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Regional: Mainstreaming Environmental Considerations in Economic and Development Planning Processes in Selected Pacific Developing Member Countries (Financed by TASF)

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For ADB

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Asian Development Bank

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Republic of Palau

COUNTRY ENVIRONMENTAL ANALYSIS

**Mainstreaming Environmental Considerations in
Economic and Development Planning Processes**



FINAL REPORT

**Prepared by
John E. Hay and Georgine "Midth" Bells**

April 2007

For Palau, The Environment is the Economy

**His Excellency
The Honorable
Tommy E. Remengesau, Jr.**

President of the Republic of Palau

**Keynote Presentation at the
'The National Dialogue on Integrating Environmental Considerations in Economic and
Development Planning Processes in Palau'**

1 February 2007

Summary for Policy and Decision Makers and Other Stakeholders

1. The Asian Development Bank (ADB) uses the country environmental analysis (CEA) as the tool to assist with early incorporation of environmental considerations into the country strategy and program (CSP) for its developing member countries. The CEA provides targeted information necessary for informed decision making on environmental constraints, needs, and opportunities, including those that impinge upon poverty partnership agreements, as appropriate. The focus is on adding value to planned and ongoing development initiatives by reducing environmental constraints and exploiting environment-related opportunities.

2. This CEA for Palau describes the environmental issues that are most important to Palau's development strategy, as well as ADB's current and possible roles to help remove the environmental constraints on sustained development and to help take advantage of opportunities offered by the environment and natural resources of Palau. The CEA is directed in part at the policy, program, and sector levels, but the principal focus is on identifying how opportunities and constraints presented by the environment and natural resources of Palau can be addressed by way of environment-related projects in the assistance pipeline.

3. The present CEA for Palau includes a situation analysis. This describes the recent changes in the state and management of the environment of Palau, identifying both improvements and deterioration in environmental practices and quality. In each instance, the causes (i.e., drivers) of the changes are identified, as are the lessons learned and, where appropriate, the success stories and success factors. The lessons learned are also presented for situations where there are opportunities for improvements in environmental management and quality. The ways in which the environment and natural resources of Palau underpin the economy of Palau are also documented. Details of ADB's strategic priorities for Palau are provided, along with a summary of current ADB operations for Palau. The report also describes ways in which increased attention to environmental considerations by the key development sectors will benefit both the economy at large, as well as society. Priorities for action are identified, based on consultations with stakeholders and on the findings of the situation analysis. The implications for national policy and practices, as well as for ADB's assistance to Palau, are highlighted. Thus the report identifies priority improvements in policy, institutional and legislative mechanisms, as well as programs and projects that will help to mainstream environmental considerations into economic development planning.

4. The findings and recommendations presented in this report are based on an in-depth participatory, consultative process, supported by a literature review and research. Extensive in-country consultations involved government, communities, the private sector, and non-governmental organizations (NGOs). The consultations included a National Dialogue. The preliminary findings were presented at the National Dialogue and subsequently strengthened through discussion and sharing of additional information and insights. Formal and informal activities conducted as part of the CEA were also designed to strengthen understanding among key players involved in policymaking, economic planning, and environmental management, at both national and community levels. The focus was on key environmental and natural resource management issues and their influence on achieving macroeconomic, national and community development goals.

5. Palau is on the brink of rapid large-scale development. Both the completion of a 53-mile circumferential road and the relocation of the national capitol to Palau's largest island, Babeldaob, are expected to catalyze significant development on the island. Developmental pressures will no longer be limited to the present national capitol and commercial center, Koror, but in the very near future will spread to most of Palau. The increasing pace and scope of development in Palau makes this a critical time for effective measures to conserve

Palau's unique environment and natural resources.

6. All of Palau's medium term development plans reflect the important contributions the country's environment and natural resources make to the economy, not only at the national level, but also at the state and community levels. The total value added from tourism in Palau is approximately US\$28 million annually, or just under 25% of current GDP. Palau's long line tuna industry has an average annual gross value of US\$28 million. Palau's inshore fishery is valued at about US\$5.1 million per year for both subsistence and commercial fisheries. The value added of inshore fisheries is estimated at US\$3.5 million. The El Niño event of 1998–1999 caused massive coral bleaching, during which a 9% drop in annual tourism revenues occurred, incurring an overall economic loss estimated at US\$91 million. The coastal ecosystems of Palau have many other values in addition to those related directly to fisheries and tourism. The total present net economic value of all compatible uses of these resources is estimated to be \$35 million annually. Terrestrial ecosystems and resources are also vital components of the economy and culture of Palau. Palau could potentially avoid costs of US\$2 million per year by reducing or preventing solid waste pollution across the island. The most significant annual costs of this type of pollution in Palau were found to be through lost tourism (US\$1 million), healthcare and illness (US\$700,000), public waste collection and dumpsite operation (US\$100,000), and loss of near shore fish catch (US\$90,000).

7. At all levels, from national to community and household, considerable effort has and is being made to improve environmental and resources use practices. In some instances, it is possible to document the resulting changes in the quality of the environment and natural resources, but in many instances the relevant data are lacking. Maintaining if not improving the quality of the environment, and the abundance of natural resources, is given high priority in part because of their importance in both the formal and informal (subsistence) economies of Palau. Another motivation is anecdotal and documented evidence of declines in environmental quality and in the abundance of natural resources. Currently, Palau has 28 conservation areas established and protected by State and/or National legislation. Additionally, Palau is well placed regarding the targets in the recently launched Micronesia Challenge.

8. In general, although Palau's legislative mechanisms are supportive of protecting Palau's natural resources, additional statutory standards and regulatory authority are needed. Further, to reflect a significant economic growth trend over the past ten years, the Environmental Quality and Protection Board (EQPB) regulations should be strengthened to better reflect Palau's socio-economic and environmental conditions, including the rapid pace of development. A critical component to legislative support is the ability to enforce enacted legislation. With Palau's limited financial and human resources, enforcement of existing environmental and natural resource management regulations is strained. In addition, to address emerging sustainable development issues within the Republic, new legislation is enacted at frequent intervals. This adds additional responsibility to the agencies that already have difficulty monitoring and enforcing existing regulations.

9. Pressures on Palau's coastal resources arise from large-scale phenomenon such as elevated ocean temperatures and coral bleaching, in part associated with El Niño/La Niña, and local-scale activities such as overfishing and tourism overuse. Not only has the population of Palau increased significantly in recent times, but people are now collecting resources, especially in the marine environment, with new and more effective gear. Now they rarely use the traditional methods that tended to limit the harvest. More and more, people are collecting or harvesting resources for monetary income rather than solely for local subsistence uses. In addition, projects such as road building, mangrove filling, and dredging are altering habitats in many areas to such a degree that once abundant marine species are now hard to find. Taro patches are also not as productive as they once were. There is a

growing trend in Palau away from the traditional small-scale farming and agroforestry methods used by women. New farms are larger, have cleared fields planted with single, often non-native, crops that are destined for restaurants and supermarkets in Koror. Fertilizer and pesticide use is increasing, as are problems with sedimentation and erosion from cleared and poorly maintained fields.

10. Accumulation of mud resulting from erosion in adjacent catchments has become a major issue for many communities, especially those living around the estuaries of Babeldaob. There is evidence of major declines in fish catch. The 1997–1998 coral bleaching event in Palau was widespread, but variable among different sites. Approximately one-third of Palau's corals died, with coral mortality as high as 90% in some areas. Impacts of the elevated water temperature were seen in other habitats such as the famous "Jellyfish Lake," which experienced a complete mortality of the medusa stage of *Mastigias* spp. Since 1997-1998, localized episodes of coral bleaching have occurred periodically at various sites, though these were not as severe or widespread as the 1997–1998 event. The localized bleaching events are probably due to disease or other localized stress at the microhabitat level.

11. Violations notified by EQPB doubled from 2003 to 2004, but in total the number have remained consistent since then. This is attributed to the introduction of best management practices for oil and to the lack of budget increases, resulting in the lack of increased capacity. The continuing increased incidence of permit violations and expirations, along with earth moving without a permit, are matters of considerable concern. This is especially the case for earth moving activities, given the issues of erosion and sedimentation. Currently, only around 10% of dumpsites in Palau meet EQPB regulatory requirements. A commercial operator is now providing a waste collection service in Arai on a user-pays basis. In Koror, the State provides a similar service for free.

12. While Palau does not usually suffer the direct consequences of a typhoon, heavy rains and strong winds associated with tropical disturbances are relatively common. The possibility that such extreme events will become more severe and frequent as a consequence of global warming cannot be ruled out. Global warming is also increasing the risk of higher sea levels and ocean temperatures as well as increased incidence of drought. All these changes could be devastating for Palau. Presently, coral bleaching is considered one of the greatest threats to Palau's coral reef ecosystems. According to climate change projections, Palau's significant watersheds will also be highly affected by global warming. Increasing drought and severe storm patterns, of which Palau has seen a significant increase over the past ten years, has caused severe economic strain on Palau's infrastructure. In the peak of the 1998 El Niño, Palau had the lowest rainfall on record for more than 100 years. Water supplies were depleted, agricultural production decreased by over 50%, and fires burned out of control throughout many islands.

13. The present patterns of vegetation, organic matter, nutrient status and erosion potential for the 66% of Babeldaob with upland volcanic soils are a result of land clearing, fire and erosion. Forest clearing, burning and erosion increases the fragility of the soils, decreases organic matter content and fertility, and increases levels of soluble aluminum, limiting plant growth. Fire starts the land degradation process by removing protective cover, increasing erosion potential, and reducing the benefits of high soil organic matter. Thus, fire reduces biomass production as well as the capacity for nutrient recycling. The low organic matter content reduces capacity to retain nutrients and for them to complex with aluminum, making this unavailable for limiting plant growth. Severe erosion, including gullying, will occur in areas devoid of vegetation. Once it is removed, the high aluminum content and low fertility make it very difficult to revegetate such areas.

14. Completion of the Compact road is expected to provide substantial opportunities for

farmers to grow and sell more products locally, through improved access to Koror. However, the lack of a central market, and an inefficient transportation and distribution system make it difficult for farmers and fishers to supply the main demand centers efficiently. There is considerable potential for domestic food needs to be met by an expanded agricultural sector, especially in Babeldaob. However, the likelihood of early growth in the agriculture sector is low, due to a variety of factors which will need to be addressed patiently through a well thought-out development strategy if the sector is to realize its potential.

15. While most States lack sufficient expertise and other resources to complete comprehensive, long-term plans, there is a general willingness to take on more responsibility for land use planning and implementation. This includes preparing and implementing State zoning regulations and building codes, consistent with national provisions. Zoning regulations are needed to ensure that, within a particular area, any development is not detrimental to critical habitats such as watersheds and mangroves. In addition, zoning may provide for a more uniform development structure, such as residential, tourism and industrial.

16. The upcoming Economic Symposium and other preparations for the Compact negotiations represent a window of opportunity for Palau to improve environmental quality and the management of its natural resources. ADB is providing assistance to the Government to prepare a national development plan, including a program for infrastructure maintenance and management. The resulting infrastructure road map will include mainstreaming environmental considerations in the infrastructure sector. Aspects of the 2020 National Master Development Plan (NMDP), and other plans, have been implemented, but on a somewhat ad hoc basis. There is a need to streamline and more effectively coordinate the implementation of the various development plans. National policy level agencies, such as the Office of Environmental Response and Coordination (OERC) and EQPB, should work closely with the States, and share benefits with States. However, this will be a major challenge, in part due to poor working relationships between National and State Governments in the past and the very low capacity of the States to fulfill their responsibilities.

17. While public expenditure relative to GDP trended down from 1994 to 2005, it remains high at 60–65% (Office of Planning and Statistics, website). US financial assistance through the Compact of Free Association is key to the large public sector. Palau is facing a period of substantial fiscal adjustment as the current Compact allows for the end of basic grants for operations and maintenance in 2009. When financial aid ends, Palau will no longer benefit from substantial grant and in-kind support provided for capital projects, and the Government has planned cuts in current expenditure. While some success has been achieved in expenditure control, the slow rate of progress suggests that such initiatives cannot be solely relied upon to meet the looming shortfall in current revenue. The required fiscal adjustment could be lessened through private sector led growth. There is substantial potential for expansion of activities such as tourism, agriculture and aquaculture. This would boost revenue collection and allow for the transfer of some responsibility for infrastructure to the private sector. It would also provide an alternative source of employment for Palauans displaced from the public sector.

18. Growth prospects are probably weak if Palau chooses to retain the current economic and social structure and a cautious approach to increased foreign involvement in business. Palau's current high income levels and high standard of living are probably unsustainable. The Government and the people of Palau will likely be faced with some difficult choices and decisions in the next few years if Palauans are to continue to enjoy the relatively high standards of health, education, and other public utilities which have been provided mostly free or heavily subsidized by the Government. Both the environment and natural resources of Palau provide substantial further development opportunities, in such sectors as agriculture, fisheries, tourism and energy. There is widespread agreement on the desirability

of, and opportunities for, environmental and related improvements in the key economic sectors. But there is no consensus on how these opportunities might be realized, including values that must not be compromised and how benefits might be shared amongst stakeholders. It is clear that many of the necessary changes will have to be initiated and facilitated by the National Government, in a whole of country approach that brings together the States and the traditional leadership, and builds on the development plans currently being prepared as part of community visioning and other initiatives.

19. Economic and social development is facilitated by access to reliable and affordable energy and water supplies, as well as secure tenure (leasehold or ownership) of appropriate land and an effective and efficient transport infrastructure. The increased water consumption resulting from economic and social progress in the coming years will necessitate further development of Palau's surface water resources, including identification and development of additional water sources (e.g., watersheds) and water storage facilities, as well as expansion and upgrading of water reticulation systems. In order to promote further sustainable development, and encourage commerce and trade as well as interstate travel, secondary and connecting roads need to be constructed or improved, especially those that link with the new Compact road.

20. Agriculture growth and development has been modest and, relative to other sectors, has in fact declined significantly in recent years. But there is substantial potential for future expansion. One opportunity is to increase subsistence and semi-subsistence production through diversification, and thereby encourage both import replacement and export. The knowledge and skills of most farmers will need to be strengthened to ensure their activities are sustainable, including adoption of appropriate conservation practices.

21. One challenge is to achieve greater returns on a sustainable basis from Palau's offshore and inshore marine resources, and also increase local involvement, while maintaining both adequate extraction levels for subsistence, and the protection of the natural marine environment for tourism and cultural purposes. Aquaculture presents a viable alternative to the use of natural marine resources to support the tourism industry and meet local consumption demands. Aquaculture can also be an important new income-generating industry with the added benefit of reducing pressure on existing marine resources as a result of overharvesting and other unsound practices.

22. Tourism offers the greatest potential to support sustainable economic growth and development in Palau, but realizing this potential requires full recognition of the vulnerability of Palau's unique natural environment as well as the potential for adverse impacts from mass tourism. Tourism can continue to be a very valuable industry for Palau, but only if an increasing portion of each tourist dollar spent stays inside the country and in turn generates additional income generating opportunities. For this to happen, tourist accommodation and services, and the production and supply of food and souvenirs, need to have a large domestic component. Diversification of tourism products will help minimize detrimental environmental impacts, by spreading the pressure on the environment. This can be achieved by expanding tourist products to include activities other than diving (e.g., inland ecotourism and community-based tourism). Ideally tourists should come from the high-end of the market. Such tourists are more likely to seek an authentic cultural experience and also undertake activities that have less of an impact on the environment or culture. But in turn, high-end tourists demand a high quality experience provided by natural ecosystems and the wider environment. The services infrastructure provides are essential not only for ensuring tourist satisfaction and the longer-term viability of the tourism industry, but also for minimizing environmental impacts.

23. The Palau Public Utility Corporation has already assessed its future power generation needs, but has not yet explored the full potential of renewable energy for Palau.

Palau currently has no comprehensive regime of laws and regulations to regulate the conduct of oil and gas exploration and exploitation activities in the Republic.

24. Five broad priorities for action were identified to help reduce environmental constraints and maximize the development opportunities provided by Palau's environmental assets and natural resources. The priorities for action have major implications for national policies and practices, as well as for ADB and Palau's other development partners.

25. **Enhancing and Integrating Resource Development and Environmental Management.** Principle opportunities for growth lie in sectors which are highly reliant on access to, and development of key natural resources, mainly land, marine and terrestrial ecosystems, and water and renewable energy. In order to minimize the impacts on the environment and natural resources from development, it is important to strengthen natural resource and environmental management. Key components requiring strengthening are institutions, legislation, the development planning cycle, infrastructure, education, awareness raising, monitoring (status, performance and compliance) and enforcement.

26. **Developing and Utilizing Indigenous and Renewable Energy.** The absence of a comprehensive energy policy, strategy, or regulatory framework for energy sector operations at any level has not obligated the energy sector to support or implement renewable energy initiatives. Additionally, the private sector is reluctant to invest in this technology without any established government policies, programs, or incentives. While Palau has limited indigenous sources of energy, there are parties interested in exploratory work, particularly for oil and gas. Thus far, Palau has refrained from allowing such work, in part because there is no adequate framework for allowing activities that have such potentially high environmental risks. A possible solution is to strengthen the existing environmental assessment (EA) and environmental impact statement (EIS) processes, under the jurisdiction of the EQPB. But the framework must go beyond merely improving environmental regulatory procedures and address, among other things, benefit sharing, resource ownership, and tax and business laws to prevent unethical business acts.

27. **Providing Safe and Secure Water Supplies and Adequate Sanitation.** The development that is anticipated for Babeldaob as a result of completion of the Compact Road represents four important challenges related to water and sanitation services: (i) ensuring appropriate protection of all watersheds that are currently used to provide potable water to both urban and rural populations, as well as those watersheds that may be used for this purpose in the foreseeable future; (ii) ensuring that the water and sanitation infrastructure has a capacity consistent with the anticipated current and future demand; (iii) land use plans and zoning and building regulations are such as to minimize the cost of providing water and sanitation services in an environmentally sound manner; and (iv) the design, construction and operation of the required water and sanitation systems demonstrate best practice in terms of addressing environmental considerations, with respect both to the impact on the environment and to the ways in which environmental conditions will influence the sustainability of the infrastructure investment. These challenges will require a substantial increase in State capacity, amongst other needs.

28. **Addressing Land Use Issues, Including Tenure, Access, Planning and Management.** As Palau moves towards a modern market economy, issues related to land tenure and effective land use planning are taking on ever increasing importance. A major constraint on economic development in Palau is the uncertainty over property rights and, particularly, over title and rights to land. This uncertainty is a serious barrier to investment in all sectors of the economy and is also causing considerable social hardship and distress. In general, States have been unable to complete their land use plans due to a severe shortage of available technical, financial and human resources, rather than any lack of commitment.

29. **Managing Biodiversity, for Use and Conservation.** Palau relies on its environment and natural resources to sustain its economy. Consequently, managing its biodiversity is essential. Although Palau has taken significant strides in developing the framework to manage biodiversity, implementation is now needed urgently. Palau's NBSAP proposes that all traditional resource owners and communities be fully involved in and be the primary beneficiaries of conservation and use of Palau's biodiversity, with the rights of traditional ecological knowledge holders being fully protected.

30. To help address the above five priority areas for action, **seven project interventions** are proposed, namely:

- Enhancing Environmental Management Capacity at National and State Levels;
- Coordinated Development of Renewable Energy at Community, State and National Levels;
- Mainstreaming Environmental Considerations in Water and Sanitation Infrastructure for Babeldaob;
- Strengthening Public Land Authorities at State and National Levels;
- Preparation and Implementation of National and State Land Use Plans, Zoning Regulations and Building Codes;
- Ensuring Maximum and Equitable Flows of Benefits from Biodiversity Conservation and Resource Management; and
- Minimizing the Impacts of Land-based Sources of Pollution on Palau's Marine Ecosystems.

