, RMI, Guam, and CNMI – aims to create a sub-regional mechanism for channeling technical and financial resources to countries for achieving the goal of energy independence.

> ***Green Energy Micronesia:*** This sub-regional initiative led by the five Micronesian Chief Executives will harness political will to establish a collaborative mechanism to reduce and eventually eliminate petroleum dependency.

4.3. Transportation, Communications, and ICT

Mauritius Strategy, Chapter #10: SIDS to promote access to appropriate technology and increase technical and other assistance to further develop and manage **transportation and communications infrastructures** to meet international requirements, including those relating to minimizing environmental impacts.

Mauritius Strategy, Chapter #18: SIDS to capitalize on developments in ICT to overcome the limitations of isolation and remoteness and build their resilience; these include **e-commerce, early warning systems, tele-medicine, and distance learning**. SIDS to make better use of **information and data** in planning and decision-making.

4.3.1. Transportation

Situation and recent actions: The long awaited **Compact Road** circumnavigating Babeldaob was officially opened in 2007. This two-lane sealed road forms an 85 kilometer loop linking all ten Babeldaob states with Koror. Supplementing the Compact Road are an estimated 50 kilometers of **secondary roads** linking the Compact road to communities on the coast. The secondary roads are in various stages of upgrading. The Republic of China-Taiwan in particular has invested significant funds under its Economic Stimulus Grant to secondary road construction. The national road that links the Airai airport with Koror extending onward to the islands of Malakal and Meyuns has recently been upgraded with assistance from Japan. Further roadworks planned or in progress are shown in Table 4-2.

The U.S. Federal Aviation Administration Airport Improvement Program provided $29m for major **airport** improvements (2006-2008) including: a new terminal; resurfacing and expansion of runways and taxiways; new loading bridges; a fire and rescue facility including requisite equipment; and perimeter security fencing. An additional $5m grant supports work in progress to further expand aircraft parking and taxiways.

Continental Micronesia provides daily scheduled services linking Palau to Manila, Guam, and Yap with onward connections to Japan, U.S., Australia, and Fiji. Two other scheduled carriers – Palau Air and Asian Spirit - entered the market briefly and then withdrew. Another scheduled service – Pacific Flyer – will begin service in early 2010. Three Asian carriers provide charter service: Japan Airlines operates five flights per month; China Airlines operates four flights a week; Asiana Airlines operates two flights a

Table 4-2. Medium Term Road Investment

Project	Cost	Status
Aimeliik road	$200,000	In progress
Airai road	$750,000	Complete
Angaur road	$45,000	
Compact road to Nekkeng	$2,500,000	Complete
Koksai road	$15,000,000	
M-Dock road	$700,000	
Melekeok road	$700,000	In progress
Ngaraard road & water	$1,400,000	In progress
Ngaraard road	$600,000	In progress
Ngarachelong road	$175,000	In progress
Ngermid road	$200,000	
Total	$21.870m	

Source: CIP Office as shown in Slee, L. (2008).

week. The Palau tourism industry identifies continued reliance on charter services to be a constraint to development of the tourism industry. The Tourism Action Plan (TAP) calls for at least some of these charter routes to be converted to scheduled service (reference chapter 7.3).

While there have been significant investments in the air sub-sector, there have been only modest investments in the **port sub-sector**. Inter-island docking facilities have been improved at T-Dock (Koror) and Peleliu. International shipping continues to use the deep water port at Malakal (Koror) where long-standing problems of crowding and incompatible use persist.[6] There are proposals to develop a new port in Babeldaob - Aimeliik and Ngardmau have both been proposed - but no decisions have been made that would support planning and fund sourcing. Townsend *(2009)* writing for the draft Medium Term Development Strategy, recommends maintaining the status quo at the Malakal port for the next 10 years in order to earmark available monies for maintaining existing infrastructure, especially roads.

Challenges, constraints, and emerging issues: While further investments are needed to expand transportation infrastructure, especially secondary roads, the major challenge is resources (human, institutional, and financial) to maintain existing infrastructure. An estimated $1.5m is needed annually to maintain the Compact road; a similar sum is needed for other roadways. This excludes funding needed for major works such as repair of a recent roadway collapse near Ngchesar with a bill in the millions. In stark contrast to these sums, the annual budget allocation for the entire Roads Division of the Bureau of Public Works has ranged between $210,000 and $250,000 in recent years *(Slee, 2009; Townsend, 2009).*

Future Directions, 2010-2015: Road maintenance, is the highest priority in the transportation sub-sector. The proposed medium term development strategy *(Actions for Our Future, 2009)* proposes a three-step approach to road maintenance.

- Responsibility and funding for small maintenance requiring little expertise or specialized equipment to be delegated to communities through the State Governments;
- Higher-level maintenance for specific road sectors to be contracted to private firms;
- The Bureau of Public Works to serve as contract supervisor over outsourced projects.

Paying the road maintenance bill is a further challenge for an increasingly cash-strapped government. The proposed MTDS recommends an increase in fuel taxes earmarked for road maintenance. This would have the additional benefit of making the environment more conducive to public (land) transportation.

4.3.2. Communications

Overview and actions: Telecommunication services have been greatly expanded in recent years. In a landmark event, Palau achieved universal access to internet services in January 2010 with the start of services to the remote Southwest Islands. At the same time, cost of services to the consumer has been maintained or, in the case of long distance and internet services, drastically reduced *(Table 4-4).*

[6] *The Malakal port area features shipping facilities, shore-based services for ocean going vessels, fish processing facilities, fuel bulk storage facilities, a major resort hotel and two smaller hotels, residences, worker barracks, and other ancillary businesses. Congestion and incompatible uses have long been identified as a security issue and a constraint on development.*

Table 4-3. PNCC Subscribers				
	Fixed Line	**Cell**	**Palaunet**	**TV**
2004	7751	3924	1275	3134
2005	7977	6051	1315	2956
2006	7819	8519	1361	2969
2007	7474	10691	1162	2796
Source: PNCC and Slee (2008).				

Table 4-4. PNCC Rates, 1997 & 2007		
Service	**1997**	**2007**
Local telephone	$11/month	$11/month
Long distance	$3/minute	$0.35/minute
Television (50% increase in channels)	$23/month	$25/month
Wireless	$0.15-$0.22/minute	$0.15-$0.22/minute
Internet	$14.40/hour	$0.14/hour (lowest rate)
Source: PNCC (2007). Presentation before the National Economic Symposium, Track 1-Economy.		

Palau now features the lowest long distance telephone rates among the independent Pacific Island countries *(Slee, 2008).*

Palau National Communications Corporation (PNCC) is the leading telecom provider. PNCC is fully corporatized although its five-member board of directors is appointed by the President and confirmed by the Senate thus giving government a major voice in policy. PNCC is required to obtain OEK approval for rate increases but receives no direct government funding. While operating at a profit ($0.9m in 2007), PNCC returns only 3 percent profits on assets, a low rate that acts as a constraint to private investment.

In addition to PNCC, there are two other providers: (1) Palau Mobile, under Taiwanese ownership, offers national and international cellular services; and (2) Palau Telecommunications, under Palauan ownership, offeriing wireless internet services in Koror.

Challenges, constraints, and emerging issues: There are inherent challenges in providing telecommunications services in Palau. These include the small populations, high cost of accessing satellite bandwidth[7], and long distances/high cost in connecting to international land line networks. Other challenges include:

- ***Regulatory framework:*** Other than the law creating PNCC and government allocation of radio frequencies, there is no regulatory framework for the communications sector.
- ***Universal service:*** PNCC is required to meet universal service obligations; its competitors do not have a similar requirement. PNCC estimates the cost of serving areas outside of Koror at $3.95m against revenues of $1.09m.
- ***Debt:*** In 1994, PNCC accepted a loan from the U.S. Rural Utility Service of $39m to upgrade overseas telecom links. The monthly payment on this loan $192,181 (***PNCC, 2007).***
- ***Capital:*** High capital investment are necessary to keep up with competitors *(estimate $2m capital investment outlay per year, PNCC, 2007);*
- ***Rates:*** Rates are low; PNCC faces both legal and market constraints to raising rates;
- High and sometimes unrealistic ***service expectations*** by the general public.

[7] *PNCC has stated that their satellite costs are 100 times greater than costs in the U.S. (Source: PNCC (2007). Presentation before the National Economic Symposium.)*

Future directions, 2010-2015: In order to keep pace with technology in a corporatized operating environment, the telecommunications sector badly needs foreign investment. To attract foreign investment, returns on investment need to be higher and a "level playing field" provided for all investors. It has been recommended that the regulatory framework strive to achieve "competitive neutrality" with special priority given to implementing strategies to address universal services. One option is for government to assume the marginal cost of universal service through a subsidy paid to carriers that assume all or part of this burden. This will provide a "level playing field" for PNCC so that it does not absorb costs not required of its competitors. It will also make the true cost of universal service more transparent thus facilitating future policy decisions *(Slee, 2008).*

4.3.4. Information Technology

Overview and actions: Palau's access to and use of information technology directly reflects progress in building its communications infrastructure. As of January 2010, internet services are universally available throughout Palau. Many communities now feature internet cafes making services available at reasonable cost to people without computers or personal internet access. Wireless hotspots, a relatively new innovation, are proliferating.

Information technology is helping to break many barriers of isolation. **Internet banking** is offered by all of Palau's commercial banks at no additional charge to customers. The National Emergency Management Office (NEMO) accesses internet-based **early warning systems** located around the Pacific rim. Public and private schools use internet technology in **teaching**. The Palau Community College has established **distance learning** agreements with off island providers. In partnership with San Diego State University, PCC students can access bachelor's, master's, and doctorate programs in **education** via internet without leaving Palau. Similar arrangements are in effect in **health**. Nurses can enroll in continuing education courses via internet hook-up with the Universities of Guam and Hawaii. Physicians and a other health professionals can access specialty certification and post-graduate degrees through the Area Health Education Center (AHEC) located at PCC and linked electronically to the Fiji School of Medicine and institutions in Australia and New Zealand. **PALARIS** (Palau Automated Land and Resources Information System) uses the latest in Geographic Information System (GIS) technology to map Palau's infrastructure and resources. PALARIS, the College, and the U.S. Department of the Interior have made a medium-term commitment to make GIS technology readily accessible to all who need it. Since 2001, they have been offering an intensive continuing education course in GIS free of charge. The Ministry of Health has long been experimenting with **telemedicine** although has yet to fully harnessed all the benefits of this technology.

Given the rapid pace of technology development, it sometimes seems that Palau lags behind the world. In reality, Palau is many steps ahead of most developing countries. This largely results from Palau's close affiliation with the United States as well as a relatively high level of public sector investment in telecommunications infrastructure in recent years.

International and regional cooperation: The backbone of Palau's communication infrastructure is a fiber optic cable, purchased by **PNCC** in 1997 - 2001 at a cost in excess of $30 million. Funding was made available by a loan from the U.S**. Rural Utilities Services**. Though the debt burden that PNCC bears results from this loan, the technology purchased has created a domestic information revolution. Grants

from a number of sources help Palau to use technology. The **U.S. Department of Education** has put technology in Schools. Grants from the **U.S. Department of Health and Human Services** are putting technology in the hospital and clinics. The **U.S. Department of Interior** has supported development of the PALARIS system with supplemental funding from diverse sources, including the **Global Environment Fund** and **Japan.**

Challenges and constraints: PNCC warns that keeping abreast of the latest in technology costs money and that it faces major challenges in attracting investment as already highlighted. A further constraint is human resource development in a labor market where the best and the brightest of Palau's young IT graduates gravitate to the United States where wages and working conditions are far more favorable than at home.

Future directions, 2010-2015: Urgent attention is needed to create a regulatory environment conducive to private investment. Without private investment, it will be difficult for Palau from its own domestic resources to keep abreast of new technologies.

Chapter 5.
Environmental Resources

Palau's abundant and diverse terrestrial and marine ecosystems have sustained its people for thousands of years. Today, whether directly through harvest and direct consumption of environmental resources or indirectly through trade of goods extracted from the environment (inclusive of tourism), the environment **IS** Palau's economy, the source of its human well-being, and its security against a turbulent world.

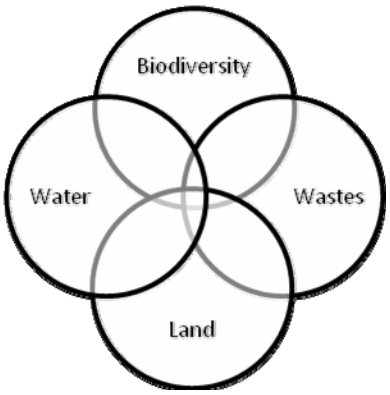
Palau's environmental resources are still highly productive and in many areas in near pristine condition. However, as development progresses, the land, reefs and associated habitats are coming under increasing threat of environmental degradation from human activities as well as from climate change and associated sea level rise.

During the El Niño event of 1998–1999, near-surface temperatures in the coastal waters of Palau were over 30^{o}C for June–November 1998. This caused a massive coral bleaching event that killed one third of Palau's reefs; in some areas, coral mortality was as high as 90%. On land, the El Nino event caused drought, depletion of water supplies, fires, and depressed agriculture production by about 50%. In the past several years, Palau has experienced increasingly severe storm as well as drought activity; both will become more common due to climate change.

In addition to climate variables, other pressures on Palau's resources arise from overfishing, tourism overuse and misuse, infrastructure development, agriculture, and pollution. In agriculture, fertilizer and pesticide use is increasing, as are problems with sedimentation and erosion.

The environment is both a resource and a binding constraint to development. The key questions: When times are hard, can individuals and families go back to the environment for their essential livelihood; can Palau as a nation do likewise? The answer to these two questions lies at the heart of the sustainable development discussion.

This chapter examines four environmental resources:



- Biodiversity;
- Freshwater;
- Land;
- Waste management.

Other closely related resources are discussed in Chapter 7: agriculture and forests (7.1.); reefs and marine resources (7.2.); tourism resources (7.3); and cultural resources (7.4.)

5.1. Biodiversity Resources

***Mauritius Strategy, Chapter 9**:* SIDS to take action to build representative systems of terrestrial and marine **protected areas,** advance the development of the **Convention on Biological Diversity** program of work on island biodiversity, facilitate access to **genetic resources;** and ensure the fair and equitable sharing of benefits arising from use of biological resources.

5.1.1. Situation Overview

With over 10,000 species inventoried to-date, biodiversity is the foundation for the economic, social, and cultural livelihood of the Palauan people and the long-term development of the Palau nation. Moreover, beyond national borders, Palau's many endemic species (over 1,000 identified thus far) constitute a global treasure chest. It is little wonder that the international community takes a keen interest in helping Palau to preserve its unique biological resources and the ecosystems on which they depend.

Palau's biological resources have been inventoried in a number of publications including the First National Biodiversity Strategy and Action Plan *(OERC, 2004).*

- ***Inshore resources:*** 1,500 species of reef fish, 400 species of hard corals, 300 species of soft corals, 7 of the world's 9 known species for giant clams, 13 of the 14 species of mangroves found in Micronesia, Micronesia's only populations of saltwater crocodiles and dugongs, and an array of rare and unusual marine insects *(PCS, 2000; OERC, 2004; PINZ, 2007).*
- ***Offshore resources:*** Four species of sea turtles, 7 species of sea snakes, 11 species of dolphins, 19 species of whales, together with substantial populations of migratory fishes *(OERC, 2005; PINZ, 2007).*
- ***Terrestrial resources:*** 1,200 species of plants, 141 bird species of which 50 are resident, 40 freshwater fishes, 42 species of reptiles, 30 species of lizards, two species of amphibians (an endemic frog and an introduced toad), and at least 5,000 species of terrestrial insects *(OERC, 2004; PINZ, 2007).*
- ***Endemic species:*** Approximately 25% of species catalogued to date are endemic including 200 plants, 200 terrestrial gastropods, 1,500 insects, 8 birds, 12 amphibians, nine lizards, two reptiles, two freshwater fishes, and two bats. New endemics continue to be discovered on a regular basis as Palau's forests and seas open for further exploration *(OERC, 2004).*
- ***Agricultural biodiversity:*** Palauans cultivate over 100 varieties of taro, 17 varieties of sweet potatoes, and many varieties of cassava, as well as bananas and other fruits for food. Over 44 species of trees are used for timber and fire-

wood, and over 82 plants are used as medicines *(OERC, 2004).*

- ***Ecological resources:*** Palau's terrestrial environment includes the largest undisturbed tropical rainforest in Micronesia (estimated at 31,000,000 hectares or about 75 percent of Palau's land mass) and 1,150 km^2 of coral reefs. Lake Ngardok is the largest natural freshwater lake in Micronesia. Ngermeduu Bay is the largest estuary lake in Micronesia. Palau also has the world's largest concentration of marine lakes that provide habitat for unique and non-stinging Mastigias and Moon Jellyfish. *(OERC, 2004; Williams, 2007).*
- ***Endangered, threatened, and vulnerable species:*** Palau has not produced a definitive list of endangered species although a number of species have been accorded legal protection. All endemics are vulnerable due to their sole residence being a single remote archipelago. 230 species found in Palau are listed on the International Union for Conservation of Nature and Natural Resource (IUCN) Red List as vulnerable to some degree including 53 species listed as near threatened, vulnerable, or endangered 64 species listed as data deficient *(Williams, 2007).*

Palau's future prosperity depends on its unique environment and managing this fragile resource in a sustainable way *(Williams, 2009).*

Over generations of close interaction with nature, Palauans have developed vast knowledge about their ecological resources and have created a complex social system to conserve resources. An important responsibility of traditional chiefs and their female counterparts – customarily and today – is to promote *"omengereomel"* (literal translation "wise use" but a term that also incorporates the concept of sustainability). In contemporary Palau, environmental sustainability requires close partnership between the national government, state governments, traditional leaders, non-government organizations,

***Palau's overarching development goal*:** A sustained and widespread improvement in general standards of living while **preserving cultural and environmental values** for the people of Palau" (emphasis added).

Actions for Our Future, 2009

Table 5-1. IUCN Red List Species Found in Palau

Geneus/Family-Common Name	Near Threatened	Vulnerable	Endangered	Critically Endangered	Extinct	Data Deficient	Total
Mammal, marine	1	1	--	--	--	5	7
Mammal, land	1	--	2	--	1	--	5
Birds	6	--	2	--	--	1	9
Reptile - crocodile	--	--	1	--	--	--	1
Reptile - turtle	--	--	1	2	--	--	3
Frog/toad	--	--	--	--	--	--	0
Fish and sharks	15	9	2	--	--	4	30
Arthropod - crab	--	--	--	--	--	1	1
Mollusc	4	2	--	4	--	53	63
Plant	3	1	1	--	--	--	5
TOTAL	30	13	9	6	1	64	123

Source: International Union for the Conservation of Nature and Natural Resources, Red List, 2007 as reported by Williams, 2007.

the private sector and ordinary citizens.

5.1.2. Actions Taken - Lessons Learned

Palau – a pioneer: Since independence, successive governments have accorded high priority to environmental protection in the global arena, in the region, and at home. Palau has ratified all of the major international environmental conventions and treaties (Annex B) and has been particularly active within the Micronesia sub-region by encouraging its island neighbors to expand their protected areas as part of the Micronesian Challenge.

The Micronesian Challenge, issued by then President of Palau – His Excellency Tommy Remengesau, Jr. – at the 2006 U.N. Convention on Biological Diversity in Brazil, is a commitment by the chief executives of Palau, the Marshall Islands, the Federated States of Micronesia, Guam, and the Commonwealth of the Northern Mariana Islands to effectively conserve 30% of near-shore and 20% of terrestrial resources by or before 2020. Through the collaborative efforts of the participating governments backed by the international community, a positive start has been made toward achieving the "30-20" goal. Palau, taking a lead by "walking the talk," has already exceeded the "30-20" target. Subsequently, the Micronesian Challenge has spawned a Caribbean Challenge and a Coral Triangle Initiative.

Convention on Biological Diversity: Palau is a party to the Convention on Biological Diversity (CBD) and has completed three editions of the National Biodiversity Strategic Action Plan (NBSAP). The NBSAP provides the overarching framework for promoting biodiversity conservation and sustainably managing natural resources. NBSAP contains eight thematic areas that closely mirror the themes of the MSI.

- Protected areas;
- Species protection;
- Invasive species and bio-safety;

> ***NBSAP Vision:*** "The people of Palau are living in harmony with their diverse natural and cultural heritage."
>
> ***Key NBSAP Principles:*** (1) Benefits from the use, conservation, and management of Palau's biodiversity should be shared equitably among all the people of Palau; (2) Communities have both the right and the responsibility to manage and use their biological resources sustainably for their benefit and that of future generations.

- Genetic resources;
- Compatible economic development;
- Waste management;
- Agricultural biodiversity;
- Mainstreaming conservation into national development planning and policies.

Protected Areas: Traditionally, an ecosystem or a resource under pressure would be placed under a *"bul"* (literal translation "prohibition") by the paramount chief(s) for an area. Today, the tradition of the *bul* has been adapted to the modern legal system. While conservation areas may be designated by one or more traditional chiefs, they are generally confirmed by state governments and more recently, by the national government. Typically all levels of governance – traditional, state, and national - collaborate to manage the area or resource.

The first protected area recognized by law was the Ngerukewid Islands Wildlife Preserve (a portion of Koror's Rock Islands), designated in 1956. This area remains under protection today, one of 37 protected areas *(Table 5-2)* that together encompass over 1,000 square kilometres (34 percent of Palau's near-

shore marine area and 24 percent of its terrestrial area).

In 2003, Palau enacted landmark Protected Areas Network (PAN) legislation. This framework legislation encourages national and state governments, in consultation with traditional leaders, to collaborate in designing a scientifically sound nationwide network of terrestrial and marine protected areas. Ultimately, it is envisaged that the network will incorporate representative samples of all of Palau's ecological systems and important species, and will promote ecological regeneration by respecting principles of connectivity. An amendment to the law passed in 2008 created a non-profit Protected Area Network Fund to hold and disburse funds earmarked for the PAN. In 2009, legislation established the "green fee" – a $15 fee to be paid by visitors upon departure from Palau to be wholly used to support PAN. In addition to this fee, the fund receives direct contributions from donors and a portion of interest earned from the Micronesian Conservation Trust Fund, established to channel financial support to the five governments that comprise the Micronesia Challenge. The "green fee" became effective in November 2009. This made Palau the first country in the world to fully meet its obligations for protected areas under the Convention on Biological Diversity.

