

Republic of Palau National Report

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2013

The Republic of Palau has met or nearly accomplished most of the 2015 Millennium Development Goals. As a leader in sustainable development and conservation, Palau is committed to work towards universal and affordable education and health; clean water, air and sea; ample supply of drinking water and local foods within healthy ecosystems. There is a rising concern for the impacts of Climate Change to the well being of the community. Homes, food and marine ecosystems were lost during Typhoon Bopha. There is concern for increasing GHG emissions and Palau acknowledges the need to mitigate GHG emission with clean energy options for infrastructure and transport. Non- communicable diseases are a major concern and a concerted effort is being made to combat NCDs through healthy diet and exercise. Palau is working towards a shared vision in its planning and budgeting process and invites the global community to support priorities sent form by the nation to meet the challenges of tomorrow.

**Third
International
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I. Introduction

In 2000, the Republic of Palau joined the international community in adopting the UN Millennium Declaration.¹ The Declaration affirms the world's commitment to six fundamental values- freedom, equality, solidarity, tolerance, and respect for nature and shared responsibility for social and economic development. Millennium Development Goals were : (1) Eradicate extreme poverty and hunger; (2) Achieve universal Primary Education; (3) Promote gender equality and empower women; (4) Reduce child mortality; (5) Improve maternal health; (6) Combat HIV/AIDs, malaria, tuberculosis and other diseases; (7) Ensure environmental sustainability; and (8) Develop a global partnership. The definition of sustainable development was as follows: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." A proposed new definition of Sustainable Development is being proposed for post 2015 as follows:

"Development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends."²

Humans are transforming the planet in ways that could undermine any development gains. Research shows that the stable functioning of Earth systems – including the atmosphere, oceans, forests, waterways, biodiversity and biogeochemical cycles – is a prerequisite for a thriving global society. None of this is possible without changes to the economic playing field. National policies should, like carbon pricing, place a value on natural capital and a cost on unsustainable actions. International governance of the global commons should be strengthened (i.e. binding agreements on climate change, halting the loss of biodiversity and ecosystem services and by addressing other sustainability concerns. Newly proposed New Comprehensive Millennium Development Goals for 2030 are as follows:

(1) Thriving lives and livelihoods. End poverty and improve wellbeing through access to education, employment and information, better health and housing. It should include targets on clean air that build on World Health Organization guidelines for pollutants such as [black carbon](#)

(2) Sustainable food security. The MDG hunger target should be extended and targets added to limit nitrogen and phosphorus use in agriculture; phosphorus flow to the oceans should not exceed 10mt/y; and phosphorus runoff to lakes and rivers should halve by 2030.

(3) Sustainable water security. Achieve universal access to clean water and basic sanitation. This would contribute to MDG health targets, restrict global water runoff to less than 4,000 cubic km/y and limit volumes withdrawn from river basins to no more than 50-80% of mean annual flow.

(4) Universal clean energy. Improve affordable access to clean energy that minimizes local pollution and health impacts and mitigates global warming. This contributes to the UN commitment to sustainable energy for all, and addresses MDG targets on education, gender equity and health.

(5) Healthy and productive ecosystems. Sustain biodiversity and ecosystem services through better management, valuation, measurement, conservation and restoration. Extinctions should not exceed 10

¹ Resolution adopted by the United Nations General Assembly , September 8, 2000

² Guardian.co.uk Copyright (c) Guardian News and Media Limited. 2013 Registered in England and Wales No. 908396 Registered office: PO Box 68164, Kings Place, 90 York Way, London N1P 2AP

times the natural background rate. At least 70% of species in any ecosystem and 70% of forests should be retained.

(6) Governance for sustainable societies. Transform governance and institutions at all levels to address the other five sustainable development goals. This would build on MDG partnerships and incorporate environmental and social targets into global trade, investment and finance. Subsidies on fossil fuels and policies that support unsustainable agricultural and fisheries practices should be eliminated by 2020.

This Report is Palau's second formal status report on the Millennium Development Goals. This Report is based upon the 2008 MDG Initial Status Report³ and the 2005 national Assessment report prepared for the Barbados Program of Action +10 Review.⁴ The report is divided into six chapters, one for each of the proposed new MDG. Each chapter presents an overview and the proceeds to summarize progress against the targets and indicators selected by the international community to monitor. These targets and indicators are reorganized under the newly proposed MDG for 2030 as shown in Appendix 2

Constraints

Palau is subject to economic uncertainties with a tourism driven economy that can be extremely volatile and has high dependency on ODA and imported foods. Climate Change impacts from Typhoon Bopha tapped budget funds earmarked for other purposes and recovery is still underway. Palau needs to spend less, save more and prioritize and support private sector growth through transparent land use agreements and business contracts. There is high potential in tourism diversification into geo tourism and growth in the agricultural and aquaculture sector.

II. Synthesis of preparations undertaken in the country: National overview

This National Assessment was developed through a literature review and a series of facilitated meetings with multi sectoral representation; sectoral meetings; individual and small group meeting conducted during the months of April and May 2013. Refer to Appendix 1 for consultations and participants. The focus was primarily in areas that were identified in the first assessment that need strengthening: Health-NCDs, Gender, livelihoods- poverty and employment, Food Security, Education, Finance and affordable drugs. However all targets were discussed.

III National assessment of the progress to date and the remaining gaps in the implementation of the MDGs, National Development Plans, BPOA and MSI, *building on the existing reports and relevant processes*

Palau's progress to date in the implementation of the Barbados Plan of Actions (BPOA) and Mauritius Strategy of Implementation (MSI) building upon inter alia existing reports and relevant processes (i.e. Rio+20) and post 2015 UN development agenda. These processes may include other national (i.e. national sustainable development strategy) and regional processes that are related to the BPOA/MSI. Rio+20, post-2013 development agenda and the Pacific Plan but considered in the context of BPOA and MSI (i.e. How have they advanced the BPOA and MSI and what more can be done.) It should also be understood that the assessment of the MDGs is part of the post 2015 development agenda process. And identify lessons learned and the remaining gaps.

³ Ministry of Finance 2009

⁴ Ministry of Resources and Development. 2004.

Development Status

Progress

Palau has made progress toward achieving its MDG Thriving lives and livelihoods with NCD program promoting home gardens, healthy lifestyles, and renewable energy options, low interest loans for farming and fishing and energy efficient homes. Education- steps have been taken judicial and educational programs to address truancy and drop out with counseling and mentoring programs⁵- NCD programs addressing behavior and mental health to track problems and prioritize areas to address- i.e. tobacco use. Currently a gender policy is under development and WEB organized to address gender issues- farming programs FAO- help women to market - Cases of HIV and AIDS down to one. NCD- starting to have active programs to reduce – some statistics starting to show a slight decrease. In providing access to affordable essential drugs through the implementation of the Health Care Fund that includes prescriptive drugs. The HCF is equitable to all who contribute and can be transferred to family members who cannot contribute. Palau continues to progress towards a more open, rule based predictable non- discriminatory trading and financial system through participation in PIF Peer Review, active membership with IMF and lender from ADB.

New MDG 1: Thriving lives and livelihoods

MDG 1 Eradicate extreme poverty and hunger

Target 1: Between 1990 and 2015, halve the proportion of people living below the national poverty line

In 2006, 18% of the households and 25% of individuals lived below the basic needs poverty line (Abbott 2006). So our goal is to half that by 2015 to 9% of the households and 12.5% of the individuals. Have we? No monitoring system based upon sentinel data generated annually or quarterly. There was no accounting for local compensation for services (i.e. food from customary events for services rendered).

Target 2: Achieve full and productive employment for all including women and young people

The mean population growth for the Palauan population is 0.28 (sd=1.1) therefore the change in growth is not significant. However from 2005 and 2012 the Palauan population dropped from 14, 438 to 12, 814 or 1,624 with a negative growth of -1.7%, which is the lowest growth rate since 1986. Refer to Appendix 3. The Labor force dropped by Employment has slightly decreased in both the public(-0.3%) and private (-1.0%)sector; self employed worked has increased by 2.6%; and working age people who are not in labor force increased by 1% since 2005. Those who are not in the formal labor force represent those who have informal employment (i.e. caretakers, farmers, fishers).

Target 3: Between 1990 and 2015, halve the proportion of people who suffer from hunger

An estimated 4, 939 individuals were affected by poverty of which 1, 555 (31%) were children (2008 Poverty Analysis Report). The MDG framework was integrated into the national development agenda as a strategy towards eradicating poverty. The 2008 MDG Report was used as a policy informing tool to implement measures to address the goals and targets. There are on average 0-2 underweight children a year. Malnutrition is widespread and manifested by poor food choices, overweight, obesity resulting in ill health and pre mature mortality. A 2006 school health survey found 35% of children were either overweight or at risk (Ministry of Health 2006). The Ministry of Health reports that 55% of adults are overweight (MOH 2007).

⁵ Sinto Soalablai pers.comm. May 15, 2013

Existing Policies: free public school ages 1-12, subsidies of essential utilities and health care, tax-free important of drugs and essential utilities. Minimum Wage Law passed by Senate in 2013. The Ministry of Education has developed a policy to ban Unhealthy food in Schools 2013

MDG 2: Achieve universal education

Target 1: By 2015, all children (boys and girls) will complete a full course of primary (and secondary) education

Statistics from the Ministry of Education for the Public Elementary Schools indicate on average 84% (sd=6%) of the students complete their elementary education in eight consecutive years (Appendix 4) . In 2012 there was a slight downward trend but not significant. The Ministry of Education data for high school students indicate that on average 51% (sd=5%) of the students complete their high school education in four consecutive years. In 2012 there was a slight downward trend but not significant (Appendix 5) Over 90% of all students in public school eventually finish high school (Ray Mechol, pers. comm. 2013. Many teachers with associate degrees attained their bachelor degrees increased from 17 or 7% in 2010-2011 to 54 or 23% in 2012-2013 (Appendix 6; pers. comm. Ray Mechol).

Literacy-An assumption in previous reporting is that a person is literate if he or she receives 4 years of education. In previous reports, adult literacy is rated at 99.9%⁶. The Ministry of Education standard annual testing of the public school children test score results indication that 70.5% of students are passing English, 65% are passing math, 80.2% are passing Palauan; 64.7% are passing Science and 71.4% are passing Social Studies. These results show a need to further develop Palau's programs for teacher training in all subject areas, especially science and math.

Palau Community College-Palau Community College began as a trade school in early 1927. In 1969 it became a 2 year post secondary vocational/technical school. The PCC has awarded degrees and certificates to 4,088 students between 1971 to 2013. Through an extension program with San Diego State University (2003-2011), 122 students have received their Bachelor and Masters Degrees. The School of Public Health (2006) awarded 122 diplomas and certificates. The PCC Continuing Education (1993-2012) has awarded 9,595 certificates. The PCC –Cooperative Research and Extension (2005-2013) has awarded 1,797 certificates. The Maintenance Assistance Program (1995-2013) has awarded 2,976 certificates.⁷

MOH Education and Training Center -WHO declared 2006-2015 as the Decade of Human Resources for Health, while PIHOA made Human Resource of Health (HRH) as strategic priority which culminated in the Nahlap Resolution which laid down the framework for addressing HRH in the region. The Ministry of Health 2010 Human Resource for Health Action Plan served as a guideline to develop the MOH Education and Training Center (College of Health) coordinate all HRH education and training development and integrate training outside of the MOH. The purpose is to improve health outcome as the product of the effort of the whole system. The College of Health will have four different components: (1) Development of Current Workforce (2) Community Health Education Extension (3) Platform for the development of credited curriculum to be recommended to the Palau Community College and (4) Ministry of Education Health Education Extension for Teachers and Students

MDG 3 Promote gender equality and empower women

Target 1: Eliminate gender disparity in education

There is no significant disparity between sexes in education the public and private elementary and secondary schools as the ratio of female to male studies has been very similar. There is a trend in towards less females from 2003-2005 (0.96), 2005-2010 (0.94) and 2010-2013 (0.92). The ratio of female to male

⁶ Palau Statistics (<http://www.spc.int/prism>).

⁷ Tia Belau Volume 22, Issue 41 May 23 2013

students show there is a tendency to have more males than females in the public schools (4% more males) compared to the private schools (2% more females). Refer to Appendix 7.

Target 2: Promote Gender Equality and Empower Women in economic, political and all other spheres of life

The two laws discriminate against married women; one with respect to rape and the other in respect to inheritance in absence of will lands held in fee simple shall be inherited by oldest legitimate living male have not been revoked. However, proposed revised laws are in progress. No new statistics are available on mean salaries of men and women.

Gender Policy-During 2013, the Ministry of Community and Cultural Affairs began consultations towards the development of a Gender Policy in Palau began with an inception meeting to discuss issues. The top issues were (1) elderly care and home bound care; (2) human trafficking; (3) abuse of women; (4) more representation in politics and top decision making positions and sports (i.e. the Olympic committee); and (5) human rights. Gender was considered to mean both men and women in balanced roles in society.

MDG 8 Target 2: In cooperation with pharmaceutical companies, provide access to affordable essential drugs

The Healthcare Fund -Healthcare financing reform began in 1995 and was enacted by Congress and the President in 2010.⁸ The Healthcare Fund began operation in 2010 when employers were mandated to withhold contributions; benefit payments commenced in 2011. The National Health Care Financing Act (RPPL No. 8-14) initial plan is based on two objectives (1) improve access to affordable medical care for all Palauans and for foreigners working in Palau, and (2) to address the problem of chronic source constraints at Belau National Hospital and to achieve these two objectives in a fiscally sustainable manner without increasing appropriations under the national budget. This Act is made up of two components, the Medical Savings Account and the National Health Insurance. (Jean-Claude Hennicot, 2010).

The Medical Savings Account -The Medical Savings Account is financed from employee's contributions of 2.5% gross earnings and is specifically used for the payment of medical expense by the account holders, their dependents and designated beneficiaries. Individuals with Medical Savings account can use the accumulated 2.5% deductions to pay for outpatient services and prescribed medication at Belau National Hospital (BNH), all dispensaries under MOH, and participating private clinics. Medical Savings Account can be used to pay for private health insurance premiums. Only permanently departing foreigners are eligible to receive any unused MSA balance. Refer to Appendix 8.