31. It is unrealistic to expect that all the projects could be implemented in the immediate future. Likewise, it is not realistic to suggest that ADB could provide all the necessary assistance, technical or otherwise. Collaboration, cooperation and coordination with the Government and amongst development assistance partners will be required if substantial progress is to be made in implementing the proposed projects in a timely manner.

32. The two key practical acts by Government that will help achieve these outcomes are: strengthening the enabling environment for environmental management; and ensuring that the existing policies that integrate environmental considerations into current and new development plans, project implementation and development assistance are implemented in a timely and effective manner. Strengthening the enabling environment requires further attention be paid to implementing performance-based budgeting, enabling more productive and sustainable use of land, ensuring progressive and enforced legislation and regulations, institutional strengthening, upgrading staff knowledge and skills, supporting environmental advocates and champions and improving information acquisition and management systems.

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List of Acronyms

ADB	-	Asian Development Bank
CCRF	-	Coral Reef Research Foundation
CEA	-	country environmental analysis
CSP	-	country strategy and program
CSPU	-	country strategy and program update
DFWS	-	Division of Fish and Wildlife Service
DMLE	-	Division of Marine Law Enforcement
EA	-	environmental assessment
EEZ	-	exclusive economic zone
EIS	-	environmental impact statement
EQPB	-	Environmental Quality Protection Board
GDP	-	gross domestic product
GIS	-	Geographic Information System
JICA	-	Japanese International Cooperation Agency
MAP	-	Management Action Plan
MAREPAC	-	Marine Resources Pacific Consortium
MC	-	Micronesia Challenge
MRD	-	Ministry of Resources and Development
MPA	-	marine protected area
NBSAP	-	National Biodiversity Strategy and Action Plan
NCI	-	US National Cancer Institute
NEMS	-	National Environmental Management Strategy
NEPC	-	National Environment Protection Council
NEMO	-	National Emergency Management Office
NGO	-	nongovernment organization
NMDP	-	2020 National Master Development Plan
OEK	-	Olbiil Era Kelulau
OERC	-	Office of Environmental Response and Coordination
PAN	-	Protected Areas Network
PALARIS	-	Palau Automated Land and Resource Information System
PARD	-	Pacific Department (ADB)
PCAA	-	Palau Community Action Agency
PCC-CRE	-	Palau Community College Cooperative Research and Extension
PCS	-	Palau Conservation Society
PECS	-	Palau Energy Conservation Strategy
PFFA	-	Palau Federation of Fishing Associations
PICRC	-	Palau International Coral Reef Center
PNRC	-	Palau Natural Resource Council
PPLA	-	Palau Public Lands Authority
PPUC	-	Palau Public Utilities Corporation
RE	-	Renewable Energy
SOPAC	-	South Pacific Applied Geosciences Commission
SWOT	-	strengths, weaknesses, opportunities and threats
TA	-	technical assistance
TEI	-	The Environment Incorporated
TNC	-	The Nature Conservancy
UN	-	United Nations
UNESCO	-	United Nations Educational, Scientific and Cultural Organization

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I. INTRODUCTION

1. The Asian Development Bank (ADB) uses the country environmental analysis (CEA) as the tool to assist with early incorporation of environmental considerations¹ into the country strategy and program (CSP) of each of its developing member countries. The CEA provides the targeted information necessary for informed decision making to address, in an appropriate manner, environmental constraints, needs, and opportunities, including those that impinge upon poverty partnership agreements. The focus is on adding value to planned and ongoing development initiatives by reducing environmental constraints and taking advantage of environment-related opportunities.

2. Preparation of the CEA involves a participatory process at both country and ADB levels. This is initiated before the CSP, and continues through CSP preparation. The CEA is directed at the policy, program and sector levels, but it also highlights issues and opportunities associated with environment-related projects in the pipeline.

3. The technical assistance (TA) to Palau to assist with preparation of this CEA had as its main objectives the mainstreaming of key environmental considerations into economic and development planning processes, and to contribute to the alleviation of poverty in Palau. The TA to Palau was also designed to strengthen understanding among policymaking, economic planning, and environmental authorities about key environmental and natural resource management issues and their influence on achieving macroeconomic and national development goals.

4. This CEA for Palau therefore focuses on:

- ADB's strategic priorities for Palau, and a summary of current ADB operations for Palau;
- recent changes in the state and management of the environment of Palau, including both improvements and deterioration in environmental practices and quality;
- the causes (i.e., drivers) of the above changes, as well as the lessons learned and, where appropriate, the success stories and success factors;
- the lessons learned where intended changes in environmental management and quality have not occurred;
- the ways in which the environment and natural resources of Palau underpin its economy;
- ways in which increased attention to environmental considerations by the key development sectors will benefit both the economy at large, as well as society;
- priorities for action, based on consultations with stakeholders and on the above findings;
- the implications for national policy and practices, including priority improvements in policy, institutional and legislative mechanisms, as well as programs and projects that will help to mainstream environmental considerations into economic development planning; and
- the implications for ADB's assistance to Palau.

5. **Methodology.** The findings and recommendations presented in this report are based on an in-depth participatory, consultative process, supported by a literature review and research (Figure 1). In January and early February 2007, ADB fielded a mission² to Palau during which meetings with over 60 stakeholders (individuals and groups) were conducted (see Annex 1). Stakeholders included Government, civil society, including non-governmental organizations (NGOs), the private sector, bi-lateral donors and regional and international organizations.

¹ Environment includes: ecosystems and their constituent parts, including people and communities; all natural and physical resources; amenity values; all related social, economic, aesthetic, and cultural conditions and considerations.

² Prof. John E. Hay, Environmental Management Specialist, assisted by Ms. Georgine "Midth" Bells, Domestic Consultant, conducted in-country activities from 11 January through 2 February 2007. Prof. Hay's and Ms. Bell's consultancies were supported under ADB TA 6204-REG Mainstreaming Environmental Considerations in Economic and Development Planning Processes in Selected Pacific Developing Member Countries.

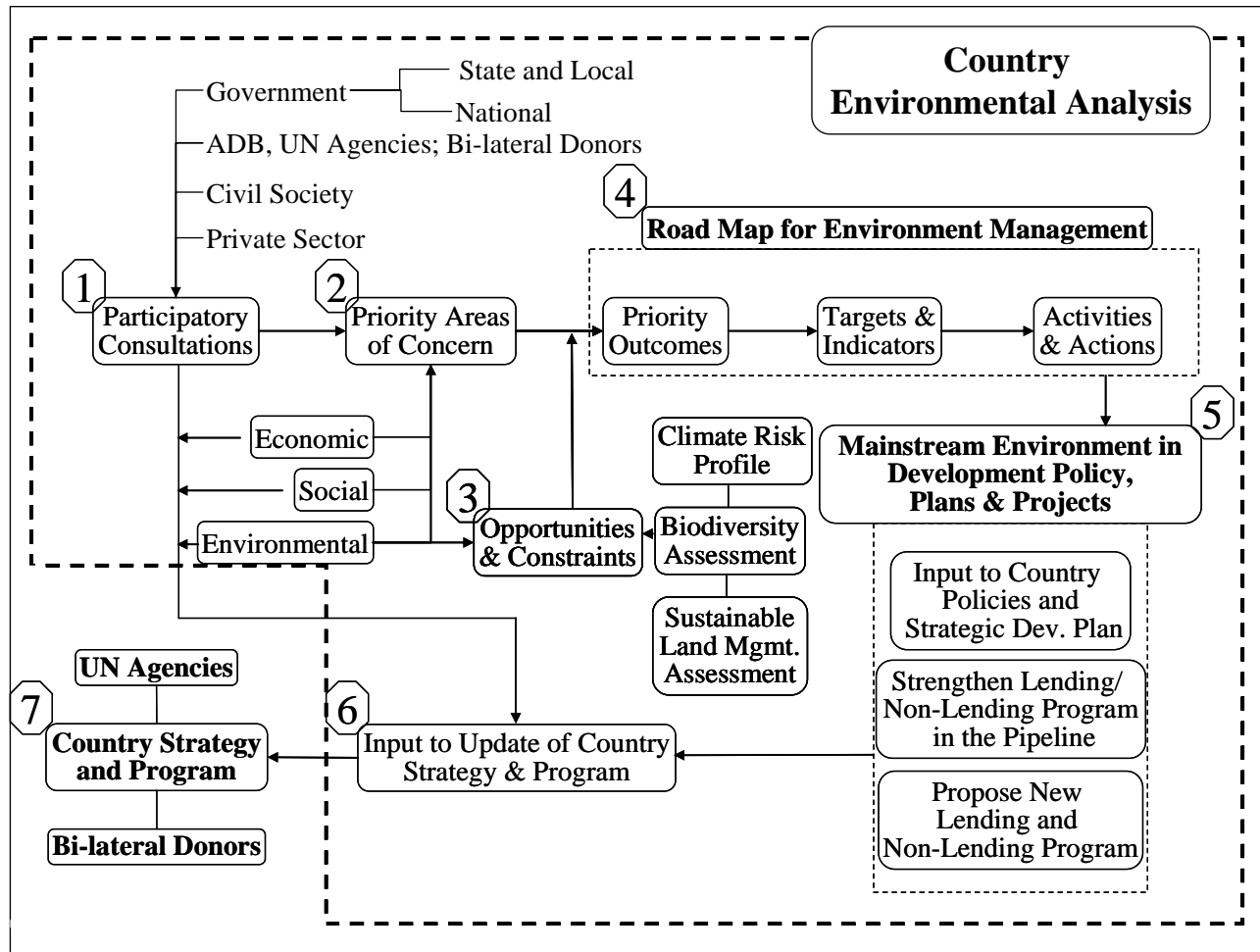


Figure 1. Process diagram for the country environmental analysis (CEA) in Palau.

6. The extensive consultations also included organizing and hosting a one-day National Dialogue³. Over 45 key stakeholders participated in the National Dialogue and provided valuable feedback on the preliminary CEA findings and recommendations. The participants represented a wide cross-section from various sectors, including Government (elected officials and Government employees), NGOs, the private sector, bi-lateral donors and international and regional organizations. The agenda and list of participants for the National Dialogue are provided as Annex 2.

7. The consultations and National Dialogue helped to confirm the preliminary findings of the situation analysis, and facilitated a consensus on priority areas for national initiatives and ADB assistance and on proposals for mainstreaming environmental considerations into the CSP Update (CSPU) for Palau. Participants in the National Dialogue, and other interested parties, were afforded the opportunity to provide further comment on a draft of the present report.

II. SITUATION ANALYSIS

8. This section describes the contribution Palau's environmental assets and natural resources make to the national economy. It also highlights recent changes in the state and management of the environment of Palau, identifying both improvements and deterioration in environmental practices and quality. In each instance the causes (i.e., drivers) of the changes are identified, as are the lessons learned and, where appropriate, the success factors and stories. The lessons learned are also presented for situations where intended changes in environmental management and quality have not occurred.

9. A review of ADB's strategy and program for Palau is also presented. This gives details of ADB's strategic priorities for Palau and a summary of current and planned ADB operations for Palau.

A. Role of the Environment and Natural Resources in the Economy

10. Palau shares many of the constraints to economic growth and development faced by other small island developing states. These include: (i) small domestic market; (ii) remoteness from major markets; (iii) narrow resource base; (iv) heavy dependence on trade and foreign assistance; and (v) vulnerability to external shocks and natural disasters. But Palau's abundant and diverse terrestrial and marine ecosystems have sustained the livelihoods of people for thousands of years. They are still highly productive today and in many areas in near pristine condition, due to wise use of these resources in the past. However, as the country continues to develop, the land and coral reefs and associated habitats of Palau are coming under increasing threat of environmental degradation.

11. Moreover, Palau is on the brink of rapid large-scale development. Construction of a 53-mile circumferential road, and the relocation of the national capitol to Palau's largest island, Babeldaob, are expected to bring development to the island, which is the second biggest in Micronesia. The road project is the largest development project in Micronesian history. It is expected to bring many economic, social and environmental changes. Developmental pressures will no longer be limited to the present national capitol and commercial center, Koror, but in the very near future will spread to most of Palau and far exceed the capacity of EQPB and other agencies to manage pressures on the environment and natural resources. The increasing pace and scope of development in Palau makes this a critical time for effective measures to conserve Palau's unique environment and natural resources.

³ The National Dialogue was held on February 1, 2007.

12. Largely due to consistent stream of foreign aid and abundant natural resources to support the informal (subsistence) economy, Palau has achieved a relatively high standard of living. Social indicators as well as gross domestic product (GDP) per capita compare favorably with developing countries of similar income and size. Because of the large concessional aid flows, Palau's economic development has been led by the public sector, with the private sector playing a limited role. The significant aid flows have supported high levels of public expenditures and a large public sector. Although these have led to positive gains in welfare, economic growth has been limited. This poor growth performance can be attributed not only to the natural constraints associated with a small island developing economy, but also to limited success in encouraging productive private sector investments as well as low returns on public sector spending.

13. All of Palau's many medium term development plans⁴ reflect the import contributions the country's environment and natural resources make to the economy, not only at the national level, but also at the state and community levels. For example, the Sustainable Economic Development Strategy (2001–2004)⁵ recognizes that the tourism, fisheries, aquaculture and agriculture sectors will underpin further sustainable economic growth. Currently, the agriculture and fisheries sectors make only a small contribution to GDP – estimated at around 4%. However, these two sectors provide the main livelihood for about 20% of Palau's population, and are therefore an important part of the informal economy. After public administration, tourism is the second major contributor to the formal economy. The Management Action Plan, which is designed to ensure the effective implementation of the 2020 National Master Development Plan, recognizes the integral importance of the tourism, fisheries and agriculture sectors. Thus one of its key goals is the integration of environmental planning in all developmental planning efforts.

14. **Tourism.** As a ratio to GDP, visitor receipts are estimated to have increased from a low of about 40% in FY2001–2002 to 80% in FY2003–2004. Of the 200 tourists interviewed in the 2004 Palau tourism survey, 116 decided to visit Palau because of its reputation as a dive destination, while 63 reported that the environment influenced their decision. Fish diversity was the most favored attribute, with the weather and low water clarity being the most disliked aspects of the environment. On average, the 77 tourists on package tours spent an additional \$401 during their stay. On the other hand, the 65 tourists not on package tours spent an average of \$2,501, including \$1,536 for air fares. Thus on average, each of these 65 tourists spent just under \$1,000 locally. The preceding expenditures per tourist have been used to estimate the total gross annual revenue of the tourism sector, as well as the economic value added per year (Table 1). The total value added from tourism in Palau is approximately US\$28 million annually, or just under 25% of current GDP.

15. **Marine Living Resources.** Palau's marine resources include 1,706 km² of reefs, lagoons, passes and mangroves, at least 70 marine lakes, and a 616,000 km² exclusive economic zone (EEZ). Palau's marine ecosystems have the highest diversity of reef fish species within Micronesia, with over 1,400 recorded species. At least 270 species are sources of food, for domestic use and export. Over 250 species are sold in the aquarium trade while more than 100 species have known medicinal uses. As a result, Palauan fisheries make a valuable contribution to the local subsistence and cash economies, as well as to export earnings (Kitalong, 2003).

⁴ Palau 2020 National Master Development Plan; the Management Action Plan (2001–2003); the Public Sector Investment Program (2003–2007); the 1995-1999 Economic Development Plan (the EDP), the 2000 JICA Study for Promotion of Economic Development in the Republic of Palau; and the Palau National Committee on Population and Children 1997 Report on Sustainable Human Development.

⁵ The time frames covered by most of the development plans have since passed. ADB is providing technical assistance to Palau to prepare a new National Master Development Plan. This will provide valuable policy guidance for the Government, not only for the Compact negotiations but also for the country's ongoing sustainable development.

16. Palau's long line tuna industry has an average annual gross value of US\$28 million, based on the value of the tuna in Japan. Of this, about US\$25 million is generated by the sashimi-grade bigeye tuna industry, while the remaining US\$3 million is from sale of sashimi-grade billfish (Kitalong, 2003). Palau's inshore fishery is valued at about US\$5.1 million per year (ADB, 2002). This figure is for both subsistence and commercial fisheries and includes all costs, such as those incurred for transport to the market. The value added of inshore fisheries is estimated at US\$3.5 million (OERC/WB, 2004). Based on 2001 estimates, the trochus fishery alone generates US\$222,200 each year, when there is no moratorium on harvest, while between 1989 and 1998 the sea cucumber fishery had an average value of US\$26,000 (Kitalong, 2003).

Table 1
Economic Value of Palau's Tourism Sector

Variable	Number of tourists	Expenditure per tourist (total - air) US\$	Value Added per tourist (US\$)	Total Expenditures (total - air) million US\$	Total value added (million US\$)
USA	3495	2095	911	7	3.2
Japan	20952	1603	698	34	14.6
Europe	1123	2369	889	3	1.0
Other	6571	1574	670	10	4.4
Taiwan	27710	476	154	13	4.3
Total	59851			67	27.5

Source: OERC/WB (2004)

17. Over the past 20 years, total inshore fishery production averaged 1,800 tons, or an estimated 1 ton/km² of reef (Golbuu et al. 2005). Approximately 20% of this catch is sold at the local markets, 14% is exported and 66% is for direct consumption. The clan and extended family benefit from the distribution of the non-commercial catch. A recent survey (Kitalong, 2003) found that more than half of the respondents collect fish and invertebrates for custom. However, the needs for cash are so great that most people sell at least part of their catch at one time or another. A 2004 study of the fishing in the Rock Islands found that only 3% of fishers were engaged solely in subsistence fishing and farming activities (Matthews, 2004).

18. Another recent survey for all of Palau found that only 7% of respondents were fishing solely for food, with 86% fishing to sell and a mere 8% fishing exclusively to sell (Table 2). Based on internationally accepted definitions of subsistence and commercial fishing, 6% of Palauan fishing households are subsistence fishing families, 7% are commercial fishing families, while the vast majority (87%) are part-time semi-commercial, semi-subsistence, semi-recreational fishers.

19. During the El Niño event of 1998–1999, near surface temperatures in the coastal water of Palau were over 30°C from June through November, 1998. This caused a massive coral bleaching event that killed one third of Palau's reefs. High water temperatures capable of inducing coral bleaching occurred to depths as great as 90 m during September 1998. While no species became locally extinct, some populations fell as much as 99% below pre-bleaching levels. The associated economic loss was estimated at US\$91 million, based on a value of \$6,000/ha/yr. There was a 9% drop in annual tourism revenues.

20. **Coastal Resources.** The coastal ecosystems of Palau have many other values in addition to those related directly to fisheries and tourism. The total present net economic value of all compatible uses of these resources is estimated to be \$35 million (Table 3). The value could be closer to \$100 million (Kitalong, pers. comm. 2007). Based on the numbers in Table 3, the corresponding gross economic value is above US\$100 million. Potential values would be correspondingly much larger. For example, the potential fisheries value is probably two to three times higher than the current, depleted value. Based on an annual present net value of \$35 million, and assuming constant values over time and a 10% discount rate, the asset value of the coastal resources of Palau is estimated at US\$317 million over a 25 year time period. With a more commonly used discount rate of 3% the asset value increases to US\$608 million. Without discounting, the total value over 25 years is US\$873 million.