In November 2009, Palau became the first country in the world to fulfill all obligations under the Convention on Biological Diversity for establishing a self-sustaining network of protected areas.

Although Palau has 37 recognized protected areas, only four have been registered as PAN sites (Lake Ngardok in Melekeok; Mesekelat in Ngchesar; Kiuluul in Ngiwal; and Ebiil Channel in Ngarchelong). Helen's Reef (Sonsorol State) is expected to be nominated in early 2010. So far, states have benefitted from PAN designation through technical assistance provided by the national government and its partners (The Nature Conservancy, Palau Conservation Society, Palau International Coral Reef Center, and the Palau Coral Reef Research Foundation). Beginning in 2010, however, direct financial support will become available following receipt of $300,000 in income from the Micronesian Conservation Trust. In 2011, income from the Conservation Trust will be augmented by proceeds from Palau's "green fee." The short-term PAN objective is to work extensively with the initial five PAN sites to implement their site management plans; from this base, work will proceed to encourage other resource owners to register sites with PAN as the benefits of registration become more evident.

The Koror State Division of Conservation and Law Enforcement is responsible for protecting the world famous Rock Islands. What has been learned?

- The community must be involved and allowed to use the resources.
- Every unique island ecosystem should have a CHAMPION for conservation.
- Every champion needs resources and staffing.
- Champions need partners from all sectors in the community – within Palau and internationally.
- Sustainable financing mechanisms and revenue to support management of protected ar-

NGO

Species protection: Preserving endemic or native species by protecting the habitats that sustain them is one objective of PAN. In addition to PAN legisla-

tion, Palau has three laws specific to vulnerable species. **The Endangered Species Act of 1975** gives the

Table 5-2 Protected Areas in Palau

(Compiled by PCS, TNC, Palaris, July 1, 2007 with update January 2010) ** ***NOTE**: Areas are approximate*

Name	Ecosystems or species included	State(s)	Year estab.	Size (km2)	Type
Ngaruangel Reserve	Atoll island, reefs, lagoon	Kayangel	1996	34.96	Dual
Ebiil Conservation Area	Grouper spawning aggregations	Ngarchelong	1999	19.11	Marine
Ileakelbeluu	Patch reef	Ngardmau	2005	0.62	Marine
Ngermasech Conservation Area	Mangrove, reef flat, seagrass bed	Ngardmau	1998	2.93	Dual
Ngerchelchuus	Forest	Ngardmau	2005	0.30	Terrestrial
Ngardmau Waterfall (Taki)	Waterfall	Ngardmau	2005	0.30	Terrestrial
Ngaraard Beach Conservation Area	Beach, reef flat, seagrass bed	Ngaraard	1990	12.07	Dual
Ngaraard Mangroves Conservation Area	Mangrove	Ngaraard	1994	1.42	Dual
Bkulabeluu	Northside of channel	Ngaremlengui	???		Marine
Bkulengriil Conservation Area	Mangroves/Seagrass bed	Ngaremlengui	2006	0.71	Dual
Ngatpang Clam Conservation Area		Ngatpang	2003	0.15	Dual
Ngatpang Crab Conservation Area		Ngatpang	2003	0.15	Dual
Ngatpang Fish Conservation Area		Ngatpang	2003	0.15	Marine
Ngaremeduu Conservation Area	Estuary, mangroves	Ngaremlengui, Aimeliik, Ngatpang	1999	98.00	Dual
Ngardok Nature Reserve	Lake, wetlands	Melekeok	1999	5.00	Terrestrial
Melekeok nearshore waters	Reef flat	Melekeok	1997		Marine
Melekeok reef flat	Giant clams	Melekeok	1998		Marine
Ngelukes Conservation Area	Patch reef	Ngchesar	2002	0.50	Marine
Mesekelat Conservation Area	Watershed, forest	Ngchesar	2002	0.50	Terrestrial
Ngerchebal	Island, reef flat	Aimeliik	2006		Dual
Imul Mangrove Conservation Area	Mangrove	Aimeliik	2002	0.43	Dual
Ngchesechang Mangrove Area	Mangrove	Airai	1994	0.97	Dual
Oikull Mangrove Conservation Area	Mangrove	Airai	2002	0.78	Dual
Airai Reef Conservation Area	Seagrass bed	Airai	2006		Marine
Ngeream Conservation Area	Mangrove	Airai	1997	1.64	Dual
Ngerkebesang Conservation Zone	Reef flat	Koror	2002	0.04	Marine
Ngederrak Reef	Seagrass bed, reef flat	Koror	2001	5.98	Marine
Ngerumekaol Spawning Area	Grouper spawning aggregations	Koror	1976	2.08	Marine
Ngkisaol Sardine Sanctuary	Mangrove, sardine aggregation	Koror	1999	0.05	Dual
Ngerukuid Islands Wildlife Preserve	Islands, reefs, lagoon	Koror	1956	11.02	Dual
Ngemelis Island Complex	Islands, reef, dive sites	Koror	1995	40.26	Dual
Teluleu Conservation Area	Seagrass bed, reef flat	Peleliu	2001	0.83	Marine
Angaur Conservation Area	Seagrass, reef flat	Angaur	2006	0.39	Marine
Fana Island Important Bird Area (IBA)	Island	Sonsorol	2006	0.40	Terrestrial
Helen Reef Reserve	Atoll island, reefs, lagoon	Hatohobei	2001	163.00	Dual
Kiuluul Integrated	Ridge-to-reef site	Ngiwal			Dual
Rock Islands Southern Lagoon Management Area	Rock Islands, lagoon, barrier reefs	Koror	1997	621.00	Marine

Note: To become a part of the national Protected Area Network and enjoy the technical and financial benefits that flow from membership, states and/or resource owners must nominate the site for the PAN. Of the 36 sites above, only 4 have been nominated for PAN membership to date.

Ministry of Natural Resources, Environment, and Tourism (MNRET) authority to designate endangered species and to issue regulations for their protection. This act, however, has not been implemented because of disputes over the listing of species. (The proposed list is presented in Table 5-3). The **Marine Protection Act** of 1994 identifies specific fish and sea life in need of special protective measures including: export ban, closed harvest season, size limits, prohibition of certain methods of harvest, and permitting of harvest and/or export. The **Protected Sea Life Act** provides special protection for dugongs, crocodiles, and turtles. BMR has established the Vulnerable Marine Species Conservation Program to guide management of these resources including protection of their essential habitats.

Shark finning by foreign fishing vessels is a major threat to Palau's shark population. To combat this practice, President Johnson Toribiong recently declared Palau the world's first "shark sanctuary".

> ***World's First Shark Sanctuary*:** Continuing the strong environmental stewardship tradition of his predecessors, Palau's President Johnson Toribiong announced to the United Nations General Assembly in September 2009, *"The strength and beauty of sharks are a natural barometer for the health of our oceans. Therefore, I declare today that Palau will become the world's first national shark sanctuary, ending all commercial shark fishing in our waters and giving a sanctuary for sharks to live and reproduce unmolested in our 237,000 square miles of ocean. We call upon all nations to join us."*

Invasive species: Invasive species threaten biodiversity, human health, agriculture, forestry, fisheries, and cultural traditions. At least 12 of the world's 100 worst invasive species have been reported in Palau *(Williams, 2007, p. 44).* With financial support from the Republic of China-Taiwan, a national invasive species committee was formed (2004), a policy and strategy adopted (2006), and "Operation Counter-Invasion" launched. This operation involves: strengthening the Plant Protection and Quarantine Service of the Bureau of Agriculture, promoting public awareness of the kebeas vine *(Merremia peltata)* and the macaque monkey *(Macaca fascicularis),* strengthening invasive weed eradication/control, survey for marine invasives, and eradication of three high priority invasive plants. Within the region, Palau is a founding members of the Pacific Invasives Learning Network launched in November 2005.

Table 5-3. Endangered or Threatened Species
Source: Draft ESA Regulations

	Endangered	Threatened
Mammals	1 species; 1 order (whales, dolphins, porpoises)	1 species
Birds	4 species	13 species
Reptiles	3 species	2 species
Mollusks	2 species	4 species
Plants	3 species	12 species
Fish	0 species	3 species; 1 order (sharks)

Biosafety: Biosafety addresses potential threats associated with living (genetically) modified organisms (LMOs). Palau is a party to the Cartagena Protocol that establishes procedures whereby countries receiving LMOs have the right to prior notice of proposed importation and to accept/reject such organisms based on their own risk assessment. Palau has filed its first report under the Cartagena Protocol

and drafted framework legislation to implement the protocol (albeit not yet enacted). With aquaculture a growing industry in Palau, the issue of LMOs becomes more pressing since some imported breeding stock has been genetically modified and could threaten Palau's native species if released into the wild. In general, there is only limited awareness about LMOs in Palau and limited capacity for making informed judgments about their safety.

Genetic resources:[8] Bio-prospecting involves the search for and exploitation of chemical compounds and genetic material found in wild organisms. Bio-prospecting began in Palau in the early 1970s and continues today. Over 150 technical publications on marine natural product compounds have been produced from studies in Palau, and the Palau-based Coral Reef Research Foundation (CCRF) has held the prestigious US National Cancer Institute's (NCI) shallow water marine collections contract since 1992 making Palau one of the most thoroughly sampled regions in the world for potential anti-cancer drugs. CCRF works only for the US NCI, which has in place state of the art agreements to protect the rights of the countries in which it works. Commercial development of a drug or other product cannot occur unless a royalty and licensing agreement is in place with the source country. If traditional knowledge is used to identify product for testing, that contribution is recognized. Palau needs to enact legislation to ensure similar procedures are followed by all researchers.

The current economic value of bio-prospecting activities within Palau is estimated at about $200,000 per year, although the value varies from year to year.

Palau does not at present receive any royalties from drugs based on Palauan animals or plants, but this could soon change; a sponge found in Palau has recently been found to have potent anti-aging properties.

Palau Conservation Society (PCS): PCS was incorporated in 1994 - the first indigenous non-profit organization in Micronesia dedicated to the conservation of biodiversity and sustainable use of natural resources. The mission of PCS is "to work with the community to preserve the nation's unique natural environment and perpetuate its conservation ethic for the economic and social benefit of present and future generations of all Palauans and for the enjoyment and education of all." Since its founding, PCS has been on the forefront of many conservation initiatives including species-specific campaigns (turtles, birds, sharks, and dugongs), ecosystem campaigns (ridge-to-reef awareness, protected area design and development), and others. PCS has spawned other local conservation NGOs such as the Ebiil Society in Ngarchelong and formation of similar organizations elsewhere in Micronesia.

Sustainable economic development: All of Palau's conservation initiatives encourage economic development compatible with environmental objectives. Furthermore, there is a well-established body of laws and regulations administered by the EQPB that seek to ensure: the environment is protected as part of all development initiatives; trade-offs between development and the environment are acceptable; and mitigation measures are in place to compensate for unavoidable environmental impacts.

[8] *The section on bio-prospecting has been abstracted from "Actions for Our Future" produced by PINZ in cooperation with the Government of Palau and the Asian Development Bank, 2009.*

Koror State has been particularly successful in promoting compatible use within the multi-purpose Rock Island conservation area and generates significant income from tourism there. In other sites, compatible economic enterprises have been slower to develop but there is significant potential for future growth.

5.1.3. Challenges & Constraints

There remains a great deal to be done to solidify and build on past achievements while managing the ever-present stresses that arise between the twin forces of conservation and development.

Threats to biodiversity include *(OERC, 2004):*

- ***Cross-cutting -*** climate change and sea level;
- ***Terrestrial biodiversity -*** forest loss and fragmentation, invasive species, uncontrolled burning, mangrove cutting and filling, unsustainable hunting;
- ***Marine biodiversity*** - storms, predators (e.g. crown-of-thorns), coral diseases, overfishing, sedimentation and coastal run-off, pollution for agriculture and sewage, invasive species, physical damages (ship groundings, anchor damage, dredging), unsustainable collection and fishing practices.

Institutional: A 2007-2008 review of Palau's environmental structure made ten recommendations to strengthen institutional capacity for environmental protection *(Williams, 2008).* These include: updating the Environmental Quality Protection Act and supporting regulations (solid wastes, air pollution, fresh and marine water quality); creating new laws and/or regulations (vegetation clearing, land use, zoning, and building codes, minerals, energy, water resource and watershed management); strengthening management and enforcement capacities of state governments; redressing the negative environmental impacts of public infrastructure (solid waste dumps, sewerage, and road run-off); addressing human resource constraints in the environmental sector; improving data collection and management; and developing new mechanisms for funding environmental protection activities based on the principle of "polluter pays." To strengthen sector-wide coordination and planning, the review recommends that the

Palau International Coral Reef Center (PICRC) opened in 2001, the product of international collaboration involving the governments of Palau, Japan, and the United States, multilateral, bilateral, and private supporters. The center's mission is to be a self-sustaining center of excellence for scientific research, education and training to promote marine conservation. Towards that end, PICRC conducts research that enhances knowledge and conservation of coral reef systems and their associated marine environments. Although primarily working within Palau, PICRC is also involved in marine research and conservation initiatives across Micronesia.

Babeldaob Watershed Alliance: This community-based organization strives to protect water resources and watersheds in Babeldaob. By protecting watersheds, the alliance plays a vital role in biodiversity protection. Because BWA represents communities and resource owners, it is sometimes able to achieve conservation objectives that become stalled at the national level due to political reasons. Establishing buffer zones alongside rivers is an example of a conservation measure that the OEK failed to approve but has been approved by BWA and is being enforced by state governments.

National Environmental Protection Council (NEPC) be revived. NEPC was created in 2002 but no longer meets.

International challenges: The large number of treaties and conventions pertaining to biodiversity provide important financial, technical and political support for domestic work. The number of agreements, however, is a constraint in that each has its own reporting and administrative obligations. These obligations place stress on a small country like Palau with limited human and institutional resources.

Human resources: Palau has been fortunate to nurture a cadre of educated and committed local environmental professionals. The amount of work to be done, however, continues to exceed domestic capacity. In particular, more capacity is needed at community (state) levels since it is there that resource owners make daily management decisions that affect the biodiversity of the whole nation.

Enforcement: Enforcement is a huge challenge with neither national nor state governments adequately resourced for enforcement. While "community policing" through peer pressure is at least partially effective on land and in near-shore areas, it is not effective in the greater Exclusive Economic Zone. Palau has only one patrol boat and thus the task of monitoring/enforcement is daunting. During the two month period, August-September 2009 – a closed season for tuna fisheries - the U.S. Coast Guard in Guam has shared with Palau surveillance evidence of 800 illegal vessels entering Palau waters *(Fritz, 2009, personal communications).* This represents a tremendous threat to biodiversity as well as significant economic lose for Palau. One strategy is to enlist assistance from licensed fishing fleets for enforcement since they are also stakeholders in preventing illegal catch.

Climate change: Over the longer-term climate change is a major challenge to biodiversity. Climate change is, however, being used by Palau's environmental community to promote biodiversity conservation. Protected areas, watershed initiatives, and other environmental measures are designed to enhance resilience to climate change. Climate change monies provide an important source of funding for conservation efforts.

5.1.4. Partnerships

Within Palau, many organizations are involved in biodiversity protection and sustainable resource management. These include: each of the sixteen state governments; national government agencies (Office of Environmental Response and Coordination, Bureau of Agriculture and Forestry, Bureau of Marine Resources, PAN Management Committee, PALARIS, Environmental Protection Agency; Palau Visitors Authority); non-government organizations (the PAN Fund, Palau International Coral Reef Center; Coral Reef Research Foundation; The Nature Conservancy; the Palau Conservation Society; and the Babeldaob Watershed Alliance); and numerous community-based organizations (men, women, and youth groups as well as conservation groups such as the Ebiil Society in Ngarchelong).

Coordination among so many groups is sometimes challenging although inter-agency relationships are generally good and most programs and projects involve multi-agency cooperation. Agencies involved in marine conservation, have formed a MAREPAC body to provide a forum for coordination and collaboration. The Palau MAREPAC is in turn linked to MAREPAC organizations in other Micronesian jurisdictions with the network as a whole supported by the U.S. government-backed Coral Alliance. Agencies focusing on terrestrial resources coordinate through

the Palau Natural Resources Council established by Executive Order (Number 230) in 2001. To further facilitate a sector-wide approach and to encourage the environmental community to speak with "one voice", a National Environmental Protection Council was formed by in 2002 (Presidential Executive Order #205) but is not longer operational.

External development agencies are critical partners in Palau's conservation efforts. A comprehensive list of external partners is almost impossible to compile but a partial listing includes: agencies of the United States Government (National Fish and Wildlife Foundation, National Oceanic and Atmospheric Administration, National Cancer Institute, Department of Interior); bilateral donors (Australia, New Zealand, Germany, Turkey, Japan, Republic of China-Taiwan); multilateral donors (Global Environmental Facility of the United Nations, South Pacific Regional Environment Program, Secretariat of the Pacific Community; SOPAC, United Nations Environmental Program, United Nations Development Program, United Nations Education, Scientific and Culture Organization, World Health Organization); private foundations (the David and Lucille Packard Foundation, The Nature Conservancy, Conservation International, World Wildlife Fund, Rare, Birdlife International); local businesses and individual donors.

5.1.5. Future Directions, 2010-2015

The National Government is working to strengthen its capacity to coordinate implementation of the CBD as well as a long list of other conventions and agreements to which Palau is a party. From 2001-2008, this function was vested in the Office of Environmental Response and Coordination (OERC) but it was never envisaged that OERC would be made permanent. In 2008, the OEK approved restructuring of the Executive Branch. A new ministry of Natural Resources, Environment, and Tourism was created. While it was envisaged that the functions of OERC would move into this ministry, actual transition has progressed more slowly than expected. Once the new structure is formalized, institutional arrangements will be improved but coordination and implementation will only improve if there are adequate resources (human and financial) to do the work and an active coordinating mechanism (such as the NEPC) that brings stakeholders together.

Human resources are a major constraint. There is more work to be done than qualified Palauans which means that many officials wear multiple hats and ultimately, some important work does not get done. Since biodiversity and environmental protection cross cut many sectors, a stronger domestic arrangement for human resource development is vitally needed at the same time that country-to-country arrangements are strengthened at the sub-regional and regional levels.

Major reforms in legislation and regulations are needed. Many environmental challenges now facing Palau did not exist when the body of environmental law in effect today was enacted – bio-prospecting, genetically modified species, protection of traditional knowledge among them. While information deficit sometimes is used as a convenient excuse for not taking prudent action, there is no doubt that better science is needed to guide decision-making. A lot of resources are allocated to marine research; similar commitment is needed for terrestrial research.

5.2. Freshwater Resources

Mauritius Strategy, Chapter 5: The lack of water is a major problem for many SIDS. SIDS are urged to meet MDG and World Summit for Sustainable Development targets for **access to safe drinking water** and the production of **integrated water resource management plans.**

5.2.1. Situation Overview

With 150 inches of rain per year, the high island of Babeldaob has an extensive network of rivers and streams with a combined discharge of 500 million gallons daily. Groundwater resources can also be found at depths of 40 to 100 feet below lowlands *(GHD Pty. Ltd., 2009, p. 13).* Although exploratory drilling in the mid-1980's in the Ngerikiil basin indicated that groundwater to be viable source of potable water, it is not extensively exploited at this time *(GHD Pty. Ltd., 2009, p. 13).* The smaller outlying islands of Peleliu, Angaur and Kayangel all have a fresh water lens that supply their public water systems. There, saltwater intrusion is a problem, especially during droughts. The Southwest Islands rely on rainwater catchments supplemented by groundwater from their limited lens.

Four million gallons of water are pumped daily from the Ngirikiil and Ngerimel Rivers in Airai to serve the populations of Koror and Airai (80% of the Palau's population). The Koror-Airai treatment and reticulation system is managed by the national government. Fifteen other public water systems, managed by state governments, each produce an average of 60,000 gallons a day to serve rural populations that range from 20 to 700 persons.

Census data *(2005)* show that 96% of Palau's residents have access to improved public water supplies although 14% of rural residents remain un-served *(Table 5-4).* During periods of normal rainfall, water is available 24 hours per day with adequate pressure and is relatively clean although rural water systems periodically test positive for coliform bacteria and the urban system may exceed turbidity limits during heavy rainfalls. One-quarter of homes have rain-water catchments to supplement public supplies *(2005 Census, Table H06).*

5.2.2. Actions Taken – Lessons Learned

Water Systems: The Koror-Airai water system has recently expanded to serve the entire state of Airai, repair or selectively replace distribution lines, and upgrade treatment facilities. Nevertheless, the system continues to suffer from operations and maintenance issues, including high levels of water loss. Rural water does not consistently meet national drinking water standards and water systems there cannot keep pace with population growth.

Table 5-4. Access to Improved Water
% of Households, Census Data

		1990	1995	2000	2005
Access to public water systems					
	Urban	98.5	97.5	98.7	98.5
	Rural	72.4	77.5	85.1	86.3
	National	86.8	92.3	95.5	95.7
Access to piped water					
	Urban	97.0	99.0	98.4	99.7
	Rural	76.6	80.9	89.0	91.1
	National	87.9	94.4	96.2	97.9

Both rural and urban supplies are vulnerable to droughts. Severe droughts in 1983 and 1997 forced water rationing, emergency pumping of groundwater and temporary use of desalination plants. With more frequent and more severe droughts predicted for the future, reducing vulnerability in the water sector is an important component of climate change adaptation. In May 2007, Government requested technical assistance from the Asian Development Bank to address water issues with special attention to reducing vulnerability and expanding systems on Babeldaob. The resulting sector review and project design identify eight constraints *(see section 5.2.3)* to meeting national safe drinking water goals *(GHD Pty., Ltd., 2009, pp. 2-5).*

Water sources: With opening of the Compact Road, residential and commercial development in watersheds has accelerated. There is growing recognition of the urgent need to protect watersheds, promote sustainable water use, and develop a framework for allocating water rights among competing uses and users. Several inter-related projects address these issues.