Palau Medical Referral Committee (PMRC) The PMRC was built upon the existing Medical Referral Program playing a key role in ensuring the financial sustainability of the HCF program. The committee individually reviews and approves each referral base on historic practice and accepted standard in 34 PNC 333. However the current Minister of Health is considering that the HCF function as other insurance companies with specific coverage options and payments that does not require a referral committee (Appendix 9; Minister Ngirmang pers. com 2013).

On April 01, 2013, the HCF reached a significant milestone marking 2 years of operation. As its programs continue to grow, there will certainly be considerable improvements and we welcome the opportunity to work cooperatively with the employers and private insurers to improve the scope of

⁸ Asian Development Bank, "Republic of Palau: Development of a Sustainable Health Financing Scheme," Technical Assistance Report, Project Number 42020, April 21, 2008

services and financial sustainability of both the catastrophic health insurance and medical savings programs.⁹

MDG 4 Reduce Child Mortality

Target 1: Between 1990 and 2015, reduce infant and under five mortality by two thirds

Mortality Patterns-“The best term for the current health in Palau is “transition.” The transition of culture, political systems, economic development and technology has moved health indicators from communicable to non-communicable diseases. Leading Causes of Death indicate that 8 out of the 10 leading causes of death in Palau were non-communicable diseases related to life style associated risk factors.”¹⁰

Infant Mortality-The perinatal mortality rate was 8.1/1000 for 2011 indicating a perinatal mortality rate reflective of one (1) fetal and one (1) infant death. This infant death occurred during the neonatal period. The infant mortality rate was 4/1000. There was 1 infant death for 2011 and the cause of death for this infant was severe distress syndrome due to prematurity. This is a decreased from 6 infant (<1 year of age) deaths in 2009. The causes of death in 2009 included childbirth related (meconium aspiration syndrome, severe prematurity), Respiratory Disease, Kidney Disease and Aspiration. The majority of deaths in the 0 – 19 years olds were due to infant deaths, occurring during the neonatal period (Appendix 109). The causes of deaths in this age group are from non-natural causes and usually those that are preventable. Although occurring sporadically, the prevalence of these deaths are small as compared to those occurring in the early adulthood years. Co-morbidities for Infant Mortality are LGA (4%) and SGA (5.5%). Refer to Appendix 11. Monitoring mother risk factors (e.g. BMI, communicable disease, and substance use) before and during pregnancy are ways that can assist health care practitioners so they can prevent infants and fetal deaths. It was recommended that referral programs for high risk mothers-to-be need to be integrated into standard operating procedures (Temmy Temengil 2013 pers. comm.).

Fertility-The total fertility rate for Palau has been declining over the past decade. In 2010 and 2011, the average number of children per women of child bearing age was 1.7. In 2009 the fertility rate for 15 to 19 years olds almost doubled that of the 35 to 45. The rate for the lower age group is expected to be lower than the higher age group of women. The reason being, that the lower age group should still be in school or have just graduated from high school and therefore their ability to sustain a livelihood for themselves and their children is limited (Appendix 12). Investment of public health measures to prevent advert birth outcomes by promoting healthy lifestyles for women is ongoing. However about one third of all births are by cesarean section because mothers are either obese or overweight and often so is the newborn. A large baby has difficulty moving through the birth canal (Dr. Dever, pers. comm. 2012). Public health programs need to develop a holistic approach to healing. Pregnant mothers wither tobacco or overweight to obese should be automatically referred to other community service programs i.e. Family Health Unit and the Tobacco Control and Prevention Program) for the well being of herself and her child (T. Temengil pers. comm. 2013).

MDG 5 – Improve Maternal Health

Target 1: Between 1990 and 2015, reduce maternal mortality by two thirds

Maternal mortality is defined as death of a woman while pregnant or within the 42 days after termination of that pregnancy, mainly ICD-9 codes 630-676; ICD-10 codes O00-O99, A34), but not due to accidental or incidental causes. The last maternal mortality was in 2009 and there has been no maternal deaths since then. **Therefore the maternal mortality rate = 0.** There was no maternal mortality data available for

⁹ HCF Summary Progress Report 2013

¹⁰ Ministry of Health COMPACT Report

2011. The South Pacific Community (SPC-2008) reported Life Expectancy (LE) for Palau to be 66.3 years for male and 72.1 years for female. These reported LE for both genders have decreased from around 4 years from 1995, with female experiencing a higher rate of decrease than male. Mortality of the population as a whole is showing a trend of increasing deaths within the age range of 60 to 74 years with a slight decrease within the age range of 45 to 59 years old. Refer to Appendix 13. There is a trend of increasing average age at death over time. Refer to Appendix 14. A summary of Palau's Vital Statistics is found in Appendix 15. The Goal for Bureau of Public Health is to provide effective preventive and primary health care services. Intensive work with the community, schools, NGO's, and other government agencies have to be strengthened in order to reverse the declining Life Expectancy Rates. In order for the Life Expectancy (LE) to increase, death rates from all ages must be **CONTRACTED** while pushing the upper age limit into the 80's and 90's. Through improved and evidence-based public health intervention and improving clinical management of diseases within the hospital, Palau can achieve this direction.

Target 2: By 2015, achieve universal access to reproductive health services

All women in Palau have access to reproductive health services (i.e. Family planning, prenatal delivery, postnatal care, cancer screening, and HIV testing. Contraceptives are available at the national family planning clinic and community health centers. The Health Care Fund provided equitable access to reproductive health services.

MDG 6 Combat HIV and AIDS, tuberculosis, diabetes mellitus and other cardiovascular diseases the latter two being "lifestyle" diseases

Target 1: By 2015, halt and begin the reverse of the spread of HIV and AIDS- Nearly Achieved

Since 1989, seven cases have been diagnosed, of whom 3 are still living. WHO classifies Palau HIV-AIDS pattern as a concentrated/low level" epidemic limited to high risk populations and prevalence of HIV in sentinel antenatal clinics is below 1% (Gold 2008). In 2010, three cases reported were reported.

Target 2: Make antiretroviral therapy widely available

Therapy is available for patients.

Target 3: By 2015 halt and begin the reverse of incidence of tuberculosis

Tuberculosis. Tuberculosis incidence rates (cases per 100,000 population) for 1991-2007 indicate a overall decline. Refer to Appendix 16a and 16b. Annual rates fluctuate which is an artifact of the small population. Deaths from tuberculosis are rare; only one death has been reported in recent years (occurring in 2006) but seen to be on the. Multi-drug resistant cases are also rare; two cases were reported in 1998, both Filipinos who returned to the Philippines for treatment. DOTS (Directly Observed Treatment Short-Course) was introduced in 1998. Between 1998 and 2004, DOTS was used for patients able to come to the hospital daily for medication. From 2004 onward, nurses have made daily home visits so that 100% of cases are now treated using DOTS.¹¹ In 2010 the incidence rates (new cases per 100, 1000 populations) was 91.7 (Males = 96.8, Females= 83.4).¹² In an SPC regional report, new cases identified during the year were reported as follows: 2006-12, 2007-11 2008-18 cases, 2009-19 cases, and 2010-19cases. Therefore the incidence of tuberculosis (new cases identified during the year seem to be on the rise. Tuberculosis is still a public concern.

¹¹ Palau Framework for Priorities in Health Palau Country Case study 2009

¹² Reportable Disease Surveillance System, Epidemiology, Bureau of Public Health, Ministry of Health, Palau. Public Health Data and Statistics, Epidemiology, Bureau of Public Health, Ministry of Health, Palau.

Target 4: By 2015 halt and begin to reverse the prevalence of non-communicable diseases-likely to be achieved

“Palau is the 7th obese country in the world. Eight out of every 10 deaths are related to NCDs. Over 80% of our off island medical referral are NCD related. Palau spends 55% of its health budget on NCDs and projects that within a decade that can be up to 80%. Thirty three percent of our school children are [overweight or] obese. So while Palau has achieved tangible gains in the communicable disease including one of the highest rates of immunization in the world, high primary care access rate, low infant and maternal mortality rates, these gains will soon succumb to the increased rates of NCDs. This is the data urgency that will threaten Palau’s socio-economic development” Stevenson Kuartei MD, Former Minister of Health 2012.

Children’s Health -Children’s health indicators measure the ‘health/wellness’ of a nation. During the last six years, the Bureau of Public Health through its Family Health Unit (FHU) worked with all schools in Palau. During 2011, the proportion of overweight or obese children was 29.6% of all children screened for that year compared to 34.9% in 2006. Refer to Appendix 17. In order to reverse this trend, the Childhood Obesity Prevention Project began in 2010, the MOH has made remarkable strides in working with the 16 State Legislatures in developing Health Promotion and Protection Policies that are grass-roots and community driven. The State Legislatures created policies to foster healthy environments seeking to protect Palau’s most valuable resource, its children. States started school gardens, exercise programs, nutrition programs, banned unhealthy snacks and drinks in schools, conducted community wide health events. Refer to Appendix 20.

In 2011, the body mass index of children was compared to 2010 data after one year of health promotion and polices strategies were initiated by State Legislatures. The results indicate a 5.3% decrease over the 6-y period with an annual 3% overall improvement in weight reduction of children in the overweight and obese percentile for all children attending all schools in Palau. The level of ‘vigorous’ physical activity dropped for 2010 and 2011 due to refining definition of the 3 levels of physical activity, vigorous, moderate and light/inactive. When FHU adopted these changes, most of the children’s physical activity level became ‘moderate’ rather than vigorous followed by light/inactive. The impact of physical activity in weight management is showing improvement in the children’s body mass index (BMI) after six years of intense working with schools, children and families. Refer to Appendix 18. Lack of Physical Activity is considered the main cause of over-weight and obesity in children. Improving physical activity in the home, schools and community, this national obesity issue will improve much faster. It is the sole co-morbidity for increased BMI with $p=.000$. Refer to Appendix 19. The other risk factors, depression, and being in urban schools (Koror) are not as strong indicators of overweight/obesity. The Israel-Palau Childhood Obesity Prevention Project is l ongoing in order to achieve long-term reduction of obesity rates among Palau’s children.

Substance Abuse and Suicide in Youth-Most mental health indicators demonstrated a downward trend in youth (tobacco chewing (not with betel nut), cocaine inhalants, heroin methamphetamines, ecstasy, steroids, suicide thoughts, planning and attempts.) Smoking cigarettes is on the rise for high school students cigarette (83.1%) smoked daily for at least thirty days (26%). The highest prevalence of substance abuse was tobacco chewing with betelnut. About 50% of adults and teens are chewing with tobacco. This is likely contributing to oral cancer mortality. In 2011 69.4% of high school students reported chewing betel nut in past 30 days and 43.7% added tobacco. The rate of binge drinking has risen steadily from 2007 rate of 23.7%. The rates of three indicators for suicide have decreased from 2001 to 2011: thoughts 29.3% decreased to 19.5%, planning 29.6% to 21.8% and attempted from 23.4 to 17.9%. 2011 (Cash 2012).

Primary Health Care Manual-In 2012, the Ministry of Health in partnership with the New York Botanical Garden and Belau National Museum launch a book entitled “Primary Health Care Manual.” This Manual promotes traditional medicines and medicinal plants. The Belau National Museum Herbarium established a medicinal garden and nature trail to promote education about local medicinal plants and their usage. A medicinal garden has been maintained at the Ngaremlengui Health Clinic for local use through support from the GEF Small Grants Program.

MDG 7 Target 4: By 2020 to have achieved significant improvement in the lives of slum dwellers.

Indicators for Target 4 are as follows: (1) Access to improved water; (2) Access to improved sanitation; (3) Adequate living space; (4) Permanence of construction: and (5) Security of tenure. There are no updated statistics to address living space, permanence of construction or security of tenure available. However there are statistics available from the Recovery Plan for Typhoon Bopha.

Typhoon Bopha-The impact of Bopha to communities in eastern Babeldaob and parts of Peleliu and Angaur had There is no additional data on living space, permanence of construction or security of tenure. Typhoon Bopha destroyed 112 homes. Fortunately no lives were lost. This was the first major typhoon that a major storm surge was recorded which was the main cause for major shoreline destruction and loss of agricultural land and forests. Families moved in with relatives creating crowded conditions until new homes can be constructed. In some cases, homes were relocated to upper grounds due to unclear land titles and ownership. State leases were made available in some cases in order to be eligible for loans for new homes and also access to recovery funds.

Policy Recommendations: By year 2020, each household in Palau will reduce their dependency of plastics, paper and foam products by 50%, & Climate Change taxes will be imposed. By year 2015, MOE and all other educational institutions will include traditional knowledge and practices related to Climate Change in their school curriculum framework

New MDG 2: Sustainable food security

The proposed new MDG hunger target is extended and targets added to limit nitrogen and phosphorus use in agriculture; phosphorus flow to the oceans should not exceed 10mt/y; and phosphorus runoff to lakes and rivers should halve by 2030.

Palau is highly dependent on imports despite the potential for local agricultural production. Agriculture’s contribution to gross domestic product (GDP) is less than 4% while food imports constitute over 10 percent of GDP. Food imports are also duty free and have grown by 133 percent in the last decade, while the population has increased by 20 percent (PINZ Agriculture Sector Report 2008).

Central Market- The most immediate problem facing most commercial farmers is a lack of market access. A central market is an issue of some urgency, given the actual and potential production increases resulting from the Compact Road on Babeldaob Island. Farmers are getting limited support from Government. Key issues affecting sector productivity include: (i) poor market access and weak market chain linkages; (ii) lack of clear focus in BOA; (iii) limited quality soil; (iv) lack of interest in traditional subsistence agriculture; and (v) pests; and (vi) Climate Change. Typhoon Bopha destroyed 30.11 hectares of taro patches in December 2012 worth an estimated \$843,287. Characteristics of agricultural marketing channels indicate the taro, sweet potatoes, cassava, kankum, banana are all consumed (60-100%) at home with (50-92%) sold to market. Taro, sweet potato and cassava are retained for gifting (100-80%) and banana, betel nut and coconut are solid at the farm gate (15-30%). Refer to Appendix 21.