Table 2
Characteristics of Palau Inshore Fisheries

Category of household groups	Number in sample	Percentage of fishing households
Number of surveyed households	1444	
of which fishing for food only	38	7%
of which also selling	28	86%
of which only selling	44	8%
of which not fishing / unknown	834	
Total	1444	

Source: OERC/WB (2004)

Table 3
Total Present Economic Value Added From Ecosystem Services of Coastal Resources

Ecosystem service	Corresponding Ecosystem/Biotope	Annual value (mill. US\$)
Fisheries	Reef/Mangroves/Lagoon	3.5
Tourism	Reef/Rock Islands/Marine Lakes/Beach	27.5
Traditional use value	All ecosystems	-
Mangrove use value	Mangroves	1.9
Coastal research value	Reefs/Mangroves/Marine Lakes	1.8
Bio-prospecting	Reefs/Lagoon	0.2
Global biodiversity	Reefs/Mangroves/Lagoon/Marine Lakes	-
Total		34.9

Source: OERC/WB (2004)

21. In another study, scuba divers and snorkellers were interviewed to determine their willingness to pay for a use permit. Average willingness-to-pay was US\$34 among scuba divers and US\$26 among snorkellers. With 50,000 divers and snorkellers visiting Palau each year, these figures suggest an industry consumer surplus of about \$1.6 million. Significantly, nearly 60% of those interviewed stated that their willingness-to-pay was dependent on the condition of the corals and reef (Graham et al., 2000).

22. **Terrestrial Living Resources.** Terrestrial habitats are vital components of the economy and culture of Palau. In addition to using terrestrial resources for food, tools, traditional clothing, and building materials, the people of Palau also use many trees and other plants for traditional medicines and other customary purposes (e.g., first childbirth ceremonies). Palauans cultivate over 100 varieties of taro, 17 varieties of sweet potatoes, and many varieties of cassava, as well as bananas and other fruits for food. Over 44 species of trees are used for timber and firewood, and over 82 plants have medicinal healing powers.

The fruits and flowers of over 100 plants are food for bats and wildlife. There are currently over 22 commercial agriculture farms in Palau, and nearly all are located in Babeldaob.

23. Currently, there is very little commercial forestry in Palau. Timber harvested locally is normally used locally and is rarely bought and sold, apart from small volumes for local construction or crafts such as storyboards (Palauan legends carved on pieces of wood). It is likely that the amount of timber harvested locally is small enough that harvest is currently at a sustainable level, but there is no monitoring and no records kept on harvest to verify this. The commercial forestry sector in Palau is thus underdeveloped. It is unlikely that large-scale commercial timber production for export would be a sustainable venture, due to the relatively small volumes that would be available and the dangers of significant environmental damage from broad-scale logging in the upland forest types. There is, however, potential for small-scale timber production for local use and value-added products such as storyboards, wooden bowls and other utensils, furniture, and other non-forest timber products such as woven Pandanus mats and/or baskets. Some of these may have potential for export.

24. There have been a few attempts to make use of Palau's forests, savannas, or wetlands as tourist attractions. These include short forest walks to two waterfalls on Babeldaob Island, and more recently the development of a trail in Lake Ngardok Nature Reserve in Melekeok State as part of efforts to stimulate ecotourism benefits for local communities. The Bureau of Marine Resources supports local communities in Ngaremeduu Bay Conservation Area in attempts to develop kayaking tours amongst the mangroves of the conservation area. A major limiting factor to date with these efforts has been the poor road access to most of Babeldaob, but this will change with the completion of the new Compact road.

25. In addition to their direct biodiversity values, the forests provide vital ecological services that help to maintain the health and ecological integrity of all of the terrestrial and marine ecosystems (e.g., sediment trapping, climate stability, nurseries for reef fish, soil production and conservation). Indirectly, forests play an important role in the economy through the ecosystem services they provide, in particular for their role in beautifying the land and in maintaining healthy reefs and fisheries, as these provide the basis for the tourism sector on which much of Palau's economy depends. The forested character of the Rock Islands, in particular, plays a vital role in maintaining their beauty and value as a major tourist attraction. Wetlands that are used in traditional taro farming may help maintain water quality by controlling erosion, and help to maintain bird diversity.

26. Table 4 summarizes terrestrial biodiversity in Palau. Approximately 75% of Palau is covered in native forest. With probably more than 1200 species of plants, Palau's forests are the most species-diverse in Micronesia. A wide range of plant and animal species rely on these native forests for their survival. All endemic species might best be considered as endangered. Dolichandrone, a mangrove/freshwater tree, is on the IUCN red list (Kitalong, pers. comm. 2007).

27. **Economic Benefits from Improved Solid Waste Management.** Palau could potentially avoid costs of US\$2 million per year by reducing or preventing solid waste pollution across the island (Hajkovicz et al., 2005). The most significant costs of this type of pollution in Palau were found to be through lost tourism (US\$1 million annually), healthcare and illness (US\$700,000), public waste collection and dumpsite operation (US\$100,000) and loss of near shore fish catch (US\$90,000). These estimates are opportunity costs, that is, money that could be spent on other goods and services rather than for pollution management. While these costs cannot be eliminated entirely, the introduction of sound waste management practices could reduce them significantly. The economic valuation is based on market goods only and therefore excludes non-market goods such as biodiversity and cultural assets. Some of the main non financial impacts of pollution in Palau

include: (i) the loss or damage to biodiversity; (ii) loss of recreational amenity (e.g., fishing, swimming, diving); (iii) loss of landscape aesthetics and scenery; (iv) damage to natural or human made assets of cultural significance; and (v) non-financial human health impacts.

Table 4
Terrestrial Biodiversity in Palau

Species	Approx. Total	Endemic	Introduced	Endangered
Plants	1,428	203	Unknown	Unknown
Fungi (not including lichen-forming fungi)	130	Unknown	Unknown	Unknown
Mangrove species	18			Unknown
Insects	5,000	1,500	Unknown	Unknown
Birds	141	9-12	4	1
Freshwater fish	47	4	5	Unknown
Terrestrial snails	77	32	2	Unknown
Freshwater mollusk	15	Unknown	Unknown	Unknown
Amphibians & Reptiles	46	12	3-5	5
<i>Frogs</i>	2	1	1	Unknown
<i>Lizards</i>	30	9	2	Unknown
<i>Snakes (including 2 sea snakes)</i>	7	2		Unknown
<i>Turtles (including 4 sea turtles)</i>	6		2?	4
<i>Crocodiles</i>	1	1		1
Bats (endemic sub-species)	2	2		

Source: Palau NBSAP, 2007 and Kitalong (pers. Comm., 2007)

B. Improvements in Environmental Quality and the Status of Natural Resources

1. The Improvements

28. At all levels, from national to community and household, considerable effort has and is being made to improve environmental and resources use practices. In some instances, it is possible to document the resulting changes in the quality of the environment and natural resources, but in many instances the relevant data are lacking.

29. Figure 2 provides an example of the mounting evidence for increased abundance and diversity of key species as a result of establishing a marine protected area. Typically, there is a three- to six-fold increase in the abundance of edible reef fish. Figures 3 and 4 illustrate how this difference in abundance has increased over time. Respondents from all 16 states were asked to identify natural resources and specific species that were increasing in abundance (PCS, 2004). Table 5 shows that few were identified, with mangroves being the most commonly identified resource, followed by crocodiles. Matthews (2003) also reports an increase in Palauan saltwater crocodiles (*Crocodylus porosus*), known locally as *ius*.

30. Maintaining, if not improving, the quality of the environment and the abundance of natural resources is given high priority in part because of their importance in both the formal and informal (subsistence) economies of Palau (see Section IIA). Another motivation is anecdotal and documented evidence of declines in environmental quality and in the abundance of natural resources. For example, Table 6 shows the results of interviews with fishermen, and indicates that fish catches have declined in recent years. Without adequate conservation measures, these declines might be expected to continue into the future. The resulting responses manifest in a number of ways.

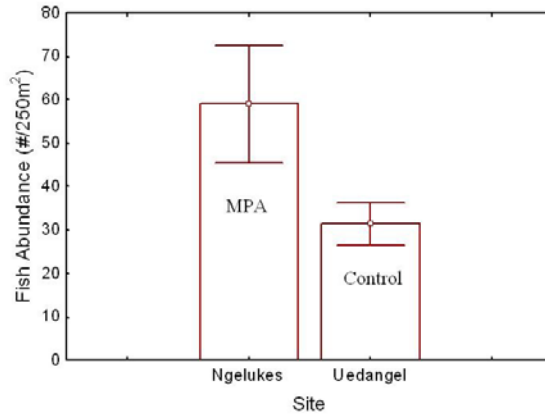


Figure 2. Comparison of fish abundance inside Ngelukes, a marine protected area (MPA) located on the east coast of Babledaob in the state of Ngchesar. It has been closed since 2003. The control site, Uedangel, is open for fishing (source: PICRC, unpublished data).

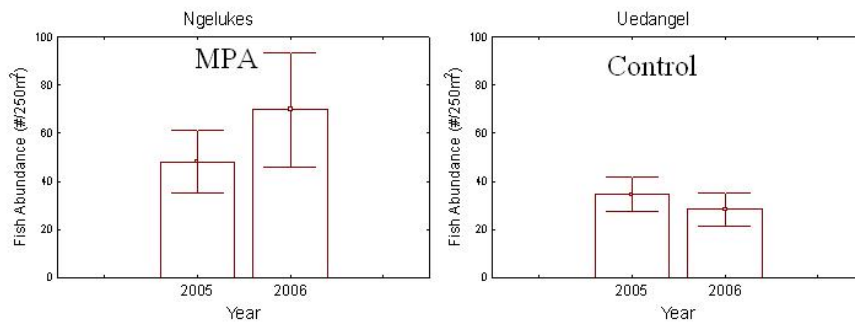


Figure 3. As for Figure 2, but showing change in fish abundance between 2005 and 2006. Abundance increased in the MPA, but declined marginally at the control site (Source: PICRC, unpublished data).

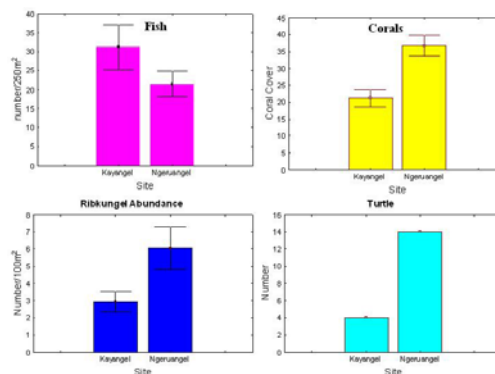


Figure 4. Differences in fish abundance, corals, ribkungal (*Tridacna squamosa*) and turtles between Kayangel (open for fishing) and the Ngeruangel MPA. Ngeruangel is a submerged atoll on the northern end of Palau and Kayangel is the northernmost atoll island in Palau (source: PICRC, unpublished data).

Table 5

Resources or Species Showing Signs of Increase

Item	Number of States
Mangroves (seaward, <i>lalou</i> side or in channels)	4
Crocodiles	3
Birds	1
Mangrove crabs	1
Stingrays	1

Source: Matthews (2005)

Table 6

Indicative Changes in Fish Catch

		8-10 years ago	now
Kayangal		500-700 lbs/day	100/200 lbs/day
Ngarchelong		300-400 lbs/day	100-150 lbs/day
Ngardmau	<i>chum</i>	4000 lbs/day (<i>chum</i>)	1000 lbs/day
Ngaremlengui		80-90 lbs (minumum)	80 lbs maximum
Ngchesar	<i>kesokes</i>	200-300 lbs/day	50 lbs/day
	reef fish	100 lbs/ trip	<100 lbs/trip
Ngiwal	gillnets (1980)	500 lbs/day	10-20 lbs
Peleliu	<i>kesokes</i>	300 lbs/day (maximum)	25 lbs/day maximum
	spearfishing	50 fish/ trip	15 fish/trip

Source: PCS (2003)

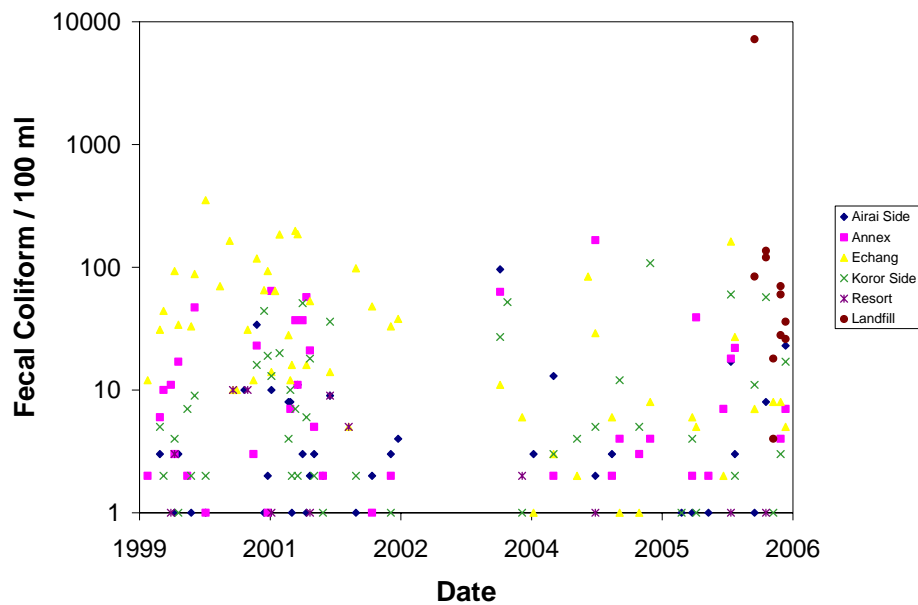


Figure 5. Fecal coliform counts per 100 ml for marine water samples taken at six sites in the Koror-Arai area, Palau (Source: EQPB, unpublished data).

31. Figure 5 shows fecal coliform counts per 100 ml for marine water samples taken at six sites in the Koror-Arai area. While there is some indication that water quality has improved over time, it is clear that a substantial opportunity for further improvement remains. This is especially the case for marine waters adjacent to the landfill (actually a dump) in Koror. But this situation should improve in the near term. Japan is providing assistance to control discharges from this solid-waste site located adjacent to the International Coral Reef Center. Control work now centers on construction of a dike to enclose the entire waste area and separate it from the non-waste, mangrove and lagoon environment.

32. On 22 October 2006, the Seventh Olbiil Era Kelualu established the Recycling Program Act and designated the Ministry of Resources and Development (MRD) as its administrator. The aim of the Act is to create a self-supported, safe and efficient system of disposal of beverage containers throughout Palau. The beverage containers addressed are plastics, glass, and aluminium cans. In order to operate the program, a revolving fund, called the "Recycling Fund", has been established whereby every deposit beverage distributor of beverage containers will be assessed deposit fee of \$0.10 per container, only to be assessed once on an individual container. The Ministry will then use monies within the Recycling Fund to purchase from "redeemers" beverage containers for \$0.05 per container, through the establishment of redemption centers.

2. Causes/Drivers of Improvements

33. **National Institutions.** MRD has oversight over government initiated agricultural, forestry, fisheries and energy programs and activities. It is also responsible for all infrastructure maintenance and improvement at the national level, including road maintenance, sewer system operations and capitol improvement projects. MRD includes the Bureau of Lands and Surveys and the Office of the Palau Automated Land and Resource Information System (PALARIS). The latter provides mapping and geographic information system (GIS) services. The Palau Fisheries Advisory Committee was established in 2001, to make recommendations to the Minister of Resources and Development and the President regarding national fisheries policies and the implementation of the "*Palau National Tuna Fisheries Management Plan*".

34. The Office of Environmental Response and Coordination (OERC) was established in 2001, with a mandate to ensure compliance with Palau's obligations under the UN conventions on climate change, biodiversity, ozone, and desertification as well as to facilitate a coordinated approach to Palau's national level response to environmental degradation, protection, and rehabilitation of natural habitats. The Division of Fish and Wildlife Protection (DFWP), within the Ministry of Justice, Bureau of Public Safety, is the primary authority to enforce the criminal laws protecting the environment inside the reef. The Division initiated more than 300 criminal cases/citations in 2003, a significant increase from a total of 27 in 2001. The Division also has a significant education and community relations component. The Division of Marine Law Enforcement (DMLE), also within the Ministry of Justice, Bureau of Public Safety, is the primary enforcement authority for Palau's foreign fishing laws. The Palau Public Land Authority (PPLA) administers, manages, and regulates the use of lands and any resulting income. It also establishes the basic guidelines and procedures for the operation of State public land authorities in each State, and provide technical assistance as appropriate. Each State in turn uses the authority granted to it by the PPLA to administer, manage and regulate public lands within its geographical boundaries.

35. The National Environmental Protection Council (NEPC), a high-level policy council, was established in 2002. The NEPC focuses on planning for better coordination of environmental initiatives, as well as ensuring that Palau fulfills its obligations under various international environmental agreements and treaties that have been ratified. The NEPC was originally established with the intent of it being the environment arm of the National Planning

Commission. Establishment of the National Planning Commission is pending. The National Disaster Plan provides the framework for risk management and disaster preparedness. The National Emergency Committee, chaired by the Vice President, is the command, control, and coordinating body for disaster management, while the National Emergency Management Office (NEMO) is the coordinator of disaster management training activities.

36. **Semi-Government Agencies.** The Environmental Quality Protection Board (EQPB) is a semi-government agency, created in 1981. It is the environmental regulatory agency for all development activities involving earthmoving and structural development within Palau, as well as for marine and freshwater quality, public water supply systems, solid waste management, toilet facilities, pesticides, environmental impact statements (EIS) and air pollution. All major development projects are required to conduct an environmental assessment (EA). Depending on the scale of the project, and its possible environmental impacts based on the initial EA, a full EIS may be required for projects that are likely to have significant negative impacts on the environment. Specific challenges facing EQPB include the regulation of incinerators, overwater bungalows, oil and gas development, aquaculture and golf courses. Addressing these will require a mix of strengthened and new legislation. The Palau Community College Cooperative Research and Extension (PCC-CRE) programs mainly focus on agriculture and conservation of agrobiodiversity resources. This agency is staffed with well-qualified agronomists and entomologists. The PCC-CRE Research and Development station in Ngaremlengui, Babeldaob has laboratory facilities for reproducing taro seedlings through tissue culture. They are also working on a germ plasm collection for varieties of banana, sweet potato and taro. Also, as part of their comprehensive conservation management plan, they have planted hundreds of trees to serve as windbreaks and to stabilize the soils in their riparian areas. The trees also serve as educational displays for their Outdoor Science Class for local high school students.

37. The Palau Natural Resources Council (PNRC) was established in 2001. It is an action-oriented informal group comprising all the key land management agencies, both government and non-governmental, including private sector members. The Council promotes cooperative efforts by working with local communities, governments, agencies, NGOs, and others, on issues relating to soil, water, plant, and related natural resource conservation. The Palau International Coral Reef Center (PICRC) is an outcome of a Common Agenda for Cooperation between Palau, Japan and the United States. The partnership was created to address global issues related to health, over-population, environmental degradation and the aftermath of natural disasters. The Palau International Coral Reef Center Act (1998) established the Center in order to provide a forum for coral reef studies, research and education in order to, in part, improve the management, use and conservation of Palau's marine environment and to act as a quality visitor attraction. Palau's Marine Resources Pacific Consortium is one of nine entities that make up the Marine Resources Pacific Consortium (MAREPAC). MAREPAC was formed in 1999 to address issues relating to the marine environment in the Pacific by working cooperatively to achieve the conservation of coastal and marine environments and the sustainable use of marine resources for the benefit of the present and future generations. The Palau Community Action Agency is a nonprofit private and public organization established under the U.S. Economic Opportunity Act of 1964 to address poverty alleviation. The PCAA aims to help people to help themselves in achieving self-sufficiency.