- ***Ridge-to-Reef*** (2003-2010) by PCS uses social marketing to raise awareness about watershed issues and the links between land management and reefs.
- ***Integrated Water Resources Management*** (2009-2013) is an multi-partner initiative led by EQPB to address watershed issues in the Ngerikiil basin. This is a regional project funded by the European Union through SOPAC.
- ***Water Safety Planning Project*** (2009-2013), also led by EQPB, will develop a water safety plan initially for the Koror-Airai system and eventually for all public systems. A water safety plan identifies current and potential risks to water resources together with corrective actions. This is a regional project funded by the World Health Organization and New Zealand through SOPAC.
- ***Hydrological System Observation Project,*** another SOPAC assisted regional project, will collect flow and water quality data for five of Babeldaob's largest rivers. This project will provide baseline data for sector planning and feedback on the effectiveness of measures used to control erosion.
- ***Babeldaob Watershed Alliance*** (BWA) is an agreement signed in December 2006 between three Babeldaob states (two others have since joined) to collaborate for watershed management. BWA recognizes the trans-boundary realities of watersheds and the need for multi-state approaches..

5.2.3. Challenges and Constraints

Water systems: The ADB-funded water sector review (GHD Pty. Ltd., 2009) identified constraints to achieving national water service objectives.

- Vulnerability to drought;
- Multiple small rural water systems that are financially unsustainable;
- Excessively high per capita water production indicating high wastage;
- Low water tariffs, a factor that contributes to operational problems and wastage;
- Lack of a focal institution responsible for water and sewer operations; responsibility for water is divided among 16 state governments and at least three national government agencies;
- Weak legislative framework;
- Weak institutional capacity to plan and manage water and sewage systems.

Water sources: The major threats to Palau's water resources include man-made contamination and

climate change. Poorly controlled development, unsustainable land uses, sedimentation and deforestation threaten to undermine both the quantity and quality of freshwater resources. These impacts will be accentuated by more frequent storms and droughts occasions by climate change.

5.2.4. Partnerships

The Ministry of Infrastructure, Bureau of Public Works is the lead national government agency for water systems operation. EQPB and the Ministries of Finance and MRET also play important roles. The GEF-funded Sustainable Land Management (SLM) project is another important domestic partner together with all the state governments.

Regionally, SOPAC is Palau's leading partner for water resource planning and management. The Asian Development Bank has recently emerged as the leading partner for water system development following a sector review and series of project planning missions in 2009. Further ADB involvement to implement the planned project using a combined grant-loan is being considered by government. Although water security is a prerequisite for sustainable development across all sectors, government is cautious about assuming new debt at this time.

4.2.5. Future Directions, 2010-2015

The ADB-funded water sector review concluded that the priority issues for water system sustainability are institutional and managerial (including unsustainable financing). Actual systems – pumps pipes, and treatment works, were ranked as a lower priority *(GHD Pty., Ltd., 1999).*

Water systems: The ADB study proposed a $10m water system rehabilitation project to be funded jointly as a grant-loan by the European Development Bank and the Asian Development Bank. The proposed project has four components:

- Sector-wide planning, management, and regulation;
- Drilling of wells in the Ngerikiil area to feed into the Koror-Airai system as a drought mitigation measure;
- Community education and participation to increase willingness-to-pay and reduce wastage at the point of consumption;
- Rehabilitation and extension of the Koror-Airai system to serve parts of Aimeliik and to minimize wastage during distribution.

The report recommends nationalization and corporatization of water and sanitation services in the form of either a Water and Sanitation Authority or an expanded Public Utilities Corporation that includes water, sewer, and power. Regardless of institutional arrangements, it recommends tariffs be revised to achieve full cost recovery within 5 years. This will require water rates to double and new charges to be imposed for sewer but willingness-to-pay surveys suggest these increases are feasible.

While it had been initially proposed to tap surface water from one of several alternative river sources in Airai-Aimeliik, field investigations found that none of the rivers had adequate capacity. Instead conservation (project components 3 and 4) and groundwater exploitation (project component 2) are proposed.

Water sources: Expanded geological and environmental information is needed to support water resource planning and management. New legislation is needed to protect watersheds along with increased public awareness of water issues. Ultimately, water issues must be fully integrated into land use planning and zoning.

5.4. Land Resources:

Sustainable Land Management

Mauritius Strategy, Chapter 6.1: National strategies should encourage **sustainable land use, more flexible land tenure and a robust system of land management, combating desertification and protecting biodiversity**.

Land use, including sustainable land management, agriculture, and forestry are addressed in Chapter 6 of the MSI. In this report, sustainable land management is included in Chapter 5 as part of environmental resources while agriculture and forestry are addressed in Chapter 7 as part of economic resources. Land management is also a cross-cutting issue that directly impacts all other sectors; strong justification could also be made for including it as a "cross cutting issue" (Chapter 4).

5.4.1. Situation Overview

Land ownership: Land policy in Palau is in transitional from the traditional system of communal ownership to one in which ownership is assigned to individuals on a heritable basis. Titling is underway, and eventually all land will be held in the names of individuals, or groups of individuals, although the process is taking much longer than envisaged because of the large number of complex land disputes to be resolved. Most economists believe this change will be beneficial by: giving land owners incentive to develop their land; making land available for development; and allowing land to be used as collateral.

Land degradation: Palau ratified the U.N. Convention to Combat Desertification (UNCCD) in 1999. While the original text of the UNCCD defined "desert" in a conventional sense, a subsidiary agreement later broadened the definition to encompass all forms of soil degradation. The UNCCD is therefore highly relevant to Palau and other SIDS.

According to Palau's National Action Program to Combat Desertification, climate change and sea level rise constitute the greatest threat to Palau's environment. Land degradation caused by poorly managed development is ranked as the number two threat *(OERC, 2004).* The major causes of land degradation are: (1) lack of land use planning; (2i) poorly managed development resulting from completion of the Compact Road; (3) drought; (4) loss of soil fertility; (5) watershed degradation; (6) spread of invasive weeds; (7i) uncontrolled fires; and (8) unsustainable development activities.

Land use planning: In 2001 the Association of Governors initiated a project to develop land use master plans for each state in Palau; funding was provided by the U.S. Department of the Interior. The output of this initiative was a resource management and development suitability study that indicated the most appropriate use for each tract of land, but fell short of the original intent to prepare land use master plans. In addition, the planning process used by the project relied on teams of highly specialized external consultants; they convened community meetings to solicit input into planning but did little to build the capacity of communities to become informed partners in land use planning. Consequently, many communities still do not understand why formal land use plans are needed and many land owners react negatively to the concept of zoning. More active participation by communities in land use planning will lay a foundation for states to develop and implement land use plans.

Since the 2001 project, the Association of Governors has not resumed efforts to collectively develop master plans, while individual states do not have the technical, financial, and human resources to carry out this work. The exceptions are Koror where a land use plan with zoning has been in effect for several years[9] and Airai where a draft plan was produced in late 2009.

Related activities: In addition to the Association of Governors initiative to develop comprehensive land use plans, other closely related activities are ongoing. Most protected areas are supported by a site management plan; in the case of large protected areas such as Ngeremeduu Bay, these plans are tantamount to area-specific land use plans. Using an ecosystem perspective, the Bureau of Agriculture either has or is in the process of developing: Forest Management Plans, Mangrove Management Plans, and Watershed Management Plans. Watershed planning is also pursued by EQPB and BWA. The constraint to all of these nationally driven planning initiatives is the need to balance the transboundary nature of natural resources with the Constitutional prerogative of states to own and manage their resources.

5.4.2. Actions Taken - Lessons Learned

A $4m, 4-year Sustainable Land Management (SLM) Project funded by GEF through UNDP got underway in 2009. The scope of this project is huge and the process complex as the project must negotiate the delicate balance between a national framework that respects connectivity and state rights. Possibly the greatest value of the project is that it brings all the major stakeholders "to the table" including all sixteen state governments and all the major national government technical agencies whose work touches on land use. Project outputs will include:

- Community visioning exercises to help people think about their desired future, build consensus, and identify actions steps for making vision a reality;
- National land use policy as a framework for sustainable land management;
- State-specific land use plans and zoning laws;
- A development law to authorize impact fees to be assessed on new developments; funds to be earmarked to offset infrastructure, environment, and regulatory costs incurred by government in servicing the new development.

5.4.3. Challenges and Constraints

The environment does not respect individual or political boundaries. Sustainable land management must therefore be a collaborative effort, which is always challenging. It is made more challenging when decisions have to be made without adequate information. Project proponents for example recognize the importance of integrating climate change adaptation into land use management but are constrained by what they feel is inadequate specific information on which to base planning decisions. Inadequate information for action also affects other elements of the project especially since there is no agency in Palau taking leadership in terrestrial research.

5.4.4. Partnerships

Predating the SLM project, there were many local entities engaged in land management including: the 16 state governments and the Association of Gover-

[9] *Although Koror has a master plan and a zoning system, grandfather provisions, exemptions, and lack of enforcement have undermined the system's effectiveness as a tool for sustainable land management.*

nors; the Office of Environmental Response and Coordination; Bureau of Agriculture; Bureau of Marine Resources; EQPB; Environmental Health; PALARIS; Palau Community College-Cooperative Research and Extension; the U.S. Army Corps of Engineers; and the U.S. Department of Agriculture. NGOs and community based organizations involved in SLM include Palau Conservation Society, the Nature Conservancy, Palau International Coral Reef Center, and Babeldaob Watershed Alliance.

While the current SLM project receives most of its funding from GEF (channeled through UNDP-Suva), other international streams of funding or technical assistance come through: SPREP; SOPAC; SPC; ADB; JICA; and offices of the various international conventions that are linked with sustainable land management. In addition, the project is housed within PALARIS and draws extensively from the institutional capacity established within PALARIS with primary funding support from the U.S. Department of the Interior.

5.4.5. Future Directions, 2010-2015

The current phase of SLM will end in 2012. By that date, the goal is to have a national land management policy that supports state-specific land use plans and zoning systems. Legislative and institutional development at both national and state levels will be part of this process as will be human resource development. Along the way, other national goals will be advanced including those for climate change adaptation, biodiversity conservation, water management, waste management, and infrastructure development.

5.4. Waste Management

***Mauritius Strategy, Chapter 3*:** SIDS are encouraged to form regional partnerships to: draw on best practices and develop innovation solutions to **waste management**; seek international assistance in this effort and work to strengthen the control of the trans-boundary movement of **hazardous wastes**, especially through the Basel Convention on Trans-boundary Movements of Hazardous Wastes and Their Disposal and the Wagani Convention (Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Trans-boundary Movement and Management of Hazardous Wastes within the South Pacific Region); promote national, regional, and international cooperation to reduce the quantity of waste disposed at sea; address the issue of oil leaks from sunken State vessels on a bilateral and case by case basis.

Previous sections of this chapter have identified existing public sewage and solid waste disposal systems as threats to biodiversity, land, and freshwater resources. Sewage and solid waste have also been identified as Palau's top two infrastructure priorities needed to facilitate economic development *(Fallon, 2009).* Hazardous wastes, although receiving less attention, are also a growing concern as Palau increasingly becomes a consumer society integrated into the global trading system. At present, waste disposal (wastewater and sewer) is a fully subsidized government service. Improving waste management

in a sustainable manner will require that consumers shoulder at least part of the costs.

5.4.1. Human Wastes (Wastewater)

Situation overview: The 2005 census found only 29 households did not have a flush toilet *(Table 5-5).* Flush toilets, however, may improve the quality of life but still not equate to safe sanitation. One-quarter of urban households and virtually all rural households do not have access to public sewerage systems.[10]

Table 5-5. Access to Improved Sanitation
% of Households, Census Data

	1990	1995	2000	2005
Households with flush toilets				
Urban	59.7%	75.7%	87.4%	99.9%
Rural	12.1%	25.7%	45.9%	99.9%
Total	46.3%	62.9%	77.5%	99.9%
Sewage disposal				
Public sewer			U=75% R= 3%	U=74% R= 2%
Septic or cesspool			U=17% R=49%	U=21% R=75%
Other			U= 8% R=48%	U= 5% R=23%

Note: (1) "U" = urban which in this table, includes only Koror households; "R" = rural; (2) the MDGs equate access to flush toilets with improved sanitation but in terms of environmental protection, the mechanism for treatment/disposal of effluent is a more important consideration.

Koror was the first State to have a central sewage system. There, 48 pumping stations feed effluent into a wastewater treatment plant that uses a "ponding" method of treatment before discharging wastewater into the lagoon. The Koror treatment plant underwent major expansion and upgrading in 2002-2006. More recently 36 pumps were repaired or replaced. Despite these investments, the system remains in "a perpetual state of crisis" *(Townsend, 2008)*. The twelve remaining pumps need to be replaced; many sections of leaking pipes need to be repaired or replaced; moreover the entire system is operating at or beyond peak capacity and will be severely taxed if major new developments come on line. (Note that three new hotels are being developed, a source of great concern to sewer managers).

In Melekeok, a central sewer system serving the community and the capitol complex became operational in 2006. The Melekeok sewer uses a hybrid process in which solids are removed on-site for treatment in septic tanks while wastewater is diverted to a treatment plant where it is treated, and re-circulated back to the community. All other rural states are un-sewered. Wastewater from homes and businesses is treated using individually owned septic tanks, cesspools, pit toilets or, in some cases, composting toilets. Many of these systems can pose significant health hazards due to poor maintenance or inappropriate site selection. Septic tanks and cesspools do not work well in marine clay soils, a common soil type especially prominent in rapidly growing Airai. In other areas such as Peleliu, on-site treatment poses health threats because of high groundwater and residential congestion.

Partnerships: Both Japan and the Republic of China-Taiwan have helped finance sewer development.

[10] *The proportion of rural households with access to public sewerage has increased since the 2005 census. The Melekeok waste water system became operational in 2006. Today approximately 21% of households nation-wide are not served by public sewerage.*

Japan financed the upgrade and expansion of the Koror wastewater treatment plant. The Republic of China-Taiwan financed repair of Koror's sewer pumps. Although Palau is no longer eligible for funding from the U.S. Environmental Protection Agency (EPA), it continues to be eligible for technical assistance. EPA has provided both short-term and long-term technical assistance to improve operations of the Koror wastewater system. Most recently, the Asian Development Bank has approved (November 2009) a technical assistance project funded by the Government of Japan to develop a 25-year wastewater management plan for Koror and Southern Babeldaob; implementation will start in early 2010.

Future directions, 2010-2013: ADB technical assistance will generate a plan for wastewater management in Koror and Southern Babeldaob. Implementation, however, will require substantial ODA capital inputs. Moreover, new development needs to be accompanied by a better strategy for financing, operations, and maintenance. On this point, there is growing consensus that:

- Sewer tariffs are needed in accordance with the "user pays" principle;
- A Development Impact Fee is needed with proceeds earmarked to finance improved or expanded public infrastructure serving new developments;
- Sewer operations need to be corporatized either together with water or together with all public utilities (water, sewer, and power).

5.4.2. Solid Wastes

Situation Overview: Since 2002, there has been progressive improvement in management of solid wastes in Koror albeit little improvement in most rural states. Despite improvements, the Koror landfill is running out of space so that there remains an urgent need for an appropriately-sited national sanitary landfill serving Koror and Babeldaob. The work of identifying an environmentally and politically acceptable site has been ongoing for more than eight years but a viable site has recently been identified between Ngchesar and Ngatpang on Babeldoab. The challenge now will be to identify a funding source (or sources) to underwrite construction and start-up costs; the target date for a new landfill to become operational is 2011.

Actions taken – lessons learned: For most of its life, the Koror landfill, co-operated by the national government and Koror State, has been little more than a public dump. Beginning in 2002 work began to transform the dump into a properly functioning landfill albeit one that remains poorly sited due to proximity to residential and tourism developments and sensitive mangroves. This transformative work was made possible through the cooperative efforts of the National Government, Koror State Government, non-government organizations, community groups, the GEF-funded International Waters Program (administered by SPREP), and the Japan Government (Japan International Cooperation Agency). A part of this project includes a 3-Rs (Reduce, Reuse, Recycle) social marketing initiative that aims to jumpstart a nationwide recycling program. As part of the 3-Rs initiative, a Recycling Program Act was drafted and passed by the OEK in 2006. The Act, to be administered by the Ministry of Natural Resources, Environment, and Tourism, will establish a revolving fund to purchase recyclable wastes for processing offshore. Although regulations for the national scheme have not yet been promulgated, a more modest scheme managed by Koror State is enjoying moderate success.

Outside of Koror, state governments operate their own dump sites, none of which meet the standards for a sanitary landfill. Virtually all are located adja-

cent to or inside sensitive mangroves and are little more than open dumps occasionally bulldozed with a thin covering of soil. Several states have attempted to address their solid waste problem by procuring incinerators but lack technical capacity to design environmentally appropriate projects and to select appropriate technology.[11] This has been a source of conflict and frustration for the states when they have sought and been denied permits by EQPB to operate their incinerators after installation.

Challenges and constraints: Now that the land issue for the National Sanitary Landfill appears to be approaching a resolution, the next hurdle will be financing – initially capital financing and subsequently operational financing. Although there has not been much consideration of the need for a "haulage" or "disposal" charge for solid wastes, some tariff will be needed in line with the "user pays' principle. The Koror State recycling project is working well although recycling has by no means become a universal practice by homes and businesses. A significant constraint on the Koror State scheme that will also impact on the larger national scheme, is the lack of local capacity to process recyclables, the high cost of transporting recyclables for processing off-shore, and the lack of economies of scale to facilitate a market in recyclables.

Partnerships: JICA has been the largest and most consistent supporter of improved solid waste management. JICA has provided both financial and technical support to upgrade the M-dock dump and initiative recycling (metals, plastics, and "green" materials).

Future directions 2010-2015: The short-term priority is to identify capitol funding to prepare a national landfill in central Babeldaob. The landfill will in turn require operating finance probably to be met by a haulage or disposal charge. Closure of the Koror land fill and state dumpsites in accordance with generally accepted environment standards will likewise require funding.

5.4.3. Hazardous Wastes

Situation Overview: Hazardous wastes were not addressed in Palau's 2004 Barbados +10 Review suggesting that this issue had a relatively low profile at that time. At present systems **are** in place to manage:

- Pesticides – permitting of imports and training/certification of users by EQPB;
- Batteries – segregation and stockpiling for shipment off-island also by EQPB;
- Waste oil – segregation and stockpiling for shipment off-island by PPUC.

Other hazardous and chemical wastes have yet to be addressed including consumer goods (household chemicals, electronics, and computer wastes) and industrial wastes. With support from the United Nations, EQPB has launched a two-year project to develop an integrated management strategy for chemical wastes. A task force with representatives from state governments, national agencies, and the private sector has been formed. Currently, the task force is inventorying the types and quantities of hazardous wastes now being imported as a basis for future planning.

The relatively small volume of wastes generated by Palau is a constraint to management because there are no economies of scale that can support a market in the sale and/or recycling of hazardous wastes. Another constraint is that Palau is not a party to the Basel Convention. As a non-party, any off-island

[11] *An incinerator in Airai State received EQPB approval and became operational in January 2010.*

shipment of hazardous wastes requires special country-to-country agreements between Palau and recipient countries.

Future Directions 2010-2015: Work is underway to quantify hazardous wastes imports as the first step toward development of a management strategy. One strategy being considered is a deposit-buy back scheme in which importers take responsibility for off-island disposal of those products that cannot be safely managed locally. This complex process will incur new costs that will ultimately have to be borne by consumers. To gain political support, an aggressive public awareness and education campaign will be needed.

5.4.4. Marine Wastes

Monitoring the quality of coastal waters is the responsibility of EQPB. While EQPB has a regular program of monitoring lagoon water quality at sentinel sites, it responds to point-source pollution on a case-by-case basis.

Vessel grounding: Over the last decade, Palau has had numerous ship groundings – most in the southern lagoon and western reef area adjacent to the main shipping channels. All groundings result in some coral damage and many result in death of algae and invertebrates due to contamination by TBT anti-foulant. Luckily no groundings have resulted in oil spills and most, have had only localized impacts. Although EQPB imposes fines on owners/operators commensurate with the level of damage done, in many cases restoration work has not been undertaken. Better navigational markers and procedures are needed to minimize future groundings *(Williams, 2008).*

Bilge water: This is a concern because bilge water is a potential source of marine invasive species. This is a relatively new issue for Palau. At present, bilge water is neither regulated nor monitored although it is considered during the permitting process for new projects when warranted.

Basel Convention – a lessons learned: An important lesson that Palau has recently learned is that the Basel Convention has immediate practical applications. The Basel Convention was enacted in 1996 to ensure that countries receiving hazardous wastes do so openly and knowingly and have the capacity to manage such wastes. Although intended to prevent dumping of hazardous wastes by industrialized countries in lesser developed countries, the Convention has wider applications.

Palau does not have domestic capacity to dispose of many types of hazardous industrial wastes including transformers containing PCVs. Recently an off-island vender agreed to purchase Palau's used transformers for recycling in the Philippines. The Philippines is a party to the Basel Convention; Palau is not. In order for Palau to ship and the Philippines to receive the transformers, a separate diplomatic agreement is needed. This is a complicated and time-consuming process that has derailed the proposed sale. Consequently, Palau has lost, at least temporarily, the opportunity to dispose of these extremely dangerous wastes that must continue to be managed locally while other disposal options are sought.

Waste discharge at sea: Palau does not engage in the systematic disposal of wastes at sea other than the discharge of treated effluent from the Koror sewage system. Ships are prohibited from discharging wastes (solids or sewage) within a twelve-mile radius of Malakal Harbor but discharge outside the

12-mile radius is legal. There is no systematic monitoring of waste disposal at sea; EQPB responds to complaints on a case-by-case basis.

Oil from sunken ships: There are a large number of World War II vessels in Palau waters, many containing oil. EQPB reports that discharge of oil from these vessels has not thus far been an issue *(personal communications)* but as the ships deteriorate with age, leakage is inevitable. A plan to deal with this problem before it occurs rather than after would be in line with a prudent "no regrets" policy. Derelict ships are from time-to-time scuttled in Palau waters. This requires an EQPB permit; a standard condition of the permit is that oil be removed from the ship prior to sinking.