Prices and profits were perceived as the main problem for all crops (55%) with pest considered as being the next problem (30%). Storage was not considered significant for fish where spoilage is important.

Competition from imports was believed to be a problem (31%) for processing and low prices (25%). Lack of know-how and equipment was not perceived as a constraint. Lack of customers, facilities, and supplies was relatively important for all crops. Problems related to prices and profits with produce marketing (22%); foreign competition (19%) and transport (11%) and lack of markets (8%). Estimated local production for crops and fish cannot meet the local demand. In 2010, the total estimated production of crops was 2,427 tons and the total national consumption of crops (taro, other root crops, vegetables and fruit) for both residents and visitors was 6236mt. Therefore the demand is 2.5 times greater than the supply. The estimated total consumption for fish was 604mt of fish. Refer to Appendix 22. Sustainable nutrient management is being addressed through a capacity building training conducted by the Bureau of Agriculture in 2013¹³. Previous trainings have been conducted through the Agriculture programs at the Palau Community College.

Fish Production-The Palau reefs and lagoons yield an average of 1. mt fish/km² for two decades based upon an average total produce of 1800 mt /yr for a total reef and lagoon area of 1706km² (The Environment, Inc. 2003). An estimated 360mt were sold in local markets and 250mt was exported and 1200mt was for direct consumption¹⁴. Based upon the central market feasibility study¹⁵, Palau now has a domestic demand of 604mt (586mt –residents; 18mt-visitors). These estimates indicate that local consumption has decreased by more than 50%. Recent preliminary findings from size frequency data and gonad examination (Prince pers. comm., 2013) indicate that 60% of inshore fish caught in 2013 are undersized. If one extrapolates from the 2003 estimates; sustainable harvest dropped to about 1000 mt or 0.6mt/km². Most fishers are observing a decline in fisheries over the past few decades and attribute these declines to pollution, climate change and overfishing – especially undersized fish.

Aquaculture-Aquaculture statistics are unavailable however successful production of milkfish for both consumption and baitfish indicate promise. The key is to close the life history cycle in Palau to eliminate high air freight of small juveniles and potential impacts of introductions into Palau's water. Successful spawning and grow-out for trochus, giant clams, rabbit fish, groupers and mangrove crabs has been demonstrated. The constraints are the high costs of production relative to imported fish from the Philippines. Nutrient management has not yet been demonstrated for aquaculture in Palau.

Policy Recommendation: Build capacity to collect, analyze and disseminate agriculture and fisheries data annual. Develop legislation to require all farmers to provide annual crop data. By 2015, funding identified established position and qualifications and law drafted to administer appropriate system by MNRET¹⁶.

New MDG 3: Sustainable water security

Achieve universal access to clean water and basic sanitation. This would contribute to MDG health targets, restrict global water runoff to less than 4,000 cubic km/y and limit volumes withdrawn from river basins to no more than 50-80% of mean annual flow.

¹³ A 2-year, \$225,000 project jointly implemented by the Belau Organic Growers Association (POGA) and Bureau of Agriculture was launched in 2013. The outcome is to demonstrate methods and techniques for sustainable organic farming through a training program to ensure that at least 200 farmer households increase their knowledge and at least 10 farms are used as a pilot scale project including the Nekken Agricultural Station. A handbook will be produced and production quantified

¹⁴ The Environment Inc. 1999

¹⁵ Tracey-White J. 2004. Central Market Feasibility Study FAO Project Number TCP/PAL/2902

¹⁶ Sustainable Food Security Working Group April 23-24 2013

MDG7: Environmental Sustainability: Target 3: By 2015, halve the proportion of the population without sustainable access to improved drinking water and basic sanitation

Access to Public systems-An estimated 90% of households have access to piped, treated water (ADB 2009). There are 15 public water supply systems that rely on surface water intakes, 4 public water supply systems which rely on groundwater and in the northernmost inhabited atoll of Kayangel, the old distribution lines were reconnected to a new well for water supply. The islands of Peleliu, Angaur and Kayangel rely on freshwater lens sources for their public water supply systems. The largest Water Treatment Plant is in Airai and services Koror and Airai. The K-A WTP was re-built in 1998 with Japanese Aid to increase its capacity by 17M liters/day which resulted in improved quality with current effluent turbidity levels ranging from 1 to 3 NTUs (Kingston, 2004). The K-A WTP had 5 filters and provided chemical feed and flocculation. The distribution system comprises pumps and pipes made of different materials (Hajkowitz *et al.*, 2005). The K-A WTP derives its water from the Ngerikiil river diversion dam and the Ngerimel Dam with a storage capacity of 75, 700 m³ (20 million gallons). The Ngerikiil has an average daily flow of 20 million gallons of surface water. Outside of the Koror-Airai region, there are 15 small public water distribution systems, each serving between 20 and 600 people representing about 80% of the rural communities (Kingston, 2004).

Water supply- Current demand projections show that without intervention, demand will exceed supply by 1.4million gal/day by 2020. Demand growth will be primarily driven by increasing tourist arrivals. Tourism is the largest private sector component of the economy, accounting for almost half of the country's GDP. Tourist arrivals already exceed 100,000/y Yields from water sources for the Koror–Airai water supply are insufficient to meet current demand during periods of prolonged drought, expected to intensify due to climate change. Improving the climate resilience of the water supply with efficiency improvements—including demand-side management and reduction of nonrevenue water—are expected to remove the projected supply gap without adversely impacting tourism growth and associated private sector development (ADB 2010).

Water Sector Improvement Program – Asian Development Bank-Palau received an Asian Development Loan for a total of \$16M in 2012 for a Water Sector Improvement Program. The program supports reform of the water and sanitation sector, focusing on improving policy and legal frameworks, financial sustainability, and capacity development. Palau contributed \$1.2M to implement the program. The Ministry of Finance (MOF) is the executing agency and responsible for the overall implementation, financial management, and budget support.

Water and Sewerage Act-The government passed the Water and Sewerage Act that created the Palau Water and Sewer Corporation (PWSC) in 2012. The act empowers the PWSC, through an independent board, to provide water and sewerage services throughout Palau and set tariffs for full cost recovery. To further support the capacity development of the PWSC, the Asian Development Bank will utilize resources to facilitate its transition to operational effectiveness. These funds will help develop the maintenance, operations, and infrastructure investment plans. Reform of existing water and sewerage legislation and regulations are needed. The value of clean water and the cost to treat and distribute it must be realized through an effective education campaign. Cooperative partnerships at all levels are needed to sustain Palau's waters for future generations.

Water and Sewer Corporation-The implementing agency is the Water and Sewer Corporation (PWSC) will improve services, fully recover costs in the water and sewerage sector, and conduct an effective

public consultation directed by the Program Steering Committee (PSC)¹⁷. A financing agreement between the national government and the PWSC will manage the rights and obligations of the PWSC to implement the program. The MOF will establish the Program Implementation Unit (PIU) and provide ongoing support. The PSWC is responsible for overall program management. In 2013, the Republic of Palau modified the Act in order to merge the Palau Utilities Corporation with the PWSC to reduce administration costs to the Republic.

Water Management- Only 20% of the total operational cost of providing water and sanitation services is recovered through water charges, with the balance subsidized by the National government. The government's budget support for the delivery of water and sanitation services for FY2010 of \$2.4 million or 1.2% of gross domestic product (GDP) is similar to the government's FY2010 projected fiscal deficit. To improve the efficiency of the water sector raising the water usage charge was recommended. During 2013, regional support for infrastructure (household catchment tanks, improved storage tanks) was earmarked for the outlying States of Angaur, Hatohobei and Sonsorol. Japan is provided \$4M in infrastructure support for a reverse osmosis system in Peleliu and Kayangel State is getting support to upgrade their systems. Therefore the access to improved public and home catchment systems will increase by 2015.

Water tariffs - Average household expenditure for water by the residents of Koror and Airai is about 1% of average monthly household income, compared with the international norm of 5%. Sanitation services in Palau are provided free of charge. Increased water tariffs would encourage prudent water consumption of treated water. Consumption is estimated at 169 gal/person/day or 5 times greater than in Asian countries (ADB 2010).

Operations and management- Nonrevenue water is at 43% of production with collection rates at 60%–65% of billing. To improve performance the current operations and management needs an overall and a capacity building program. Water and sewerage flow metering to improve maintenance and leak detection, adjustment of the pricing of water and sewerage, and remedial programs will also improve efficiency (ADB 2010).

Protected Area Network Fund- In 2012, Airai State was awarded \$200,000.00 from the PAN Fund to develop a watershed management program for the Ngerikiil Watershed, the main source of water to the Republic. Currently a Management Plan has been drafted that is under review. The Forest Management Plan 2010-2015 has prioritized critical watershed for reforestation projects.

Water Quality- The Environmental Quality Protection Board (EQPB) is the regulating agency supporting the DWSP, monitoring the quality of water supplied by the K-A WTP. PSWC manages the water supply and the distribution network on a daily basis. Hajkowicz (2005) concluded that watershed pollution was not a significant issue because of the effectiveness of sediment removal through filtration. The Integrated Water Management Project is focused on the Ngerikiil Watershed to reduce environmental stresses and improved water quality through education and awareness, management planning, best management practices and reforestation of bare areas.

Drinking Water Safety Plan (DWSP)- A DWSP approach was piloted by SOPAC and WHO with AusAID funding from 2005 to 2009. The goal was to improve water quality for the Koror-Airai (K-A) water supply and replicate the process. The K-A DWSP included technical analysis, identifying threats and issues to water safety and improvements. An improvement schedule is being implemented (Ministry of Resources and Development 2008). An economic assessment of the K-A DWSP indicated that about US\$0.2M was needed implement the K-A DWSP. Implementation was expected to reduce

¹⁷ Executive Order 282 established the PSC in 2010.

water-induced gastrointestinal diseases and the demand for bottled water. These benefits were about US\$1.34M. The expected net benefits of the K-A DWSP was US\$1.1M or a return of US\$5.90 on each US dollar invested. Data on the incidence of gastrointestinal disease is needed to improve these estimates and for national health planning (Gerber 2010). Since 2006, actions to improve water safety are: (1) National Water Policy; (2) Checklists for system description/analysis and for risk assessment; (3) Maps, schematics, layouts etc. developed for water supply systems; (4) Improved water quality monitoring program; and (5) Strategies for public consultation and community participation to tap into local knowledge.

Ecosystem services-Ecosystem services, the benefits that people obtain from ecosystems, are a powerful lens through which to understand human relationships with the environment and to design environmental policy. The explicit inclusion of beneficiaries makes values intrinsic to ecosystem services; whether or not those values are monetized, the ecosystem services framework provides a way to assess trade-offs among alternative scenarios of resource use and land and seascape change. The ecosystem functions are responsible for producing terrestrial hydrologic services and use this context to lay out a blueprint for a more general ecosystem service assessment. Other ecosystem services are addressed according to scale and trade-offs (Brauman et al. 2007). Healthy forests and wetland systems provide a host of watershed services, including water purification, ground water and surface flow regulation, erosion control, and stream bank stabilization. The importance of these watershed services will increase as water quality becomes a critical issue globally. Their financial value becomes clearer when the costs of protecting an ecosystem for improved water quality are compared with investments in new or improved infrastructure, such as purification plants and flood control structures – it is often cheaper and more efficient to invest in ecosystem management and protection (<http://www.fs.fed.us/ecosystemservices/watershed.html> accessed July 2, 2011)

Policy Recommendations

The Water Security Working Group recommended a review and update existing water policy to addresses climate change by 2015. The review should provide service and gap analysis. Each State is responsible to identify, protect, and manage their water sources. EQPB to test water quality and regulate, educate and raise awareness. NEMO/MNRET establish drought early warning system; Bureau of Public Safety to cite during droughts and for MOH, DEH to be involved in PNYC education and awareness¹⁸

Sanitation

In 2006, a total of 67% of the people had improved sanitation of which 96% were in the urban area and 52% were in the rural. Therefore 33% of population did not have improved sanitation. In 2010, of 3349 households, 1418 (42%) had access to the public sewerage system; 1409 (42%) had septic systems and 26% had other means. Therefore 84% of the population had treatment systems which is an improvement from 2006 by 15% (Division of Environmental Health 2010). An ADB funded project assessed the sewerage system in Palau and are recommended a major upgraded system for the main line, the Malakal Treatment facility and the development of a smaller system in Airai housing development area. The current system has reached its capacity and poses a health risk to many communities that are impacted by overflows from the system (Jon Vogt 2013 pers. comm.).

New MDG 4: Universal clean energy

¹⁸ Water Security Working Group Climate Change and Sustainable Development Workshop April 22-23, 2013

Improve affordable access to clean energy that minimizes local pollution and health impacts and mitigates global warming. This contributes to the UN commitment to sustainable energy for all, and addresses MDG targets on education, gender equity and health.

Green House Gas (GHG) Emission - In 2005, the emissions from Palau's energy sector totaled 331.74 Gg-CO₂ (GHG Inventory). This is an increase of 334% compared to the year 1994 (Mitsubishi UFJ Research and Consulting 2005). In 2009, 99.95% of Palau's energy consumption was derived from imported fossil fuels (SPC, 2012).

Renewable Energy- Renewable energy, including grid-connected solar PV systems at the Capitol Complex and the airport, now contributes almost 3% to Palau's total energy supply (Energy Office, 2013). The Energy Office (within the Ministry of Public Infrastructure, Industries, and Commerce) is Palau's energy regulatory entity. The Energy Office works with Palau Public Utilities Corporation (PPUC) on implementing energy projects. The Energy Office is funded by the GEF-funded Sustainable Economic Development through Renewable Energy Applications (SEDREA) project and the European Union

Policies- In 2010, Palau endorsed the National Energy Policy (NEP) along with an Energy Sector Strategic Action Plan (ESSAP) to implement the NEP. The NEP calls for improved institutional arrangements, increased energy efficiency, and the promotion of renewable energy. The NEP sets national targets to reduce energy consumption 30% by 2020 and to produce a minimum of 20% of total energy from renewable sources by 2020. No entity is mandated to implement the NEP therefore the EU's North REP project is funding the development of an Energy Sector Framework to strengthen the institutional arrangements for energy regulation..In 2008, Palau endorsed the Energy Efficiency Action Plan (EEAP), which aims to reduce national energy consumption in the public and private sectors. This plan recommends specific energy efficiency and energy awareness activities to be implemented by the Energy Planner within Palau's Energy Office. The Palau Energy Conservation Strategy (PECS), developed in 2007, provided an action plan to reduce governmental energy use in Palau. Palau has no comprehensive energy legislation, the Net Metering Act of 2012 encourages residential and commercial installation of grid-connected solar PV systems by allowing users to receive credits for excess energy generated by their solar systems (RPPL No. 8-39).