38. **Non-Governmental Organizations (NGOS).** NGOs such as the Palau Conservation Society (PCS) and The Nature Conservancy (TNC) are playing an increasingly significant role in conservation efforts and the protection of Palau's environment. TNC has been working in Palau since 1990, initially in partnership with the national government (primarily with the Division of Marine Resources), subsequently assisting to establish PCS and lately to provide ongoing collaboration, support and services to local partner organizations. Since 1994, PCS has been working with Palauan communities to protect natural resources by

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

39. **Environment-related Legislation.** The 1981 Republic of Palau Environmental Quality Protection (EQPB) Act is the most comprehensive environmental law in Palau. Division 1 mandates that the EQPB ensure the protection of resources and promote environmentally sound development. Subchapter 1 of the EQPB Act recognizes that under the Palau Constitution each person has a fundamental right to a healthy environment. As noted above, EQPB regulations cover all development activities involving earthmoving and structural development within Palau, as well as marine and freshwater quality, public water supply systems, solid waste management, toilet facilities, pesticides, environmental impact statements (EIS) and air pollution. However, the EQPB is given little specific direction by statute and does not have broad authority to manage the environmental consequences of development. It is also important to note that resources are owned by the States. Thus, State development plans and policies should be considered when delegating any EQPB authority to the States.

40. The House of Delegates of the Seventh Olbiil Era Kelulau (OEK) has prepared a legislative agenda to facilitate the positive development of Palau through legislative action. The agenda is based on a vision for the sustainable development of Palau, in order to accomplish long-term sustainability that can meet the ever evolving needs of the country. The legislative agenda includes:

- establishment of land conveyance laws that ensure Palauan land tenure and the decentralization of land ownership;
- encourage oil development under proper regulatory schemes;
- decrease the reliance on imported foods by promoting local agriculture and food staples, including encouraging more subsistence and semi-commercial agriculture by providing tax incentives and aid;
- protect and restore marine and fishing resources and the critical ecological, cultural and economic value;
- continue to protect offshore islands and their native plants, animals, marine reserves and other resources;
- continue to identify endangered varieties of plants, animals and crops, and designate them as endangered species;
- continue to prohibit and eradicate plants and animals that are a serious threat to the natural environment,
- develop new and more efficient water supply and distribution systems; and
- reduce the reliance on the overseas shipment of trash and recyclable goods by promoting the local growth of recycling businesses and employment opportunities and by reducing the dependency on landfills and trash incineration.

41. **Natural Resource-related Legislation.** Since 1992, the States and traditional leaders, through legislation and/or traditional conservation practices, have protected over 458 km² of their natural reserves through a system of conservation areas, marine preserves, fish spawning areas, wildlife preserves, and sanctuaries. Nationwide, marine areas have been protected at a rate of 50 km² per year from 1992–2001. All ecosystems are represented in these managed areas including more than 17% of the all mangroves, the inner reef areas in eight States, two of the three atolls, twelve major channels or passes, and the two largest watersheds in Palau, including its only freshwater lake.

42. In November 2003, the Republic of Palau passed legislation to establish a Palau Protected Area Network (PAN). Through the PAN, Palau is able to better manage its natural resources by linking all of Palau's protected areas, both marine and terrestrial, and coordinating the efforts of many states in protecting Palau's rich ecosystems as well as helping with local resource management issues through establishing an interconnected network of protected areas. States also have access to assistance from the National Government through MRD. This includes technical assistance to States that seek to protect areas of significant biodiversity and unique habitats by allowing access to grant money and programs for which the individual States would not normally be eligible.

43. The term "protected" is defined in the legislation as "maintained, intact, preserved, conserved, or otherwise managed in a sustainable manner." Individual States are responsible for nominating areas within their borders to be eligible for the PAN network, applying for financial aid and technical support to manage the nominated areas and developing and implementing the management plans. Responsibilities of the National Government include providing rules and regulations outlining the process for designating an area to become part of the PAN. It also assists with the enforcement of regulations and develops mechanisms for sustainable financing of the protected areas in PAN. The National Government, through the MRD, is also responsible for standardizing the collection of information, record keeping, monitoring and reporting.

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

- Koror State Rock Islands Management Plan;
- Management Plan for the Ngaremeduu Conservation Area;
- Management Plan for the Ngardok Nature Reserve;
- Ngeruangel Management Plan; and
- Helen Reef Surveillance and Deterrence Plan.

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

46. Criminal and civic penalties have been established for individuals who violate regulations set forth for the protected areas. Many of the marine protected areas have restricted seasons for fishing and harvesting of certain species or have traditional moratoriums (*bul*) in place. Regulations that are in place are enforced by the National and State governments. Most of Palau's 16 States do not have full time conservation staff or enforcement officers and only one has a full time legal counsel. States therefore have limited capacity to plan and implement programs and continue to need technical assistance and further funding support from National Government agencies and NGOs to effectively implement conservation programs. Lack of enforcement of conservation laws in general is also a problem in Palau due to enforcement agencies having limited human and financial resources to adequately enforce the laws.

47. Currently, there is a House Bill to amend the Palau National Code to clarify the intent of the Protected Areas Act, to endorse the Micronesia Challenge, to provide financing provisions for the PAN and to implement a conservation arrival fee to ensure the financial sustainability of the PAN. The PAN will be formalized as a nationwide network comprising areas which a State, States or the National Government have designated, or may designate, as reserves, protected areas or refuges, and which have or may be designated by the MRD. Each State will be responsible for the management of such areas within its borders. States are eligible for assistance and support for areas in the PAN. The PAN is administered and

managed by the Minister of Resources and Development, or his/her designee, in consultation with State Government officials.

48. The bill also establishes a \$50 arrival fee, the sole purpose of which is to support the operation of the PAN, except for 10% for administration. The remainder will be paid to the PAN Corporation. This is also established in the bill. The PAN Corporation will be a non profit corporation for the continuing operation of the PAN. It will be overseen by a Board of Directors. No Board member can hold an elective office at National or State level. The majority of members of the Board cannot be government employees. The Minister of Finance and the Minister of Resources and Development will be voting ex officio members of the Board.

49. **Expenditures on Environmental and Natural Resource Management.** Annex 3 provides details of the annual national expenditure on environmental and natural resource management over the past 6 years. Over the 6 years, there has been a significant increase in total expenditure. However, expenditure on regulation and enforcement (as reflected in the budget of EQPB) has declined, especially in terms of national contribution. Much of the increase over the six years relates to increased expenditure by OERC. Significantly, the entire OERC budget is from external funding sources. National expenditure on marine resources management almost doubled over the six years, with total expenditure almost tripling. A similar pattern is seen in expenditure on agriculture. For all management areas, except OERC, the vast majority of the funding is from the national budget.

50. **Conservation Areas.** Currently, Palau has 28 conservation areas established and protected by State and/or National legislation (Figure 6). The areas are totally terrestrial, totally marine or a combination of both. Table 7 provides information on the areas which are managed or protected. It shows that Palau is well placed regarding the targets in the recently launched Micronesia Challenge, in which the Chief Executives (Presidents and Governors) of the States and Territories of Micronesia agreed to “effectively conserve at least 30% of the near-shore marine and 20% of the forest resources across Micronesia by 2020”. However, Palau is now recommending that the challenge be strengthened to include 20% protection of each terrestrial ecosystem (tree plantations, agroforestry, mangroves, savanna, grasslands, watersheds, rivers and streams) in each of Palau’s 16 States. It is also recommending that protection of near-shore marine areas include both traditionally managed areas and modern established areas, with 30% protection in each of these State as well as for each of the major marine habitat types. Figure 7 indicates that for most marine habitat types Palau exceeds or is close to these targets, the two significant exceptions being seagrass and algal beds. UNESCO has designated Ngeremeduu Bay, Ngeremlengui Aimeliik and Ngatpang States, as a biosphere reserve, the very first area in the Pacific to be given such a designation.

Table 7

Areas Managed or Protected in Palau

	Total Area	Area Managed or Protected	Percent
Near-shore Marine	2,580	1,231	48
Land	463	88	19
Forest	430	84	20

Source: Government of Palau, 2006.

3. Lessons Learned and Success Stories

51. In general, although Palau’s legislative mechanisms are supportive of protecting Palau’s natural resources, additional statutory standards and regulatory authority are needed.

Further, due to a significant economic growth trend over the past ten years, the EQPB regulations should be strengthened, to better reflect Palau's socio-economic and environmental conditions, including the dominance of customary ownership of resources as well as the rapid pace of development. A critical component to legislative support is the ability to enforce enacted legislation. With Palau's limited financial and human resources, enforcement of existing environmental and natural resource management regulations is strained. In addition, to address emerging sustainable development issues within the Republic, new legislation is enacted at frequent intervals. This adds additional responsibility to the agencies that already have difficulty monitoring and enforcing existing regulations.

52. EQPB has recently implemented a separate permitting system for small-scale projects, in order to reduce the time from permit application to issuance. The streamlined process is intended for earthmoving projects of such a size and scale that they do not represent a serious environmental threat. There are reduced requirements for documentation, as well as the Executive Officer being granted authority to approve the permit, in lieu of the Chairman of the Board.

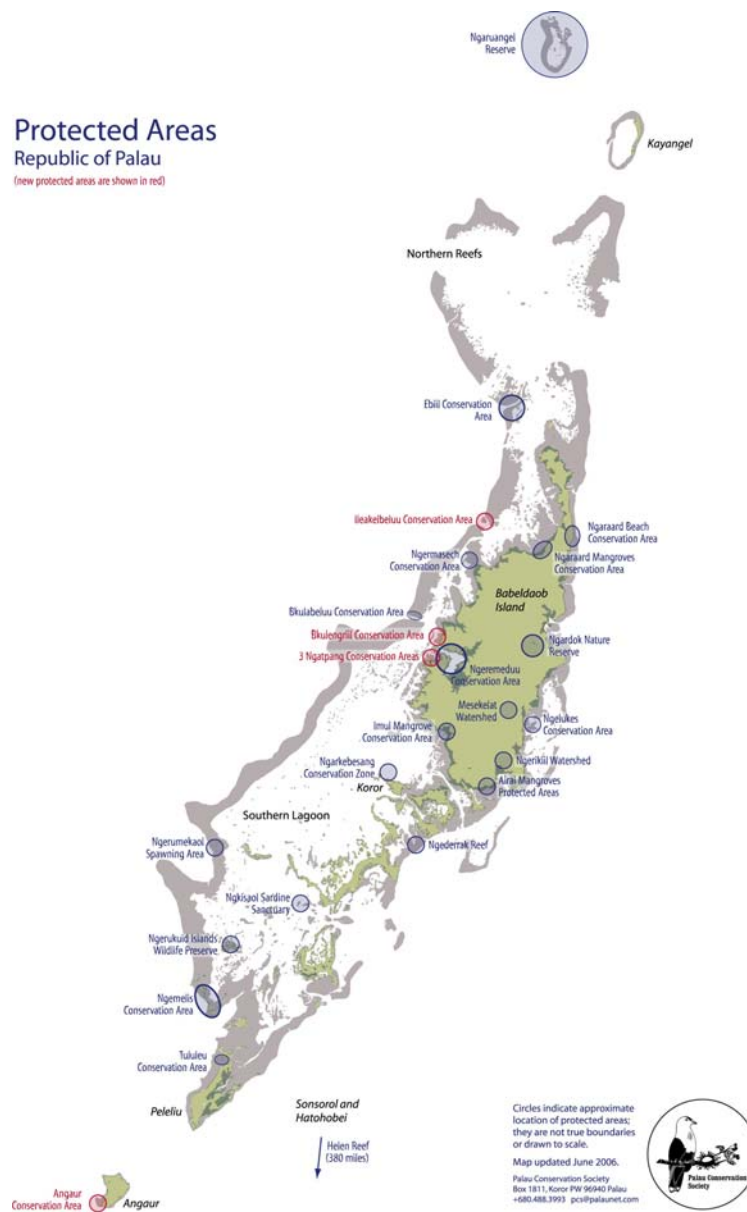


Figure 6. Protected areas in Palau, as of June 2006 (Source: PSC).

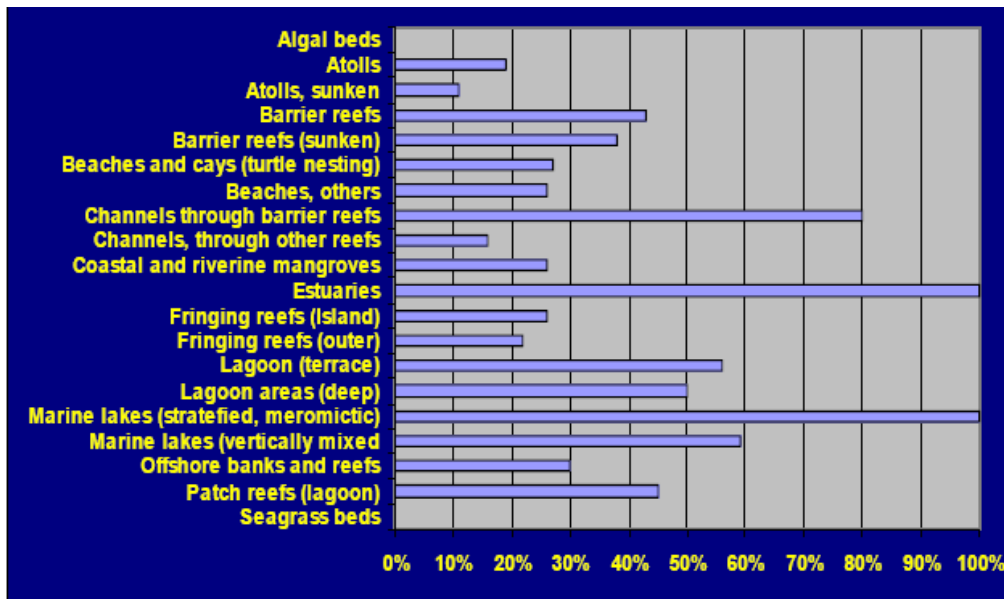


Figure 7. Percentage of major marine habitat types under conservation in Palau (Source: Government of Palau, 2006).

C. Deterioration in Environmental Quality and the Status of Natural Resources

1. The Changes

53. **Erosion and Siltation.** Accumulation of mud resulting from erosion in adjacent catchments has become a major issue for many communities, especially those living around the estuaries of Babeldaob. In particular, the Ngerikiil River leading to Airai Bay in southeastern Babeldaob, has been drastically altered by the construction of the Palau International Airport, the Babeldaob Compact Road and extensive land clearing for agriculture. Completion of the 53 mile Compact-funded circle road on Babeldaob has been delayed by mudslides and bridge wash outs. The slides occurred in places where major cuts were made for the roadbed. In addition, mangroves are being cleared for coastal developments, potentially negating their useful role as a sediment buffer.

54. These combined developments have caused dramatic increases in soil erosion. The sediment yield from the Ngerikiil River catchment was found to be 150 tons km⁻² yr⁻¹. This is significantly higher than the 1.9 tons km⁻² yr⁻¹ from the adjacent Ngerdorch River catchment (Table 8). That catchment was still relatively pristine during the study period. The high sediment load has resulted in the fringing reefs of Airai Bay being completely smothered by mud, despite the mangroves trapping up to 30% of the riverine sediment. Mangroves are important buffers protecting fringing coral reefs from excessive sedimentation. As a result, the reef is now overgrown with an algal mat, which further traps fine sediment and releases it as a muddy discharge when stirred by waves. Visibility in the estuary is near zero, and no more than 1 to 2 m in Airai Bay. The artisanal fisheries in Airai Bay have collapsed, resulting in socio-economic difficulties for the local community.

55. Table 6 highlights major declines in fish catch. These are consistent with the responses of resource users in all 16 states who indicated that the marine fishery is showing signs of over-harvesting, and hence depletion (PCS, 2003). In a 2002 survey, over 31% of key informants perceived that the inshore fisheries were being over harvested unsustainably and communities perceived their catch to be at least 3 times less than a decade ago (Kitalong, 2003). While the catch per unit effort for some fish species shows no temporal trend (Figure 8a), others exhibit the consequences of stresses and events such as the coral

bleaching event of 1998 (Figure 8b). The 33% loss of coral in 1998 may have impacted humphead parrotfish, a large coral eating fish. There is no clear indication of an impact of the bleaching event in 1998 on the fisheries as a whole (Kitalong, 2003).

Table 8

Comparative Data for the Ngerikiil and Ngerdorch Watersheds

	Ngerikiil Land use Change	Ngerdorch Little Change
Catchment Size (km ²)	19	39
Mean estuarine SSC(mg/L)	500	19
Mangrove area/catchment area	3.8%	3.8%
Trapping in mangroves	15-30%	28-44%
Sediment yield (tons/km ² /year)	150	1.9
	Y.Golbuu et al., 2003 ECSS 57, 1-9	S.Victor et al. In press (WEM)

Source: Victor et al. (2004).

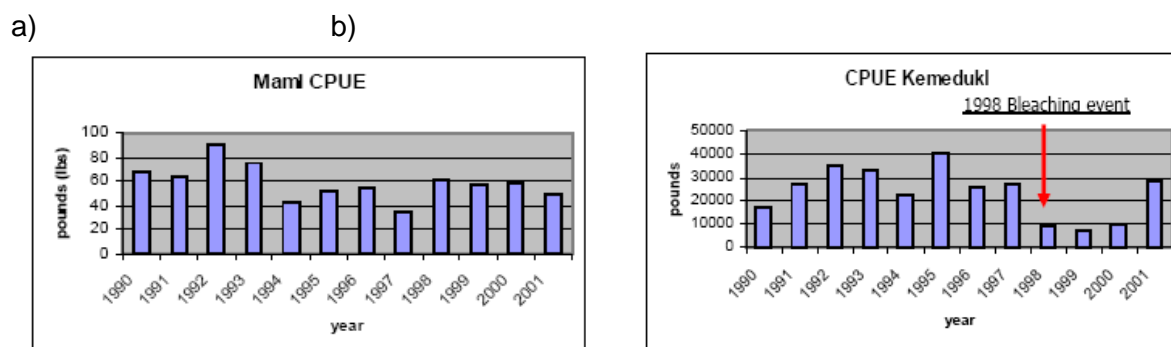


Figure 8. Catch per unit effort for commercial landings for: a) the humphead wrasse *Cheilinus undulatus* (maml); and b) the humphead parrotfish, *Bolbometopon muricatum* (kemedukl) (source: Kitalong, 2003).

56. **Coral Bleaching.** The 1997-1998 coral bleaching event in Palau was widespread, but variable among different sites. Approximately one-third of Palau’s corals died, with coral mortality as high as 90% in some areas. It devastated Acroporid corals, which suffered the highest mortality compared to other coral species. Corals that were found in estuaries closer to shore survived better than corals farther from shore. Impacts of the elevated water temperature were seen in other habitats such as the famous “Jellyfish Lake,” which experienced a complete mortality of the medusa stage of *Mastigias* spp. Since 1997-1998, Palau has not had a major bleaching event. But localized episodes of coral bleaching have occurred periodically at various sites, though none has been as severe or widespread as the 1997-1998 event. The localized bleaching events are probably due to disease or other localized stress at the microhabitat level (Golbuu et al., 2005).