Marine debris: There are large quantities of goods – especially plastics – washing up on Palau beaches. It is assumed that this reflects careless actions by individuals and in some cases, poor management of coastal landfills, as opposed to systematic dumping of wastes inside the 12-mile limit. There is no strategy for addressing marine debris other than periodic beach clean-ups organized by community groups and local businesses and EQPB response to complaints about illegal dumping on a case-by-case basis.

Future directions 2010-2015: The marine environment is the basis for Palau's tourism-driven economy as well as the livelihood of its citizens. Marine debris pose significant threat to the environment and especially to vulnerable sea life (turtles and dugongs). There is, however, no plan at this time for addressing this issue in a systematic manner.

Chapter 6
Human Resources

Two chapters of the MSI address human development. Chapter 17 addresses health. Chapter 14 addresses education while Chapter 18 addresses the closely related knowledge management and information for decision-making.

Both health and education are prerequisites for and simultaneously, outputs of sustainable development. As this chapter will show, Palau has performed very well in both arenas although many challenges still remain.

6.1. Health

Mauritius Strategy, Chapter 17: SIDS are urged to strengthen their health management and finance systems to: arrest the **HIV/AIDS** epidemic; reduce the incidence of **malaria, dengue**, and **NCDs**, and promote **mental health**; enhance accessibility to effective **pharmaceutical drugs at affordable** prices; actively implement public health policies and effective **prevention** programs in such areas as immunization, reproductive health, mental health and health education; develop effective disease **surveillance** and information sharing on likely outbreaks and build national capacity for rapid response; promote and develop **traditional medicines** and medicinal plants; implement strategic **environmental health** programs including **waste** management, control of **air** pollution and improved **water** quality; enhance **data** collection on demographic and epidemiological trends.

6.1.1. Situation Overview

Health Status: Like many SIDS, Palau faces a "triple-burden" of disease. Aggressive public health measures combined with progressively improving standards of living have reduced the burden of communicable diseases although periodic outbreaks, especially of vector-borne diseases, underscore the need for continuing vigilance. A rapidly growing burden of non-communicable diseases**,** rooted in changing lifestyles, however, threatens to undermine life expectancy, quality of life, and economic productivity. Simultaneously, new disease threats loom as globalization blurs borders and transforms the social environment while development, accentuated by climate change, places new stress on the physical environment.

Health System: Palau's health sector is dominated by government with the 80-bed National Hospital in Koror the focal point for health services. Nine public satellite clinics serve rural populations. Public services are supplemented by those of a small private health sector based in Koror. Patients with complicated conditions that cannot be treated locally are sent overseas for treatment, most to the Philippines,

a smaller number to Hawaii, Guam, and Taiwan. Under the Palau constitution, health services are subsidized by government for all citizens; the rate of subsidy ranges from 5 to 70 percent depending on household income and size and other circumstances. No person may be denied health care because of inability to pay.

Priorities in Health: Following a period of extensive data analysis and community consultation, the Bureau of Public Health has recently completed a Strategic Health Plan (2009-2013) with eight thematic priorities grouped into three clusters.

- Non-communicable diseases - obesity, alcohol abuse, tobacco use, injury and violence, depression;
- Communicable diseases - emerging and re-emerging infections, immunization;
- Healthy settings - healthy workplaces.

Health workforce development is a cross-cutting priority supporting each of the other eight.

6.1.2. Actions Taken - Lessons Learned

The Millennium Development Goals (MDGS) and the Yanuca Declaration on Healthy Islands provide the broad framework for Palau's health development.

> ***Ministry of Health Vision:*** "Healthy People in Healthful Islands of Palau"

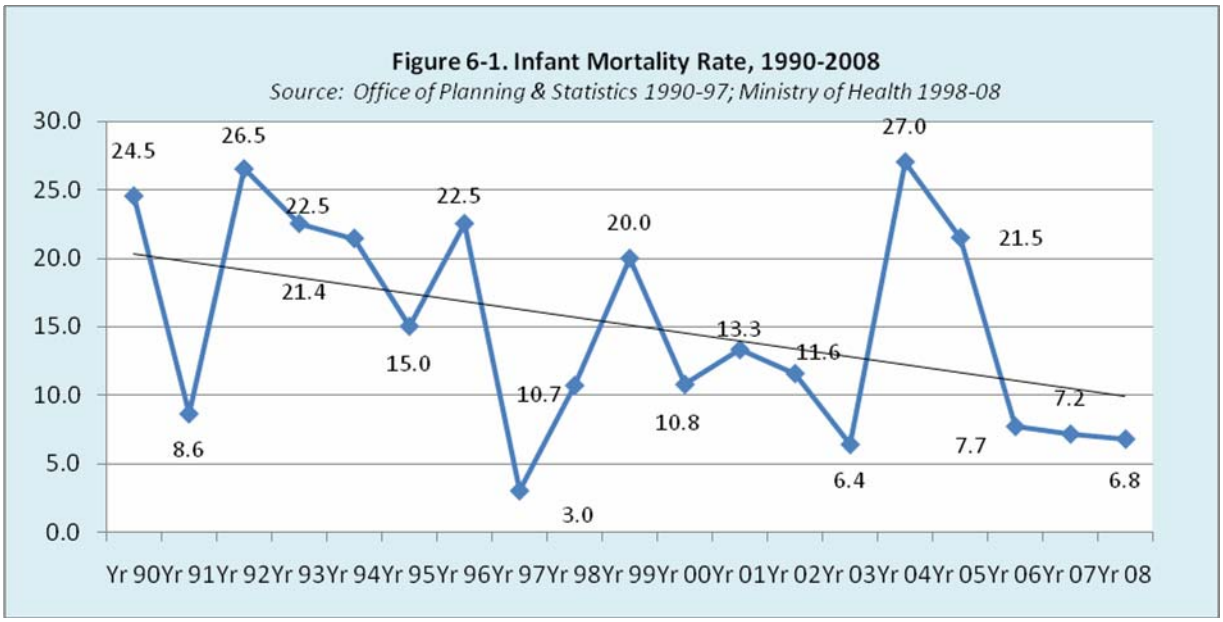
Although the MSI has a relatively low profile in the health sector, all of its elements are being addressed.

Maternal and child health: Although annual rates fluctuate due to the small population, infant mortality rates declined by 72 percent between 1990 and 2008 (from 24.5 to 6.8 deaths per 1,000 live births, Figure 6-1). Over the same period, under-five child mortality rates declined 82 percent. In recent years, virtually all child deaths have occurred during the first week of life and are due to congenital anomalies. Fewer than 10 percent of infants are born with low birth weight (under 2500 grams); extremely low birth weight (below 1500 grams) is rare. Maternal death is also extremely rare. Although one maternal death occurred in 2009, the maternal death immediately preceding this occurred in 1993.

Table 6-1. Palau's Health Transition
Changing Disease Burden 1975-2020

1975-1992	1994-2008	2008-2020
Diseases of Children	**Diseases of Children**	**Diseases of Children & Adults**
• Infections • Skin Disorders • Malnutrition • Injury	• Injury • Respiratory Diseases • Congenital Disorders • Substance Abuse	• Lifestyle related non-communicable diseases • New health threats • Re-emerging diseases
Diseases of Adults	**Diseases of Adults**	
• Infection • Skin Diseases • Respiratory Diseases	• Cancer • Cardiovascular Diseases • Injury	

Source: Dr. S. Kuartei (2006). Presentation before the Compact Review Commission.



Immunization: Palau routinely immunizes infants against nine diseases (measles, mumps, rubella, polio, diphtheria, tetanus, pertussis, Haemophilus influenza type B (HIB), and hepatitis B). In 2008, Palau introduced the human papillomavirus (HPB) vaccine for school-aged girls. The immunization statistic that the MOH routinely monitors is "children fully immunized by 36 months of age." This figure typically ranges between 95 and 98 percent, a consistently high coverage level sustained for over two decades.

Communicable diseases: Although Palau does not have malaria, both ***dengue*** and ***leptospirosis*** are endemic with periodic outbreaks that are costly in terms of health impacts and direct/indirect costs. The last major dengue fever epidemic in 2001 resulted in direct health care costs in excess of $1 million *(M. Sengebau, 2007)*. The Environmental Health Division of the Ministry of Health, in cooperation with state governments, implements an aggressive community health surveillance and outreach program that addresses vector control through community and household sanitation.

Palau experiences relatively high incidence of ***STIs***, especially gonorrhea and *Chlamydia trachomatis,* but has thus far managed to avoid a widespread outbreak of ***HIV-AIDS.*** Since HIV-AIDS testing and surveillance began in 1989, seven cases have been diagnosed; three patients are currently living. WHO classifies Palau's HIV-AIDS pattern as a "concentrated/low-level" epidemic in which HIV is mainly limited to high risk populations and the prevalence of HIV in sentinel antenatal clinics is below 1 percent *(Gold, 2008).* The Ministry of Health in cooperation with community partners is implementing an HIV-AIDS strategic plan that emphasizes: widespread public awareness; targeted engagement of high-risk populations; testing and surveillance; and integration of HIV-AIDS awareness, education, and testing within all health care activities.

Although continuing to be a public health concern, the incidence of ***tuberculosis*** is declining; only one death due to tuberculosis has been recorded in the last two decades; only two cases of drug resistant tuberculosis have been diagnosed to-date. Tubercu-

losis testing and surveillance are integrated throughout the health system. Directly Observed Treatment Short Course (DOTS) was introduced in 1994; since 2004, all tuberculosis cases have been are treated using DOTS.

With progressively improving standards of living, including widening access to improved ***water*** and ***sanitation*** *(reference chapters 5.2 and 5.4),* incidence of ***diarrheal diseases*** has declined and death due to diarrheal disease is rare. ***Respiratory diseases***, including the recent H1N1 influenza epidemic, remain a public health challenge.

Non-communicable diseases: NCDs (cancer, cardiovascular diseases, diabetes mellitus, and injuries) are the leading cause of morbidity and mortality in Palau today. The Ministry of Health has identified four primary risk factors - obesity and overweight; inadequate physical activity; tobacco use; and alcohol abuse – and with its community partner, ***(Ulekereuil A Klengar or UAK),*** has developed a NCD Strategic Plan (now in its second generation) that prioritizes primary prevention.

While physical activity and dietary interventions are integrated throughout the health service system, most physical activity promotion is done by the Palau National Olympic Committee (PNOC) in cooperation with its network of fourteen sporting associations. Life-long participation in sports and physical activity is one of the PNOC goals. Ministry of Health involvement in physical activity promotion will be stepped up in 2010 as part of the "healthy workplace" initiative.

The Ministry of Health's core strategy for NCDs is community empowerment encapsulated in the slogan, "handing informed decisions back to the community…"

Suicide and depression. Although Palau's small population makes it difficult to calculate rates and identify meaningful trends, data suggest that males under the age of 30 are at heightened risk of suicide. Depression, a contributing factor in suicide, appears to be widespread especially among youth and the elderly. For these reasons, depression is one of eight designated priorities in the current public health strategic plan.

Lessons learned – H1NI Outbreak: Coordinated international and regional support was instrumental in helping Palau to address the 2009 H1N1 epidemic. Early warning about the pending outbreak helped the Ministry of Health institute aggressive surveillance, prevention, and containment measures well before the disease began to circulate locally. Clinical advice and access to overseas laboratories helped clinicians provide state-of-the-art patient management. Financial support through the U.S. Centers for Disease Control allowed Palau to institute mass vaccination as soon as vaccine became available.

While many of the same elements of support have been available in past epidemics, the strategic difference in 2009 was coordination and cooperation between the main external assistance agencies – WHO, SPC, and CDC *(Sengebau, 2009, personal communications).*

Traditional medicine: Prior to World War II, Palau had a highly developed system of traditional medicine and midwifery. Although German and Japanese colonial administrators discouraged traditional medicine, it simply "went underground" where it continued to flourish. In the post-war years, however, traditional medicine began to wane as Palauans increasingly embraced "modernity." Despite recent attempts to stimulate dialogue and coopera-

tion between the formal and traditional health care systems the two remain widely separated. Virtually every Palauan knows a little about traditional medicine as some of the plants and preparations are widely used. Beyond this "public" knowledge, however, is the realm of "secret and sacred" – preparations and techniques known only to a select few practitioners whose knowledge is passed on to close family members. The secrecy that has traditionally surrounded this knowledge, is further accentuated by contemporary concerns about intellectual property rights since Palau does not yet have an intellectual property law (although legislation is pending in the OEK, reference Chapter 7.4). Because traditional medicine is held in such secrecy, it is not well researched and there is little objective data on any of its elements - plants, methods, practitioners, patients, etc. Given the pace of social change, there is real risk that much of this local knowledge will disappear with the passing of the current generation of practitioners.

6.1.3. Challenges and Constraints

The major challenge before the health sector is the growing epidemic of non-communicable diseases. This requires a health service response (information and education, surveillance, and treatment) but more important, a whole-of-society response to create environments (at home, village, school, work, and in the wider policy arena) conducive to good health and healthy lifestyles. Another challenge is to respond effectively to "new" disease threats of which there have been several in recent years (dengue, SARS, avian flu, and most recently, H1N1 flu).

Beyond these challenges, the health sector faces institutional challenges including:

- Health services - facilities operation and maintenance; integration of care;
- Health workforce – shortages in nursing, dentistry, and allied health; under-training of the current workforce; potential recruits who are undertrained in the sciences;
- Knowledge - information management; use of data in decision-making;
- Supplies - underfunding of drugs and supplies; cumbersome government procurement systems; cash flow constraints on ordering in the national treasury;
- Funds - reliance on grants to fund core services; funding "holes" (non-communicable diseases, drugs and supplies, capital improvements); difficulty in enforcing fee schedules; delay in finalizing a national health savings plan (before

Health workforce development: Health workforce development includes recruitment and training of new health workers, development of career lattices in support of professional development, and in-service training to ensure that the health workforce keeps abreast of new developments. One of the problems encountered is that most in-service training is grant funded and comprised of short-term courses that range from a few days to a few months with a certificate issued at the end. Workers who complete in-service training are often given new responsibilities but no additional salary because the Public Service System does not recognize these short-term trainings. In partial response, the Ministry of Health is partnering with PIHOA (Pacific Island Health Officers Association) and Palau Community College to develop an associate degree program at the college in public health. The Ministry will be encouraging all external agencies wanting to offer/fund in-service training to do so using the College and the public health program as the portal. In this way, health workers will receive "credit" for their training. Since similar problems in workforce development are found government-wide, the developing health model may be useful in other sectors.

Congress since 2007);

- Leadership and governance – need for a "whole of society" approach to address the underlying causes of ill-health; need to strengthen middle management and build the capacity of community partners.

6.1.4. Partnerships

The MOH has a long-standing partnership with the ***U.S. Department of Health and Human Services (DHHS)*** that provides both direct financial support (in the form of Federal grants) and in-direct financial support (in the form of grants or contracts channeled through U.S.-based institutions such as universities, research foundations, and similar bodies). In FY 2007, MOH received 31 direct Federal grants with an average value of $180,000. In addition to financial support, federal agencies, especially the United States Centers for Disease Control (CDC), provide substantive technical assistance.

The MOH also has a long-standing partnership with the ***World Health Organization (WHO).*** WHO provides valuable technical and training assistance through a biennial budget process that allows the MOH considerable latitude to identify and address national priorities. WHO support has been particularly valuable in linking Palau with the global public health community whose technologies and strategies are sometimes more appropriate to Palau's situation than those drawn from the United States.

UNFPA (United Nations Fund for Population Activities) provides contraceptive supplies that supplement those obtained through U.S. Federal grants. Other agencies of the United Nations provide occasional support to the Ministry including ***UNICEF*** (United Nations Children's Fund) and ***UNDP*** (United Nations Development Program). The value of actual cash/supplies provided by the U.N. agencies is low because of Palau's high per capita GDP. A more recent multi-lateral partner is the ***Asian Development Bank***. Although not yet a beneficiary of direct financial aid from ADB, the Ministry has received valuable technical advice in the area of health care financing.

The MOH has a number of bilateral partners. The ***Republic of China-Taiwan*** provides technical, training, and material support and has created a "sister" relationship for training purposes between Belau National Hospital and designated Taiwan hospitals. Taiwan also provides occasional support for tertiary care by arranging treatment for Palauan patients in Taiwan facilities. Beyond direct support for health, Taiwan is a major source of technical and financial assistance for agriculture that directly benefits Palauan-owned small farms. With time, this assistance may address food security issues and help to lower the prevalence of NCDs *(reference chapter 7).*

Japan is another valuable bilateral partner providing support for infrastructure (physical facilities and equipment) and technical assistance in the form of JICA (Japanese International Cooperation Agency) volunteers and experts. Several other bilateral donors provide occasional support.

While the ***Republic of the Philippines*** does not provide financial assistance to Palau, as the recipient of the majority of Palau's medical referral patients, it is an important health partner. The Philippines is also the primary source for recruitment for skilled health professionals needed to fill gaps in the local workforce.

Within the Region, the MOH works closely with the ***Secretariat of the Pacific Community (SPC).*** Assistance from SPC is primarily in the form of technical assistance and training support. It is also through SPC that Palau accesses the Global Funds (HIV-AIDs

and Tuberculosis). Both funds are valuable adjuncts to Federal and local monies although are somewhat narrow in their single-disease focus.

As part of its regional and global partnerships, Palau is party to several conventions, treaties, and agreements that impact health. In 1995, Palau ratified the International Convention on the Rights of the Child and has submitted its first status report to the monitoring commission although a second report is now overdue. Palau has not yet ratified the complementary CEDAW (Convention on the Elimination of All Forms of Discrimination against Women) although discussion about the merits of ratification continues with Palau's women's organizations.

Palau is a party to the ***Framework Convention on Tobacco Control*** and the ***International Convention on the Marketing of Breastmilk Substitutes***. Palau is also a party to numerous non-binding regional agreements on health. Of these, the ***Yanuca Declaration on Healthy Islands*** (1997) has probably had the most far-reaching impact locally.

Lessons learned – impact of international agreements: The local impact of regional agreements and international conventions on health is mixed. In general, agreements and conventions can be valuable tools for policy advocacy when they have a strategically positioned local advocate. Without a local advocate or with a local advocate not positioned to act, agreements and conventions are often "paper documents" with marginal impact.

6.1.5. Future Directions, 2010-2015

With the vision, "Healthy People in Healthful Islands," the Palau MOH embraces an ecological approach to health development that defines health to include: fit and active individuals; loving and supportive families; strong and safe communities; spiritual individuals, families, and communities; a healthy environment; a health-minded social and political environment; and effective, efficient health services *(adapted from PHSP, 2009, p. 5).* To achieve its vision, the Ministry strives to: address social, environmental, political, and economic determinants of health; empower communities, families, and individuals; build strong partnerships across sectors; and deliver high quality health care services at a cost affordable to individuals and the nation. Eight thematic priorities were identified in the Public Health Strategic Plan (2008-2013) together with an institutional road map comprised of six priority actions:

- Broaden the definition of health and address social-economic determinants of health;
- Create a working environment within the Ministry that supports employees' health;
- Coordinate outreach and speak to the community with one consistent voice;
- Prioritize decisions based on data;
- Become more self-reliant;
- Increase efficiency and align all programs with the Ministry's vision and priorities.

6.2. Education for Sustainable Development

Mauritius Strategy, Chapter 14: SIDS are urged to resolve challenges in **education & training** through a more integrated & inclusive educational planning that involves all major groups in society and encourage improved access & quality of education for all. SIDS should support the efforts of respective ministries of education; promote accessible **universal primary education** and encouraging **gender equality** with emphasis on reducing **illiteracy**; promote **technical and vocational education** to facilitate entrepreneurship for the pursuit of sustainable livelihood; strengthen distance education; integrate **NSDS and environmental** education within the education system; build and **maintain** basic education infrastructure, curriculum development, teacher training, and develop an integrated gender perspective, strengthen training and teaching of the principles and practices of good governance at all levels, develop programs for people with **special needs** especially children and youth; and protect human rights.

6.2.1. Situation Overview

Palauans traditionally value education. In the 1920's, nearly 90% of children attended schools established by the Japanese colonial administration, a participation rate far higher than in other parts of Micronesia. The importance that Palau as an independent nation places on education is reflected in a constitutional mandate for the national government to provide free public education (grades 1-12) for all citizens, legislation mandating school attendance for children 6-17 years of age, ratification of the International Convention on the Rights of the Child in 1995, and high levels of expenditure on education equivalent to 11% of GDP (FY 2007 data).

Palau's education system is modeled after the United States. Facilities include 17 pre-elementary schools (preschools and kindergartens), 20 elementary schools (grades 1-8), 6 high schools (grades 9-12), two adult high school programs, a community college, vocational-technical training programs, and scholarships to assist students attending post-secondary training institutions. While government, through the Ministry of Education, is the leading force in education, Palau has a vibrant private education sector. 18% of elementary students and 38% of high school students attend private schools *(MOE, 2007).*

The Ministry of Education, in cooperation with stakeholders, has prepared a series of ten-year master plans for education, the most recent for the period 2006-2016. This plan strives to improve student achievement and quality of instruction by: improving teacher training and certification; up-grading school facilities; improving school governance; strengthening student support services; and making curriculum more relevant. While the 2006-2016 plan does not explicitly address school enrollment, the implicit goal is to ensure that every child receives 12 years of good quality basic education.

6.2.2. Actions Taken - Lessons Learned

Access and participation: With elementary schools located on every inhabited island and within commuting distance of every village on the main archipelago, Palau has achieved universal access to primary education and near universal participation

MOE Vision: Our students will be successful in the Palauan society and in the world.

(Table 6-2).

With the Compact Road opened around Babeldaob, 95% of children live within daily commuting distance of a high school. For children from outlying islands, the practice is for them to board with extended family in Koror while attending high school.

Gender: Girls and boys have equal access to schooling and there are no socio-cultural impediments to educating girls/women. There are more girls than boys enrolled in secondary school and in post-secondary institutions. Figure 6-3 demonstrates how the female-male gap in post-secondary education has narrowed and all but closed over the last twenty years. The only gap remaining is a small gender differential at post-graduate levels.