Current Activities-Since the 2008 EEAP, Palau is implementing a package of energy efficiency activities ranging from the distribution of Compact Fluorescent Lights (CFLs) to energy efficiency and renewable energy subsidy programs. These energy efficiency activities will save the government an estimated \$300,000 or more a year in energy costs. The following activities have been or are currently being implemented in Palau. Refer to Appendix 23. Palau has implemented several renewable energy projects, including grid-connected solar PV systems. Refer to Appendix 24.

The GEF-funded Sustainable Economic Development through Renewable Energy Applications (SEDREA) project is working to remove barriers to renewable energy integration. SEDREA has conducted an energy tariff review for PPUC and is working on feasibility studies; marketing and bankable projects, providing training to the energy sector, and creating standards for renewable energy installations. SEDREA supports to the Energy Office's education and awareness programs.

Future Options - Solar energy with large-scale grid-connected solar PV technology was identified as the most economically feasible renewable technology for Palau. Site-specific solar measurements are required to assess the economics of potential solar projects. Hydro, geothermal, and biomass have limited feasibility. An assessment of energy options using landfill biogas and ocean thermal energy conversion (OTEC) technology was recommended. Wind energy is also an option, the Energy Office is currently involved in a three-year study to measure the wind in Palau (PIREP 2004). The Energy Office has several projects in need of funding. The 2010 Energy Sector Strategic Action Plan (ESSAP) included a project

pipeline of energy projects under consideration. Some of these projects are still in need of funding, including (1) Upgrading the Airai to Ngchesar connection to reduce high load loss; (2) upgrading the Koror substation to reduce distribution losses, and (3) Enhancing grid capacity and power distribution to Ngiwal and Ngaraard to reduce load loss.

Barriers to Mitigation- The International Renewable Energy Agency (IRENA) has identified high upfront costs, lack of capacity, and high price of imported parts as barriers to renewable energy development in the Pacific (IRENA, 2012). In the past, solar projects lacked human capacity, supplies, and technical support. Institutional barriers to renewable energy include lack of clear channels for renewable energy project development, fragmented implementation of renewable energy projects, and lack of experience with renewable energy technology. Technical barriers to renewable energy include lack of knowledge of energy resources (especially wind resources) and a tropical marine environment, which can be damaging to mechanical and electronic equipment (PIREP, 2004).

Multilateral and bilateral financing opportunities- Funds are available for climate change mitigation projects. However, like most Pacific SIDS, Palau has underutilized these resources. Palau used 33% of the \$3.3M GEF-4 allocation for climate change activities (GEF, 2013). Pacific SIDS face significant barriers in accessing bilateral and multilateral climate change funding. Pacific Island leaders discussed these barriers during the 2011 Pacific Climate Change Roundtable and identified lack of information on available funds, long timelines, and varied requirements for project development, implementation, and reporting as some of the most challenging barriers (Maclellan, 2011). The funding application process is often lengthy and complex and has been criticized as being “tortuously complicated” (Hemstock & Smith, 2012).

Planning for Mitigation Assessment- Mitigation assessment should use the Long-range Energy Alternative Planning (LEAP) system energy accounting model. The LEAP model simulates the effect of selected mitigation options on total costs and emissions (SEI, 2006). The LEAP model is likely the best option as it is simplest model, requiring less data and expertise than other modeling systems. As the data collection process for this type of modeling often takes a year to complete. This initiative should include relevant government ministries, Palau Public Utilities Corporation (PPUC), and private industry and businesses.

Transportation

Currently there is no policy, strategic plans or activities directed towards mitigation for GHG emission from transport. The boaters have taken initiatives to convert from 2 stroke to 4 stroke engines (Nyk Kloulubak, pers. comm. 2013). However there has been limited to no efforts to deal with emissions from vehicles (Antonio Mariur, pers. comm. 2013). The Bureau of Public Health Non- Communicable Disease (NCD) data bases showed 256 patient with asthma from year 2001 to 2002 of this number 111 were males and 145 were females with ages ranging from 3 to 81. The NCD Coordinator (2003) commented that “Asthma was on the rise for the past three years in Koror. People do not quite understand what causes asthma. Increased levels of air pollutants have polluted Koror and Airai.” (Ministry of Resources and Development Barbados Programme of Actions +10 Review 2003). Passenger car imports have been rising steadily (2007-1,987; 2008-1,880; 2009-2,184; 2010-2,241; 2011-2,059; 2012-3,360)¹⁹ totaling 13, 711 vehicles imported in the last 7 years. Many of these vehicles are second hand with a short operation life. These vehicles are not required to meet any emission standards upon import and become a solid waste problem for the Republic. Currently there is no air quality equipment at the Bureau of Public Safety and no standards are being enforced (Antonio Mariur pers. comm. 2013.). The EQPB has regulations but

¹⁹Republic of Palau 2013 FY2012 Economic Statistics, Graduate School USA, EconMAP, www.econmap.org.

also has no equipment to monitor emission for vehicles, incinerators, or power plants in Palau. The only data available to serve as a base line was collected for the EIS for the Compact Road (Department of the Army 1998). Legislation has been introduced to control emissions from buses that has yet to be passed through Congress.

Policy recommendations on emission control included the following: (1) a national emission reduction target of 75% by Jan 2015; (2) a regulation that all vehicles install equipment to control emissions; (3) annual registration inspect includes emissions standards.²⁰ Tariffs were recommended to address energy efficiency for the following: appliances with a low efficiency; incandescent light bulb; all imports made in China because of the coal fired generators used in their manufacturing; cars/trucks over 10 years old; and plastics²¹.

New MDG 5: Healthy and productive ecosystems

Sustain biodiversity and ecosystem services through better management, valuation, measurement, conservation and restoration. Extinctions should not exceed 10 times the natural background rate. At least 70% of species in any ecosystem and 70% of forests should be retained.

MDG 7 Target 2: Reverse biodiversity loss; by 2010 achieve a significant reduction in the rate of loss

Protected Areas Network - As of 2011, Palau has 45 protected areas covering 40 percent of the near shore marine areas and 20 percent of the terrestrial areas. Number of protected areas has increased however the areas of terrestrial area has decreased. Management Plans are in place for many sites and under development²². The PAN Fund is being used to implement management plans in Melekeok, Ngirwal, Ngarchelong and Hatohobei. Climate Change Resilience is being incorporated into the design and expansion of PAN sites (Golbuu pers. comm. 2013).

Belau Watershed Alliance (BWA) the goal of BWA is to protect, conserve and restore the water resources of Belau through collaborative outreach, education, networking, science information sharing and technical assistance by and for the communities of the island. In 2013, 9 of the 10 Babeldaob States are part of the BWA. In 2011, the third BWA Summit was held and the 2011-2013 BWA Strategic Plan adopted. The BWA was extended from Babeldaob to all of Palau; the BWA became the Belau Watershed Alliance. Each BWA Member State is supported by the technical committee which has also expanded to include Palau International Coral Reef Center (PICRC), Belau National Museum (BNM), Forestry – Bureau of Agriculture (BOA), and Environmental Quality Protection Board (EQPB).

World Heritage Site - In 2012 The Rock Island Southern Lagoon was inscribed as a World Heritage Site. **Geographic Center:** 134°20'34.48"E, 7°14'48.93"N. The Site covers an area of: 1,002 km², 445 limestone islands, 52 marine lakes surrounded by a lagoon with fringing reefs, patch reefs, and shallow water marine areas. The buffer zone is the Territorial waters of Koror State excluding urban area, 164km². The RISL has superlative natural and cultural features. The RISL is an outstanding example of human interaction with a precarious environment. Koror State finalized an updated Management Plan in

²⁰ Good Governance Group Climate Change and Sustainable Development workshop April 22-23 2013.

²¹ Energy Working Group Climate Change and Sustainable Development Workshop April 22-23, 2013.

²² (www.palauconservation.org accessed May 24, 2013)

2013 as part of its commitment as a newly established World Heritage Site. The plan has greatly expanded on its cultural management²³.

Endangered Species- Ponapea has been nominated to the IUCN vulnerable status is based on its small range (6.93 km²). *Parkia parvifoliola* has been nominated to the IUCN endangered status is based on its small range (4.1 km²) and decline of habitat quality. All the endemic plants are now nominated as vulnerable on the IUCN Red List based upon historic land loss greater than 30% within 3 generations, primarily from intensive agricultural activities during the Japanese Administration²⁴. Existing regulations for endangered species need to be reviewed and updated.

Future Policy Award 2012²⁵ -Palau was awarded the Future Policy Award by the World Future Council in The Republic of Palau was selected for two outstanding policies, which are politically bold and tailored to the needs of local people and the environment. Their effects are being felt globally and they have inspired regional legislation in neighboring countries: Palau's **Shark Haven Act of 2009** is a milestone. It was the first of its kind and will serve to protect over a hundred species of deep water and reef sharks in Palau's waters. It was enacted despite pressure from international fishing fleets. The effect of the Palauan declaration has been powerful. A number of other countries including Honduras, the Maldives and the Bahamas have since enacted similar laws and banned shark fishing in their national waters. Palau is pushing for an international regulation banning shark finning and the trade of shark products. Palau's second outstanding marine policy is the Protected Areas Network (PAN) Act that was initiated in 2003. It has all the elements of successful management for people and environment. The framework incorporates a network of nationally representative protected areas, ensuring long-term sustainable use of resources, and has the institutional flexibility to adapt to future changes. Concern about the weakening traditional system of protection, Palau implemented a nationwide system of connected protected areas including fringing reefs, lagoons, a sardine sanctuary and mangroves. Local communities and states manage these locally with financial, technical and institutional support from the government.

Reduce Stress to Ecosystems-Healthy productive ecosystems can be maintained if pollutants solid, liquid, chemical and hazardous wastes are reduced²⁶. The implementation of Best Management Practices for Sustainable Land Management²⁷ and the sound chemical Management in Palau²⁸; construct a National Hazardous Waste facility and National Landfill and inspect and repair Fuel Storage Tanks which is urgent to deal with these stresses to the environment (Kitalong 2012). The Koror State Recycling Program needs to be expanded to Babeldaob and used as a model for other centralized locations for waste management in Palau. Storm water is considered a major threat and stress to our ecosystems and strong implementation of existing Storm water Guidelines²⁹ need to be implemented.

Policy Recommendations State and national government propose performance standards for all land use to attain zero net increase of storm water (any water) runoff. Target: By December 2015, the national government is enforcing there in zero net increase of storm water runoff standard. By December 2018, States are in compliance. Responsible Parties: (1) EQPB- enforce standards (2) – State Governments-

²³ Olkeriil, I. 2011. Rock Islands Southern Lagoon as Nominated by Palau for World Heritage Listing

²⁴ lida 2012

²⁵ http://worldfuturecouncil.org/fileadmin/user_upload/PDF/Factsheet_2012_Future_Policy_Award.pdf

²⁶ Kitalong, A. 2012.

²⁷ Kitalong, A. 2011

²⁸ The Environment Inc. 2006

²⁹ Horsley Witten Group, Inc. 2009, 2010

regulate zoning laws to meet standards. The number driver of pollutants in water is storm water runoff is impervious sources³⁰.

New MDG 6: Governance for Sustainable Societies

Transform governance and institutions at all levels to address the other five sustainable development goals. This would build on MDG partnerships and incorporate environmental and social targets into global trade, investment and finance. Subsidies on fossil fuels and policies that support unsustainable agricultural and fisheries practices should be

MDG7 Ensure Environmental Sustainability Target 1: Integrate Principles of sustainable development into policies and programs; reverse the loss of environmental resources

Palau regionally and globally known for its leadership on sustainable development and conservation, Palau's determination to maintain a balanced sustainable development path in the face of climate change, global economic volatilities is unwavering. In 2012, the Sustainable Land Use Policy was endorsed promoting -Building Codes, State Master and Land Use Planning as top best management practices to support with a proposed financial mechanism. Storm water Guidelines were developed through EQPB that need to be implemented by all. Palau has developed polices for energy, water, finance, hazardous wastes, trade, health and education and the environment. Many of these policies have been implemented in part. Long term commitment to a vision of sustainable development will lead to full implementation of

Fiscal Situation The private sector is source of sustainable growth with highest potential in tourism, domestic agriculture and aquaculture. Bank deposits have increased from \$96M in 2010 to \$131M in 2012. The private sector contributes an estimated 83% towards savings between 2010 and 2012. Since 2005, the GDP, GDP per capita, average wages for government employees has increased. The net value of international stocks has slowly recovered since 2005. External debt has increased. Between 2010 and 2012 the percent revenues from outside grants decreased and the percent of revenues (as expenditures) going towards investment decreased. Refer to Appendix 25. Impediments to foreign investment are land use disputes and contract enforcement. Climate Change impacts from sea level rise, rising temperature, intensive storms and storm surges and droughts such as Typhoon Bopha in December 2012 greatly impact the economy with loss of homes, infrastructure, and agricultural production and tourism revenues.

MDG 8 Global Partnerships

Target 1: Develop further an open, rule-based, predictable non discriminatory trading and financial system-

Target 3: In cooperation with the private sector, make the benefits of technology widely available
Palau continues to benefit from the strong partnerships with its traditional development partners, primarily the United States, Japan and the Republic of China-Taiwan. Much of the physical infrastructure in Palau has been established and maintained through the support of these partners. As CoFA funding phases out it is critical for Palau to harmonize and streamline aid coordination with both traditional and new development partners to better achieve Palau's national sustainable development goals and priorities.