57. **Coral Diseases.** In the past few decades, worldwide increases in coral diseases have become one of the major threats challenging the resilience of coral reef communities (Golbuu et al., 2005). The first assessment of coral disease prevalence on Palau's reefs was conducted in January 2004 as part of the Targeted Coral Reef Research Project, funded by the World Bank/Global Environment Facility . The purpose of these surveys was to identify and establish baseline information for coral disease at sites representative of the major habitat and community types. Results from this initial study indicate that the mean prevalence of coral disease was relatively low, affecting between 1% and 5.28% of colonies at six sites representative of protected, moderately exposed, and exposed communities on Palauan reefs. A total of twelve diseases and syndromes were recorded across thirteen reefs surveyed during preliminary site-selection visits or disease prevalence surveys (Table 9). Eight of these syndromes have been previously observed on Indo-Pacific reefs. However, four syndromes have not been previously recorded: bleached patches, bleached spots, bleached stripe, and yellow spot. At each of the six survey sites approximately five to nine diseases or syndromes were observed, with the greatest number being recorded at Malakal Harbor. A more quantitative assessment of coral disease prevalence within Palau requires further research (Golbuu et al., 2005).

58. **Environment-related Violations.** Violations notified by EQPB doubled from 2003 to 2004, but in total number have remained consistent since then (Table 10). However, over the four years the changes in some categories of violation have not been consistent with this overall pattern. Notably, illegal discharges of oil have declined dramatically, while pesticide violations occurred in 2004 and 2005 only. Changes in EQPB personnel and the implementation of best management practices by oil and fishing companies allowed EQPB to focus on pesticides. Boats stopped spilling oil, and farmers improved practices in order to avoid adverse publicity. The increased incidence of permit violations and expirations, along with earth moving without a permit, are matters of considerable concern. This is especially the case for earth moving activities, given the issues of erosion and sedimentation identified above.

Table 9

Diseases and Syndromes Recorded near Six Transects in Palau (January 2004).

	NIKKO BAY SPAWNING	NIKKO BAY XXIX	MALAKAL HARBOUR SPAWNING	BITAL RIRS	WESTERN BARRIER NGATBANG	WESTERN BARRIER NGEREMLENGUI
Disease States Recorded on Transects						
Black Band Disease						
Brown Band Disease			x	x		
Skeletal Eroding Band	x	x	x	x	x	x
Other Cyanobacterial Infections	x	x	x	x	x	x
Bleached Spots	x	x	x	x	x	x
Bleached Patches	x	x	x	x	x	x
Bleached Stripe	x					
White Syndrome	x	x	x	x		
Patchy Necrosis	x	x				x
Yellow Spot					x	
Tumors			x	x	x	
Disease States Recorded off Transects						
Black Band Disease			x			
Other Cyanobacterial infections	x (red)					
Yellow Spot			x	x		

Source: Golbuu et al., (2005).

Table 10

Violations Notified by EQPB

Violation	2003	2004	2005	2006
Inadequate Erosion Control	1	1		
No Permit - Earth Moving	1	8	10	12
No Permit - Building	2			
No Permit - Septic Tank		1		
No Permit - Road Construction		2		3
Permit Expired; Permit Violation	2	5	8	12
Inadequate Response to Order	2			
Illegal Discharge - Oil	9	15	7	
Illegal Discharge - Sewage	4	11	9	15
Leaking Septic System	2			
Solid Waste Dumping	1	2	3	11
Pesticides - Illegal Import, Storage, Use		5	2	
Vessel Grounding		3	5	6
SPCC Violation		1		
Failure to Chlorinate		1	2	
Sand Mining			1	
Piggery Operation			2	
TOTAL	24	55	49	59

Source: EQPB Database.

59. **Agriculture.** There is a growing trend in Palau away from the traditional small-scale farming and agroforestry methods used by women. New farms are larger, have cleared fields planted with single, often non-native, crops that are destined for restaurants and supermarkets in Koror. Fertilizer and pesticide use is increasing, as are problems with sedimentation from cleared and poorly maintained fields.

60. **Solid Waste.** Currently, only around 10% of dumpsites in Palau meet EQPB regulatory requirements (EQPB, 2006). EQPB is constrained in improving this situation by a lack of State resources, including funding, human resources and suitable public lands for solid waste landfill. The delayed construction of a national landfill adds to the problem. The EQPB is currently working with at least three States on proposed sites for solid waste landfills. A commercial operator is now providing a waste collection service in Arai, on a user pays basis. In Koror, the State provides a similar service.

2. Causes/Drivers

61. Pressures on Palau's coastal resources arise from large-scale phenomenon such as elevated ocean temperatures and coral bleaching, associated with El Niño/La Niña, and local-scale activities such as overfishing and tourism overuse. Not only has the population of Palau increased significantly in recent times (Figure 9), but people are now collecting resources, especially in the marine environment, with new and more effective gear. Now they rarely use the traditional methods that tended to limit the harvest. More and more, people are collecting or harvesting resources for monetary income rather than solely for local subsistence uses. In addition, projects such as road building, mangrove filling, and dredging are altering habitats in many areas to such a degree that once abundant marine species are now hard to find. Taro patches are also not as productive as they once were (PCS, 2003).

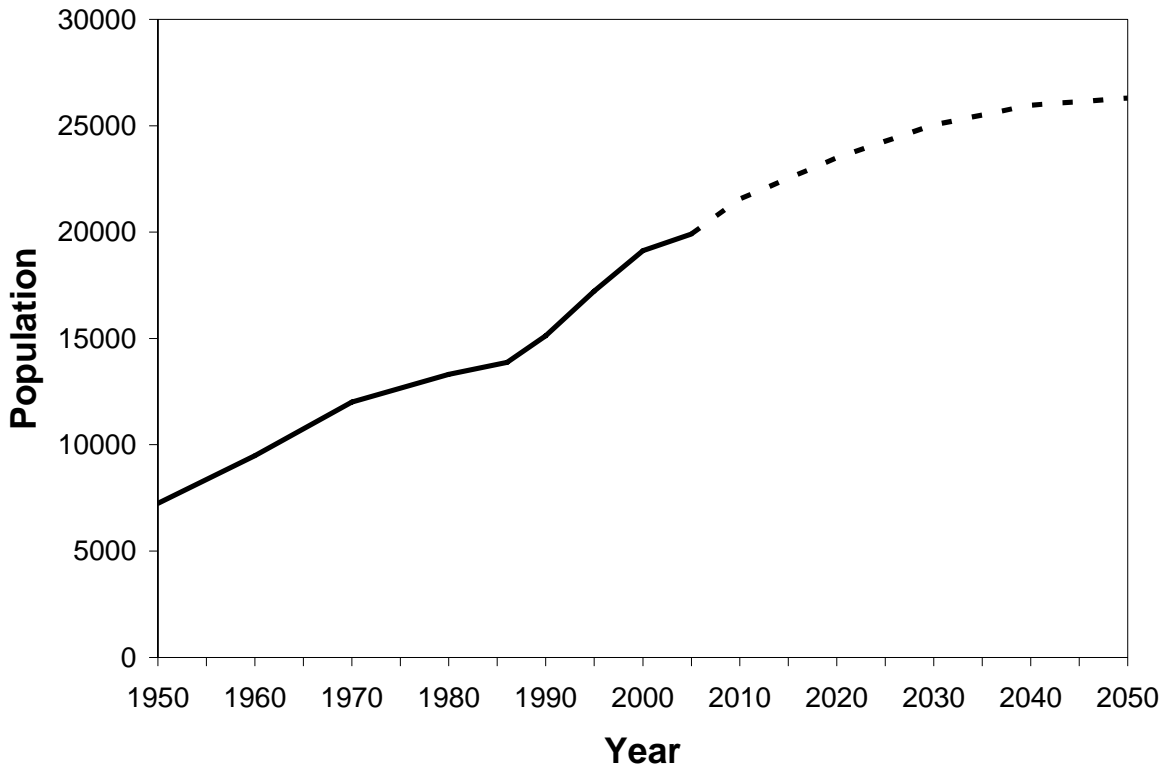


Figure 9. Past and projected population of Palau, 1950 to 2050 (source: U.S. Bureau of the Census, International Data Base and Office of Statistics, Ministry of Finance, Palau).

62. Marine ecosystems are also impacted adversely by oil spills, ship groundings, waste treatment plant discharges and runoff from dumpsites, earthmoving, rock quarries, road construction and other sources of contamination. While a ship grounding can result in an oil spill, the most obvious consequence is damage to mangroves and reefs. Runoff from dumpsites can include sediment, but of most concern are chemicals in the leachate.

63. The tourism industry has recovered steadily (Figure 10) after a series of adverse external events—the Asian financial crisis (1997/1998), 9/11 terrorist attacks (2001), and SARS outbreak (2003). Visitor arrivals were below 35,000 prior to the Compact (1994) and rose to 66,000 in 1997 before declining to 54,000 in 2001. The sector has since recovered, registering 95,000 arrivals in 2004, partly due to hosting the ninth Pacific Festival of Arts in July 2004. Visitor arrivals remained high in 2005, supported by the South Pacific Mini-Games. The fragile coastal environment of Palau is easily damaged through overuse by tourists. An example of this is diver impacts on reefs in crowded dive-sites. Compared with famous diving destinations in the Caribbean and Egypt, this overcrowding is minimal. However, the high value-added nature of Palau's tourism makes it very sensitive to human pressures (OERC/World Bank, 2004).

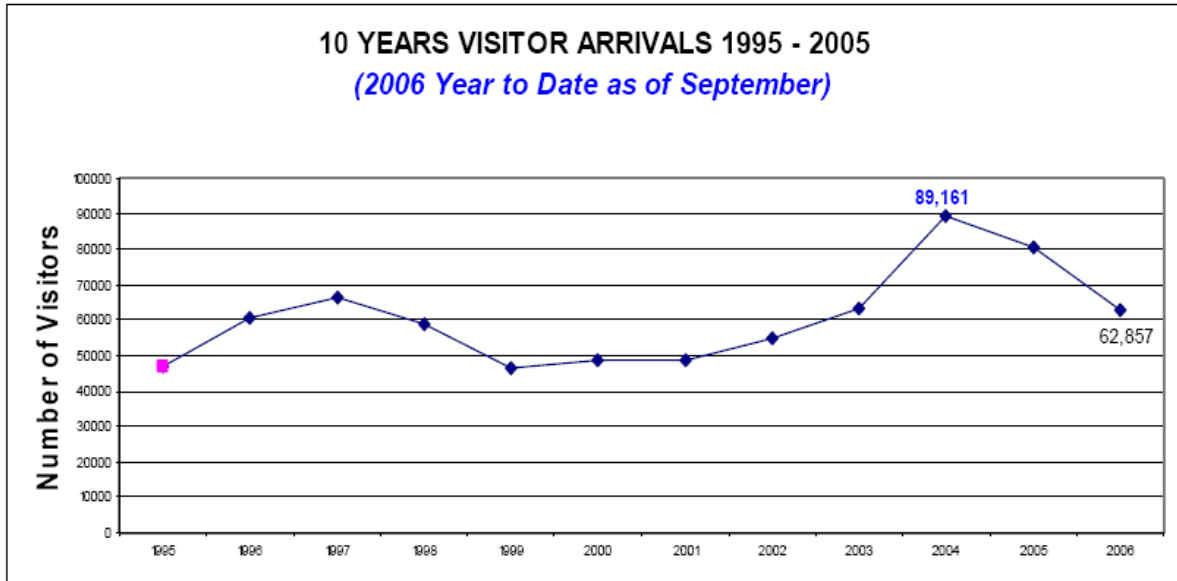


Figure 10. Visitor arrivals, Palau (Source: PVA, 2006).

64. While Palau does not usually suffer the direct consequences of a typhoon (Figure 11), heavy rains and strong winds associated with tropical disturbances are relatively common. The possibility that such extreme events will become more severe and frequent as a consequence of global warming cannot be ruled out. Global warming is also increasing the risk of higher sea levels and ocean temperatures as well as increased incidence of drought. All could be devastating for Palau. The 1998 bleaching event, the worst on record, could become commonplace within 20 years. Presently, coral bleaching is considered one of the greatest threats to the Palau's coral reef ecosystems. According to climate change projections, Palau's significant watersheds will also be highly affected by global warming. Increasing drought and severe storm patterns, of which Palau has seen a significant increase over the past ten years, has caused severe economic strain on Palau's infrastructure. In March of 1998, the peak of El Nino, Palau had the lowest rainfall on record for more than 100 years. Water supplies were depleted, agricultural production decreased by over 50%, and fires burned out of control throughout many islands. In the past several years, Palau has experienced increasingly severe storm and drought activity. Soon after the 1997/98 El Nino event tropical storm 'Utor' caused an additional several million dollars worth of damage. Since Utor, Palau has experienced a number of less intense storms that caused further small-scale economic and environmental damage.

65. Since little irrigation is carried out in Palau, the agricultural sector is heavily dependent on regular rainfall for crop production. Because of this, the 1997/98 El Nino, the most severe drought event in recent history, caused the complete destruction of taro patches (traditional starch supply) in several islands and along the western coast of Babeldaob.

3. Lessons Learned and Yet To Be Learned

66. Babeldaob was mostly forested before human arrival, some 5,500 years ago. By 3,300 years ago, there was extensive grassland on Babeldaob, as indicated by charcoal and pollen. The present patterns of vegetation, organic matter, nutrient status and erosion potential for the 66% of Babeldaob with upland volcanic soils are a result of land clearing, fire and erosion. Forest clearing, burning and erosion increases the fragility of the soils, decreases organic matter content and fertility, and increases levels of soluble aluminum, limiting plant growth. Fire starts the land degradation process by removing protective cover, increasing erosion potential, and reducing the benefits of high soil organic matter. Thus fire reduces biomass production as well as the capacity for nutrient recycling. The low organic

matter content reduces capacity to retain nutrients and for them to complex with aluminum, making this unavailable for limiting plant growth. Severe erosion, including gully, will occur in areas devoid of vegetation. Once it is removed, the high aluminum content and low fertility make it very difficult to revegetate such areas (Gavenda, pers. comm.).

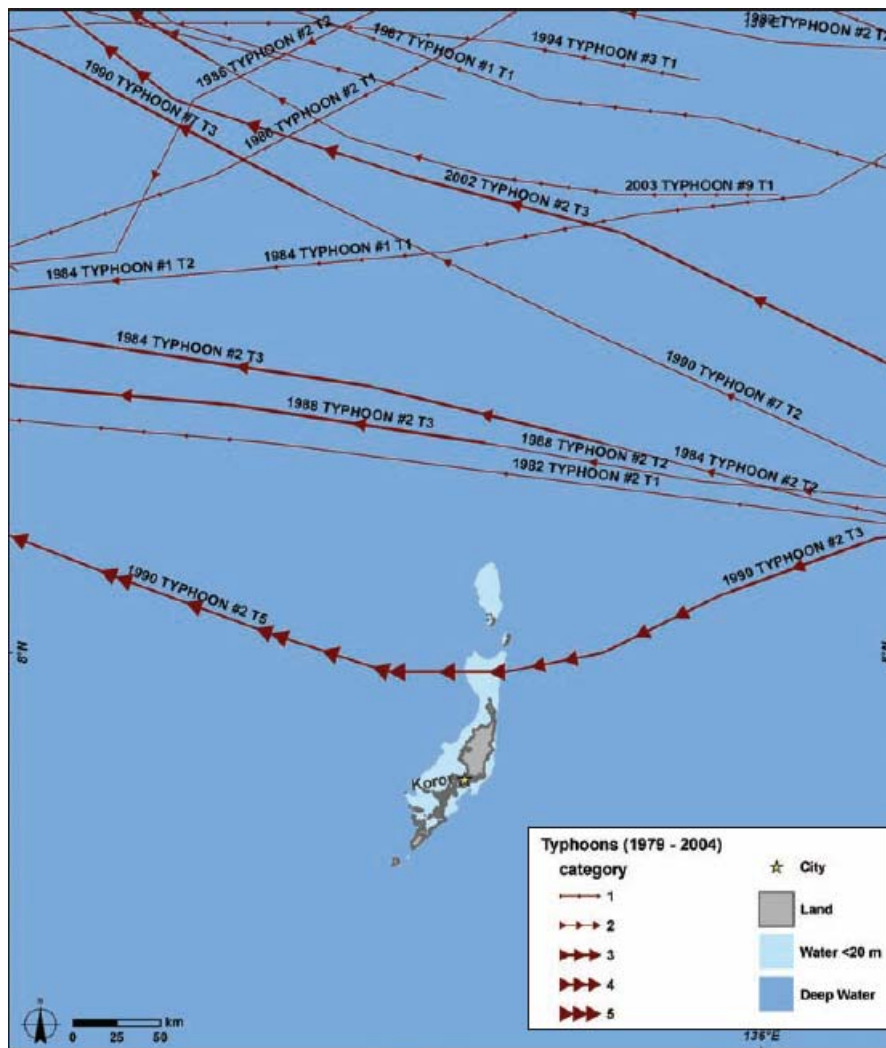


Figure 11. The paths and intensities of typhoons passing near Palau from 1979–2004 (Source: Golbuu et al., 2005).

67. Completion of the Compact road is expected to provide substantial opportunities for farmers to grow and sell more products locally though improved access to Koror. The lack of a central market and an inefficient transportation and distribution system make it difficult for farmers and fishers to supply the main demand centers efficiently. There is considerable potential for domestic food needs to be met by an expanded agricultural sector, especially in Babeldaob. However, the likelihood of early growth in the agriculture sector is low, due to: (i) constraints from the traditional communal land tenure system; (ii) lack of local labor (younger generation prefers other careers) combined with some inertia in employing foreign labor in the sector; (iii) prevention of economies of scale arising from the small domestic market; (iv) relatively low price of imported products; (v) poor development of central marketing and distribution systems; and (vi) lack of institutional arrangements for agriculture extension and marketing (e.g., agricultural cooperatives). These challenges need to be addressed patiently through a well thought-out development strategy if the sector is to realize its potential.

68. The main challenge for Palau's offshore fisheries sector is to achieve greater sustainable returns—higher tax revenue—from foreign fishing vessels operating in Palau's EEZ. There is significant potential to raise tax revenues from the fishing industry and secure revenues from foreign vessels' fishing license fees. Inshore fishing is critical to Palau's domestic food supply, especially in outlying villages. The challenges for inshore fisheries include: (i) balancing extraction and exploitation rates of resources for subsistence and commercial sales with maintenance of a healthy and diverse ecosystem; (ii) improving economic efficiency to raise the value of the catch and enhance welfare; (iii) protecting endangered species from exploitation; and (iv) developing aquaculture, if substitutable. There is much room for the Government to tighten regulation of marine resource uses, so balance is achieved between income generation, subsistence and marine resource management.

69. The Palau Federation of Fishing Associations (PFFA) is a national federation of locally-based fishing and farming cooperatives. While PFFA has the potential to play a critical role in the sustainable development of Palau's fisheries and agriculture, lack of financial and political support has impaired its ability to carry out this important function.

D. Opportunities to Improve Environmental Quality and the Status of Natural Resources

1. The Baseline

70. Despite a growing population and increased development, the extent of forest in Palau has remained remarkably constant over time (Table 10). But this situation could change substantially as a result of the completion of the Compact Road and the relocation of the Capitol to Melekeok. The road provides ready access to all parts of Babeldaob, while both developments will encourage an expansion of residential, commercial and agricultural land use. In order for this to be achieved with minimal adverse consequences for the environment and natural resource, and with optimal economic and social benefits, careful land use planning will be required. Koror, Ngaraard and some other States currently have prototype land use plans, but there are considerable opportunities for improving implementation of these plans. While most States lack sufficient expertise and other resources to complete comprehensive, long-term plans, there is a general willingness to take on more responsibility for land use planning and implementation. This includes preparing and implementing State zoning regulations and building codes, consistent with national provisions. Zoning regulations are needed to ensure that, within a particular area, any development is not detrimental to critical habitats such as watersheds and mangroves. In addition, zoning may provide for a more uniform development structure, such as residential, tourism and industrial.