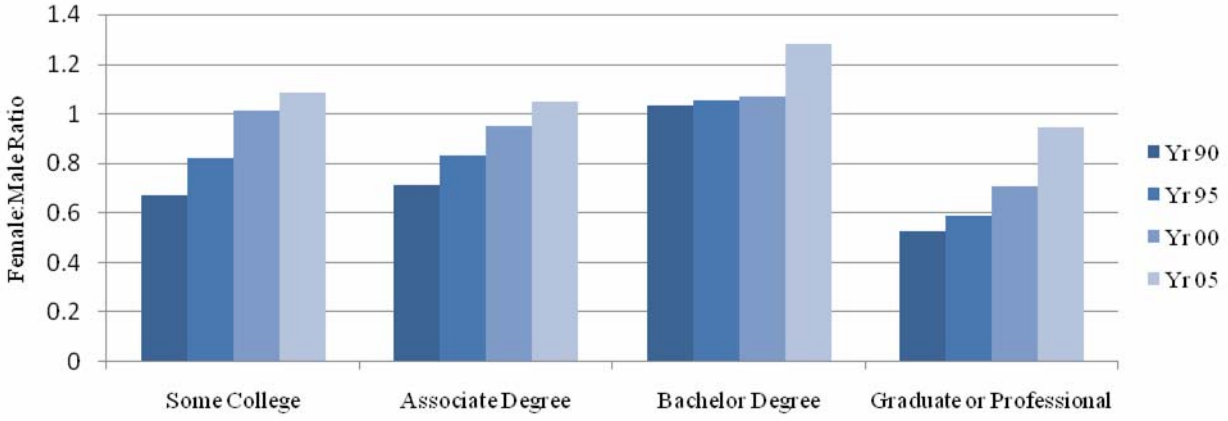
Children with special needs: As of June 2008, there were 342 children and school-aged youth identified by the Ministry of Health as having special health care needs. Of this number, 189 also had special education needs and were served by the Ministry of Education Special Education Program. For each special education student, an individualized education plan is prepared in consultation with parents that identifies the services needed to manage the child's condition. These services may include: special health services; special education services for all or part of the school day; transportation; physical and occupational therapy; assistive devices; and family counseling and support. Although mainstreaming within the regular classroom is the strategy of choice, a small number of children (15 in June 2008) require segregated services in special classrooms or at home. Special education services are funded by a U.S. grant and are provided without charge to the child and

Table 6-2. Key Education Indicators at a Glance

Indicator	SY 1989-90	SY 1994-95	SY 1999-00	SY 2004-05	Source
Gross enrollment ratio – primary (grades 1-8)	n.a.	113%	115%	100%	MOE
Gross enrollment ratio – secondary (grades 9-12)	n.a.	86%	94%	94%	MOE
Net enrollment ratio – primary (grades 1-8)	n.a.	n.a.	n.a.	85%	MOE
Net enrollment ratio – secondary (grades 9-12)	n.a.	n.a.	n.a.	66%	MOE
Primary survival rate (proportion of students starting grade 1 who will reach grade 8)	n.a.	n.a.	n.a.	93%	MOE
Ratio of girls to boys in primary school	n.a.	n.a.	0.91	0.91	MOE
Ratio of girls to boys in secondary (high) school	n.a.	n.a.	0.98	1.23	MOE
Population-adjusted ratio of women to men with post-secondary education *(ethnic Palauans 25+ years of age with at least some college education adjusted for the proportion of females-to-males in the population)*	0.75	0.86	0.98	1.11	Census
Literacy rate (persons 15-24 years of age)	n.a.	n.a.	99.0%	99.7%	OPS
Literacy rate (males 15-24)	n.a.	n.a.	98.8%	99.6%	OPS
Literacy rate (females 15-24)	n.a.	n.a.	99.3%	99.8%	OPS

Primary data sources are shown in Column #6; the table as a whole is extracted from Palau's first MDG report prepared under the auspices of the Palau Ministry of Finance in December 2008 and published by UNDP-Suva.

Figure 6-3. Female-to-Male Ratio in Higher Educational Attainment
Ethnic Palauan Residents 1990-2005
(Census Data)



his/her family.

Technical and vocational education (TVET): In the 1960's through the Micronesian Occupational College, Palau was the leader in TVET in the Micronesian Sub-Region. Later, when the Occupational College became Palau Community College and students began to favor academic subjects, TVET became overshadowed by other career pathways. As Palau's labor profile has changed with growing demand for trade skills, TVET is now receiving higher priority. Palau High School requires all of its 800+ students to enroll in one of six vocational tracks while PCC offers eleven TVET tracks. Other TVET opportunities include: (a) a one-year on-island vocational training program in 12 construction-related fields provided by the U.S. military Civic Action Team; (b) access to U.S. Job Corps training; (c) practical training through attachments or internships through the Workforce Investment program (funded by the U.S. Department of Labor); (d) entrepreneurial training provided by the Small Business Development Center (also funded by the United States Department of Labor). All of these programs impart valuable skills and work force entry opportunities. Only two of these programs, however, are articulated with one another (construction and automotive technology at Palau High School are articulated with the same programs at Palau Community College) and none are linked to any formal trade certification or apprenticeship scheme. A recent review by the Forum Secretariat (2008) recommended a $4.8m investment to re-establish a Micronesia Sub-Regional TVET Center at PCC, strengthen TVET instruction in secondary schools, and introduce TVET into elementary schools.

Education for NSDS: The Palau curriculum is organized around five core subjects – English, Palauan studies, mathematics, science, and social studies.

> ***Lessons learned:*** TVET development is not just about classrooms and teachers. Rather, a comprehensive workforce development strategy is needed that addresses attitudes and perceptions of prospective students and prospective employers. In addition there is need to reform labor laws and policies to ensure that Palauan workers enjoy a "level playing field" and have access to career-oriented employment opportunities that pay "living wages" with opportunity for advancement.

Environmental studies are integrated into Palauan studies, science, and social studies. Governance is integrated into both Palauan studies and social studies.

6.2.3. Challenges & Constraints

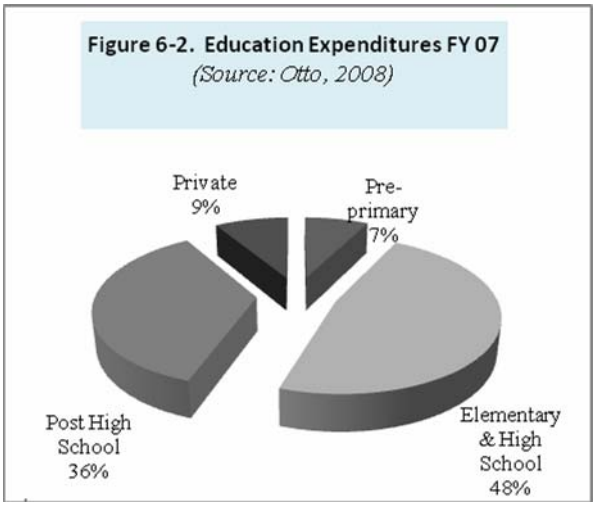
Although Palau invests more in education than do many other SIDS, funding levels have declined by more than one-third since 1996. This creates a challenging fiscal environment for educators. Challenges and issues identified in 2008 as part of an ADB-sponsored planning project are listed below *(Otto, 2008).*

- ***Pre-primary education:*** only 75% participation rate by age-eligible children; high costs per student; and dependence on a single external funding source (a U.S. federal grant);
- ***Primary and secondary (grades 1-12)***: too many children leave school before graduation, many of these are "push-outs" who leave because there are no alternative facilities/programs for those who cannot or will not conform to the rules of a regular classroom; disappointing student performance as measured by standardized tests; difficulty recruiting, training, and retaining teachers; high per pupil costs especially in very small rural schools; inadequate parent support for students, teachers, and schools;
- ***Post-secondary education – Palau Community College:*** slow progress in capitalizing a trust fund that will strengthen financial sustainability and political independence; need for progressive upgrading of academic standards; need to improve facilities and develop new programs in study according to market demand;
- ***Post-secondary education – scholarships:*** need to improve graduation rates and channel students into priority fields of study while critically examining options for serving more students at less cost;
- ***Technical-Vocational Education:*** need for articulation between existing programs and a Palau trades apprentice and certification scheme; need to address wider labor force issues that make it difficult for Palauan workers to find jobs that pay a living wage.

6.2.4. Partnerships

In FY 2007, Palau spent $19.1m on education including: $1.7m from private out-of-pocket expenditures; $9m from OEK appropriations; $4.6m from U.S. Federal grants; $2.0m in special COFA assistance earmarked for the community college; and $1.8m in other external assistance *(Otto, 2008)*. As a sector, education represents the single largest expenditure item in the national budget outside of general government administration. Despite this substantial level of investment, the Ministry of Education reports significant underfunding *(Otto, 2008).*

Figure 6-2. Education Expenditures FY 07
(Source: Otto, 2008)



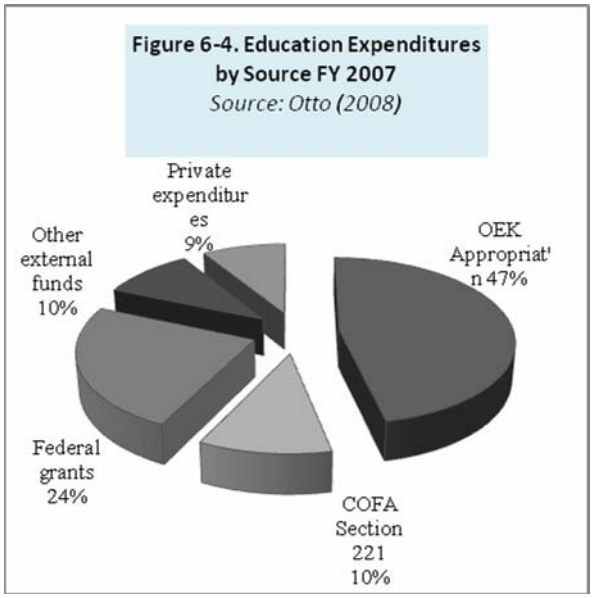


Figure 6-4. Education Expenditures by Source FY 2007
Source: Otto (2008)

Palau lost access to a number of U.S. Federal program grants shortly after independence. Although there was partial compensation for this loss by the addition of a new Education Grant Program for the Territories and Freely Associated States (FAS), the total FAS grant allocation is less than pre-independence categorical grants. Consequently, bilateral and multilateral assistance has become increasingly important. Japan is a valuable bilateral partner. The JICA program includes financial and technical assistance earmarked for: math and science; vocational and technical training; educational television; and school transportation. Through the JOCV (Japanese volunteer) program, math and science instructors are placed directly in schools to work with students and teachers. The United States (through the Peace Corps program) provides similar in-school technical assistance targeting English and reading instruction. The Republic of China-Taiwan assists with facilities improvement and has indicated that education will receive a greater share of their bilateral assistance beginning in 2010.

The Pacific Resources for Education and Learning (PREL) center in Hawaii is an important source of indirect funding, training, and technical assistance. PREL is one of 10 regional technical centers funded by the U.S. Department of Education. PREL's program of work evolves according to the needs of the seven U.S. affiliated jurisdictions that it serves. PREL sometimes serves as a consulting agency for the Palau Ministry of Education (providing contractual services funded by Palau). In other cases, PREL serves as a conduit for Federal and private foundation funding that Palau cannot access independently. Current PREL priorities include: teacher training; reading and literacy; mathematics; arts and humanities; evaluation; data management; libraries and museums; and parent education.

As a member of the Pacific Forum, the Ministry of Education participates in biennial Pacific Education Ministers' Meetings and receives technical and modest program assistance through the Pacific Education Framework (formerly Pacific Basic Education Action Plan). Other multi-lateral assistance comes from the Pacific Regional Initiatives for the Delivery of Basic Education (PRIDE), a project co-funded by the European Union and New Zealand and implemented by the Pacific Forum. Palau is not a member of the two major specialized regional organizations for education - South Pacific Board of Educational Assessment and University of the South Pacific. Through the Forum, Palau is able to participate in SPBEA and USP activities of relevance. Inter-Pacific collaboration in education is hampered because systems in the north (including those of the FSM and RMI) are modeled after those of the United States while systems in the south are modeled after those of Australian and the U.K. The two systems are very different so that it is difficult for a single program or agency to provide assistance appropriate to all Pacific Island countries. Palau is a member of UNESCO and has an active UNESCO National Committee. Most of UNESCO's work in Palau, however, focuses on culture and science rather than education.

6.2.5. Future Directions, 2010-2015

Every child (boy and girl, citizen and non-citizen) in Palau has access to twelve years of free public education. The focus locally is improving quality of instruction and enhancing efficiency while continuing to reduce drop-out and repetition rates. A ten-year master plan for education is in effect and serves as the "road map" for the institutional development of the Ministry of Education and the sector. Addressing financial shortfalls is one of the sector's medium-term priorities in order to redress the annual operating shortfall (estimated at $2m), attract new one-time project resources ($3m estimated deficit for the 2006-2016 plan period), and attract new capital resources (approximately $18m in new capital spending needed inclusive of funds to capitalize the PCC trust fund).

Chapter 7.
Economic Growth

Agriculture (including forestry), fisheries, and tourism have been repeatedly identified as "engines" for Palau's economic growth and future prosperity. These "engines," however, must be supported by sound, efficient infrastructure, an increased flow of private investment, and an efficient government administration. The (draft) Medium-Term Development Strategy (Actions for Our Future, 2009), recommends a number of measures to:

- Improve government's fiscal sustainability, overall performance, and management of public services and infrastructure;
- Expand access to land for development;
- Improve the labor market;
- Eliminate barriers to foreign investment;
- Strengthen financial services;
- Improve the legal environment for business;
- Build capacity of state governments;
- Improve public sector planning, monitoring, evaluation, and budgeting systems.

Most of these recommended measures fall under the general category of "good governance," a priority of the Pacific Plan that is not addressed in any detailed in the MSI. Good governance, however, is widely recognized as essential for sustained economic growth and protection of basic human rights.

In keeping with the MSI, this chapter focuses on the three productive sectors – coastal resources and fisheries (MSI Chapter 4), agriculture and forestry (MSI Chapter 6 part B), and tourism (MSI Chapter 8). Also included here is discussion of culture which the MSI addresses as an economic resources instead of a social resource (MSI Chapter 19). The final section in this chapter looks at trade (MSI Chapter 13), important in a rapidly globalizing world for increasing economic returns from the productive sectors.

7.1. Coastal and Marine Resources

Mauritius Strategy, Chapter 4: The management of SIDS' **Coastal & Marine resources** is integrated into the broader ocean management strategies under the **UN Convention on the Law of the Sea** framework. To overcome the many constraints to managing their resources in line with the Law of the Sea, SIDS need to: give priority at all levels to ocean issues including **fisheries**; complete delimiting their **maritime boundaries**; submit any claims to the Continental Shelf Commission by 13 May 2009; assess their **living and non-living seabed resources**; establish effective monitoring, reporting, and enforcement and control of **fishing vessels**; eliminate illegal and unregulated fishing and manage fishing capacity; strengthen and develop **responsible fisheries management mechanisms** in line with the UN Code of Conduct for Responsible Fisheries; build SIDS capacity to meet their obligations under interna-

tional law and discourage the use of **shipping registry and flags of convenience. Distant water fishing nations** are encouraged to provide SIDS with adequate technical and financial support to enable them to manage their fisheries resources including conservation and protection of their marine resources.

Palau's marine resources include 1,706 km^2 of reefs, lagoons, passes and mangroves, 70 marine lakes, and a 616,000 km^2 EEZ. The country's marine ecosystems have the highest diversity of reef fish species within Micronesia. At least 270 species are used for food; 250 species are sold in the aquarium trade; and 100 species have medicinal uses *(OERC, 2004).*

7.1.1. Domestic (In-shore) Fisheries[12]

Situation overview. The in-shore fishery industry in Palau is a dynamic, multi-species industry involving individual fishers feeding their families, providing food for traditional customs and selling to commercial markets, restaurants and selective buyers for export *(Marino, et al, 2008).* Between 1989 and 1998, Palau's total inshore fisheries production was estimated at 2,155 metric tons (mt) from 1,000 fishers with 800 boats *(Marino, et al, 2008; TEI, 1999).* An estimated 400mt (19%) was exported either directly by the fishers, residents or through retailers and wholesalers. An estimated 1,715mt (81%) was consumed locally *(Marino, et al, 2008; TEI, 1999; PCS, 2000).*

The goal of fisheries management is to sustain the resource over time. This requires good data by species and by location or alternately, a good system of sentinel indicators. In the 1970's and 1980's when the government-operated Palau Federation of Fisheries Association (PFFA) cooperatives was operational, good data was generated on fish sold in the domestic market. (These data did not include data on fish consumed directly by fishers' families). After the demise of PFFA (circa 1997), data from market outlets has been generated only sporadically. The only legal reporting obligation applies to fish exports; local markets report voluntarily. Marino (2008) reports that between 30% and 85% of market outlets report in any given month. While sentinel sites on the reefs have been identified for surveillance, most sentinel sites are established to evaluate the impact of specific management practices such as protected area designation. Data from these sites may not reflect the overall state of coastal fisheries.

Given all these caveats, what can then be said about the state of coastal fisheries? Quantifiable data compiled by the Bureau of Marine Resources has been compared for the periods 1992-1997 and 1998-2001. These data show a decline in nine of fourteen states for which there are data *(Marino, et al, 2008; TEI, 2003).* Qualitative data compiled by Palau Conservation Society (PCS) based on catch-by-effort also indicates declining yield *(Table 7-1).*

Decline in catch may reflect a deteriorating state of the resource caused by habitat destruction or overharvest. It may also be caused by extraneous factors such as fisheries management policies, level of enforcement, weather, and the price of fuel. On a positive note, declining production may reflect bet-

[12] This section draws from two primary sources. (1) Lindsey, S. (2008). Aquaculture and Fisheries Sector Review. Prepared as part of the Medium Term Development Strategy Project supported by Asian Development Bank (TA 4929-PAL and implemented by PINZ of New Zealand; (2) Marino, S., Bauman, A., Miles, J., Kitalong, A., Bukurou, A., Mersai, C., Verheija, E., Olkeriil, I., Basilius, K., Colin, P., Patris, S., Victor, S., Andrew, W., Golbuu, Y. (2008). The State of Coral Reef Ecosystems in Palau. NOAA. The two primary sources agree in their broad description of inshore resources, fisheries, and threats. The reports differ in their quantitative estimates of production. This author has chosen to use the Marino report as the more authoritative source when there is a conflict between the two sources.

ter management regimes that prevent unsustainable harvest. The impact of climate change on fishery productivity is unclear. The widespread die-off of corals associated with the 1997-98 ENSO undoubtedly had a short-term impact on fisheries; it is less certain how this has affected productivity over the longer-term.

Another factor influencing yield is the paucity of direct support available now to small scale fishers. Beginning in the 1970's and continuing until 1997, Palau had a vibrant network of community-based fishing cooperatives that assisted fishers by providing short-term capital at favorable interest rates, providing community-based infrastructure, and supporting marketing. Cooperatives were partially funded by sale of catch and partially by government subsidy. In 1997, the OEK rescinded the subsidy. Since then, virtually all cooperatives have ceased to operate. Each fisher is now on his/her own to organize inputs and market catch; this is expensive, especially for fishers in remote islands, and most fishers lack easy access to credit. Lenders generally consider small scale fisheries to be high risk and most fishers do not have collateral assets.

Actions taken - lessons learned: One response to perceived declining coastal stocks has been the protected area network *(reference chapter 5.1).* PICRC consistently finds a three-to-six fold increase in the abundance of edible reef fishes and a concurrent increase in diversity of species following establishment of a well-management marine protected area. This finding is consistent with international experiences *(OERC, 2004).*

There is some interest in re-establishing fishing cooperatives. A bill now before the OEK would reserve a portion of (off-shore) fishing access fees for this purpose. The same bill also seeks to reserve in-shore fisheries exclusively for subsidence fishing by Palau citizens.

Table 7-1. Indicative Changes in Fish Catch

		8-10 years ago	2004
Kayangel		500-700 lbs/day	100-200 lbs/day
Ngarchelong		300-400 lbs/day	100-150 lbs/day
Ngardmau	Chum	4000 lbs/day	1000 lbs/day
Ngaremlengui		80-90 lbs (minimum)	80 lbs (maximum)
Ngchesar	*Kesokes*	200-300 lbs/day	50 lbs/day
	Reef fish	100 lbs/trip	Less than 100 lbs/trip
Ngiwal	Gillnets	500 lbs/day	10-20 lbs/day
Peleliu	*Kesokes*	300 lbs/day (maximum)	50 lbs/day (maximum
	Spear-fishing	50 fish/trip	15 fish/trip

Source: Palau Conservation Society. 2003. Community Consultations on Marine and Terrestrial Resource Use. National Biodiversity Strategy and Action Plan, Office of Environmental Response and Coordination.

Challenges and constraints: A number of challenges have been identified that affect inshore marine productivity *(Lindsey, 2008):*

- Conflicts between user groups (conservation versus exploitation, commercial versus subsistence; fisheries versus tourism, etc);
- Unsustainable harvest of species with high economic or cultural value;
- Degradation of foreshores and reef areas by poor land use practices and habitat destruction;
- Weak compliance with and enforcement of conservation laws and regulations;
- Management of data;
- Need for alternative livelihoods for fishers in the tourism sector (thereby giving fishers a greater economic incentive to support and comply with conservation measures) or in off-shore fisheries.

Overlaying these challenges is the specter of climate change with its potential to significantly alter in-shore marine ecosystems.

Partnerships: The Bureau of Marine Resources is the lead government agency for developing and managing in-shore marine resources in cooperation with state governments who own the resource to a distance of three miles from the high water mark. The Bureau is assisted by domestic and international NGOs including: Palau International Coral Reef Research Center; Palau Conservation Society; Palau Coral Reef Research Foundation; and The Nature Conservancy.

Among the multilateral assistance agencies, the Food and Agriculture Organization of the United Nations (FAO) and the Secretariat of the Pacific Commission (SPC) are major technical assistance partners and conduits for funding. Among Palau's bilateral partners, Japan (through JICA) has been a long-standing source of technical and financial assistance.