Forum Compact Peer Review Team-The Forum Compact Peer Review Team acknowledged that Palau has one of the highest per capita income in the Pacific region on track with achieving most of its Millennium Development Goals by 2015. They noted that the economy was largely driven by tourism and substantially supplemented by ODA primarily through CoFA of US (the Compact). As assistance under COFA reaches conclusion in 2024 reform measures required to ensure economic sustainability. The Peer Review Team made the following recommendations for sustainable development of Palau: (1)

³⁰ Functional Ecosystems Working Group April 22-23, 2013

Update plans with timeline and costing to guide implementation; (2) Revise the national plan with a 10 year outlook; (3) Provide clear national directives to guide the process; (4) Ensure that the national Planning Process is clear and transparent to all; (5) Increase planning and budgeting capacity to institutionalize policy development and implementation; (6) Formalize dialogue between government and the private sector; (7) Expand governments inter-agency coordinating group mandate to advise on national priorities and track process against National Plan; (8) Support planned public policy reforms; (9) Ensure long term budgeting strategies account for policy reforms and provide medium term resources framework to guide annual budget; (10) Consolidate budget (both domestic and aid) strategy, process, cycle and reporting and enforce it; (11) Implement public financial management reforms; (12) Develop and Implement and Aid Management Policy; (13) Align aid management functions to national planning and budgeting; (14) Lead donor coordination and harmonization through annual round tables with donors on national and sectoral levels.. The President has called for the development of a National Plan in May 2012 to update the last plan.

III. Practical and pragmatic actions proposed for the further implementation of the MDGs, National Development Plans, BPOA and MSI

Lessons Learned

Work from the Inside Out and Synergize Efforts

Sustainable Food Security-Government needs to set the example for the communities to trust in their commitment towards achieving millennium goals in the 6 key sectors. Promotion of local food production needs to be reflected in more employment in the agricultural and fisheries sector. In the past decade employment and percent of the GDP has dropped in the agricultural and fisheries sector. Refer to Appendix 26. Yet the greatest potential is in agriculture and aquaculture to support the growing tourist industry where the numbers have doubled in the last decade. Local food production needs to be part of curriculum with a grade associated –lesson plan. Education-need to focus on skills for teachers in sciences and math- teach the teachers. Access to local food and consistent quantity and quality is need. School and community gardens can be linked with development of science and math based lesson plans. It can be a win-win for education and health and the well being of our children.

Livelihood-Non Communicable Diseases It was found that 49% of the men and 67% of the women chew betelnut with tobacco at the MoH. An estimated 75% of them want to quit and recommend enforcing the MOH tobacco-free policy. Alcohol consumption is common for men (62%) and women (37%). Binge drinking is also common for men (92%) and women (84%). Half of the MOH employees want to quit using alcohol. Between 2009 and 2013, there was an increase in employees with healthy body weight (3%) but also an increase in obesity (6%) and morbidly obese (2%). Most (82%) employees drank sugar sweetened beverages (SSB) more the one day a week. Many (over 50%) consume SSB more than one day a week. The most popular recommendation was to make health food and drinks available at work. Betel nut chewing is linked with culture however adding tobacco is not. The Ministry is implementing a plan to open a staff cafeteria that promotes a healthy diet (Cash 2013).

Sustainable Water Security- need to have harmonized efforts to support community water needs- systems may be inappropriate, wasting valuable resources and threatening the very resources needed by the community. Working with Energy Office and also with Sewerage to create a Utilities Corporation to deal with water, sewage and electricity. I would recommend adding solid waste to this grouping as well. An act is nearly completed to enable the sharing of costs for more efficiency. It was clear during site visits that the water and power need to work together.

Issues

Top Issues for most communities are pollution, unsustainable development, and loss of local knowledge, decline in marine resources, crop disease and invasive species, climate change impacts, lack of enforcement of laws (Kitalong 2011 Appendix 27). Top climate change issues were sea level rise, coastal erosion, and decline in resources, loss of habitat, warmer temperatures, pollution, loss of income and loss of traditional knowledge. Refer to Appendix 28. During the April 22-23, 2013 the top issues were as follows (1) insufficient data for resources and lack of legislation to require agencies to collect, manage and analyze and disseminate data and lack of legislation or compliance for resources users to report data; (2) increasing imports that are energy inefficient, emissions from vehicles, potential solid waste problems and unhealthy to people; (3) storm water pollution; (4) dependency on plastics, paper and foam products; (5) loss of traditional knowledge and practices; (6) reviewing and updating policies and developing actions plans to implement them. During Gender Policy meetings, issues of care of the elderly and homebound and human trafficking were raised and women being more represented in top decision making roles. Climate Change and its impact to the coastlines, the taro gardens and homes was raised in the aftermath of Typhoon Bopha.

Practical and pragmatic actions

Policy initiatives were recommended for each of the proposed new MDG. Within the lessons learned are additional pragmatic actions through synergies between agencies. The Palau Community Action Agency and schools is addressing Food Security and NCDs through home gardens, opportunities for low income families and clean energy initiatives (Ben Adelbai pers.com 2013). Coastal erosion studies have begun in Koror State (Webb 2012) and are being initiated in Kayangel and Ngaraard State (Emaurois et al.2012) and further initiatives with SPC-SOPAC. The Bureau of Agriculture through the Pacific Adaptation to Climate Change Project is developing and documenting adaptive taro cultivation techniques and has initiated an FAO funding organic farming project with community partners. The Palau Community College is experimenting with salt tolerant varieties of taro and other crops for farmers. The Energy Office has initiated several renewable energy projects throughout Palau over the past decades. The stakeholder analysis will further expand on ongoing initiatives and programs that are addressing Palau's top Climate Change Issues. A Disaster Risk Management Plan has been developed and a Recovery Plan for Typhoon Bopha is being implemented. The National Development Bank is providing low interest loans for energy efficient homes, and small industries such as farming, fishing, and eco-tourism. The Protected Areas Networks is providing employment in the conservation sector for each State. The Ebil Society offers annual summer programs to instill in children respect, reciprocity, local practices and knowledge and sustainable resource use. The Palau Water and Sewerage Corporation is fixing major leaks and providing support for water systems in the outer lying states. PPUC is providing energy audits for homes and businesses as well as a token system for power to enable consumers to better manage their energy consumption. The States of Kayangel and Ngaraard are initiating community based coastal erosion studies with support from PICRC. Ngardmau State is initiating a study on vulnerability to flooding. Melekeok State uses a vulnerability pilot study funded by ADB to develop their master planning process. The 2013 Forum Peer Review provided practical and pragmatic actions to align planning with donor coordination and d harmonization.

III. New and emerging challenges and opportunities for the sustainable development of identified by SIDS in the country

“As Globalization arrives, our worldview as Pacific Island peoples will soon be overwhelmed. The world will so become plural community with the loss of characteristics that have defined us for centuries. For me as [a] Palauan, there [are] things that we Palauans do that I would trade

readily now for better approaches from other cultures and societies. These are the characteristics of Palauism. But I will not trade my Palauness: the philosophy of living that has carved our lives and made us survive for the millennia. Things like respect, communal, perseverance, hope, harmony and a sense of environmental wellness. If Micronesians are not careful, we will lose what made us survive.” Dr Stevenson Kuardei MD 2012.

Emerging Challenges

- Climate Change- increased temperature, more intense storms, rising sea level and coastal erosion, storm surges (i.e. Typhoon Bopha)
- The rise in non-communicable diseases- obesity, tobacco use
- Carrying Capacity as tourism slowly climbs putting adding demands on infrastructure and resources
- Old inefficient and non-functional infrastructure
- The increasing costs for consumer products and services
- Lack of adequate care of the elderly and our children
- Unplanned development
- Pollution from solid wastes, sewerage, storm water, oil, hazardous materials
- Rise in human trafficking
- Increasing number of vehicles that are not meeting international standards for emission or energy efficiency
- Increasing amounts of imports of processed unhealthy foodstuffs
- Increase imports of wastes that are not being properly recycled
- Lack of national landfill and hazardous waste disposal area

A nation that maintains a steady course with its compass heading in the direction of sustainable development can address emerging challenges one step at a time. Palau is built upon the principle of respect of self, community and environment and reciprocity- helping one another. Wealth was not measured by the material positions but on the strength of relationships between families that extends back hundreds of years. Maintain a complex ecosystem as well as a complex society builds resilience in the face of a changing world. Palau has many regional and international partners that have their compass heading in the same direction. Palau is world famous for its conservation ethnic and a champion of sustainable development.

V1. Priorities identified for the sustainable development of the country, including in the context of the consultation for the post-2015 United Nations development agenda

Sustainable Livelihoods and Well Being

- Care to the elderly, home bound, Address human trafficking and human rights, support women in high level decision making positions in congress, sports
- Incorporate traditional practices and knowledge in school curriculum to build self esteem and sense of identity through respect and reciprocity and at the same time reducing the non-communicable diseases
- Strengthen the science and math curriculum in the schools
- Reduce imports that are unhealthy for the community and environment
- Increase local food production

Clean Energy

- Establish regulations on carbon emissions for vehicles
- Provide tax breaks or rebates for energy efficient imports and Smart Technology
- Establish emission standards for transportation, incineration, power generation

Food Security

- Develop better data acquisition, analysis and distribution systems related to our local food production and availability in agriculture, agroforestry and fisheries
- Increase local food production to meet growing demand
- Provided job opportunities for agriculture, fisheries and aquaculture
- Establish a Central Market
- Eradicate monkey and fruit flies and other agricultural pests
- Develop and distribution drought and flood resistant varieties of crops

Functional Ecosystem

- Establish storm water regulations to support zero runoff
- Establish a National Land fill with Waste Segregation Program
- Upgrade sewerage infrastructure
- Establish a National Hazardous Waste Disposal Site – seek Regional Support to Remove
- Establish a cradle to cradle waste policy or zero waste policy

Good Governance

- Implement Existing Policies for Sustainable land use, Energy, Water, Hazardous materials, Sustainable Finance, Health, Education
- Implement Recommendation of the Forum Compact Peer Review for Palau
- Integrate social and natural capital into the financial and budgeting process
Build capacity on economic valuation of ecosystem services (i.e. carbon sequestration and Carbon Credits)

VII Conclusion

Sustainable Development has been redefined to meet the needs of the people and the planet as follows: “Development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends.”³¹ Globalization has united all of us across the islands, continents, oceans, mountains and valleys and below the sea. Each of us has a responsibility to the world in order for us all to survive the onslaught of irresponsible behavior that is changing the world as we know it at a very rapid pace. It is imperative that we all become responsible global citizens in the daily decisions we make. Palau still faces many challenges as it aims towards universal education and health, clean accessible water healthy local food and lifestyles, clean energy preservation of its unique heritage and environment and providing children an opportunity to use their talents and gifts to contribute to their community and the world. The challenge is to keep our Palauness- our unique culture and environment intact and in balance with new and exciting technologies. The Fundamental principles of respect need to be woven into the fabric of the world. Scientists are encouraged by Palau’s ability adapt and cope with the changes we face. It is the island way. Together with our committed regional and national partners we will steer our course towards sustainable development and a better world

³¹ Griggs D. 2013. Sustainable Development Goals for People and Planet. Nature 496:305-307.

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APPENDICES

Appendix 1 Consultations

Multi-sector Representation, CBOs, NGOs

Date	Activity
April 11, 2013	Second National Communication for CCC Validation Workshop
April 19, 2013	Earth Day – visit all booths and got updates on their activities
April 23, 2013	Inception Workshop to address issues and concerns towards the development of a Climate Change Policy. The outcome was that the top concerns and issues were closely aligned with the top 6 proposed Millennium Goals.
May 22-23	Gaps and Needs Workshop towards the development of a Climate Change Policy and National Report on Sustainable Development Millennium Goals. The workshop was driven by community issues for Climate Change which were aligned with the Six Proposed Millennium Goals. The concept that Sustainable Development is also a strategy towards Adaptation and Mitigation to the impacts of Climate Change. Break-out groups to identify key areas for policy. All groups asked to select one priority within each sector. Day 2 asked to develop key actions to address priority areas

Small Targeted Meetings**Ministry of Health**

May 15, 2013	Minister Ngirmang and Temmy Temengil regarding the National Assessment. Discussed status of the HCF and initiatives with NCDs within the Ministry
May 24, 2013	Dr Haley Cash at State Epidemiological Workgroup (SEOW) discuss reports on substance abuse and mental health and NCDs.

Ministry of Education

May 15, 2013	Director Emery Wenty, Ray Mechol and Sinto Soalablai regarding programs in education and joint efforts with the Ministry of Justice and Ministry of Health to address dropout rates in the schools, and NCDS
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Water and Sewer Corporation

April 28 th , 2013	The SWC and SPC-GCCA-PSIS- team and Ann Kitalong went on a field trip to Peleliu and Angaur to observe firsthand the water distribution and storage systems.
May1- 2, 2013,	Palau Water and Sewage Corporation/ SPC-GCCA PSIS Adaptation Project Workshop to further develop a concept note for water security in the outer lying islands into a full proposal for a 2-year, 500,000 Euro project.

Ministry of Agriculture

April 24, 2013-	Inception Workshop for FAO Project to train 20 farmers on organic farming techniques to then train 200 others.
May 24, 2013	Chief of Forestry Pua Michaels, Joel Miles- Invasive Species, Ronnie – Fire, Tarita –Fire

Office of Vice President

May 13, 2013 Alonz Kyota regarding the Recovery Plan for Typhoon Bopha and impact to the communities.

Ministry of Community and Cultural Affairs

May 9, 2012- Minister Temengil, former Minister Rehuher Marugg-Luncheon with key stakeholders to address their concerns and issues towards the development of a Gender Policy in Palau.

May 22, 2013 Minister Temengil

Ministry of Natural Resources, Environment and Tourism and PICRC

April 9, 2011 Socio- economic indicators for Protected Areas Network

NGOs

Chamber of Commerce

May 14, 2013 Lunch Presentation to the Chamber of Commerce for their feedback and concerns

Regional

May 10, 2013 meet with team for the Pacific Plan

May 23, 2013 Meet with

Appendix 2.