Table 10

Extent (hectares) of Forest and Other Wooded Land in Palau

	1990	2000	2005
Forest	38	40	40

Source: FAO (2005)

2. The Opportunities

71. The upcoming Economic Symposium and other preparations for the Compact negotiations represent a window of opportunity for Palau to improve environmental quality and the management of its natural resources. ADB is providing assistance to the Government to prepare a national development plan, including a program for infrastructure maintenance and

management. The resulting infrastructure road map will include mainstreaming environmental considerations in the infrastructure sector. Aspects of the National Master Development Plan, and other plans, have been implemented, but on a somewhat ad hoc basis. There is a need to make it easier to implement the various development plans and more effectively coordinate the implementation. National policy level agencies, such as OERC and EQPB, should work closely with the States, and share benefits with States.

72. Other appropriate initiatives could include: (i) reviewing all current National and State legislation and updating it where necessary; (ii) clarifying enforcement provisions; (iii) using National law to mandate and strengthen the limited matters of national concern, such as school locations, environmental protection, solid waste management and watershed protection; (iv) clarifying and supporting State responsibilities to establish and implement their land use guidelines, consistent with National law and with National and State master plans; (v) ensuring that agriculture, watershed and conservation take priority in time over other land use regulations; and (vi) recognizing traditional values with respect to the utilization of resources. There would also be valuing all environmental programs and related management plans in order to identify opportunities to streamline implementation of environmental programs, investigate potential funding sources and enhance relationships between States and the National Government. Active participation of States should be emphasized, particularly at the high level of NEPC.

73. Currently, the majority of the States lack zoning regulations. Zoning is primarily a responsibility of each State. Their Planning Commissions should facilitate the development of zoning and land use plans. Implementation of zoning regulations should also be coordinated with adoption and enforcement of modern and appropriate building and housing codes, consistent with a National code but flexible to accommodate the varying circumstances in each State, including traditional architecture. Inspections under the building, zoning and housing codes should be mandated. Penalties for violations should be relatively simple to enforce. Moreover, performance bonding should be required for licensed contractors so incomplete buildings won't be abandoned in the future.

74. As noted above, there are many management plans governing the sustainable use of Palau's natural resources. Successful implementation of these plans requires that State patrols be supported to enforce conservation regulations, with appropriate penalties for violations of State regulations. Where issues concerning natural resource management do not fall under the purview of the PAN or other legislation, clear management regimes need to be developed to address those issues. These include critical issues such as those related to the control and prevention of invasive species, and the sustainable management of endangered species.

III. REVIEW OF THE COUNTRY STRATEGY AND PROGRAM FOR PALAU

A. ADB's Strategic Priorities for Palau

75. Palau joined ADB in December 2003. In December 2005, Palau was classified as a Pacific developing member country. ADB has prepared a *Country Economic Report for Palau* as well as the document *Development Status and Country Classification of the Republic of Palau*. ADB has provided Palau with a grant of \$150,000, to support the Economic Symposium.⁶

76. As described in the CSPU for Palau, the strategic focus of ADB assistance to Palau during the period 2007–2009 is to (i) strengthen economic and fiscal management, (ii)

⁶ The Economic Symposium, part of the Compact review process, is scheduled for February 22 and 23, 2007.

promote policies for private sector development, and (iii) facilitate sound infrastructure development and management.

B. Summary of Current and Planned ADB Operations

77. Lending and non-lending assistance programmed by ADB includes loans as well as project preparatory and advisory capacity-building TAs. ADB's major contribution to Palau over the medium term will be policy advice and technical assistance. Both country-specific and regional TA projects with Palau's participation will be processed during the CSPU period. The regional TA projects are (i) Strengthening Poverty Analysis and Strategies in the Pacific; (ii) Strengthening Pro-Poor Policy in the Pacific; (iii) Diagnostic Studies for Secured Transactions Reforms in the Pacific Region; and (iv) the current TA, namely Mainstreaming Environmental Considerations in Economic and Development Planning Processes in Selected Pacific Developing Member Countries. These four regional TAs support poverty analysis (including a household income and expenditure survey), conduct a private sector assessment, facilitate an economic policy summit, and identify opportunities for the environment and natural resources to contribute further to economic and social development.

78. **Economic and Fiscal Management.** Over the medium term, ADB policy advice and TA will help the Government to prepare for and implement adjustment measures and move toward a more sustainable economy in which the private sector provides growth and job creation. With respect to fiscal policy, the Government recognizes the need to be more efficient, while accepting that the capacity of the private sector to compensate for the likely contraction of the government sector is currently limited. In the medium term, the key fiscal policy directions are expected to include the following: (i) keep expenditure growth below revenue growth by: (a) streamlining the government structure, (b) restructuring staffing through retraining, transfers, and severance pay, (c) outsourcing services such as utilities, maintenance and construction, and (d) improving expenditure accountability and productivity (performance-based budgets); (ii) realize sustained increases in revenues by strengthening collection efforts (focusing resources on revenue-generating activities); and (iii) expand the revenue base through tax reform legislation, new tax initiatives, and user fees.

79. **Private Sector Development.** Beginning with the private sector assessment, ADB will help the Government to enhance the environment for private sector development. TA will help to formulate and implement policies and procedures that will reduce the costs of and constraints to doing business in Palau. Particular attention will be paid to strengthening the regulatory framework for bank regulation through TA for financial supervision and regulation.

80. **Infrastructure Management.** ADB will provide TA to help the Government establish a sound policy framework for infrastructure development and management, particularly the maintenance of infrastructure assets (which have been largely neglected). Although a part of the current US Compact is earmarked for infrastructure maintenance (e.g., for the 53 mile Compact Road around Babeldaob island), very little budgetary provision has been made for this purpose. Financing the operational costs of the new capital building is another major fiscal concern. There is an absence of clear policies on financing of infrastructure operation and maintenance costs. Creating an infrastructure sector road map with clear priorities and indicative sources of recurrent and development financing is urgently needed.

81. **Environment.** Recognizing the importance of sound environmental management, ADB's TA program includes a proposed loan project for water supply and sanitation. Because maintaining Palau's pristine environment is a strategic priority, environmental considerations will be mainstreamed in ADB's technical assistance, particularly in technical assistance projects for infrastructure maintenance. Policy dialogue will be held on the findings and recommendations of the ongoing regional TA on mainstreaming environmental considerations in economic and development planning.

82. A TA (Facility for Economic and Infrastructure Management) is in the pipeline. This will assist the Government to realize economic self-sufficiency through national development plan formulation, private public partnerships, and infrastructure maintenance and management. Broadly, the TA will have two components: (i) facilitate economic policy formulation and its implementation through budget process and (ii) support drawing infrastructure road map, and suggest cost reduction measures through the private-public partnership initiatives and privatization of state-owned enterprises.

83. For component I: **Sustainable Economic Policy Formulation**, the key outcomes of the TA will include to: (i) keep the Government's expenditure growth below revenue growth and (ii) to realize sustained increases in revenues by implementing various revenue expansion measures. The key outputs of component I will be: (i) a new national master development plan; (ii) structural economic policy formulation for sustainable growth; (iii) review of the current status of the various sectors (agriculture/aquaculture/fisheries, labor market and human resource development including education and health) and inclusive agriculture and social sector policies; and (iv) increased Government revenue base and reduced fiscal deficit.

84. For component II: **Infrastructure Road Map**, the key outcomes of the TA will include to (i) implement policies on financing of infrastructure operation and maintenance costs, and (ii) mainstream environmental protection in infrastructure sector. The key outputs include (i) infrastructure maintenance programs, (ii) income generating scheme and adequate funding for infrastructure maintenance, (iii) cost reduction measures for the public expenditures through outsourcing public services to the private sector, and (iv) initiatives of the private-public partnership and reform of state-owned enterprises.

85. Outputs from two components will be consolidated in a new national master development plan. To ensure country ownership of the master development plan, an in-country workshop will be held to endorse the plan. The TA will support implementation of a new master development plan by facilitating the budgetary process.

86. **Water Supply and Sanitation in Babeldaob.** One of the ADB's strategies for Palau is to assist the Government to facilitate sound infrastructure development and management. Enhancing the supply of clean water and sanitation services, and building capacity to manage and deliver quality basic services, is a key result area of the ADB Pacific strategy. The Government's infrastructure development strategy paper also identifies water supply and waste water management as one of Palau's main infrastructure issues.

87. Major expenditures have been made to improve and expand Palau's water and sewer system in Koror. However, a projected expansion of economic activities in Babeldaob will require further enlargement of the water and sewer systems. A reliable safe water supply and environment-friendly sewer system must be provided in a cost-effective way. The health and productivity of residents will be improved. Agriculture production will be enhanced, and the Babeldaob environment improved. The number of private and business connections to reliable piped water supplies and to wastewater collection and disposal will increase. Key outputs of the TA include: (i) technical confirmation of a project preparatory TA feasibility study, (ii) joint project household- community environmental sanitation facilities, and (iii) a sanitation and hygiene awareness program. This assistance will contribute to an increase in the number of connections to a continuous potable water supply and contribute to more effective and sustainable wastewater collection, treatment, and disposal capabilities. In order to achieve this, a comprehensive cost recovering system must be contemplated.

IV. MOVING FORWARD

88. This section describes ways in which increased attention to environmental considerations by the key sectors will benefit both the Palauan economy at large, as well as

Palau's society in general.

89. While public expenditure relative to GDP trended down from 1994 to 2005, it remains high at 60–65% (Office of Planning and Statistics, website). US financial assistance is key to the large public sector. Palau is facing a period of substantial fiscal adjustment as the current Compact allows for the end of basic grants for operations and maintenance in 2009. In addition, when financial aid ends, Palau will no longer benefit from substantial grant and in-kind support provided for capital projects. The Government has planned cuts in current expenditure. While some success has been achieved in expenditure control, the slow rate of progress suggests that such initiatives cannot be solely relied upon to meet the looming shortfall in current revenue. The required fiscal adjustment could be lessened through private sector led growth.

90. As noted above, there is substantial potential for expansion of activities such as tourism, agriculture and aquaculture. This would boost revenue collection and allow for the transfer of some responsibility for infrastructure to the private sector. It would also provide an alternative source of employment for Palauans displaced from the public sector. But any attempt to diversify the economy away from the public sector faces many challenges, given the narrow production base, small population, and remoteness from major markets. Increased private sector growth would substantially change Palau and its society, entailing important social risks. For example, the mobilization of land for development will impact sensitive traditional and individual rights issues. Palauan labor supply is currently almost fully employed – private sector growth will lead to the employment of additional foreign labor, which will constitute the majority of the workforce.

91. Growth prospects are probably weak if Palau chooses to retain the current community structure and cautious approach to increased foreign involvement in business. The economy is highly dependent on imports, there is virtually no manufacturing sector, and the export base is very narrow outside tourism. Since the large public sector is key to high income levels, and external assistance to the public sector is scheduled to decline substantially over the medium term, Palau's current high income levels and high standard of living are probably unsustainable. The Government and the people of Palau will likely be faced with some difficult choices and decisions in the next few years if Palauans are to continue to enjoy the relatively high standards of health, education, and other public utilities which have been provided mostly free or heavily subsidized by the Government. Ongoing foreign assistance from Japan and Taipei, China, improved road access on the island of Babeldaob, and the prospect of offshore oil development in the north island of Kayangel represent a unique opportunity for development and growth. It will be a challenge to balance the competing interests of all stakeholders and the result will determine whether a more open and growth-orientated economy will be pursued or if development is likely to slow or even reverse.

92. Both the environment and natural resources of Palau provide substantial further development opportunities, in such sectors as agriculture, fisheries, tourism and energy. There is widespread agreement on the desirability of, and opportunities for, environmental and related improvements in the key economic sectors. But there is no consensus on how these opportunities might be realized, including values that must not be compromised and how benefits might be shared amongst stakeholders. It is clear that many of the necessary changes will have to be initiated and facilitated by the National Government, in a whole of country approach that brings together the States and the traditional leadership, and builds on the development plans currently being prepared as part of community visioning and other initiatives (Figure 12). Senior people in both tiers of Government will need to understand that, while a concerted effort will be required, many of the benefits will only become apparent in the longer term.

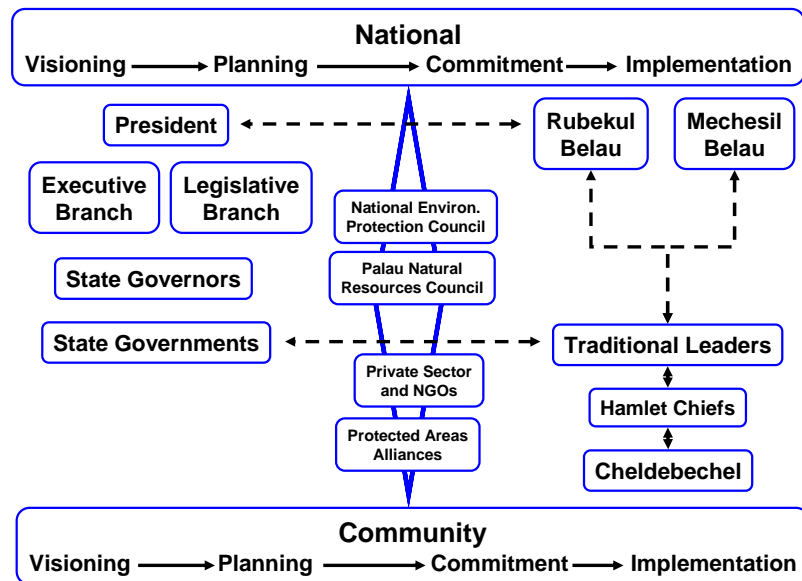


Figure 12. The key players in preparing and implementing a shared vision economic development, social progress and environmental protection in Palau.

A. Opportunities For, and Benefits of, Environmental Improvements in the Key Economic Sectors

93. **Development in General.** Economic and social development is facilitated by access to reliable and affordable energy and water supplies, as well as secure tenure (leasehold or ownership) of appropriate land and effective and efficient transport infrastructure. The increased water consumption resulting from economic and social progress in the coming years will necessitate further development of Palau’s surface water resources, including identification and development of additional water sources (e.g., watersheds) and water storage facilities, as well as expansion and upgrading of water reticulation systems. In order to promote further sustainable development, and encourage commerce and trade as well as interstate travel, secondary and connecting roads need to be constructed or improved, especially those that link with the new Compact road.

94. In an effort to promote competition and reduce Palau’s dependence on foreign produce and packaged foods, a plan for a central market in Koror has been prepared. This would provide a facility where farmers, fishermen and other vendors could sell their goods to the general public, as well as to other customers such as grocery stores, restaurants and live aboard dive boats. Coupled with the tax incentives the National law provides for importation of materials and equipment for agriculture, aquaculture, and mariculture projects, the intention is that these initiatives will increase Palau’s production of food, making the nation more self-sustaining, and possibly capable of exporting produce in the future. Land has been allocated for the central market, plans drawn up, and grant funding allocated. But there are insufficient funds to complete the project, which is currently stalled.

95. **Agriculture.** Agriculture growth and development has been modest and, relative to other sectors, has in fact declined significantly in recent years. But there is substantial potential for future expansion. One opportunity is to increase subsistence and semi-subsistence production through diversification, and thereby encourage both import replacement and export. The knowledge and skills of most farmers will need to be strengthened to ensure their activities are sustainable, including adoption of appropriate conservation practices. Specific initiatives that have been promoted by various groups

include: (i) promote through research, training, financing and marketing, an agricultural processing industry that prioritizes the preparation of tourism-related products; and (ii) implement the Palau fruit fly eradication program, as well as the eradication of other invasive species, to halt the high levels of damage and losses to a wide range of fruit and vegetables and also to facilitate increased supplies as well as opportunities for import substitution and export.

96. A proposal also exists to improve the facilities and operation of the nursery at the Bureau of Agriculture Station in Nekken, Aimeliik, Babeldaob Island. The intention is to supply various seedlings, provide services to farmers and conduct experiments. These initiatives are intended to enhance production of vegetables and fruits, promote the forest industry through timber tree seedlings, contribute to the rehabilitation of degraded lands and watershed protection and encourage to the production and export of flowers and ornamental plants.

97. **Fisheries and Aquaculture.** The challenge is to achieve greater returns on a sustainable basis from Palau's offshore and inshore marine resources, and also increase local involvement, while maintaining both adequate extraction levels for subsistence, and the protection of the natural marine environment for tourism and cultural purposes. Specific proposals that have been suggested include: (i) encourage the processing of fish into new, value-added products such as fishcakes and smoked fish, prioritizing tourism-related product development, including the expansion of existing fishing ports toward fish processing and other value-added industries; (ii) develop and implement a sustainable catch and release sports fishing program in partnership with the States, including the repairs and deployment of expanded fish aggregation devices; and (iii) review and implement increased fines and penalties for illegal fishing and non-compliance with vessel monitoring system requirements.

98. Aquaculture presents a viable alternative to the use of natural marine resources to support the tourism industry and meet local consumption demands. Aquaculture can also be an important new income-generating industry with the added benefit of reducing pressure on existing marine resources as a result of overharvesting and other unsound practices. Several opportunities have been identified, including: (i) expand the successful clam-seeding program to include other aquaculture products, in order to support sustainable production; (ii) implement pilot aquaculture projects that cover the full development cycle in order to gain the required knowledge and skills and to develop markets; (iii) provide incentives to aquaculturists that allow them to maintain a viable operation while waiting for their aquaculture products to reach the harvestable stage; (iv) strengthen support services to include relocation and improvements to nursery/hatchery facilities to support reseeded farms as well as the restocking of natural habitat areas; and (v) institute a coordinated campaign to advertise and promote local aquaculture products to businesses and tourists in Palau.

99. **Tourism.** Tourism offers the greatest potential to support sustainable economic growth and development in Palau, but realizing this potential requires full recognition the vulnerability of Palau's unique natural environment as well as the potential for adverse impacts from mass tourism. The Master Development Plan proposed that the contribution of the tourism sector to the Palauan economy be maximized by developing a private sector framework conducive to tourism growth, promoting and monitoring tourism developments, and ensuring the necessary controls and charging systems are established to protect the natural environment and cultural interests. Tourism can continue to be a very valuable industry for Palau, but only if an increasing portion of each tourist dollar spent stays inside the country and in turn generates additional income generating opportunities. For this to happen, tourist accommodation and services, and the production and supply of food and souvenirs, need to have a large domestic component. For example, a comprehensive import

substitution program could support and expand the production and availability of locally produced tourism-related products, including souvenirs, food and beverages.

100. In 2004, The Coral Reef Alliance conducted a two-day workshop with tour operators and resource managers in Palau. The group ranked uneducated divers, lack of tourism enforcement, site crowding, and anchor damage as the top four unsustainable tourism practices in Palau. To mitigate such impacts of tourism often involves raising awareness and educating for behavior change. A zoning plan was proposed by workshop participants to minimize tourist impacts on sensitive sites. While the impacts of individual tourists are not huge, the growing numbers of tourists and greater accessibility to sensitive sites have resulted in larger negative impacts of tourism.

101. Diversification of tourism products will help minimize detrimental environmental impact by spreading the pressure on the environment. This can be achieved by expanding tourist products to include activities other than diving (e.g., inland ecotourism and community-based tourism such as are being promoted by the Palau Visitors Bureau and PCS), and to areas north and south of the commercial hub of Koror. The increased numbers of tourists should ideally come from the high-end of the market. Such tourists are more likely to seek an authentic cultural experience and also undertake activities that have less of an impact on the environment or culture. But in turn, high-end tourists demand a high quality experience provided by natural ecosystems and the wider environment. This in turn highlights the need for sound management of these assets, as well as ensuring a reliable and coordinated approach to the maintenance and capital improvement of critical infrastructure, including sewer, water and power. The services such infrastructure provides are essential for not only ensuring tourist satisfaction and the longer-term viability of the tourism industry, but also for minimizing environmental impacts.