Future directions, 2010-2015: Lindsey (2008) recommends several short-to-medium term priorities for coastal fisheries development: a coherent policy and legislative framework to balance the needs of all users (fishers, tourisms, conservationists, etc) and resource owners (state governments and the national government); improved human and financial capacity within the Bureau of Marine Resources to lead the coastal fisheries subsector; increased support for fishers including assistance in diversifying their incomes through tourism and off-shore fishing. All of these actions require a better monitoring regime at least for key species. Because market data are subject to many extraneous factors, a network of sentinel sites collecting objective data may be the preferred method of monitoring the health of coastal resources.

7.1.2. Aquaculture [13]

Situation overview: Palau has been involved in aquaculture for more than 35 years beginning in 1973 when the Micronesia (now Palau) Mariculture Demonstration Center was established. Pioneering work conducted there developed the technology for farming the giant clam. The Mariculture Center continues operation with a focus mainly on giant clams. A new center for aquaculture research has been established in Ngaremlengui (at laboratories located on the extension campus of PCC) and a new center of production established in Ngatpang.

At present the Bureau of Marine Resources produces clam seedlings (2 million produced in 2008) that it distributes to private producers (40 in 2008) who grow the clams to market size. Producers are organized through the Palau Aquaculture & Clam Association (PACA) and there is discussion about privatization of the clam operation with PACA assuming government's role as a producer of seed stock *(Slee, 2007).*

Coral culture (hard and soft) provides sustained economic benefits through the successful development of two Palau based commercial aquarium companies. Milkfish is enjoying commercial success in providing baitfish for Palau's domestic-based long line fishing vessels; surplus stock is sold for food in the domestic market. Other products believed to have good commercial prospects over the medium-term include mangrove crabs, groupers, and rabbit fish.

Aquaculture is promoted as an important national development sector and an alternative livelihood

[13] *This section draws from: Lindsey, S. (2008). Aquaculture and Fisheries Sector Review. Prepared as part of the Medium Term Development Strategy Project supported by Asian Development Bank (TA 4929-PAL and implemented by PINZ of New Zealand*

and income generating opportunity. Although the industry has received extensive government and donor support, support has largely focused on biological issues (research and demonstration); less attention has been given to entrepreneurship.

Purpose of aquaculture: With increasing population and tourism and declining production of inshore fisheries, aquaculture is the key to sustainably meeting the demand for aquatic food in the next decade. The Bureau of Marine Resources is responsible for creating an enabling environment supportive of aquaculture. The Bureau receives assistance in research and development from the extension services of Palau Community College.

Challenges and constraints: Aquaculture has significant potential to promote Palau's environmental, food security, livelihood, and tourism objectives but faces a number of challenges. The industry will require continued national and donor support over an extended period of time to realize its potential. A (draft) National Aquaculture Strategy and Development Plan (NASDP) identifies priority actions

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- Develop the policy, legislative, and regulatory framework for aquaculture;
- Improve existing operations;
- Support development (research, trials, and extension);
- Develop environmental management and monitoring policies and procedures;
- Develop Land use planning and zoning guidelines for aquaculture;
- Protect native species and ecosystems from harm by developingof laboratory facilities and quarantine regulations;
- Strengthen institutional and human capacity within government and the private sector.

Partnerships: Palau's main technical assistance partner for aquaculture development is the Food and Agriculture Organization of the United Nations (FAO). Financial and technical support has also been provided by bilateral donors including: Japan, Republic of China-Taiwan, and Spain.

Future directions, 2010-2015: The immediate priority is to finalize, adopt, and implement the NASDP.

7.1.3. Offshore Fisheries

Situation Overview: Palau's EEZ contains significant fishery resources but due to its location on the periphery of the Pacific tuna fishing grounds, catch rates are variable and relatively modest when compared to those of other Pacific Island countries with larger and more centrally located EEZs *(Rodwell, FFA, 2007).* Additionally, monitoring data show that the greatly prized bigeye and yellowfin tuna stocks in Palau waters and the Region are under severe stress.

Skipjack tuna stocks, however, are healthy; the Pacific has the last of the world's commercially exploitable reservoir of skipjack so distant water nations are now clamoring for Pacific fishing rights *(personal communications).*

Goal: There is agreement that the goal for Palau's off-shore fishing industry is higher revenues while maintaining fish extraction rates at sustainable levels. There is much less agreement about how to achieve this goal although some innovative strategies are being proposed now for maximizing revenue from skipjack fisheries using an OTEC (Organization of Tuna Exporting Countries) model.

Bilateral fishing arrangements, including agreements with three locally-based joint venture companies, govern the harvest of yellowfin and bigeye tuna. These fisheries use long line techniques, Chinese or Taiwanese vessels, and export their catch chilled for the Japan sashimi market. Multilateral fishing agreements govern the harvest of skipjack tuna and allow up to 50 purse seiners to operate in Palau's

waters. Palau does not have port facilities to allow these vessels to dock; their catch is off-loaded in distant ports. Palau's average annual income from the various licensing agreements is $600,000. Other revenues are derived from a tuna export tax ($0.35 per kilogram), gross revenue tax, fuel duty, work permits, social security levy, and aircraft landing fees *(Rodwell, FFA, 2007).* At present there are no Palauan companies involved in tuna fishing and very little participation by citizens in shore-based processing and support services.

There is widespread agreement that the goal for off-shore fisheries is to realize higher revenues while maintaining the resource. Both aspects of this goal, however, are challenging and technical experts differ in their recommendations about the best mix of strategies *(Morishita, 2007).* The strategy set out in the Palau National Tuna Fishery Management Plan would maintain the present mix of bilateral and multilateral licensing agreements while promoting Palauan participation in professional and administrative positions associated with the industry but not directly in line operations *(Malsol, 2007).*

Actions taken - lessons learned: Although the NTFMP was officially adopted as Government policy in 1999, it has never been fully implemented especially with respect to its species monitoring and enforcement provisions. Nor has there been a planned effort to identify industry-related positions to be filled by Palauans and a strategy developed to move Palauans into these positions.

Constraints and challenges: The big issues in off-shore fisheries are: (1) identifying the optimal mix of strategies that will maximize revenues; (2) maintaining extraction rates at sustainable levels; and (3) maximizing returns from skipjack resources. All require attention to the problem of enforcement. At present, Palau has one lone patrol boat to enforce fishery regulations throughout its EEZ. The efforts of this vessel are supplemented by regional observers. Observers, however, can only be placed aboard legal vessels; the big challenge is illegal unlicensed vessels. Surveillance data collected by the U.S. Coast

The Palau National Tuna Fishery Management Plan (1999)

- Conserve fishery resources by controlling harvesting within recognized sustainable limits;
- Establish an efficient government framework to harmonize fisheries management policies and practices;
- Minimize detrimental impacts of fishing on coastal and on-shore environment;
- Achieve an optimal balance in relation to access to resources by all stakeholders;
- Enhance the overall economic balance between the need for Government to generate revenue, financial expectations of the commercial tuna fishery companies, and the interests of other resource users;
- Promote Palauan participation in professional, administrative, research, and development positions;
- Ensure that Palau upholds its obligations under international and regional maritime and fishing agreements.

Source: Malsol, D. (2007). Overview of Palau's Tuna Fishing Industry: Presentation before the National Economic Symposium, February, 2007.

Guard in Guam and shared with the Palau Government showed 800 illegal fishing vessels entering Palau waters in the August-September 2009 period – a closed season under international agreement. One proposed strategy has been to enlist assistance from licensed vessels in surveillance and monitoring for these vessels have an economic incentive to ensure stocks are reserved for license holders.

Partnerships: The international legal framework that governs management of off-shore resources is the Law of the Sea which Palau ratified in 1996. Within this framework, Palau's off-shore fisheries are governed by a complex array of multilateral, regional, and sub-regional agreements *(reference Annex A).*

Palau's major regional partners in managing offshore fisheries are the Forum Fisheries Agency that administers the regional fisheries agreements and the Western and Central Pacific Tuna Commission (WCPTC) that administers sub-regional agreements. Because WCPTC membership includes both resource owners and distant water fishing nations, the eight island parties to the Nauru Agreement on sub-regional fisheries (Palau, Marshalls, FSM, Tuvalu, Kiribati, Nauru, Solomon Islands, and Papua New Guinea) have established an independent tuna corporation to manage their interests as producers and resource owners. Other technical assistance is provided by SPC (monitoring) and FAO (product utilization). Working through WCPTC, several important conservation measures have been instituted including a closed season on tuna fishing during spawning season and the observers program that allows direct monitoring of catch levels and fishing practices aboard licensed ships.

Bilateral support for off-shore fisheries development is provided by JICA and by Australia. Australia provided Palau with the lone patrol boat used in surveillance of the EEZ, supplements the cost of vessel operation, and provides a staff of three naval officers who support surveillance operations.

Future Directions: In 2009, the governments of the Central Pacific producer nations began to evolve a new concept for management of tuna fisheries. This is OTEC (Organization of Tuna Exporting Countries) loosely modeled after OPEC (Organization of Petroleum Exporting Countries). Under OTEC, fish in Pacific waters will be owned by the island countries; vessels fishing in the Pacific EEZs will do so as contractors of the governments; governments will pay the contract fishing vessels, own the fish, and realize the profit from their sale. This is a revolutionary concept but one that is potentially workable if the producing nations can maintain a united position. The concept will be further explored at a Chief Executives Summit that Palau will host in February 2010. While having the potential to increase domestic revenues from off-shore fisheries, OTEC will not in itself address the problem of illegal extraction.

7.1.4. Non-Living Marine Resources

Situation overview: Known non-living marine resources of potential economic value include sea nodes, oil, and gas. There is very little information about commercially exploitable deposits of sea

Law of the Sea: The First Law of the Sea took nine years to negotiate (1973-1982). It has been hailed as the "most significant legal instrument of this century" for it introduced the rule of law and a system of governance to the oceans. Among the issues addressed are: navigational rights; territorial sea limits; economic jurisdiction; legal status of resources on the seabed beyond the limits of national jurisdiction; protection of the marine environment; a marine research regime; and a binding procedure for settling disputes between parties.

> "Palau believes that the best model for a regional effort to conserve our tuna resources and maximize the benefits to us is the Organization of Petroleum Exporting Countries (OPEC). I therefore will work for the establishment of OTEOC, the Organization of Tuna Exporting Countries, and I now call upon our friends in OPEC to come forward and help us to understand and obtain fair value from our threatened resource and to make tuna fishing sustainable."
>
> *President J. Toribiong*
> *Speaking before the U.N.*
> *September 25, 2009*

nodes in Palau waters as his is a relatively new field of interest for Palau. One company, Neptune Minerals, has expressed interest in exploration subject to Palau developing a an appropriate legislative and administrative framework *(Neptune Minerals, 2007).*

Seismic and geochemical studies suggest that Palau may have exploitable off-shore oil and gas reserves; promising sites have been identified off of Kayangel (Valasco Reef) and the Southwest Islands. A Task Force on Oil and Gas headed by the Minister of Infrastructure and Trade was appointed in 2009 to develop the legislative and regulatory framework to govern exploration and exploitation. Funding to support the work of the Task Force was provided by a $230,000 grant by Australia and Denmark channeled through the World Bank; an equivalent sum was provided by the Government of Palau. The Task Force is to complete its work by 2010 with four outputs:

- Legislative and regulatory framework;
- Environmental guidelines and standards;
- Licensing requirements, a hydrocarbon code, and model agreements;
- Fiscal regulations on revenue sharing and taxation.

In the interim, a license to proceed with exploration and drilling of test wells was issued to Palau Pacific Energy Corporation (PPEC) in January 2010. This licensure, however, has provoked some local controversy and may be subject to legal challenge.

Future directions, 2010-2015: The immediate priority is for the Task Force to complete its work and the necessary frameworks to be put into place. Palau has no domestic technical expertise for management of a mineral sector and for the foreseeable future will rely on contractor personnel.

7.1.5. Maritime Boundaries

Situation overview: Palau's maritime boundaries overlap with those of the FSM, Indonesia, and the Philippines. Palau and Japan have overlapping claims for the Kyushu Ridge area of the Continental Shelf.

Actions taken: In June 2006, Palau signed a maritime boundary treaty with the FSM. This treaty was ratified by the OEK but not by the FSM Congress. In November 2009, Palau sent a diplomatic note to the FSM proposing bilateral consultations to resolve the boundary issue. Both Indonesia and the Philippines have requested that Palau enter into negotiations over maritime boundaries. Palau is currently working with the U.S. Department of Interior to develop maritime boundary coordinates in preparation for these negotiations.

Continental shelf issues and procedures for resolving overlapping claims are set forth in the Law of Sea. In 2006 Palau created a Task Force on the Continental Shelf that prepared a Continental shelf claim submitted to the U.N. Commission on Limits of the Continental Shelf on May 8, 2009, just prior to the deadline date of May 13, 2009. Technical assistance for

this effort was provided by the United Nations Environment Program and the U.S. Department of the Interior. Next, Palau will need to defend its claims for areas also claimed by other governments. Both Palau and Japan claim the Kyushu Ridge area. Palau has other overlapping claims with the FSM, Indonesia, and the Philippines.

Future directions, 2010-2015: (1) Finalize maritime boundaries with the FSM, Indonesia, and the Philippines; (2) defend overlapping claims to the continental shelf before the U.N. Commission on Limits of the Continental Shelf.

7.1.6. International Shipping

Situation overview: Palau enacted legislation to establish a international ship registry in 2009 but has not yet issued regulations to formally establish the registry.

Future directions, 2010-2015: Develop regulations to implement a ship registry and the institutional/human capacity to manage and monitor ships registered under the Palau flag in accordance with international laws. Regulation and enforcement is important because the Republic of Palau bears liability under international law for violations incurred by ships it has registered.

7.2. Land Resources

Agriculture and Forestry

Mauritius Strategy, Chapter 6-Part B: SIDS should diversify their **agriculture** sectors to facilitate competition and improve their food security and self reliance. SIDS are also encouraged to adopt sustainable **forest management** in line with several international frameworks including the Intergovernmental Panel on Forests, Intergovernmental Forum on Forests, the Convention on Biological Diversity work program on forest biodiversity and the Johannesburg Plan of Implementation.

Agriculture and forestry are related sub-sectors jointly managed by the Bureau of Agriculture under the Ministry of Natural Resources, Environment and Tourism. Use of the term "agriculture" herein should be interpreted as inclusive of forestry unless otherwise stated. Unlike other countries where there are tensions between the primary production agencies and conservationists, the Palau BoA is keenly aware that's its mission encompasses both production and conservation.

7.2.1. Situation Overview

Palauans cultivate over 100 varieties of taro, 17 varieties of sweet potatoes, and many varieties of cassava, as well as bananas and other fruits for food. Over 44 species of trees are used for timber and firewood, and over 82 plants have medicinal healing powers. The fruits and flowers of over 100 plants are food for bats and wildlife *(OERC, 2004).* Agricultural activity is mostly of a semi-subsistence nature. There is a trend away from the traditional small-scale farming and agroforestry methods used by Palauan women towards larger farms operated by foreign males and planted with single crops destined for restaurants and supermarkets in Koror. There are about 22 commercial agriculture farms, nearly all located in Babeldaob. Use of fertilizers and pesticides is increasing, as is erosion from cleared and poorly maintained fields. Taro patches are also reported to be less productive then in the past *(Williams, 2007).*

Like marine resources, agriculture is vulnerable to climatic shocks. At the peak of the 1998 El Niño, Palau had the lowest rainfall recorded for over 100 years. Water supplies were depleted; fires burned out of control; and agricultural production dropped by more than 50%, with taro patches in some locations totally destroyed. In recent years, Palau has experienced increasingly severe storm and drought activity. Soon after the 1997/98 El Nino event, tropical storm 'Utor' caused an additional several million dollars worth of damage; there have been a number of less intense storms subsequently that have caused further economic and environmental damage. Global warming is likely to increase the incidence of drought and adversely affect watersheds *(Williams, 2007).*

Approximately 76% of Palau is covered in native forests containing more than 1200 species of plants. l. In addition to their direct biodiversity value, forests provide vital ecological services that help to maintain the health of terrestrial and marine ecosystems through sediment trapping, climate stabilization, providing nurseries for reef fish, and supporting soil production and conservation. The forested character of the Rock Islands, in particular, plays a vital role in maintaining their beauty and value as a major tourist attraction. Wetlands that are used in traditional taro farming may help maintain bird diversity and water quality by controlling erosion *(OERC, 2004; Williams 2007).*

Currently, there is very little commercial forestry in Palau. Harvested timber is used locally for construction and crafts; it is rarely bought and sold commercially. While it is likely that the harvest is small enough to be sustainable, there are no objective data to verify this. While the Compact Road has opened the possibility of forest-based tourism, this is still in its infancy *(reference chapter 7.3).*

> ***Vision:*** "A healthy and productive nation in harmony with the environment where all families have the skills, resources, and opportunities to ensure wise stewardship of natural resources and sustained food production."
>
> *Bureau of Agriculture*
> *Strategic Plan, 2005*

All recent development plans and policies have identified agriculture as an engine for economic growth producing both for the local market and for export. Despite this, agriculture has and continues to dwindle in economic importance *(Ryan, 2008).*

- Since 1992, agriculture's contribution to GDP has fallen by 76%; the combined value of all primary industries (agriculture, forestry, and fisheries) is less than 4% of GDP with tuna fisheries contributing most of this value.
- Agriculture's share of employment has fallen from 33% (early 1970's) to 10% (2000).
- For the first ten years post-independence, food imports grew by 133% while the population grew during the same period by 20%.

There are several factors contributing to this paradox. One, government policies are not always internally consistent; it is national policy to support agriculture and local food production but tax policy to allow duty-free entry of all foods (essential and non-essential). This makes it difficult for local producers to compete price-wise against overseas competitors who have the advantage of economies of scale that Palau will never achieve. It is a BoA policy to promote small scale piggeries but EQPB has adopted increasingly stringent regulations governing piggeries that have reduced production. Two, Palau has a shortage of Palauan labor. Traditional agriculture was the domain of women. Today, women are in-

creasing in the formal labor force while agriculture is being taken over by foreign males. Finally, extension services are weak and there has not been much attention to marketing. BOA does not see marketing as one of its responsibilities *(personal communications).* Although there have been numerous calls, reviews, plans, and proposals to establish a central market, the OEK has repeatedly rejected requests for capital funding. Underlying these issues is the binding constraint imposed by limited land area suitable for agriculture (about 7% of the total) and keen competition for use of that land from other sectors. Marketing of animal products is constrained by lack of animal health resources.[14]

Nevertheless, the potential for import-substituting food production and export production remains and, with completion of the Compact Road, has a greater chance of being realized. This will increase the access of farmers to markets in Koror, encouraging some expansion of subsistence and semi-subsistence agriculture. Major development would require commercialization. The environmental limits on commercial agriculture are strong, and care would be needed to protect biodiversity and water resources, but small-scale commercial agriculture is feasible *(Lindsey, 2008).*

In addition, given Palau's forestry resources, here is a significant but as yet untapped potential to generate income through carbon trading. The carbon trading industry has developed out of the Kyoto Agreement where polluting industries are able to buy carbon credits from non-polluting activities. Because trees have the ability to remove significant amounts of carbon from the atmosphere, forestry is a favored source of carbon credits and could potentially bring a lucrative income to Palau.

Carbon trading is a potentially lucrative source of income for the nation and for resource owners. However, very little work has been done to-date to develop this "niche"

7.2.2. Actions Taken - Lessons Learned

The Bureau of Agriculture developed a three-year strategic plan in 2005 *(Table 7-2)* that continues to guide its work together with special purpose plans recently developed or in progress (e.g. mangrove management plan and forest management plan).

7.2.3. Challenges and Constraints

Some of the challenges facing the sector have already been discussed. A key challenge is lack of policy direction. Is the focus import substitution and domestic food or is it export? While in theory there is no conflict between these two aims, the reality is that the sector is under-resourced and needs to have a clear focus well supported by the whole-of-government and the whole-of-society

7.2.4. Partnerships

Under Palau law, leadership in the area of agriculture and forestry is vested in the Bureau of Agriculture that is underfunded and understaffed. Many of its staff are undertrained and the training they do receive (short-term coursework and practical attachments) is not recognized by the Public Service System as grounds for advancement.

[14] Most restaurants and hotels do not purchase local meats because there is no slaughterhouse nor inspection service to ensure local meats comply with international standards of health and safety. Veterinarian services are also limited; Palau's only vet is based in Koror with a practice focused on companion animals.

Table 7-2. Highlights of the Bureau of Agriculture Strategic Plan, 2005 edition	
BoA Unit	**Goal**
Forestry	1. Implement a national forest program using a cooperative management model involving state and national governments.
	2. Develop sustainable forest-based sources of livelihood including ecotourism, agroforestry, and sustainable harvest.
	3-7. Address invasive species.
	8. Restore degraded lands and watersheds.
	9. Strengthen BOA institutional capacity.
Plant protection	10. Prevent introduction of injurious insects, pests, and diseases.
	11. Meet international obligations to prevent movement of pests through international trade.
Horticulture	12. Increase yield of traditional and non-traditional crops.
	13. Promote and support traditional crops.
	14. Increase market demand for locally grown crops.
	15. Increase effectiveness.
Animal industry	16. Increase sow production.
	17. Increase use of dual-type chickens.
	18. Increase effectiveness of program.
Administration	19. Strengthen bureau.
	20. Establish main headquarters for agriculture at Nekkeen (Achieved).

Agriculture may not have realized gains in productivity in recent years but this is not due to lack of external support. In fact, the sector has been described as "institutionally complex" *(Ryan, 2009).* Agencies involved in servicing the sector include donors that work within the BoA structure but implement their own programs (e.g. SPC, FAO, Taiwan Technical Mission, USDA Forest Service, and Palau Community College). Other agencies implement activities that overlap with BoA or require BoA input (e.g. the USDA Natural Resource Conservation Service; Sustainable Land Management Program; Protected Area Network; Palau Small Business Development Center; the National Development Bank; The Nature Conservancy; Palau Conservation Society; and the Babeldaob Watershed Alliance). Still other agencies regulate aspects of the sector. EQPB regulates pesticides. EQPB and Environmental Health share responsibility for inspecting farms and produce. In addition, there are shifting alliances of producers – some formally constituted as NGOs - others informal – demanding BoA services. Each of the 16 state governments has its own agenda for agriculture and expects BoA support for implementation.