<p>MDG 1: Thriving lives and livelihoods. End poverty and improve wellbeing through access to education, employment and information, better health and housing. It should include targets on clean air that build on World Health Organization guidelines for pollutants such as black carbon</p>	<p>MDG 1 Eradicate extreme poverty and hunger; Target 1: Between 1990 and 2015, halve the proportion of people living below the national poverty line; MDG 2: Achieve universal education MDG 7 Target 4: By 2020 to have achieved significant improvement in the lives of slum dwellers; MDG 8 Target 2: In cooperation with pharmaceutical companies, provide access to affordable essential drugs</p>
<p>MDG 2: Sustainable food security. The MDG hunger target should be extended and targets added to limit nitrogen and phosphorus use in agriculture; phosphorus flow to the oceans should not exceed 10mt/ y; and phosphorus runoff to lakes and rivers should halve by 2030.</p>	<p>MDG 1 Eradicate extreme poverty and hunger MDG 7 Ensure environmental sustainability</p>
<p>MDG 3 Sustainable water security. Achieve universal access to clean water & basic sanitation. This would contribute to MDG health targets, restrict global water runoff to less than 4,000 km³/ yr & limit volumes withdrawn from river basins to no more than 50-80% of mean annual flow.</p>	<p>MDG 7 Ensure environmental sustainability- Target 3: By 2015, halve the proportion of the population without sustainable access to improved drinking water and sanitation</p>
<p>MDG 4: Universal clean energy. Improve affordable access to clean energy that minimizes local pollution and health impacts and mitigates global warming. This contributes to the UN commitment to sustainable energy for all, and addresses MDG targets on education, gender equity and health.</p>	<p>MDG 8 Develop a global partnership Target 3: In cooperation with the private sector, make the benefits of technology widely available</p>
<p>MDG 5: Healthy and productive ecosystems. Sustain biodiversity and ecosystem services through better management, valuation, measurement, conservation and restoration. Extinctions should not exceed 10 times the natural background rate. At least 70% of species in any ecosystem and 70% of forests should be retained.</p>	<p>MDG1 Eradicate extreme poverty and hunger MDG 6 Combat other diseases- NCD MDG 7 Environmental sustainability</p>
<p>MDG 6: Governance for sustainable societies. Transform governance and institutions at all levels to address the other five sustainable development goals. This would build on MDG partnerships and incorporate environmental and social targets into global trade, investment and finance. Subsidies on fossil fuels and policies that support unsustainable agricultural and fisheries practices should be eliminated by 2020.</p>	<p>MDG7 Ensure Environmental Sustainability Target 1: Integrate Principles of sustainable development into policies and programs; reverse the loss of environmental resources</p>

Appendix 3 Population Census

(Sources: Republic of Palau 2013 FY2012 Economic Statistics, Graduate School USA, EconMAP, (www.econmap.org))

Table 1a Population by major centers, percent of population and growth, 1986-2012

	Population				Percent of Population			Population Growth			
	Total	Palauan	Filipino	Other	Palauan	Filipino	Other	Total	Palauan	Filipino	Other
1986	13,873	12,323	517	1,033	88.8%	3.7%	7.4%	2.3%			
1990	15,122	12,575	1,477	1,070	83.2%	9.8%	7.1%	2.2%	0.4%	21.0%	0.7%
1995	17,225	12,508	2,758	1,959	72.6%	16.0%	11.4%	2.6%	-0.1%	12.5%	12.1%
2000	19,129	13,364	2,922	2,843	69.9%	15.3%	14.9%	2.1%	1.3%	1.2%	7.4%
2005	19,907	14,438	3,253	2,216	72.5%	16.3%	11.1%	0.8%	1.5%	2.1%	-5.0%
2012	17,445	12,814	2,788	1,843	73.5%	16.0%	10.6%	-1.9%	-1.7%	-2.2%	-2.6%

Source Palau Population Censuses

Table 1b Working age population, economically active, and not economically active, 2000, 2005 and 2012

	Numbers			Percent		
	2000	2005	2012	2000	2005	2012
Working age population	14,241	14,755	13,927			
Labor Force	9,607	10,203	9,480	67.5%	69.1%	68.1%
Employed	9,383	9,777	9,089	97.7%	95.8%	95.9%
Employee - public sector	2,745	3,388	3,127	29.3%	34.7%	34.4%
Employee - private sector	6,500	5,849	5,072	69.3%	59.8%	55.8%
Self employed workers	99	529	712	1.1%	5.4%	7.8%
Unpaid family worker	39	11	178	0.4%	0.1%	2.0%
Unemployed ¹	224	426	391	2.3%	4.2%	4.1%
Not in Labor Force	4,634	4,552	4,447	32.5%	30.9%	31.9%

Source Palau Population Censuses

Note 1. Defined as "Other" in 2112 mini census

Table 3a Employment by institutional sector, numbers, FY2000-FY2012

(No. of workers, part and full time)	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012
1.1 Private Corporate Sector	3,183	3,398	3,544	3,207	3,025	3,366	3,263	3,241	3,069	2,837	2,684	2,760	2,863
1.2 Private Non-Corporate Sector	3,073	3,360	3,254	3,456	3,709	3,989	3,851	3,596	3,401	3,217	3,029	3,052	3,159
1.3 Public Enterprise	180	184	193	195	220	234	228	224	222	218	235	247	236
2.1 Depository Corporations	87	90	94	90	90	85	82	77	66	69	61	58	52
2.2 Other Financial Intermediaries	39	57	70	55	45	47	49	50	53	55	58	60	60
3.1 National Government	2,307	2,396	2,476	2,468	2,480	2,294	2,238	2,214	2,197	2,192	2,181	2,140	2,107
3.2 Government Agencies	406	408	399	436	448	447	455	478	485	474	480	450	442
3.3 State Governments	521	565	544	472	469	741	772	840	849	835	849	788	813
4 NGOs and Non_Profits	243	242	256	257	241	243	262	260	263	269	266	268	276
5 Households	360	441	486	629	800	933	1,020	1,013	933	878	844	774	667
6 Foreign Embassies	7	9	11	11	12	11	11	13	13	15	18	20	23
Total	10,405	11,149	11,327	11,276	11,538	12,389	12,230	12,005	11,552	11,058	10,706	10,617	10,699

Appendix 4

Completion Rates, 2005-2012 Public Elementary Schools

School Year	Cohort Enrollment in Grade 1	Graduates	Percentage
2004-2005	328	307	93.6%
2005-2006	355	305	85.9%
2006-2007	337	306	90.8%
2007-2008	320	268	83.8%
2008-2009	324	259	79.9%
2009-2010	311	227	73.0%
2010-2011	270	235	87.0%
2011-2012	259	210	81.1%

Appendix 5

Completion Rates, 2005-2012 Palau High School

School Year	Cohort Enrollment in Grade 9	Graduates	Percentage
2004-2005	241	141	58.5%
2005-2006	275	144	52.4%
2006-2007	268	143	53.4%
2007-2008	243	119	49.0%
2008-2009	260	147	56.5%
2009-2010	293	120	41.0%
2010-2011	331	167	50.5%
2011-2012	289	135	46.7%

Appendix 6

Diploma/ Degree	School Year 2010-2011		School Year 2012-2013		School Year 2010-2011 vs. 2012-2013
	No.	%	No.	%	Change in No. of Teachers
High School	113	47	102	42	-11
Associate	95	39	76	31	-19
Bachelor	17	7	56	23	39
Master	17	7	11	4	-6
Doctorate	0	0	0	0	0
Total	242	100	245	100	3

Note: Factors affecting changes in number of teachers in each category includes teachers obtaining higher degrees, promotions, and resignations.

Appendix 7

Status of Teacher Qualifications: Source Ministry of Education 2013

School Year	Total			Public			Private		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
2003-2004	4,245	2,181	2,064	3,231	1,680	1,551	1,014	501	513
2004-2005	4,195	2,107	2,088	3,161	1,621	1,540	1,034	486	548
Ratio female/male	0.96								
2005-2006	4,151	2,127	2,024	3,108	1,636	1,472	1,043	491	552
2006-2007	3,992	2,041	1,951	2,945	1,541	1,404	1,047	500	547
2007-2008	3,963	2,085	1,878	2,914	1,548	1,366	1,049	537	512
2008-2009	3,828	1,981	1,847	2,804	1,476	1,328	1,024	505	519
2009-2010	3,681	1,895	1,786	2,661	1,383	1,278	1,020	512	508
Ratio female/male	0.94								
2010-2011	3,512	0.92	1,679	2,528	1,331	1,197	984	502	482
2011-2012	3,392	1,759	1,633	2,417	1,267	1,150	975	492	483
2012-2013	3,327	1,722	1,605	2,397	1,247	1,150	930	475	455
Ratio female/male	0.92								
Total	38,286	19,731	18,555	28,166	14,730	13,436	10,120	5,001	5,119
Percent		52%	48%		52%	48%		49%	51%
Ratio Girl/Boys	0.92								

Ministry of Education 2013

Appendix 8

Appendix 7. MSA Expense Ministry of Health			
Benefit Expenditure for MSA	FY 2011	FY 2012	FY 2013
BNH Outpatient	\$ 118,361.43	\$ 483,227.51	\$ 116,864.93
Private Clinics Outpatient	33,458.23	377,574.78	263,465.09
Private Insurance Premiums	85,191.35	187,162.68	98,543.12
Refunds to Foreign Citizens	9,801.65	42,662.30	50,750.13
Total	\$ 241,432.09	\$ 1,090,627.27	\$ 529,623.27

Appendix 9 Referral Cases

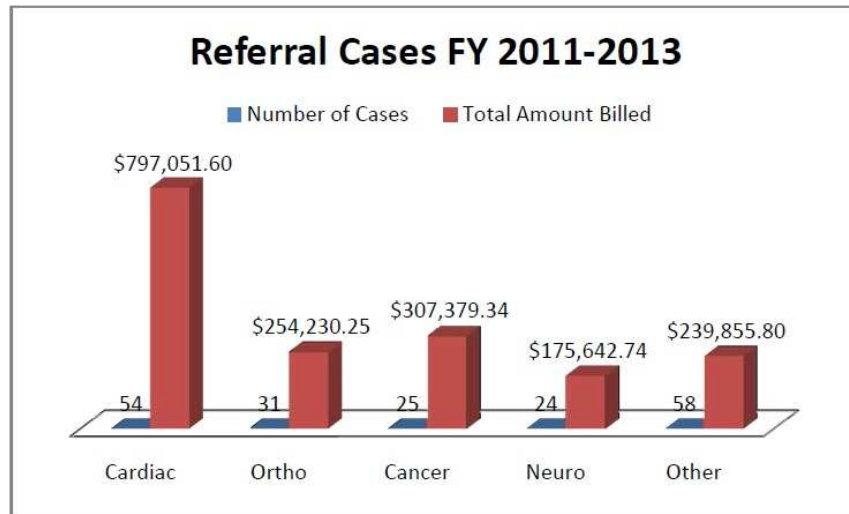
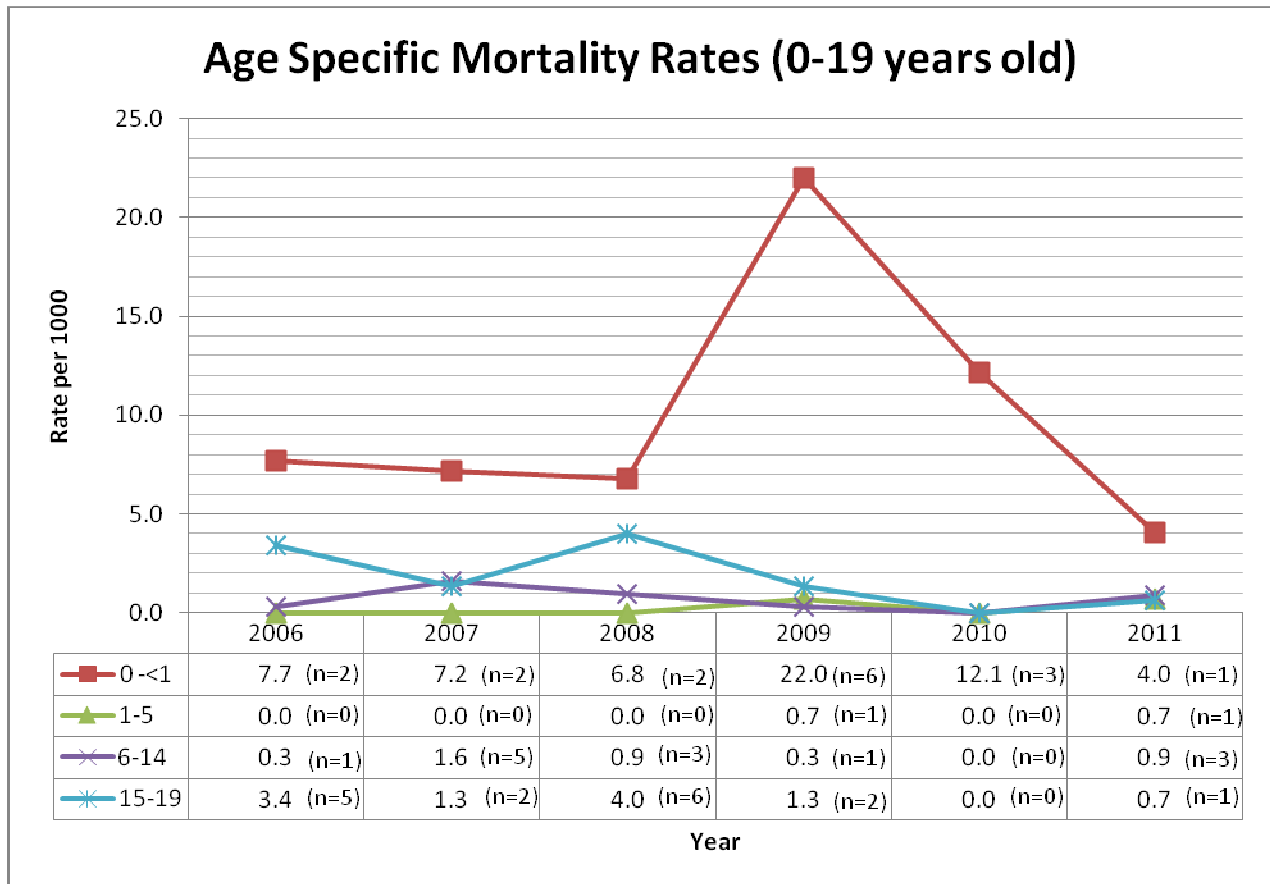