102. **Energy.** The Palau Public Utility Corporation has already assessed its future power generation needs, but has not yet explored the full potential of renewable energy for Palau. Palau currently has no comprehensive regime of laws and regulations to regulate the conduct of oil and gas exploration and exploitation activities in the Republic.

V. PRIORITIES FOR ACTION

103. This section draws on the preceding analysis to identify and justify the selection of five broad priorities for action that will help reduce environmental constraints and maximize the development opportunities provided by Palau's environmental assets and natural resources. The priorities for action have major implications for national policies and practices, as well as for ADB and Palau's other development partners.

A. Priority Areas for Action

1. Enhancing and Integrating Resource Development and Environmental Management

104. If development in Palau is not too slow, or even reverse, a more open and growth-orientated economy will emerge rapidly in the coming years. The principal opportunities for this growth lie in sectors which are highly reliant on access to, and development of, key natural resources, principally land, marine and terrestrial ecosystems, water and renewable energy. As will be elaborated in other priority areas for action, each opportunity comes with significant constraints. If these are not addressed, development benefits are likely to be short lived.

105. The current priority area for action recognizes the need for further development of these natural resources to proceed in an integrated manner, thereby ensuring that increasing use of one resource does not have adverse consequences for the health and

value of another resource or, indeed, for the overall health and well-being of Palau's natural resources. For example, residential, commercial and agricultural development in Babeldaob must not compromise the integrity of the watersheds providing the water on which such development relies. Furthermore, future development will also have to give full consideration to any wider environmental implications. Just as land, natural ecosystems, water and renewable energy are key development assets for Palau, so too is the overall environment. Even if Palau's marine ecosystems are kept relatively pristine, tourist satisfaction and hence the tourism industry will be jeopardized if inadequate water and sanitation services result in significant numbers of tourists becoming ill, or revolted by the visible consequences of malfunctions.

106. Thus it is important to strengthen natural resource and environmental management in order to minimize the development externalities impacting on the environment and natural resources. Key components requiring strengthening are institutions, legislation, the development planning cycle, infrastructure, education, awareness raising, monitoring (status, performance and compliance) and enforcement.

107. **Institutional Strengthening.** Under current arrangements, the key institutions are the MRD, EQPB and OERC. The House of Delegates has passed a bill to realign the current MRD by providing for two separate and distinct Ministries, each with their respective functions. The Ministry of Economic Development would be responsible for the maintenance, operation, engineering and design of government-owned facilities and equipment, including public utilities, public works, capital improvement projects, infrastructure, lands survey. On the other hand, the Ministry of Natural Resources would be responsible for the promotion, exploitation, development and management of the natural resources of the Republic, including marine and fisheries, agriculture, aquaculture, forests, minerals and other land- and ocean-based resources. The bill has been passed to both the Senate and the President, for consideration. The President's Office has indicated a desire to also review the current mandate of those agencies with environmental responsibilities, including OERC and EQPB. As part of such a review, there is a need to identify changes in the mandate of EQPB that will allow it to focus more on its regulatory functions. This might include delegating many of its permitting and compliance functions to relevant State agencies that are appropriately mandated, resourced and supported. Currently, EQPB is implementing its mandates while also assisting MRD to address its monitoring requirements.

108. Consideration might also be given to strengthening OERC, perhaps by placing it with that is mandated to take the lead in environmental research, policy, planning, monitoring and management, with respect to both domestic needs and international obligations. In doing so, care must be taken to ensure that there is an appropriate balance between meeting international obligations and addressing local needs. More ready access to international funding, compared to that from domestic sources, can easily upset the balance (see Annex 3).

109. **Enabling Legislation.** Many aspects of the institutional strengthening described above would have to be formalized by legislation, at both National and State levels, as appropriate. Moreover, much of the environmental quality protection legislation and regulations are modeled on US regulations. As a result, certain sections of the regulations are not practical or appropriate to conditions in Palau. An assessment of the existing regulations needs to be made to determine the changes necessary to make them more relevant to Palau. An example is the current requirement in the EQPB Public Water Supply System Regulations to monitor certain inorganic and organic contaminants.

110. Currently, the Bureau of Marine Resources, supported by technical assistance provided through the Food and Agriculture Organization, is participating along with counterparts from Kiribati, Marshall Islands, the Federated States of Micronesia and Nauru

in a project designed to strengthening coastal fisheries legislation. The objective of the project is to strengthen the capacity of national legislation drafters and fisheries experts in issues, trends and concerns of community-based fisheries and co-management of inshore and coastal fisheries and aquaculture, as well as fish health management to further develop their own country's legislative framework. In Palau, this is being used as an opportunity to integrate all national environmental and resource management legislation. Care needs to be taken to ensure positive attributes of the current legislation are not lost. For example, the EQPB regulations currently allows for fines for environmental violations to be paid into a “mitigation fund”. Funds can be used, without appropriation, to prevent environmental damage and address environmental emergencies. It would be a retrograde step if, under consolidated legislation, fines were paid to the Treasury, as is the current norm.

111. **Effective Development Planning.** The effectiveness of resource development and environmental management can be greatly enhanced if it is an integral part of a straight forward and streamlined institutional framework for preparing and implementing economic development strategies. This framework has four major components – (i) an over-arching development strategy, such as Palau’s Master Development Plan; (ii) sector planning; (iii) project planning; and (iv) performance budgeting. Figure 13 demonstrates the cycle of economic and development planning and implementation, and the relationships between the four components. It is important to note that, with commitment and careful analysis, opportunities can be identified and utilized to incorporate environmental concerns into these main components of the economic planning and development cycle or process.

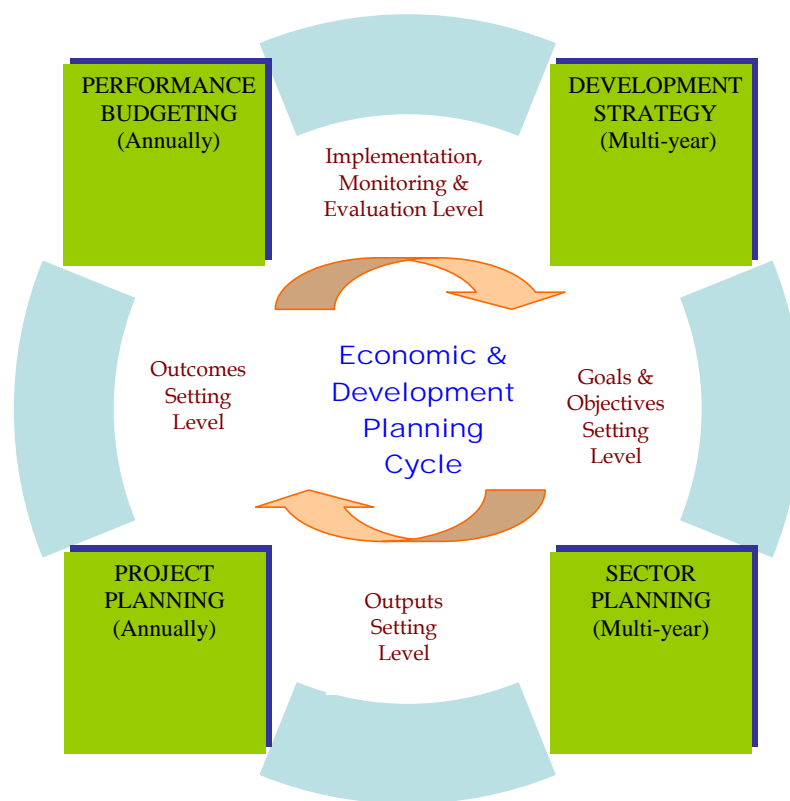


Figure 13. Idealized economic and development planning cycle.

112. The main goal of the economic and development planning cycle is to maintain a stable macro economic state, as a pre-condition for achieving a better quality of life for every person in the country. The driving forces are healthy private sector growth; an efficient management of revenue generation; and the effective allocation of resources to high priority

national development goals. The development strategy is formulated through a multi-stakeholder consultation. It sets out the over-arching vision, goals and objectives for the country's economic development for the next administration term for the benefit of the people, including their wellbeing and security. At the sector planning stage, outputs for implementing these goals are defined in detail in the plans of the various sectors of the economy. Using both indicators and related targets, each sector organization defines the outcomes they will individually set out to achieve. These are the sector plan outputs. At the performance budgeting stage, each of the sector organizations negotiate their annual budgetary allocations and other resource allocations for achieving the intended outcomes in each year of the administration term. The assessment and evaluation of the outcomes, that is the performance of the organizations, especially in terms of their impacts on the country's people and society's well-being and security over the administration term, is fed into the formulation of the new development strategy.

113. While the Ministry of Administration and Finance has the over-arching coordination and management role for economic and development planning, it would work closely with the other Government, non-governmental, community and private sector organizations that undertake activities related to the various economic and development goals and objectives set under this framework.

114. **Improved Infrastructure.** Key infrastructure that supports sound resource development and environmental management includes that related to water and sanitation services, waste management and land and water transport. The need for substantial improvements in water and sanitation infrastructure will be discussed as a separate priority area for action. Waste management policies and practices are in grave need of attention, with some work already under way. For example, Japan is providing assistance to halt the movement of leachate from Koror's solid waste dump, located adjacent to the Palau International Coral Reef Center. Control work now centers on construction of a dike to enclose the entire waste area and separate it from the non-waste, mangrove and lagoon environment. But there is an urgent need for a national engineered sanitary landfill. The design for such a facility has been completed, based on a site designated by the National Government, in consultation with the relevant State. But no funds have been allocated to construct the landfill, and currently there is a dispute over the ownership of the land where the landfill is to be located.

115. The need for a more considered approach to development planning is highlighted by the fact that several States already have waste incinerators, but all have been either closed down or never commissioned. Recently, a Japanese NGO provided one State with funding for an incinerator to burn solid waste, including tires. A national-level integrated solid waste management plan is needed urgently to halt such ad hoc initiatives until such time as there are assurances they meet a demonstrated need and can be operated and maintained in a fiscally viable and environmentally sound manner. This need is currently being address as part of the Japan-funded project to improve the M-Dock landfill.

116. **Awareness Raising and Education.** There is urgent need for increased understanding of both the opportunities the environment and natural resources provide for Palau, as well as the environmental consequences of all activities, from major development projects to the daily activities of families and individuals. Such understanding will help ensure that people have the knowledge, skills and technologies that will allow them to use the environment and natural resources in a sustainable manner. Specifically, in terms of civil society, enforcement of strengthened environmental legislation should still be pursued where appropriate. However, more effort should be placed on encouraging voluntary compliance with that legislation, including the regulations. This requires legislation that is not only clear, enforceable and well understood, but also that it is applied in a consistent and equitable manner.

117. It is thus desirable to give more emphasis to education and awareness programs that not only explain why specific activities are detrimental to the environment and natural resources, but also promote alternative, more environmentally sound ways in which people can meet their development and related objectives. This means giving less emphasis to the use of punitive measures to stop the environmentally damaging actions of individuals, families and communities.

118. An essential first step to increasing voluntary compliance is to identify ways in which individuals, families and communities can maintain their customary practices, many of which provide the sole source of income. Subsequently education, awareness raising and other programs should focus on: (i) why prohibited activities are detrimental and some other activities are undesirable; (ii) the fact that the legislation can be enforced, and will be where necessary, in a consistent and transparent manner; (iii) enforcement typically results in a lose-lose-lose situation—for the Government because limited resources are diverted from more productive uses; for the violator because it costs them time, money and loss of reputation; and for the environment because detrimental actions have taken place rather than being avoided; (iv) the more environmentally sound ways by which people can meet their needs, most of which go well beyond achieving compliance with the relevant legislation; and (v) the assistance and support that is available to ensure that improvements are socially just and equitable.

119. Governmental institutions and non-governmental and community-based organizations need to be strengthened in order to place greater emphasis on the preparation and delivery of programs that encourage sound environmental practices, and hence achieve more than mere compliance with the environmental legislation. This includes not only staff training in areas related to enhancing knowledge and the transfer of relevant skills, but also in areas related to monitoring and evaluating the effectiveness of the programs designed to improve environmental sustainability.

120. Women, children and youth can be particularly effective at encouraging moves towards environmentally sound lifestyles. As a result, agencies that can organize and mobilize such environmental advocates should be supported and encouraged to engage in developing and delivering programs that educate, motivate and empower individuals, families and communities to adopt more environmentally friendly behaviours and to use natural resources in a sustainable manner.

121. **Effective Status, Performance and Compliance Monitoring.** Existing monitoring capabilities are woefully inadequate, and generally fail to support even the most basic efforts to manage natural resources and the environment. There is little information with which to: (i) determine the current state of natural resources and the environment; (ii) assess the effectiveness, or otherwise of policies, plans and management interventions; and (iii) ascertain if conditions on environmental and other permits are being complied with. The current lack of equipment, appropriately trained personnel and operational budgets is a severe impediment to making effective use of legislation and to successful implementation of robust economic and development planning. Unless the capability exists to monitor performance using the prescribed indicators and targets, the entire planning process is fundamentally impaired.

122. **Strengthened Enforcement Capabilities.** Table 10 shows a substantial increase in violations from 2003 to 2006, including an increase in regulated activities being undertaken without a permit or where the permit has expired. There is also a significant increase in the number of permit violations. These violations show that some enforcement capability exists. But anecdotal evidence indicates there are many instances where violation notices are not being served and followed up, due to shortfalls in capacity. Improved compliance monitoring (see above) will strengthen enforcement capabilities, but there is also a need to improve

performance with respect to inspections and by ensuring that the legislation allows effective prosecution of violators. While all permit applications to EQPB are currently being subjected to a preliminary inspection, follow up and final inspections are not being made in all cases. Follow up inspections are usually performed only if a problem is reported. This situation is mainly due to a lack of human resources, a shortage of vehicles and the long travel distance to many sites. Steps are being taken to address these deficiencies, including sourcing additional vehicles, using staff from other EPQB divisions and collaborating with other agencies when the distance to inspection sites is large. A permit tracking system is also being used to identify permits that require action to be taken. In the past, a variety of factors have contributed to delays in issuing permits, including submission of applications with inadequate or inappropriate supporting materials. Steps are now being taken to better inform and assist the public regarding the requirements for an application.

2. Developing and Utilizing Indigenous and Renewable Energy

123. A key component to furthering social and economic growth is energy security, that is, the sustainable supply of reliable, affordable, and secure energy services. Not only does energy contribute to the improvement of education, health and communication services, it can also provide an avenue for the diversification of new enterprises. Consequently, energy is also considered key to efforts in poverty alleviation and strategies for sustainable development.

124. The Government of Palau recognizes the importance of energy services to economic stability and addresses it in the Palau National Master Development Plan (PNMDP). However, the PNMDP address energy needs only insofar as articulating the need to expand the generating capacities of the power plants. At the time the PNMDP was being prepared, renewable energy (RE) technology was still being developed and until recently efforts were never made to fully explore or utilize indigenous energy resources. Consequently, Palau still relies heavily on imported petroleum fuels for energy generation.

125. The Palau Public Utilities Corporation (PPUC) is the sole public utilities corporation in Palau. The PPUC is a semi-government corporation, overseen by a Board of Directors. The PPUC is responsible for supplying power to all consumers in Palau. The PPUC currently operates six plants using 18 diesel powered generators with eighteen and six megawatt capacities to provide energy. The PPUC utilizes an estimated 8 million gallons of diesel annually. Legislation establishing the PPUC does include provisions mandating the PPUC to investigate, research and, where feasible and practical, implement RE. However, with no Government energy policies fostering the promotion of RE, PPUC has limited its use of RE to equipping some outer islands with solar photovoltaic panels.

126. In recent years, with fuel prices fluctuating by as much as \$30/barrel, alternative sources of affordable, reliable and secure energy supplies are essential for Palau's future stability. Though the PNMDP did not initially address the use of indigenous and RE technologies since its development, the Ministry of Resources and Development has established an Energy Office responsible for developing RE along with energy conservation programs, policies, and strategies. Presidential Executive Order 132 "Establishing Energy Conservation Policies" and Executive Order 234 "Mandating Reductions in Energy Usage, and Creating an Energy Audit Team" provide the foundation for an overall energy policy. Under both Orders, the Energy Office is designated to lead, develop, and implement energy strategies. Development of a Palau Energy Conservation Strategy (PECS) is to begin in the first quarter of 2007.

127. The Palau Energy Conservation Strategy (PECS) will be developed by the Energy Office in cooperation with the Pacific Islands Energy Policy and Strategic Action Planning (PIEPSAP) and the South Pacific Applied Geoscience Commission (SOPAC). In accordance

with Executive Order 132, the PECS will outline a strategic plan with activities, lead agencies, indicators of success, assumptions and risks, and time frames. It is envisioned that the PECS will compliment Palau's development strategies and goals, providing for reliable, safe, environmentally acceptable, and cost-effective energy services.

128. The current absence of a comprehensive energy policy, strategy, or a regulatory framework for energy sector operations at any level means the energy sector is not obligated to support or implement RE initiatives. Without any such government policies in place, the PPUC has not been obligated to develop its own policy regarding the utilization of RE technologies. Equally, the private sector is reluctant to invest in this technology without any established government policies, programs, or incentives.

129. Consequently, an enabling environment for the promotion and implementation of RE options has not been developed at the National, State, or private sector level. To date, the Energy Office has supported the development of small scale solar power projects in the outer islands or small rural communities. These solar power projects, funded through Government programs, have involved outfitting single homes with photovoltaic solar panels and batteries in locations where public utilities are unavailable. There has been no demonstration of the RE technology on a large scale. As such, consumers are unaware of the viability of RE technology and its potential for long-term cost savings on a large scale. This, coupled with the high initial cost of setting up RE systems, has deterred their use in Palau.

130. In addition to efforts made by the Energy Office at the community level, the government of Palau, as part of the African, Caribbean, Pacific/European Commission (ACP/EC) Partnership Agreement under Article 3.2(a) of Annex IV, is receiving funding for an RE program to partially provide solar street lighting along the Compact Road as well as electricity to the Capitol Building in Melekeok State. As part of the ACP/EC Partnership, under Article 3.2(b) of Annex IV, the Palau Community Action Agency (PCAA) has proposed a project for mainstreaming RE technologies at the community level over a four year period. In all, the financial assistance provided by the European Union for RE will total nearly \$2.5 million. This funding will go to both National- and community-level RE initiatives.

131. In addition, although it is surmised that Palau has limited indigenous sources of energy, there are parties interested in exploratory work, particularly for oil and gas. Thus far Palau has refrained from allowing such work since: (i) there is no adequate framework for allowing activities that have such potentially high environmental risks; and (ii) there has yet to be evidence provided that Palau has oil and gas reserves that are potentially economically beneficial, and that outweigh the risks of exploration and exploitation. However, proponents for oil and other indigenous energy source exploration claim that without the ability to explore, evidence of Palau's indigenous energy reserves cannot be compiled. While this debate forges on, Palau is attempting to address the need for an adequate framework for reviewing, investigating and monitoring activities involving exploration of indigenous energy sources.

132. However, given the limited financial and technical resources to address this issue, very little has been achieved to date. The framework must address environmental impacts, mitigation of negative impacts, as well as unavoidable impacts. A possible solution is to strengthen the existing environmental assessment (EA) and environmental impact statement (EIS) processes, under the jurisdiction of the EQPB. This might include making the processes more locally relevant. But the framework must go beyond merely improving environmental regulatory procedures and address, among other things, benefit sharing, resource ownership, and tax and business laws to prevent unethical business acts. Without an adequate framework in place at this time, Palau is neither able to manage undesirable

impacts and losses, as well as the environmental and economical gains that may arise from indigenous resource exploitation.