7.3. Tourism Resources

Mauritius Strategy, Chapter 8: Sustainable tourism is an important contributor to economic growth and development. SIDS, with assistance of external partners, are encouraged to invest in tourism development and to develop appropriate linkages to other sectors including local service providers and the agriculture sector to promote island food and beverages, supply chains, rural hospitality, and agro-tourism.

7.3.1. Situation Overview

Tourism is Palau's most important industry. Arrivals have steadily increased from 20,000 (1991) to 80,000 (2007). Visitor receipts represent 45 percent of GDP *(2005 estimate, Tri-Org & Clark, 2008)*.[15] In 2005, Palau had four visitors for every resident (six visitors for every resident citizen). This ratio is second only to the Bahamas among small island economies. The prospect for future growth is strong; the industry projects 100,000 arrivals per year by 2013 *(Tri-Org & Clark, 2008).* The top two visitor markers are Taiwan and Japan followed by Korea (a distant third), the United States, and Europe.

#1 industry: Visitor receipts represent 45 percent of Palau's GDP. With four visitors per resident, Palau ranks second only to the Bahamas in tourist arrivals among small island developing states.

Palau's premier visitor attractions are diving and snorkeling. Palau consistently ranks among the top three dive destinations worldwide; 58% of visitors come primarily for diving. Other water-based activities include kayaking and sport fishing. Land based tourism on Babledaob is developing but still in its infancy. Although there is potential for cultural tourism, there are a limited number of cultural attractions available to visitors at present *(reference chapter 7.4).*

[15] *Comparative figures: Maldives – 55%; Bahamas-35%; Fiji-22% (Tri-Org & Clark, 2008).*

7.3.2. Actions Taken - Lessons Learned

Beginning in 2007, three organizations ("Tri-Org") representing major industry stakeholders joined together to form a Tourism Action Planning Committee. The three were: the Palau Visitor's Authority (representing government); the Belau Tourism Association (representing the industry); and the Palau Chamber of Commerce (representing tourism-affiliated industries). For more than a year, the group worked to assess the strengths and weaknesses of the industry, forge a shared vision of a desired future, and formulate a Sustainable Tourism Action Plan (TAP) that was later integrated into the draft MTDS. The plan features six strategies and 14 action steps *(see text box on page following).* Tri-Org is committed to continuing its collaboration in order to implement the plan.

7.3.3. Challenges and Constraints

Challenges facing the industry as identified in the Tourism Action Plan (2008) include:

- Need to carefully manage the natural resource base of tourism;

Highlights of the Tourism Action Plan (2008)

Goal of the Tourism Action Plan: "To upgrade the image of Palau as a tourist destination and position Palau as the island of choice for environmentally conscious visitors, with quality visitor experiences and high financial and other benefits to Palau on a sustainable basis"

Strategies:

- Create an enabling environment conducive to tourism and protect tourism's natural resource base; clarify organizational roles; align the agenda of government agencies to tourism's goals; create partnerships for solving key problems.
- Position Palau tourism in the world tourism marketplace; refocus the tourism product; rebrand the destination; properly fund destination marketing; build public-private partnership to implement destination marketing.
- Improve air access and adjust bilateral air service agreements.
- Diversify and improve the product base; improve existing products and attractions; develop new attractions to match re-branding.
- Encourage private sector investment in quality accommodations; attract new investment; encourage upgrading of existing operations.
- Encourage Palauan participation in the tourism industry; improve vocational and in-service training; showcase Palauan hospitality.

- A general industry trend "down market" caused by growth in the budget group package market segment;
- An associated rise in negative social and cultural impacts, including prostitution;
- International transportation constraints (service by only one scheduled airline);
- Limited range of products and attractions;
- Lack of infrastructure for cruise ships and visiting private vessels;
- Difficulties in attracting and retaining Palauans in the industry.

In addition to these immediate concerns, TAP acknowledges other long-standing issues. The tourism sector suffers along with other sectors from the absence of strong Palauan entrepreneurial capacity and the uniquely Palau problem of "fronts business". International players are generally the first to realize tourism development opportunities. Furthermore government institutions, especially regulatory agencies, do not always understand or respond to private sector needs.

Management of natural resources: The industry is keenly aware that tourism is based on Palau's natural resources and strongly supports measures to preserve and protect those resources. The TAP vision is in fact an environmentalist's vision of maximizing returns from the industry while minimizing the number of visitors and their associated impacts. The industry has taken action to address some of the environmental issues under its direct control (e.g. installation of permanent mooring buoys at popular dive sites; education of staff and visitors about responsible environmental stewardship; reducing and recycling wastes; etc). The industry, however, expresses frustration that while government at senior policy levels endorses the industry's vision of low-volume, high-revenue tourism, implementing and regulatory agencies decisions often contradict this vision. Al-

though better dialogue between industry and government helps to ease some of these tensions, full public-private partnership around a common vision remains an elusive goal.

Down-market trend: Although there is some tension between tourism planners and operators who need volume to survive, there is a general industry wide agreement that Palau will be best served by a strategy that favors high-end, low-volume tourism over mass tourism. The volatility of the industry, however, has encouraged some operators to embrace mass tourism in the form of pre-paid package tours, a situation exacerbated by the arrangements in the airline industry (see following). The TAP strategy is to target destination marketing to encourage low-volume, high-spending styles and to better engage government regulatory agencies in embracing the TAP vision. The industry favors strict law enforcement to eradicate the least desirable aspects of tourism, especially sex tourism. The potential role of gambling in the industry has been a hugely controversial issue. The National Congress passed legislation that would establish a gaming industry in Palau but this was vetoed by the President, a move warmly endorsed by the tourism industry.

Transportation constraints: With only one scheduled airline[16] and three charter airlines, improving air access is a key issue. The current arrangement makes it difficult for potential visitors from long-haul markets (e.g. US and Europe) to access Palau. It also encourages pre-paid packaged tours at the expensive of the more lucrative individual and family travelers the industry wants to attract. The TAP strategy is to make adjustments to bilateral air service agreements to encourage and/or require charter airlines to establish at least some scheduled services.

Products and attractions: The key issue is diversifying and improving the product base including development of cultural products and attractions *(see section 7.4).* The TAP strategy is to improve existing products and attractions and develop new attractions especially on Babeldaob.

Accommodations: Increasing private sector investment in quality accommodations is a key issue. The TAP strategy is to attract new high-end eco-friendly investment while developing incentives for existing operations to upgrade facilities and standards.

Human resources: Although the Palau Foreign Investment Act requires that tourism operations have at a minimum 20 percent Palauan staffing (or a minimum investment in excess of $0.5m), this requirement is not universally adhered to or enforced. Among the large tourism establishments, Palauan participation ranges from zero to 80 percent (Palau Pacific Resort). A key issue is increasing Palauan participation in the industry with the TAP strategy being to improve training and showcase Palauan hospitality. To this end, Belau Tourism Association, Palau Community College, and the Ministry of Education have established a partnership to create a Palau Tourism and Hospitality School of Excellence *(see text box).*

7.3.4. Partnerships

Tourism is driven by the private sector. It does not receive significant direct government or ODA support although it benefits from in-direct support provided through the infrastructure and environmental

[16] An additional airline – Pacific Flyer – will begin scheduled operations in early 2010. Unfortunately the recent history has been of "start-ups" initiating services that survive only for short time. At best, the airline industry is a high-risk volatile industry for start-ups. With rising fuel costs and an unstable economic climate, this is a particularly challenging time.

protection sectors. Increased direct support, however, will be needed to implement the TAP.

- Capital costs: total $1.6m of which half is earmarked for the Palau Tourism and Hospitality School of Excellence at PCC;
- Recurrent costs: total $1.6m per year inclusive of the $0.7m current allocation to PVA earmarked for tourism marketing.

Through PVA, Palau is a long-standing member of the Pacific Asia Travel Association (PATA), a partnership that provides invaluable marketing support. Palau is not a member of the South Pacific Tourism Association (SPTA) but by membership in the Pacific Forum, is able to selectively access SPTA programs. For example, it is through the Forum that Palau will participate in the 2010 Shanghai World Expo. The Expo will significantly increase Palau's exposure in the virtually untapped tourism market represented by the People's Republic of China.

7.3.5. Future Directions, 2010-2015

The medium-term priority is to systematically implement the Tourism Action Plan and to engage government (including regulatory agencies) behind the driving vision for tourism reflected in the plan. Noteworthy progress is being recorded on:

- Actions to expand and strengthen tourism infrastructure on Babledaob;
- Actions to develop vocational training in tourism and hospitality;
- Actions to implement the "Alii Host" in-service training program for front-line staff.

Palau's Tourism & Hospitality School of Excellence: Ground has been broken for Palau's new Tourism and Hospitality School of Excellence located on the campus of Palau Community College. This is a collaborative effort on the part of industry (represented by Belau Tourism Association), the Ministry of Education, and the College. The overall objective of the school is to enhance and strengthen tourism and hospitality training by upgrading and modifying the curriculum of Palau High School (PHS) and Palau Community College to reflect Palauan culture and to meet international industry standards.

The school aims to train and equip students in a non threatening environment with a range of skills, knowledge and confidence needed to grow Palau's industry. It is designed for young and old alike to create opportunities for those wishing to join or those already employed in the industry. It is hoped that the school will help promote tourism and hospitality careers as meaningful, rewarding and worthwhile career options. A total of $0.75m is needed to establish the school. To date, Australia (AusAId) has pledged $185,000 while local businesses, NGOs, and private donors have pledged $45,000 *(BTA, January 2010).*

7.4. Cultural Resources

Mauritius Strategy, Chapter 19: SIDS are urged to: (1) support development of their **cultural industries** in such areas as music, art, literary and culinary arts, fashion, festivals, theatre, film, sports, and cultural tourism; (2) protect their natural, tangible, and intangible **cultural heritage**; (3) improve institutional capacity for advocacy and marketing of **cultural products** and protection of **intellectual property**; (4) establish **cultural support funds** and seek **venture capital** and access to **credit** for cultural enterprises and initiatives.

Most reports of this type would locate a discussion on culture under enabling environments (Chapter 3) or human resources (Chapter 6). The Mauritius Strategy, however, addresses culture primarily as an economic resource. It is for this reason that culture is placed in the economic chapter immediately following tourism (chapter 7.3), the sector to which it is most closely linked.

7.4.1. Situation Overview

Palau's cultural heritage is a rich and unique inheritance passed down through untold generations. This cultural heritage consists of: (a) the archaeological and historic heritage of human habitation; (b) the tangible heritage of arts and crafts; and (c) the intangible heritage of values, beliefs, processes; and ways of interacting with nature, society, and the world. Palau's culture is unique; actions that safeguard Palau's cultural heritage provide a foundation for sustainable development at home and a fragile, irreplaceable gift to the world.

The Palau National Constitution (as amended in 2008) directs government, through the Ministry of Community and Cultural Affairs (MCCA), to work with traditional leaders and the community to protect and promote Palau's cultural heritage. Within the Ministry, the Bureau of Arts and Culture is the focal point for history, culture, and the arts.

The Bureau works closely with traditional leaders, the Society of Historians, and the Historic and Cultural Advisory Board. It is assisted by the National Archives Office and the semi-autonomous Belau National Museum. The Bureau cooperates closely with the Palau National Commission for UNESCO, environmental organizations, and several local NGOs, including United Artists of Belau (UAB).

7.4.2. Actions Taken - Lessons Learned

Archaeological & historic heritage: The Bureau of Arts and Culture, with its community partners, is conducting several important projects including: (1) comprehensive inventory of known archeological sites with special attention to those located in the interior of Babeldoab; (2) collection of oral histories associated with these sites; (3) staff support to the Society of Historians for their publication series, "Traditional Customary Practices;" (4) ethnographic research; (5) promotion of traditional musicology;

Palau's tentative world heritage list

- Imeong village cluster
- Ouballang ra Ngebedech (Ngebedech Terraces)
- Tet el Bad (Stone Coffin)
- Yapese Stone Money Transboundary Site
- Rock Islands Southern Lagoon

(5) nomination, investigation, and registration of sites to the National Historic Registry; (6) restoration of selected sites; and (7) organization of the annual Olechotel Belau Fair, a showcase of Palauan arts and crafts.

Palau has a National Register of Historic Places that includes many sites of cultural significance in addition to those of modern historic significance (artifacts of the various colonial occupations and World War II). Six registered Palau sites are cross-listed on the U.S. Register of Historic Places. Title 19 of the Palau law requires that significant construction projects have a historic clearance in addition to an environmental clearance prior to proceeding. Staff archeologists carry out pre-project surveys and work with developers as necessary to identify mitigation measures to protect important cultural or historic resources that lie in the path of development.

Palau has acceded to the World Heritage Convention (2006) and prepared a tentative list of five World Heritage sites; this listing is step one of a five-step process leading to designation as a World Heritage site. For one site – the Yapese Stone Money Transboundary Site[17] – work has progressed to step three (a comprehensive site assessment has been completed and a formal nomination submitted to UNESCO); it is hoped that formal designation will follow in 2010. An additional site, Ngaremeduu Bay, has been listed by UNESCO as a World Biosphere Reserve and Lake Ngardok has been listed as a Ramsar site *(see text box).*

Tangible heritage: In 2004, Palau hosted the Festival of Pacific Arts. This was a watershed event for Palau where artists, crafts-persons, poets, filmmakers, singers, dancers, dramatists, and many other practitioners of the Pacific's rich cultural heritage came to Palau for two weeks of performances and exhibitions. The festival was a source of inspiration to Palauan artists and the entire country. As one small but tangible legacy, the festival provided the impetus for the Palau Congress to enact a Copyright Law.

Palau's tangible culture is showcased annually in the Olechotel Belau Fair. The Palau Visitors Authority, in cooperation with MCCA, has recently begun to experiment with a "Night Market". The idea is that markets will be held on a regular schedule, targeting both locals and visitors, and will showcase only genuine Palauan products (or at least products with a significant local component).

Singing, dancing, chanting, weaving and carving are optional components of the Palauan studies curriculum in the schools. They are also included in extra-curricular programs and showcased during the annual Education Awareness Week. A network of Senior Citizen centers provides a venue for Palau elders to practice traditional arts and from time-to-time to

Biosphere reserves: Sites recognized under UNESCO's Man and the Biosphere Program innovate and demonstrate approaches to **conservation and sustainable development**. They share their experience and ideas nationally, regionally and internationally within the World Network of Biosphere Reserves. There are 553 Biosphere reserves in 107 countries. Ngaremeduu Bay is the only Palau site to date.

Ramsar site: The Ramsar Convention specifically targets wetlands. Palau's first (and so far only Ramsar site) is Lake Ngardok in Melekeok.

[17] *This nomination includes two sites – the stone money quarry in Palau and the stone money bank in Yap – hence the "transboundary" nature of the nomination.*

teach. At the Senior Center in Koror, an Applied Arts Center has been established to provide "hands on" cultural arts experiences as well as a gallery. Many of the tangible arts – especially wood carving and weaving – have a ready market in Palau's tourism industry.

The Belau National Museum is a major supporter of the arts. The United Artists of Belau (UAB) is an NGO dedicated to promoting Palauan (tangible) arts and assisting artist entrepreneurs to market their products. There has been an effort to develop a similar organization to champion the literary arts but this remains work in progress. Berkel Belau (Palau Theatre) is another NGO dedicated to preserving and promoting Palauan culture through drama. An unusual partner for promoting the tangible arts has been the prison system where carving has become a cornerstone of inmate rehabilitation and a way for inmates to support their families during incarceration.

To provide further support to the tangible arts, a "1 percent tax law" is being considered. As proposed, this would require 1% of the capital costs of public sector construction projects to be set aside to promote Palauan arts. Even without a law, some government offices have already become patrons of the arts. The Palau National Judiciary, one patron, has made extensive use of Palauan arts and crafts within the new judicial complex at the national capitol.

Intangible culture: Palau's intangible cultural heritage is the Palauan way of life. This heritage is constantly evolving as the social and environmental landscape changes in response to Palau's interaction with the world. The MCCA is advocating for Palau to ratify the International Convention on Safeguarding Intangible Cultural Heritage. This action would open new avenues of technical and financial support for documenting Palau's rich cultural heritage before the current generation of elders, born before or shortly after World War II, pass away.

> ***Festival of Pacific Arts:*** The Festival of Pacific Arts is a traveling festival hosted since 1972 every four years by a different Oceania country. It was conceived by the Secretariat of the Pacific Community as a means to stem erosion of traditional cultural practices by sharing and exchanging culture. 2008 marked the 10th festival hosted by American Samoa. The 9th Festival in 2004 was hosted by Palau. The festival is not a competition but a cultural exchange that reunites island peoples, reinforces regional identity, and stimulates mutual appreciation of Pacific-wide culture. Participating countries select artist-delegates to represent their nation; selection is a great honor.

7.4.3. Challenges and Constraints

The main challenge before the culture sector is inadequate human and financial resources to do the work involved in protecting and managing Palau's historic, tangible, and intangible heritage.

Historic heritage: Of the more than 1500 potentially significant archeological sites identified; less than 15% have been assessed and actually entered onto the Registry of Historic Places. MCCA has financial and human resources to process only 15 sites each year. At the current rate of progress, it will take most of this century to complete work on sites already been identified (and new sites are constantly being added to the list). Of those sites that have been registered, less than 20 percent have been restored or interpreted. This is an unacceptable pace that underscores the urgent need for more resources to be allocated to the arts and culture sector.

Tangible culture: There are a number of constraints to developing the economic potential of Palau's arts and crafts. There is very little money allocated for support of cultural expression and little support for cultural entrepreneurship. Many artists and craftspersons are at work in Palau but most are part-timers whose work is for personal/family use or sold in the non-formal economic sector. There is no inventory of "master" artists and no reliable information about their earnings. Without baseline information, it is difficult to make plans for developing the economic potential of the arts in line with the Mauritius Strategy.

A commercial market has developed for some forms of artistic expression – storyboards and wood carvings are big business catering to both locals and tourists. Several traditional music and dance groups are able to earn a modest but steady income by performing for visitors. While these forms of cultural expression, if not exactly booming, are at least finding a market niche, other forms of cultural expression are not as marketable – for example chanting and literary expressions in the Palauan language. Still other forms of cultural expression are virtually invisible even within Palau. Traditional medicine and massage are two such examples. Neither practice is well documented because traditionally they lie within the realm of the "secret and sacred" to be shared only selectively. While not the major constraint to documenting "secret" knowledge, a contributing factor is that Palau still does not have an intellectual property law although a draft Traditional Knowledge and Expressions of Culture Act is now before the national congress.

A number of new genuine Palauan products are being developed. The Agriculture Tourism project of the Republic of China-Taiwan has been particularly helpful to local producers willing to explore new ways of using and packaging locally-grown agricultural products. Credit is a constraint to production since many producers have little entrepreneurial experience or access to collateral property required to access credit through the banking system. Marketing is another constraint since most producers are not only the creators of their products but simultaneously the producers, marketers, and accountants.

Protecting the authenticity of the "made in Palau" brand is a challenge. Lower-cost handicraft imports compete in the local marketplace alongside Palauan products. Because the cost of labor in Palau is higher than in neighboring Asian countries, Palau products enter the market at a price disadvantage. In some cases, products purporting to be "Palauan" are made abroad or made locally by non-Palauans. Still other products are assembled locally from imported inputs. Two examples of this practice are "Palauan" macademia nuts and wine. Palau produces neither macademias nor grapes; all inputs for these products are imported including the packaging.

Intangible culture: Culture is an integral part of daily living in Palau but thus far, has been only partially documented, often by foreign researchers. The Society of Historians' initiative to produce a publication series on traditional cultural expression is a limited but important contribution to preserving the intangible culture. Many Palauans, especially women, are concerned about encroaching distortion of culture and customs from:

- Reinterpretations and misinterpretations by foreign researchers and writers;
- Social pressures that encourage people to give beyond their means so that in some cases customary exchanges (*siukang)* becomes a source of economic hardship rather than of economic security;

- Lack of knowledge about the true meaning and correct manner of cultural observances by younger Palauans;
- Sporadic and uneven attention to cultural education by schools;
- What some consider to be distortion of culture by the courts when called upon to adjudicate customary disputes in the absence of a definitive traditional law reference on which to base judgments.

A consortium of Palauan women's groups – government, non-government, and traditional organizations – has recently come together to design a project to produce a definitive compendium of the traditional law, policies, and practices that govern customary observances of importance in daily life. A compendium will help to preserve Palauan culture and tradition and be a resource for families, schools, lawyers, the courts, and researchers. At present the consortium is seeking funds to implement the project. A proposal has been submitted to UNIFEM; a response is still pending. In the interim, other funding options are being explored.

7.4.4. Partnerships

Palau is a member of UNESCO which is a source of technical assistance and modest funding for cultural projects. Palau is a member of the Pacific Cultural Council, organizer of the Festival of Pacific Arts. Palau is also a member of the Pacific Forum, the focal point for the Pacific Plan. The Pacific Plan puts strong emphasis on cultural education and preservation as a part of the sustainable development pillar of national and regional development. To-date, however, no specific programs or projects in the arts and culture sector have been initiated in Palau as a direct result of the Pacific Plan. Palau is, however, participating in a closely related Secretariat of the Pacific Community (SPC) initiative to put together a Regional Cultural Policy.

Small value cultural projects receive support from a number of bilateral donors, especially through the various bilateral small grant facilities. The Republic of China-Taiwan supports the only large scale, ongoing activity; this is the Agriculture Tourism Project that assists local producers develop new ways of using and packaging local agricultural products targeting the tourist market.

7.4.5. Future Directions, 2010-2015

The immediate priority of MCCA is to advocate for passage of the draft Traditional Knowledge and Expressions of Culture Act (TKEC). This act will simultaneously promote and protect traditional knowledge while helping to ensure that local people are the first to benefit from products and services developed based on their knowledge. To gain support for this measure, the Forum Secretariat and the World Intellectual Property Organization will conduct an in-country consultation in February 2010. In addition to the TKEC Act, MCCA is advocating for OEK ratification of the International Convention on Safeguarding Intangible Cultural Heritage.

Several years ago, PCC made a commitment to develop a degree-course in Palauan studies. Work on the program is in progress; it is expected that the course will be offered for the first time in the 2010-2011 academic year.