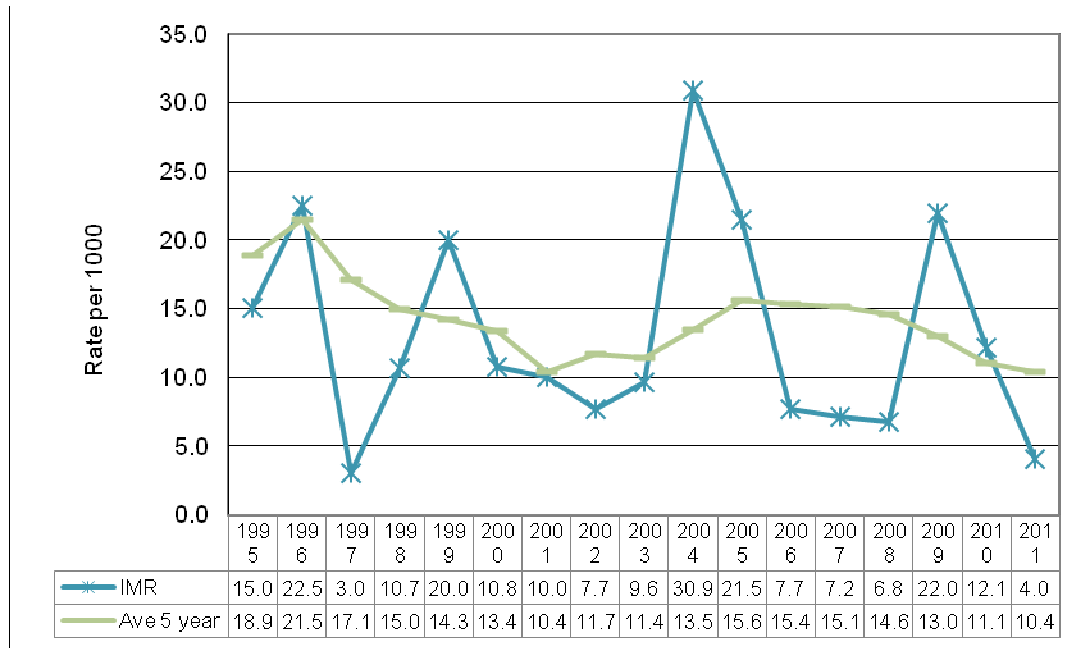
Figure 1: Number of cases per diagnosis and total reimbursement paid by NHI. Since the HealthCare Fund started reimbursements of approved patients for off-island referrals, a total amount of \$1,774,159.73 has been paid to Belau National Hospital. A total of 192 patients have been reimbursed by NHI: 184 MRP-NHI approved patients, 3 that paid their own airfare but received reimbursements, and 5 newborns.

Appendix 10



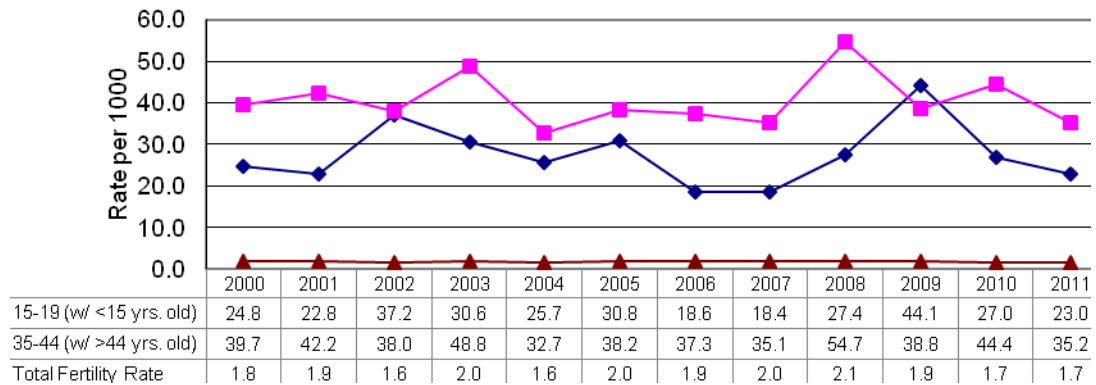
Appendix 11

Infant Mortality Rate (per 1000 Live Births) & 5-Year Running Average Years 1995-2011, Republic of Palau

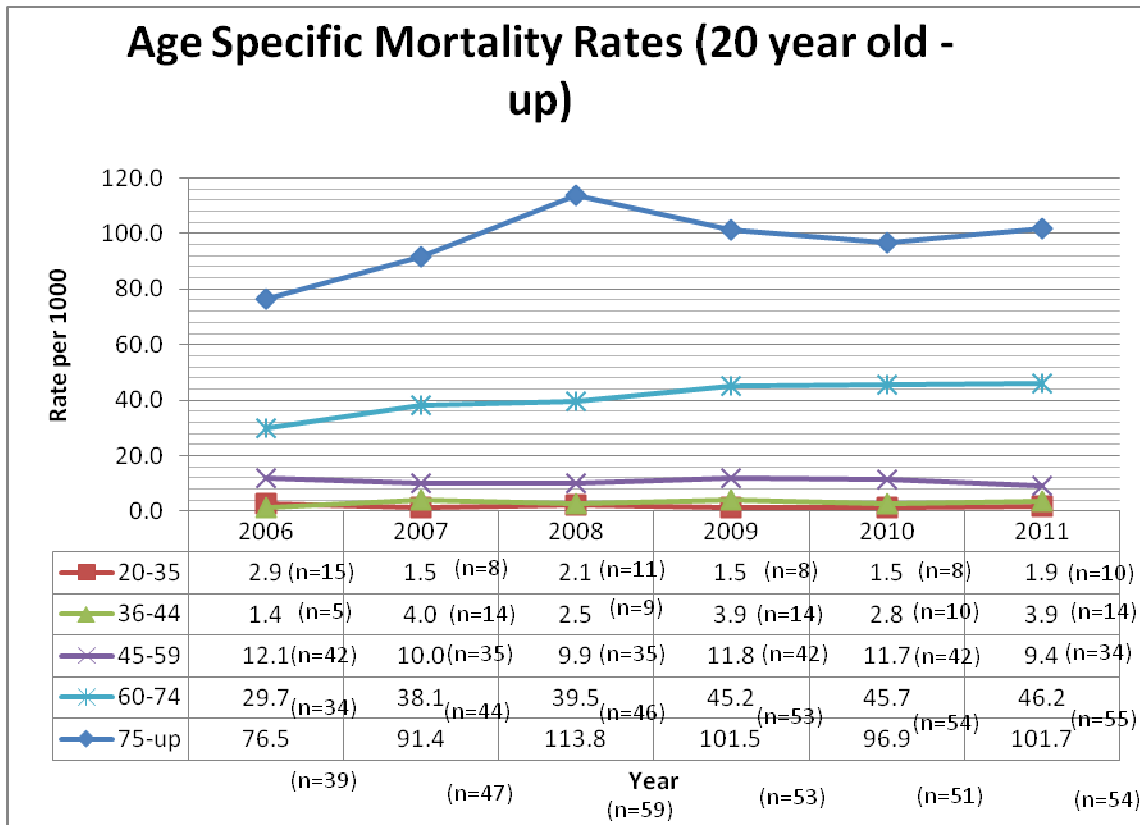


Appendix 12

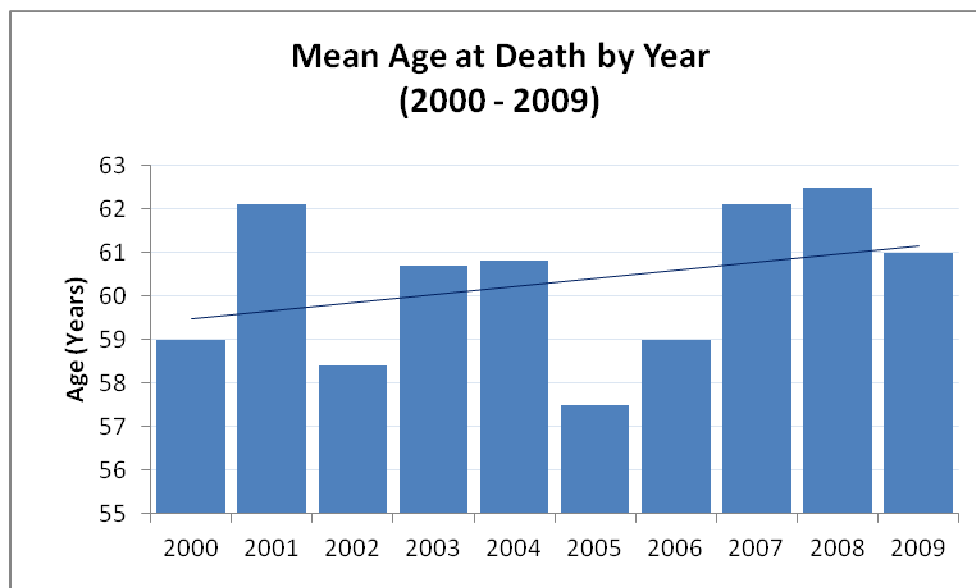
Comparison of the Age-Specific Fertility Rate of the High Risk Groups and the Total Fertility Rate, Years 2000-2011, Republic of Palau



Appendix 13



Appendix 14



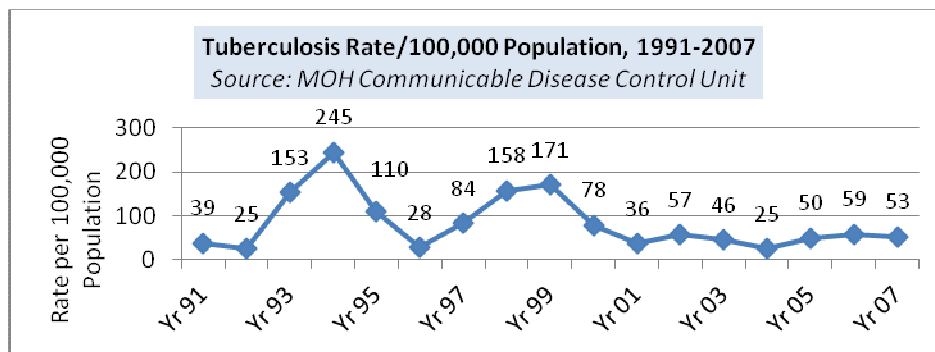
Appendix 15: Vital Health Statistics: 2005 to 2010

Vital Statistics	2005	2006	2007	2008	2009	2010
Total Population	19,907	21,146	21,196	20,389	20,552	20,717
Registered Live Births	279	259	279	295	275	247
Crude Birth Rates *	14.0	12.2	13.2	14.5	14.5	11.9
Registered Deaths	134	144	152	171	18	168
Crude Death Rates**	6.7	6.8	7.2	8.4	8.8	8.1
Registered Infant Deaths	6	2	2	3	6	3
Infant Mortality Rate***	21.5	7.7	7.2	10.2	21.8	12
Registered Fetal Deaths	5	6	2	1	6	1

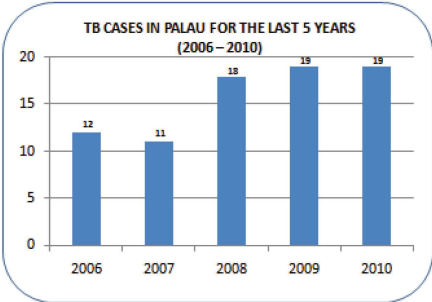
Source: Family Health Services, Ministry of Health