7.5. TRADE, PRODUCTION, CONSUMPTION

Mauritius Strategy, Chapter 13: The benefits from trade can be realized only after specific limitations and vulnerabilities of SIDS are addressed at all levels. A universal, rule-based, open, non-discriminatory and equitable multilateral trading system together with meaningful trade liberalization can stimulate development worldwide delivering economic growth, employment, and development for all. SIDS are encouraged to participate in the deliberations and decision-making of the **World Trade Organization**; more efforts should be made to resolve constraints to participation by SIDS in WTO.

Mauritius Strategy, Chapter 15: SIDS are encouraged to assess their need for programs on sustainable consumption and production and facilitate implementation of the 10-year framework on sustainable production and consumption called for in the Johannesburg Plan of Implementation.

The issues of trade and sustainable production/consumption are closely linked. As Palau has become increasingly integrated with the world community, it has moved from a state of self-sufficiency to a state of dependence on imported products (and funds). As a consequence, Palau has a large and long-standing trade deficit in goods for which a positive balance in trade in services (mainly tourism) provides only partial compensation *(Table 7-3)*. Addressing this problem will require a mix of strategies: (1) increasing domestic production of goods for either export or import substitution; (2) increasing trade in services; (3) increasing the in-flow of direct foreign investment; and (4) reducing consumption – at least consumption of imports.

7.5.1. Situation Overview

Palau has a liberal trade regime. There are five tariff bands, with most imports attracting a duty rate of only 3% and relatively few tariff exemptions to distort the trade system. The customs system is modern, with harmonized nomenclature and document filing via the Internet. However, a recent tax review has found that significant tax evasion occurs because of exemptions and has recommended their removal, along with adoption of the common practice of taxing imports inclusive of cost, insurance and freight (rather than free on board as is the current practice). The review also recommended increasing the import duty rate from 3% to 4%.[18] Import licensing is only required for agricultural and health reasons, but quarantine rules allow only agricultural and other goods requiring health clearance to be imported from the United States, this raises the costs of imports of some items substantially *(Fallon, 2009).*

At present, Palau's only significant export product is tuna *(see Chapter 7.1)*. While it is generally agreed that Palau has potential to export agricultural products to nearby islands, especially Guam, in practice there are many impediments to export-oriented agriculture production *(see Chapter 7.2).* Palau is not a significant producer of manufactured products and there is little expectation that Palau will become a producer/exporter of manufactured goods in the medium-term future. Palau's major trading partners are: the United States, Japan, and Singapore.

[18] *Report of the Tax Review Task Force, 2007*. House Joint Resolution No.7-48-19S-SD1.

Table 7-2. Selected Trade Statistics						
		2001/02	2002/03	2003/04	2004/05	2005/06
Balance of Trade – Goods		(76,367)	(79,833)	(101,398)	(91,765)	(101,690)
	Exports f.o.b	20,345	8,411	5,882	13,414	13,594
	Imports f.o.b.	96,712	88,244	107,280	105,179	115,284
Services Account		46,005	68,239	87,698	86,539	81,408
Overall Balance of Trade		(34,187)	(3,439)	(10,209)	(5,239)	(1,849)
Foreign Direct Investment		8,960	6,324	13,516	18,725	14,336
Source: Office of Planning and Statistics (2007). 12th Annual Report on Implementation of COFA.						

7.5.2. Actions Taken - Lessons Learned

Palau is not a member of the World Trade Organization (WTO) because the cost of joining (human and financial) outweighs potential benefits until such time as Palau develops a wider range and volume of trade products. In the interim, through membership in the Pacific Forum, Palau attends WTO meetings as an observer and selectively participates in WTO-sponsored workshops and trainings.

At the Regional level, there are two major trade agreements: PICTA (Pacific Islands Countries Trade Agreement); and PACER Pacific Agreement on Closer Economic Relations. Palau is a signatory to PACER but not to PICTA. The long-term aim of these agreements is a free trade zone among Pacific Island countries with negotiated trade agreements between Pacific countries and metropolitan trading partners (especially Australia and New Zealand who are the major trading partners for countries south of the equator). As a member of the Pacific Forum, however, Palau is able to selectively participate in projects and activities under the trade portfolio despite not having ratified PICTA and PACER. Recent work includes upgrading of customs and quarantine procedures.

In 2008, Palau joined with the FSM and the Marshall Islands to create the Micronesian Trade Committee with a secretariat based in Majuro (Marshall Islands). This sub-regional organization will help to address the special constraints to trade experienced by the three FAS linked to the U.S. through COFA agreements.

Significant growth in trade depends on increased inflows of foreign investment. Palau has acquired a reputation for being somewhat unfriendly to investors. A 2007 World Bank survey ranked Palau 82 out of 178 countries in terms of investor climate. According to Bank rankings, Palau performs well in terms of the time to start a business, the rigidity of employment regulations, and time required to register property. However, Palau performs relatively poorly in terms of the strength of legal rights (with respect to collateral and bankruptcy laws), protecting investors (with respect to disclosure of information relating to transactions, liability of directors, and ease of investors to pursue legal suits), and enforcing commercial contracts. Palau also has some unique constraints to investment arising from land, labor, and financial markets.

The 2009 report, Actions for Our Future, outlines one strategy and several actions to make Palau more investor-friendly. Similar strategies and actions have been recommended in numerous plans, reports, and strategies. While there is widespread consensus about the general strategy for reform, it has proven difficult to achieve political consensus to act. Palauans are in general distrustful of foreign intrusion; many leaders fear losing control of development, if Palau becomes too open to investors.

7.5.3. Challenges and Constraints

Palau faces many challenges and constraints in the area of trade, chief among them being reliance on a single export – tuna – which has negligible value added. Geographic isolation is another major constraint. Not only is Palau isolated from world markets but even within the Pacific, it faces geographic isolation. It is far more economical for Palau to trade with metropolitan powers outside the region than with its Pacific neighbors.

7.5.4. Partnerships

Palau's major partner for trade issues is the Pacific Forum. Palau is an active participant/beneficiary of Forum initiatives to improve trade conditions in the Pacific.

Central challenge for Palau: "The only way to take control of your life, raise your standard of living, and move beyond merely surviving is to create your own unique product or service that you offer to increasing numbers of people in exchange for the things of value that you desire. This simple formula applies to countries as well as people. A self-sufficient economy has its own products or services of value to export to the world."

Ken Uyehara. 2007
Palau Chamber of Commerce

7.5.5. Future Directions, 2009-2013

The priority of the current government administration is to make Palau more investment friendly. These measures are generally in line with those actions set forth in the proposed Medium-Term Development Strategy..

"Actions for Our Future" Proposed Strategy on Investment: Liberalize the Foreign Investment Regime and put in place complementary policies to address concerns about foreign domination or illegal activity.

Actions:

- Liberalize the foreign investment regime as much as possible; eliminate reserve list of businesses.
- Improve the capacity and powers to investigate and prohibit money laundering activities.
- Limit the total number of foreigners and their skill mix, compatible with economic benefits and socio-cultural concerns through uniform foreign worker fees.
- Ensure transparent, fair, secure and speedy leasing and effective tax arrangements so that foreign investment provides appropriate benefits to Palau.
- Continue to emphasize education to ensure Palauans have the capacity to be involved in successful business activities.
- Continue to support business advisory services provided by the Small Business Development Center.
- Put in place legislation to establish specific presumptions for determining if a business enterprise is effectively set up us as a "front business" and penalties based on civil liability.

Source: Fallon, J. (2009). Actions for Our Future: Medium Term Development Strategy. Koror, Palau: PINZ and ADB.

Chapter 8.
Security

Security has long been recognized as a prerequisite for sustainable development and economic growth. The Pacific Plan identifies security as one of four pillars of development in the region and identifies the following threats to security:

- Increased transnational organized crime activities arising from greater mobility of people, goods, and services made possible by globalization and advances in transportation, and communications;
- Increase the number of domestic conflicts that threaten the security of individual countries and the region as a whole;
- Global threat of terrorism with the islands often perceived as a "soft" target;
- Limited law enforcement capacities at regional, national and sub-national levels;
- Limited capacity of civilian law enforcement and governance authorities (e.g. offices of audit, ombudsmen, and other oversight bodies).

In contrast, the MSI is silent on most of these issues. The MSI defines security only in relation to the environment (climate change, sea level rise, protection of environmental resources) and to disaster management (prevention and effective response).

In keeping with the purpose of this report which is to chart Palau's progress specific to the MSI, Chapter 8 addresses security only in terms of disaster management. The chapter notes the close interrelationship between security, disaster management, climate change and sea level rise (chapter 4.1.), environmental resilience (chapter 5), and economic growth (chapter 7). The chapter also acknowledges that the limited perspective on security reflected in the MSI, overlooks some fundamental vulnerabilities of SIDS.

Palau participates in RAMSI (Regional Assistance Mission to the Solomon Islands) organized under the auspices of the Pacific Forum for the purpose of assisting the Solomon Islands recover from internal conflict and

- Ensure safety and security;
- Repair and reform the machinery of government, improve government accountability and improve the delivery of services in urban and provincial areas
- Improve economic governance and strengthen the government's financial systems
- Help rebuild the economy and encourage sustainable broad-based growth

8.1. Natural and Environmental Disasters

***Mauritius Strategy, Chapter 2*:** SIDS are encouraged to take action to develop partnerships to implement schemes that spread out risks, reduce insurance premiums, expand insurance coverage, and thereby increase **financing** for post-disaster reconstruction and rehabilitation, and establish and strengthen effective **early warning** systems and other **mitigation and response** measures.

8.11. Situation Overview

Although Palau lies south of the typhoon belt, it is still vulnerable to a range of natural and human-induced disasters. Recent natural disasters include tropical storms, tidal surges, drought, the ENSO event of 1998-1999,[19] and earthquakes. The most significant human-induced disaster in recent years was the collapse of the Koror-Babeldaob bridge (1997) that disrupted transportation, communications, water, and electricity services for an extended period. Health threats – especially the dengue outbreak of 2000, the SARS outbreak of 2003 and the more recent H1N1 Influenza outbreak – have also resulted in human hardship and economic loss. The direct economic costs associated with the 2000 dengue fever outbreak have been estimated at US$1 million excluding lost revenues in the tourism sector *(M. Sengebau, 2007).* Direct economic costs of the 1998-99 ENSO have been estimated at a staggering $91 million, more than half of Palau's annual GDP *(Williams, 2008)* although the true cost of many long-term impacts cannot be easily calculated (e.g. long-term damage to taro patches, corals, forests and agriculture lands).

[19] *An ENSO event is an ocean-atmospheric circulation that affects Palau regularly. During an El Nino year, Palau experiences severe drought conditions that can last weeks or months. During a La Nina year, drought is accompanied by a sharp rise in sea temperatures.*

Palau has a National Emergency Management Office (NEMO), a high-level Disaster Executive Council chaired by the President, and a multi-sector National Emergency Committee (NEC) chaired by the Vice-President. At the time of the 2005 Mauritius Conference, the 1999 Disaster Management Plan was in effect with a focus on disaster response although Palau's capacity to effectively manage disasters was at that time considered to be relatively weak *(Barbados +10 Report, 2004, pp. 34-35).*

Vision 2009: "Safe, Resilient, and Prepared Communities in Palau."

8.1.2. Actions Taken - Lessons Learned

Since 2005, there have been some significant developments in Palau's disaster management capacities resulting directly and indirectly from political, technical, and financial support provided at international and regional levels.

Beginning in 2008, with assistance from SOPAC, work began on a National Disaster Risk Management Framework using an all-hazards, integrated, whole-of-government and whole-of country approach The Framework, now in draft form, is expected to be promulgated through Presidential Executive Order in early 2010. The Framework updates the NEMO organization structure, revises the national disaster

response plan, and for the first time, gives equal weight to risk reduction together with response.

A Phase I Implementation Plan (2010-2013) built on the Framework will focus on: (a) integrating disaster management, including risk reduction, into the government planning and budgetary system; and (b) raising community awareness and building local capacity for disaster management. As part of the plan, a risk assessment mechanism will be developed. Initially the risk assessment process will target public-sector investments with new investments subjected to risk assessment. If significant risk is identified, implementers will be required to adopt risk mitigation measures before project implementation funding is released by the Ministry of Finance.

8.1.3. Challenges and Constraints

With regional and international support, Palau's NEMO has made significant strides in the past year by producing a revised framework balancing prevention and response. As a nation, however, Palau faces increasing vulnerability due to climate change and global integration. Climate change will increase vulnerability to storms, flooding, and drought and will undermine resilience by impacting on reefs, mangroves, coastal areas, forests, and agriculture. Global integration brings heightened vulnerability to introduced diseases and risk of airport and seaport incidents, including but not limited to terrorism.

By adopting a holistic approach to disaster management with a strong emphasis on risk reduction, resistance from government, businesses, and communities can be anticipated due to the short and medium term economic costs associated with risk reduction measures. For this reason, the short-term National Disaster Management Strategy emphasizes community education and awareness as a first step toward reduced vulnerability.

Special note – insurance: The Mauritius Strategy makes specific mention of insurance and insurance-like schemes to increase funding for post-disaster response and rehabilitation while reducing dependence on domestic finance and international charity. The Pacific Region, inclusive of Palau, has a relatively small and underdeveloped insurance sector. Largely for this reason, discussion about the use of insurance for disaster mitigation is at a very early stage. The World Bank, Asian Development Bank, and SOPAC are assessing the feasibility of various options and initiating dialogue with governments but at present, no concrete actions have been taken by the Palau NEMO to develop insurance-like mechanisms.

Table 8-1. Hazard Assessment

Type of Disaster	Risk
Storm Surge	High
Drought	High
Typhoon	High
Sea level rise	High
Tsunami	Low
Earthquake	Low
Landslides	Low
Oil spill	High
Water contamination	High
Solid waste disposal	High
Wildlife effects on aircraft movement	High
Sedimentation	High
Fire (industrial)	High
Fire (residential)	Medium
Invasive species	Medium
Hazardous spills	Medium
Emerging/infectious diseases	High
Terrorism	Low
Airport/port incidents	Low
Civil uprising	Low
Political instability	Low

Source: National Emergency Management Office (2009). National Disaster Risk Management Framework

8.1.4. Partnerships

Palau is a signatory to the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, the Madang Framework, the Pacific Islands Framework of Action on Climate Change 2006-2015, and the Pacific Plan. SOPAC is the Pacific Regional Agency tasked with coordinating implementation of the Madang Framework and the inputs of thirty regional and international organizations that are members of the Pacific Disaster Risk Management Partnership Network.

Palau's key international partners for early warning include: the U.S. National Oceanic and Atmospheric Administration (data collection, analysis, and interpretation); the Hawaii-based Pacific Tsunami Early Warning and Pacific Typhoon Warning Centers; and the Weather Offices in Guam and Palau. Palau's key international partner for disaster preparedness planning and capacity building is SOPAC. SOPAC provided the technical and financial support to develop the improved Palau Framework. Additional technical and financial support will be provided in 2010 to assist with preparation of the Phase I Implementation Plan and to implement community awareness and education activities. Although these activities do not specifically target climate change awareness and adaptation, they are integrally related since climate change will heighten vulnerability to a host of natural disasters. Many of the adaptation measures recommended to address climate change are the same measures recommended to enhance disaster preparedness (e.g. land use planning and zoning, building codes, improving water systems and increasing water storage, etc).

To further develop the capacity of NEMO, two new staff will soon be added to the NEMO office: one will focus on disaster response and one will focus on risk reduction. SOPAC will assist NEMO with training for these staff.

8.1.5. Future Directions, 2010-2015

During the period 2010-2013, NEMO will implement its Phase I plan with a focus on awareness and integration of disaster considerations using a whole-of-government approach (inclusive of traditional and elected governance structures at community, state, and national levels). During Phase II (2013-2015), the focus will shift to a whole-of-society approach with preparedness and risk reduction measures integrated into the activities of the private sector.

Annexes

The Goals and Targets at a Glance			
	Goal already achieved		**Strong national support**
	Goal likely to be achieved by 2015		**Fair national support**
	Uncertain if goal will be achieved		**National support improving**
	Inadequate data to assess progress		**National support weak**
Target for 2015		**Status: Will Target be Met?**	**State of Supportive Environment**
MDG 1: Eradicate extreme poverty and hunger			
Halve the proportion of people living below the national poverty line		**Uncertain**	**Strong**
Achieve full and productive employment for all including women and young people		**Uncertain**	**Strong**
Halve the proportion of people suffering from hunger		**Achieved**	**Strong**
MDG 2: Achieve universal primary education			
All children (boys and girls) will complete a full course of primary education		**Likely to be Achieved**	**Strong**
All children (boys and girls) will complete a full course of secondary education *Note: target added by Palau*		**Likely to be Achieved**	**Strong**
MDG 3: Promote gender equality and empower women			
Eliminate gender disparity in education		**Achieved**	**Strong**
Promote gender equality and empower women		**Likely to be Achieved**	**Strong**
MDG 4: Reduce child mortality			
Reduce under five child mortality by two-thirds		Achieved	Achieved

MDG 5: Improve maternal health		
Reduce maternal mortality by 75%	Achieved	Strong
Achieve universal access to reproductive health services	Achieved	Strong
MDG 6: Combat HIV/AIDS, malaria and other diseases		
Halt and begin to reverse the spread of HIV and AIDS	**Likely to be Achieved**	**Strong**
Make antiretroviral therapy widely available to persons with advanced HIV infection	**Achieved**	**Strong**
Halt and begin to reverse the incidence of tuberculosis	**Achieved**	**Strong**
Halt and reverse the incidence of malaria	Not applicable to Palau	
Halt and begin to reverse the prevalence of non-communicable diseases	**Uncertain**	**Strong**
MDG 7: Ensure environmental sustainability		
Integrate principles of sustainable development into policies & programs	**Achieved**	**Strong**
Reverse biodiversity loss and by 2010 achieve a significant reversal of loss	**Achieved**	**Strong**
Halve the proportion of the population without sustainable access to improved drinking water & sanitation	**Achieved**	**Strong**
By 2020 to have achieved significant improvement in the lives of urban slum dwellers	**Achieved**	**Strong**
MDG 8: Develop a global partnership for development		
Develop open, rule-based, predictable, non-discriminatory trading & financial system	**Likely to be Achieved**	**Strong**
Provide access to affordable essential drugs	**Inadequate Data**	**Strong**
Make benefits of technology widely available	**Achieved**	**Strong**

Annex B.
International Treaties, Conventions, and Agreements

Global and Regional Agreements (Treaties, Conventions, Frameworks and Plans) Relevant to Implementation of the Mauritius Strategy					
Sector	**Global**	**Regional**	**Document**	**Palau Action**	
				Status	**Year**
Cross cutting		X	Pacific Plan	Signatory	2007
Agriculture	X		International Plant Protection Convention	Signatory	
Culture	X		Convention on the Protection of the World Cultural and Natural Heritage	Accession	2006
	X		International Convention on Safeguarding Intangible Cultural Heritage	No action	---
	X		Convention on the Protection and Promotion of the Diversity of Cultural Expression (2003)	No action	---
	X		Convention on the Protection of the Underwater Cultural Heritage (2001)	No action	---
Disaster	X		Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters	Signatory	2005
		X	Madang Framework and the Pacific Islands Framework of Action on Climate Change 2006-2015	Signatory	2005
Environment	X		U.N. Convention on law of the Sea	Accession	1996
	X		U.N. Convention on Biological Diversity	Accession	1999
	X		U.N. Convention to Combat Desertification	Accession	1999
	X		U.N. Framework Convention on Climate Change	Ratified	1999
		X	Pacific Islands Framework for Action on Climate Change, 2006-2015	Signatory	2005
	X		Kyoto Protocol	Ratified	2001
	X		Vienna Convention for the Protection of the Ozone Layer and the companion Montreal Protocol on Substances that Deplete the Ozone Layer	Ratified	2001
	X		Stockholm Convention on Persistent Organic Pollutants	Signed	2002
	X		Convention on Wetlands of International Importance "Ramsar Convention"	Accession	2002
	X		Cartagena Protocol on Biosafety	Ratified	2003
	X		Convention on International Trade in Endangered Species of Wild Fauna and Flora	Accession	2004
	X		Basel Convention		
	X		IMO Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation ("SUA 88")	Accession	
	X		All other IMO Conventions (maritime safety, marine pollution, liability & compensation, miscellaneous)	No action	---
		X	Convention to Ban the Importation into the Pacific Island Forum Countries of Hazardous Wastes and Radioactive Wastes and to Control the Trans-boundary Movement and Management of Hazardous Wastes in	Ratified	1995

			the Pacific Island Region ("Wagani Convention")		
Fisheries	X		U.N. Convention on Law of the Sea	Accession	1996
	X		The Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	Yes	
	X		Convention on Migratory Species of Wild Animals	Entered into Force	2008
		X	Pacific Islands Forum Fisheries Agency Convention	Yes	
		X	The Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States of America	Yes	
		X	The Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific	Yes	
		X	The Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region	Yes	
		X	The Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Concern	X	
		X	The Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery	Yes	
		X	The FSM Arrangement for Regional Fisheries Access	Yes	
		X	The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean	Yes	
Health	X		Framework Convention on Tobacco Control	Ratified	
Human Rights	X		Convention on the Prevention and Punishment of the Crime of Genocide		
	X		International Convention on the Elimination of all Forms of Racial Discrimination	No	---
	X		International Covenant on Economic, Social, and Cultural Rights	No	---
	X		International Covenant on Civil and Political Rights	No	---
	X		Convention on the Non-Applicability of Statutory Limitations to War Crimes and Crimes Against Humanity	No	---
	X		International Convention on the Suppression and Punishment of the Crime of Apartheid	No	---
	X		Convention on the Elimination of All Forms of Discrimination Against Women	No	---
	X		Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment	No	---
	X		International Convention Against Apartheid in Sports	No	---
	X		Convention on the Rights of the Child	Ratified	1994

	X		International Convention on the Protection of the Rights of all Migrant Workers and Members of their Family	No	---
	X		Convention on the Rights of Persons with Disabilities	No	---
	X		International Convention on the Protection of all Persons from Enforced Disappearance	No	---
Trade	X		World Trade Organization	No	---
			South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA)		
		X	Pacific Island Countries Trade Agreement	No	---
		X	Pacific Agreement on Closer Economic Relations	Signed	2009

Annex C.
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