Appendix 16a

Tuberculosis Rates 1991-2007

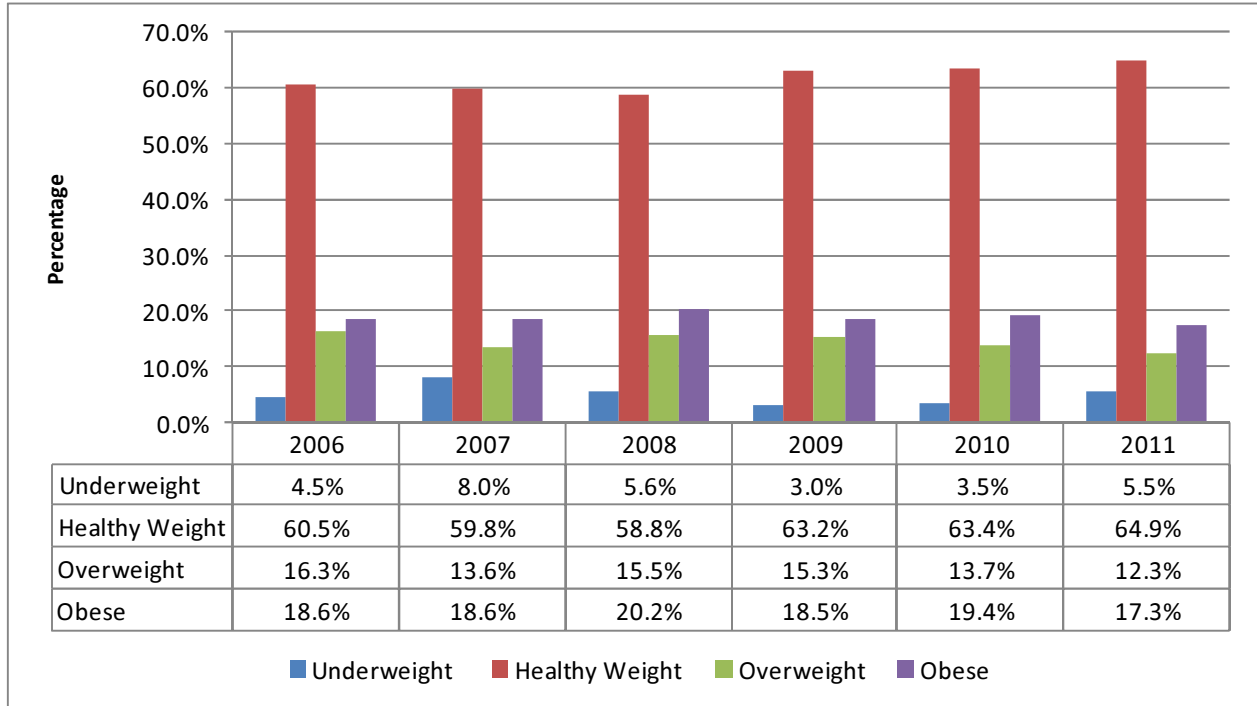


Appendix 16a

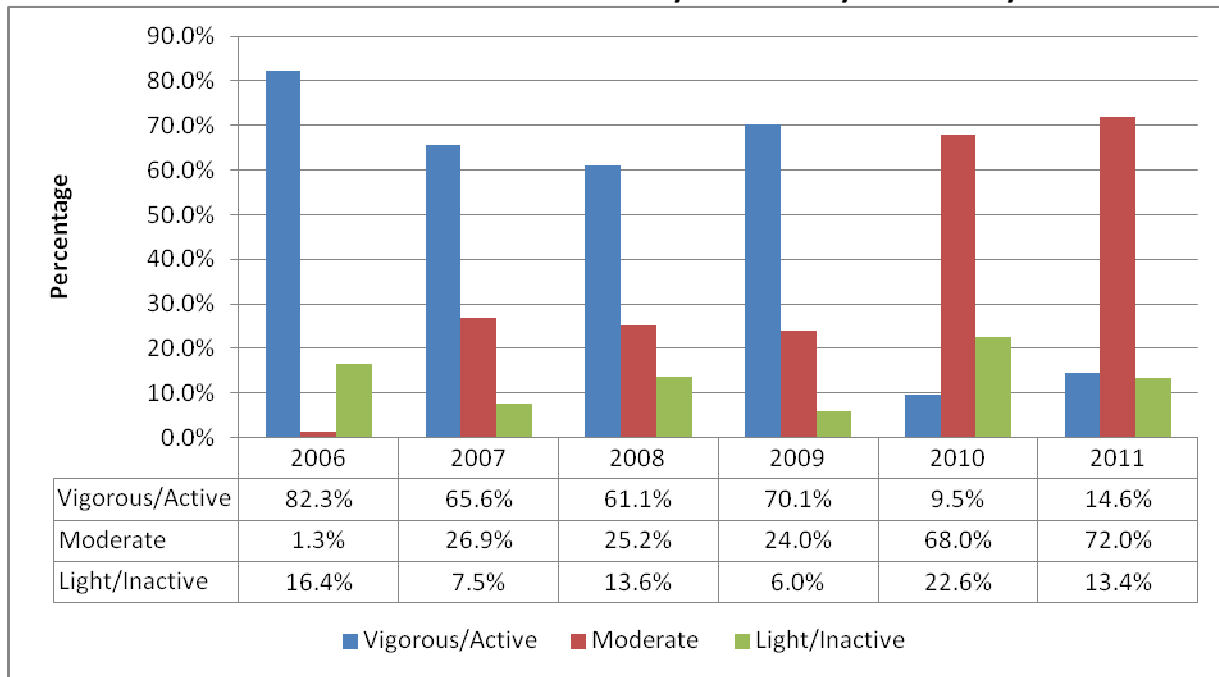


Appendix 17

Distribution of Students by Body Mass Index (BMI) Percentiles



**Appendix 18
Distribution of Students by Level of Physical Activity.**



**Appendix 19
Cross Tabulations: Overweight and various factors - 2011**

Variable	Overweight	Not Overweight	OR	CI 95%	P-value
Physical Activity					
Light	74	90	2.193	(1.567 – 3.068)	0.000
Moderate-Vigorous	288	768			
Total	362	858			
Depressed					
Yes	25	37	1.658	(0.983 – 2.797)	0.056
No	337	827			
Total	362	864			
Urban School					
Yes	238	514	1.287	(0.998 – 1.660)	0.052
No	127	353			
Total	365	867			

Appendix 20

Activities and projects by State

State	Activities to Address Non Communicable Disease
Aimeliik	School garden project that grew local produce
Airai	School exercise and nutrition program
Angaur	Community Walkathon ,Weight loss program
Hatohobei	Health Promotion Project- awareness, sports events, exercise
Kayangel	Gardening of local foods
Koror	Sweet & Soda Free Zone; Basketball Team-youth league championship
Melekeok	School Garden - fresh vegetables twice a week, Walk to school
Ngaraard	Sweet & Soda Free Zone; Biggest Loser Program
Ngaremlengui	Childhood obesity prevention measures
Ngarchelong	health promotion & exercise program
Ngardmau	Reduce portions to prevent over eating, use less fat, salt & sugar
Ngatpang	Health & Exercise Promotion
Ngchesar	Sweet & Soda Free Zone; Tobacco Chew & Smoke Free Zone; Biggest Loser Program/Saturday Night Lights Volleyball Tournaments
Ngiwal	Sugar Drinks & Salty Food Free Zone; Water Only Policy; community clean up
Peleliu	Sugar Drinks Free Zone; Beautification/Gardening/Traditional Healing Project
Sonsorol	Home gardening projects to grow local vegetables for home consumption.

Appendix 21

Characteristics of the agricultural marketing channels

Source: Tracey-White J. 2004. Central Market Feasibility Study FAO Project Number TCP/PAL/2902

Type	Consumption	Market Sale	Retained for gifting	Sold at farm gate
Taro	90%	60%	80%	
Sweet Potato	100%	60%	40%	
Cassava	100%	50%	100%	
Kankum	100%	70%		
Banana	100%	60%		25%
Betel Nut	100%	92%		30%
Coconut	66%	75%		15%

Appendix 22

Production by Farm Families (survey of 107 households)

Source: 2004 Central Market Feasibility Study John Tracey White.

Crop	Small Scale (lbs)	Market Gardens (lbs)	Commercial Farms (lbs)	Total
Taro	94,193	68,535	6,420	169,138
Other root crops	55,889	74,003	17,640	147,532
Vegetables	6,799	26,770	43,795	77,364
Fruit	107,441	88,797	33,698	222,936
Total lbs	264, 312	258,105	101,553	623,970
Ton/pa	120	117	46	284
Tons per household	1.97	3.26	4.62	2.65
Total Production crops for estimated 916 producers (tons)				2,427
Total National Consumption crops/fruit (tons)				5,973
Total National Consumption Fish (tons)				586
Total Visitors Consumption Crop (tons)				263
Visitors Fish				18
Total Consumption of Crops (National and Visitors)				604
Total Consumption of Fish (National and Visitors)				6236

- 120,000 visitors x 5 day/365 days= 1,640 yearly residents

Appendix 23.**Damages due to Typhoon Bopha****(Source: National Emergency Management Office 2013 Palau Typhoon Bopha Recovery Plan**

S N	Sector	Unit	Total destroyed	Ongoing efforts	Gaps	Remarks
1	Houses	No	112	32	25	136 major damages
2	People in temp. shelter	No				131
3	Agriculture land (Taro patches only)	Ha	30.11	Agri. Inputs distributed	Fund to buy & supply more inputs	Estimated loss in US\$ 843,287
4	School buildings	No	2	1 building	1 Ngaraard	
5	Communication	Lines				Back to normal
6	Electricity	Area				Back to normal
7	Drinking Water	No of popn.				Back to normal

Appendix 23

Energy Activities

- The CFL Distribution Campaign distributed 20,000 high-quality CFLs to replace less efficient incandescent light bulbs. Each household received two or three CFLs. This campaign saved an estimated 820 MWh, or approximately 29,000 gallons of fuel. (Funded by the EU's REP 5 project.) Problem is that these bulbs had ___ and require proper disposal.
- PECS-an energy efficiency demonstration building at the Public Works Building. Under the PECS project, this demonstration project showcased the energy efficiency upgrades based on an energy audit. The upgrades included replacing the lighting system, painting the roof white, and sealing air leaks around windows and doors. These upgrades will save an estimated \$340 a month on electricity for the building. (Funded by the EU's North REP project and SPC.)
- PECS- energy efficiency upgrades at the Capitol Complex- improved air conditioning system and limited access to thermostats. Savings: up to \$120,000/y in electricity bills. (Funded by the EU's REP 5 project.)
- Energy efficiency upgrades to other government buildings: lighting retrofits, roof painting, and window and door sealing. National building for Finance, Public Safety, and the Supreme Court building are slated for energy efficiency upgrades. (Funded by the EU's North REP project.)
- The campaign to phase out use of two-stroke outboard gasoline engines on boats has successfully led to replacement by more efficient four-stroke engines in the majority of boats, and especially in boats used in the tourism industry. Four-stroke engines consume less fuel and pollute less than two-stroke engines. (WHAT CAMPAIGN??)
- The energy awareness campaign Palau's National Congress (OEK) led to the adoption of the National Energy Policy and the Net Metering Act. The campaign focused on educating members of the OEK on legislative options to reduce energy consumption in Palau. (Funded by the EU's REP 5 project.)
- A program to reduce electricity consumption in outlying states focused on replacing larger, inefficient generators with more appropriately sized generators to match the load of the island. Palau plans to introduce solar PV technology in these outlying states.
- Community workshops and home energy audits are part of an ongoing energy awareness campaign. PPUC offers household and business energy audits to all customers. Household energy audits are an important part of the National Development Bank of Palau's Energy Efficiency Retrofitting program.
- The National Development Bank of Palau's Energy Efficiency Subsidy Program (EESP) (funded by the Governments of Austria and Italy in partnership with IUCN), Energy Efficiency Retrofitting Subsidy Program (funded by the EU's North REP project), and Renewable Energy Subsidy Program (RESP) (funded by GEF in partnership with UNDP) were established in 2008. The EESP provides home loans to families wanting to incorporate energy saving options into their new homes, which is estimated to reduce electricity usage in new homes by 15%. Under these programs, homeowner's may be eligible for subsidies on Energy Star appliances and solar water heaters. These subsidy programs recently gained recognition for Palau as runner up out of 30 countries for the Ashden Award for green energy solutions.

Appendix 24

Renewable Energy Projects

- The 100 kW grid-connected solar PV system at the Capitol Complex was installed in 2008 as part of the European Union's REP-5 program. This project is expected to generate enough energy to save the Government of Palau approximately \$40,000 a year on electricity bills.
- Palau's largest solar project is the grid-connected PV system at the Palau International Airport. This project, funded by the Japanese government, was installed in 2011 and has a capacity of 226.8 KW. The project will offset an estimated 80 tons of CO₂ emissions per year.
- The Government of Taiwan funded two solar PV systems in Palau—one at the National Hospital and one in front of the Ministry of Education. These projects have been problematic due to lack maintenance and upkeep. The solar PV system outside of the Ministry of Education is no longer functioning, and it is unknown whether the system at the National Hospital is still functioning.
- Other solar projects implemented in Palau include solar streetlights in Babeldaob (funded by the EU's REP 5 project) and solar streetlights in Koror (funded by the Government of Taiwan).
- The state of Angaur has solar panels on the roof of the port facility. The GEF Small Grants Programme funded this project.
- The state of Hatothobei installed stand-alone solar systems several years ago, but these systems are no longer functioning. Some of the problems identified with these projects included the use of technology inappropriate for the climate, lack of capacity to maintain the systems, and lack of funding for maintenance and parts.

Appendix 25 Financial Indicators for Sustainable Development (Sources: Republic of Palau 2013 FY2012 Economic Statistics, Graduate School USA, EconMAP, www.econmap.org)

Fiscal Indicators	2000	2005	2010	2012
Gross Domestic Product (GDP)	\$158M	\$206M	\$196M	\$228M
Percent of Total Revenues from Outside Grants	49%	51%	56%	49%
External debt	\$ 23M	\$ 22M	\$ 21M	\$ 28M
GDP per capita	\$9,202	\$10,406	\$9,394	\$10,938
Average wages for government employees	\$15,479	\$16,079	\$16,647	\$16,855
Percent of Total Expenditures for Investment	15%	18%	22%	19%
Total Net Value of International Stocks (Millions)	\$83.8M	\$0.6M	\$16.7M	\$43.1M

Appendix 26

Agricultural and Fisheries Sector Employment, Percent of GDP, Food Imports and Visitors

Year	2000	2005	2010	2012
Agriculture Sector				
Number of Employees	77	172	130	98
Percent of GDP	1.7	1.5	1.8	1.6
Fisheries Sector				
Number of Employees	119	105	105	101
Percent of GDP	4.4	4.2	3.7	3.3
Food and Beverage Imports			25,758	30,226

Value				
Number of Visitors	56,501	85,004	81,934	116,856

Appendix 27

Top Issues based upon literature review of communities and states (Kitalong 2011).

<i>Issues</i>	<i>No. of states</i>
Pollution- erosion & sedimentation, siltation, sewage, solid waste, air	13
Poor development: need maintenance, building codes, planning, regular transport to outer islands, mangrove loss and overgrowth; coral dredging,	13
Loss of local knowledge, practices & ethics, limited protection & management of cultural sites	12
Declines of marine fish & shellfish (clams, crabs, urchins)	11
Crop diseases, dangerous animals; pests, invasive species	11
Climate Change Impacts, coral bleaching, shallowing of near shore areas, fresh water shortage, shoreline erosion, salt intrusion in taro patches	10
Poaching; foreign fishing, non-resident users, poor compliance to laws, destructive fishing methods, increased boat use	8
Burning; fire, poor soils	6

Appendix 28.

Top Ranked Issues based upon 33 responses. A low score was a higher ranking

Rank	CC Impact
1	Sea level rise
2	Coastal erosion
3	Decline in natural resource
4	Loss of habitat
5	Warmer temperature
6	Pollution
7	Loss of income
8	Loss of traditional knowledge