3. Providing Safe and Secure Water Supplies and Adequate Sanitation

133. The primary source of fresh water in Palau is from precipitation, with the majority of freshwater used being surface water. The area's major water source is the Ngirikil watershed, located on Babeldaob. During non-drought periods the Ngirikil watershed supplies approximately four million gallons of water per day. Studies indicate that a total of 450 billion gallons of internal renewable water is available in Palau. While groundwater is found in Palau, the groundwater lens is relatively thin. Groundwater has also not been extensively developed because of well maintenance problems, water quality problems (chlorides, iron, manganese, taste and odor), and limited well yields in certain areas. Most water pumped from the ground is non-potable.

134. The National Master Development Plan describes a strategy to provide an adequate supply of safe potable water to meet the needs of the people of Palau, and to protect the water supply areas from pollution. It is estimated that over 95% of the population of Koror and Airai states, and about 80% of the population of rural states, are served by public water systems. In addition, many homes in Palau have their own rainwater catchment systems to provide drinking water, with water from the public system, if available, being used for bathing and washing. Some populations on remote smaller islands obtain their water solely from rainwater catchments, using very shallow wells only during periods of drought. The overall proportions of people with access to safe drinking water are given in Table 11.

135. The population center of Koror, as well as the southern region of Airai State, is served by the Koror/Airai Public Water System. Approximately 95% of the 14,000 people living within the service area are supplied with water from the public system. This system is supplied by two water sources, both of which are located in Airai State. The main source is the 20 million gallon capacity Ngerimel dam and reservoir. The second source is via the Ngirikil River pump station. This supplies water to either the Ngerimel reservoir or direct to the treatment plant. At present, the watershed for both the reservoir and the river are relatively undeveloped, with only a few residences and small farms. Currently, the main water quality issue for the public system is high turbidity of the raw water in the reservoir during heavy rains. Elevated turbidity levels have also been attributed to road construction.

Table 11

Access (%) to Safe Drinking Water and to Improved Sanitation

	1990	1995	2004
Access to Safe Drinking Water			
Total	80	89	85
Urban	71	84	79
Rural	99	97	94
Access to Improved Sanitation			
Total	66		80
Urban	72	99	96
Rural	54		52

Sources: Millennium Indicator Database (<http://millenniumindicators.un.org>) and ADB (2006).

136. In 1998, the Koror/Airai water treatment plant was upgraded to a 4.5 million gallons per day conventional filtration plant. Typical daily demand is 4 million gallons, which is high given a service area population of only 14,000 people. This high demand is due to leakage (losses are between 35 and 45%), lack of water conservation and the general misuse and wastage of water. The supply is subject to disruptions, water shortages and low pressure.

These problems are caused not only by the high demand, but also by a range of other factors including the need for adequate financing, and the need for improved operation, maintenance, management and planning of the system.

137. There are currently some 15 other public water systems, serving populations from 20 to 600 people in rural areas. Most systems obtain their water from impoundments of surface water streams, with the remainder using groundwater wells, or a combination of both sources. All the surface water systems are required to treat the water by both filtration and chlorination, while the groundwater supplies are only chlorinated. All the public systems have storage tanks to meet peak demand.

138. The principal threats to Palau's water resources include climate change as well as contamination resulting from human activities. Uncontrolled development, inappropriate land uses, and deforestation, in combination with intense drought and storm activity, are even today causing land degradation and sedimentation problems in or near significant watersheds. Constraints on water usage are inadequate storage capacities and lack of well-established infrastructure for distribution. By reducing water subsidies, the National Government has been able to decrease its overhead and facilitate the repair and expansion of the current water treatment and distribution facilities. Reducing water subsidies also motivates customers to stop leaks within their premises and practice water conservation.

139. But the current water pricing does not raise sufficient revenue to cover the total costs for the Koror/Airai system, requiring an ongoing subsidy by the National Government. Moreover, some customers do not pay their water bill, but remain connected to the system. Estimates suggest that revenue raised is about \$500,000 against operating costs in excess of \$1.5 million.

140. Currently, the EQPB tests some 20 public water systems on a regular basis for coliform bacteria, chlorine residual and turbidity. All the rural water systems regularly test positive for bacteria and violate the EQPB turbidity standard (Figure 14). Only the Koror/Airai water system complies consistently (Figure 15). However, the quality of the rural public water supply systems has improved over time. The filter technology used in the rural systems (rapid sand filters) are unable to provide adequate treatment. Moreover, some of the existing filters are not operational while others are in need of maintenance and repair. Although most of the rural water supply systems have been supplied with chlorination systems, many are used irregularly or not at all, or are out of service. The preceding problems reflect both a technical capacity issue for the systems and an overarching watershed protection issue.

141. Koror was the first State to provide a centralized wastewater collection system. It serves about 75% of the population of Palau. When the wastewater cannot flow by gravity, due to the topography of Koror, the sewage collection system uses 48 pump or booster stations to pump the sewage through force mains towards the treatment plant. Treated effluent from the wastewater treatment plant is discharged through a deepwater outfall pipe into the lagoon offshore from Malakal island in Koror.

142. In Melekeok State, a new centralized wastewater collection system began operation in 2006. The Melekeok water treatment plant uses a process where solids are removed from the wastewater followed by treatment of solids and wastewater occurs. The treated wastewater is then re-circulated back into the community for use.

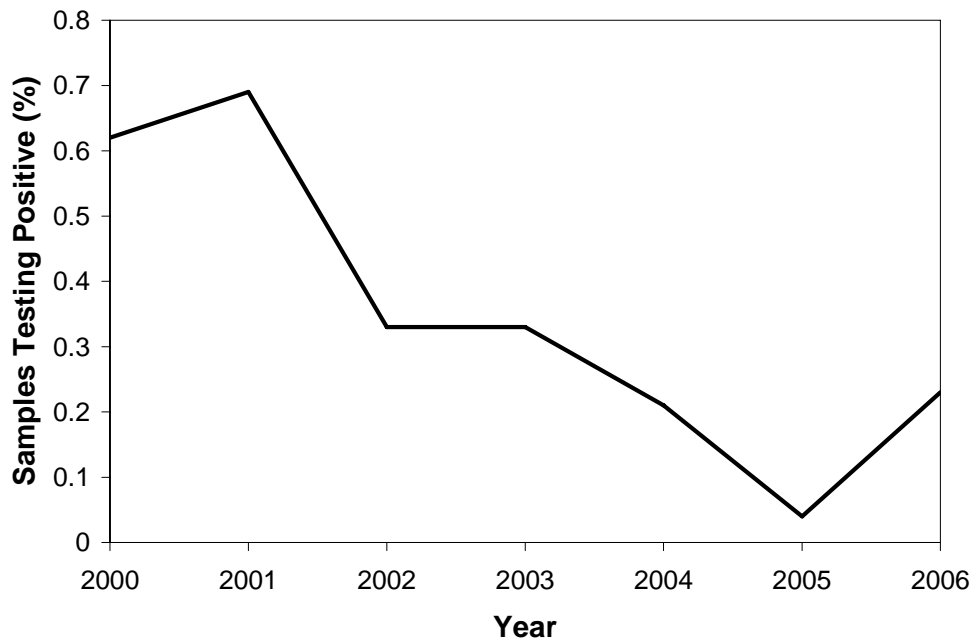


Figure 14. Percentage of water samples from rural public water supply systems testing positive for fecal choliforms (source: EQPB, unpublished data).

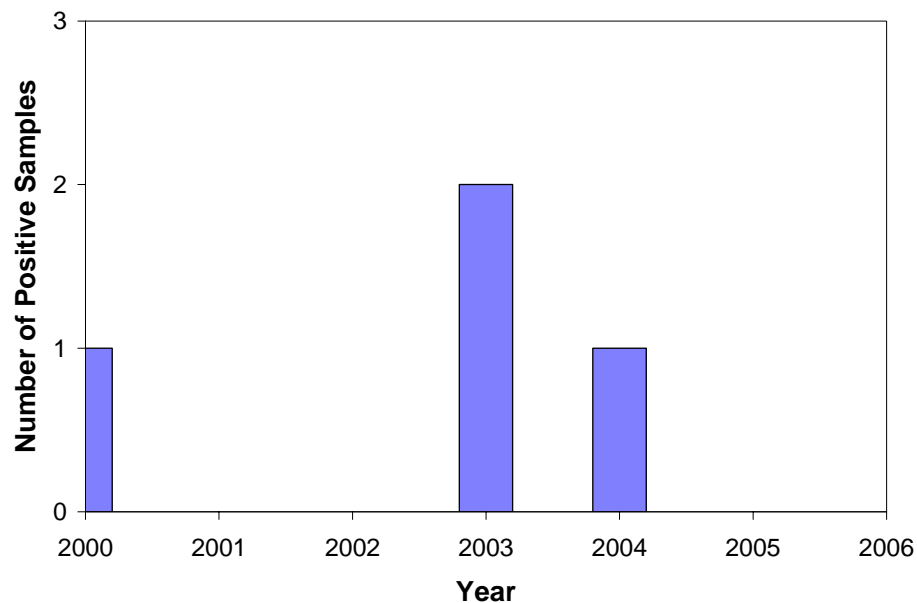


Figure 15. Number of water samples from Koror-Arai public water supply system testing positive for fecal choliforms (Source: EQPB, unpublished data).

143. All of the rural States are un-sewered. Sewage from homes and businesses is treated using individually owned septic tanks, leach field systems, pit toilets or, to a much lesser extent, composting toilets. The portions of the population with access to improved sanitation are shown in Table 11.

144. The biggest environmental and public health threats from the centralized system serving Koror arise from improper operation and maintenance of the collection system and treatment plant, resulting in sewage overflows and the discharge of inadequately sewage into the lagoon. Another risk is cross-contamination of the public water supply system because of the absence of a backflow prevention program, including relevant regulations.

Individual wastewater treatment systems that are improperly sited or poorly designed and constructed are potential sources of groundwater contamination, especially from nitrogen compounds and pathogens. For example, the housing developments south of the airport (Figure 16) have been built mostly on marine clay soils. Septic system leach fields do not perform well in such soils because the water percolation rate through them is too slow.



Figure 15. Housing development south of the airport that is experiencing problems with operation of septic tanks, due to the low permeability of the soils in the area (Source: Bob Gavenda, USDA-NRCS Pacific Islands Area).

145. The development that is anticipated for Babeldaob as a result of completion of the Compact road represents four important challenges related to water and sanitation services: (i) ensuring appropriate protection of all watersheds that are currently used to provide potable water to both urban and rural populations, as well as those watersheds that may be used for this purpose in the foreseeable future; (ii) ensuring that the water and sanitation infrastructure has a capacity consistent with the anticipated current and future demand; (iii) land use plans and zoning and building regulations are such as to minimize the cost of providing water and sanitation services in an environmentally sound manner; and (iv) the design, construction and operation of the required water and sanitation systems demonstrate best practice in terms of addressing environmental considerations, with respect both to the impact on the environment and to the ways in which environmental conditions will influence the sustainability of the infrastructure investment.

4. Addressing Land Use Issues, Including Tenure, Access, Planning and Management

146. Clear property rights are a fundamental requirement for a modern market economy. As Palau moves towards such an economy, issues related to land tenure and effective land use planning are taking on ever increasing importance. A major constraint on economic development in Palau is the uncertainty over property rights and, particularly, over title and rights to land. This uncertainty is a serious barrier to investment in all sectors of the economy and is also causing considerable social hardship and distress.

147. The land tenure system in Palau is complex and deeply rooted in the social structure, and is divided into private and public lands. Private land is titled either individually or by a clan. Since the approval of the clan must be obtained, development of clan titled land is oftentimes a tedious venture. Most land was held on a customary basis prior to 1971, with State-owned land constituting only a small share of the total area. Since 1971, Palau has been engaged in a titling process that has seen individual lots surveyed and ownership determined under the auspices of the Land Court. Land titles are drawn up on a clan or individual basis, depending on custom, agreements reached within clans, and history. About 10,000 out of 17,000 lots in the central land register, established under the Japanese administration, have been surveyed and had their ownership determined. The Government has recently directed that the titling process be completed by February 2008. Since land is a highly sensitive issue in Palau, it is likely that the titling process will extend beyond the 2008 deadline. A supplementary process of splitting lots is expected, even for titled land. The Government expects this to potentially affect more than 10,000 lots.

148. Only Palauans can own land and in effect only Palauan-owned banks can take land as security. However, foreigners can obtain leases and foreign-owned banks can accept leases as security for loans. The Constitution provides for 99-year leases, but courts have ruled that this is effectively ownership and, in practice, leases are for a maximum of 50 years.

149. In 2001, the Association of Governors initiated a project to develop land use master plans for each State in Palau. Funding for the project was budgeted by the National Government. The result of this initiative was a resource management and development suitability study that indicated the most appropriate use for each tract of land. This information is invaluable for the preparation of comprehensive land use plans, but falls far short of the original intention to prepare land use master plans. Since then, the Association of Governors has not resumed efforts to collectively develop their master plans. In general, States have been unable to complete their land use plans due to a severe shortage of available technical, financial and human resources, rather than any lack of commitment.

150. With the Compact Road nearing completion, it is becoming ever more critical that at least the affected States develop their master plans and accompanying land use laws. The Compact Road is a 52-mile circumferential road that connects all the States in the northern island of Babeldaob. In addition, the new National Capitol Building located in the State of Melekeok has been completed. Government offices transferred to the new National Capitol in the last quarter of 2006. These developments provide an opportunity and incentive for large scale business, residential, agriculture, aquaculture, and agroforestry development throughout Babeldaob. The Ngaremeduu Conservation Area, Ngaremeduu Bay, Rock Islands, and Babeldaob as a whole, are key areas in terms of environmental value and biodiversity. These areas are under threat from unplanned development and require the adoption of comprehensive integrated planning. A holistic, coastal zone/catchment management approach is required to mitigate the impacts, such as those related to runoff, siltation, waste disposal and habitat loss and associated with recent and planned Babeldaob development, including the Compact Road and beach, foreshore and wetland development.

151. However, currently, the affected States do not have the capacity to plan and manage these developments in ways that will maximize economic and social benefits while minimizing any environmental consequences. This lack of capacity relates at least in part to the fact that, while State public land authorities are established by the State Governments and receive their operating budget from them, they are actually part of the National Government under the Palau Public Lands Act and must administer and manage lands in the best interest of the Republic as a whole and not in the interests of the individual State Governments. Hence, public land authorities in many States do not have the resources to function properly and much of the decision making about public lands is still being done inappropriately through the State Governments.

152. According to the National Action Program to Combat Desertification (NAP), land degradation caused by population growth and development is the second greatest threat to the Republic's environmental, social, and economic sustainability. According to the NAP, the major causes of land degradation in Palau are: (i) lack of land use planning; (ii) development resulting from completion of the Compact Road; (iii) drought; (iv) sea-level rise; (v) the loss of soil fertility; (vi) watershed degradation; (vii) invasive species; (viii) uncontrolled fires; and (ix) unsustainable development activities.

153. One critical aspect of land use planning that was not integrated into the governor's initiative was the need for community visioning, along with programs to mainstream sustainable land management at the community level. Many communities do not fully comprehend the need for formalized land use planning. This is partly due to the fact that present day resource needs and uses often go beyond the applicability of traditional resource management practices. In addition, many communities are not equipped to make the best decisions on how to sustainably develop, manage and use their resources. This, coupled with the complexities of land ownership in some States, highlights the need for increased community awareness and community involvement in developing State land use plans and legislation. The support and active participation of communities in initiatives that reflect their values and needs will do much to assist States to better implement their land use legislation and plans.

154. Another constraint to sustainable land management is the current absence of legal incentives for landowners to sustainably develop their properties. Many land owners do not see the short- or long-term benefits of developing their land in a sustainable manner. A well conceived and legislated set of incentives would encourage land owners to give appropriate emphasis to sustainable land management practices.

155. Enabling more productive and sustainable use of land is a high priority, particularly for land which is in customary ownership. Progress in this regard requires concerted action in at least three respects, namely: (i) increasing the timeliness, certainty and equity in resolving land disputes; (ii) ensuring land use is consistent with land capability and with adjacent land uses; and (iii) assisting land owners and users to make informed decisions and to implement them in a timely and successful manner. Tenure issues related to the adjudication, survey, registration, and issuance of land titles need to be resolved in order to enhance access to land for development. Absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights is a constraint that needs to be resolved with urgency.

5. Managing Biodiversity, for Use and Conservation

156. **Biodiversity Conservation.** Palau's location and environmental characteristics have allowed the growth of over 7,000 terrestrial and 10,000 marine species. Because of this, Palau has the most species diverse terrestrial ecosystem in Micronesia and one of the most biologically diverse underwater environments in the world. For a small island nation such as Palau that relies on its environment and natural resources to sustain its economy, managing its biodiversity is essential.

157. Sustainability is, both culturally and politically, the root of all management policies in Palau. Culturally, leaders continue to institute a traditional moratorium that is referred to as "*bul*", where areas or resources are closed for use or harvest for periods of time. Palau continues to use the practice of *bul*. In addition to this, communities and States have joined together to create and manage nearly 30 established protected areas.

158. The National Biodiversity Strategy Action Plan (NBSAP) was completed in 2005. It was developed through an extensive process of research and multi-sectoral consultative

activities involving a broad range of Government (State and National), NGO, and private sector and community stakeholders. The vision of the NBSAP is, "The people of Palau are living in harmony with their diverse natural and cultural heritage." The NBSAP identified eight strategic areas for action to address biodiversity management. From the NBSAP, several other initiatives have emerged.

159. To further support the protection of Palau's natural resources, the National Government has passed the Protected Areas Network (PAN) Act. The PAN Act will enable the National Government, through MRD, to assist the States by: (i) providing technical assistance to the States; (ii) acting as a conduit for funding; and (iii) facilitating cooperation among the States where areas of biodiversity importance cross State boundaries. The States will be responsible for: (i) nominating areas for inclusion in the PAN; (ii) applying for financial and technical support from the National Government to manage these areas; and (iii) for managing the areas.

160. The Micronesia Challenge (MC) is more evidence of Palau's commitment to conserving its biodiversity. The MC is a regional initiative entered into by Palau with four neighboring island nations. In the MC, each Party has declared that it will work to conserve 20% of its terrestrial areas and 30% of its near-shore marine areas. For Palau's obligations under the MC, the PAN is the implementing body. In December 2006, the first regional MC Action Planning meeting was held in Palau (Government of Palau, 2006). The meeting aimed at further solidifying the commitment of the countries to the MC, establish a financial mechanism, and develop a workplan and a regional coordinating body for its implementation.

161. Another program focusing on biodiversity management is the Palau Conservation Society's (PCS) Ecosystem Based Management (EBM) Project and the Palau Community Visioning Initiative. This PCS program focuses on mainstreaming ecosystem management at the community and Government level. Although Palau has taken significant strides in developing the framework to manage biodiversity, implementation is now needed urgently. As with many other biodiversity initiatives, both the PAN and the PCS programs have established the framework for their implementation. However, with limited financial and technical resources, they may not be self-sustainable and thus these initiatives may fall short of achieving their goals.

162. **Sharing the Benefits from Biodiversity Use.** The equitable sharing of such benefits is one of the principles on which the Palau's NBSAP is based. It requires that all use, conservation, and management of Palau's biodiversity should benefit the people of Palau in some way, with the benefits being shared equitably among all the people of Palau. Another principle is that communities have both the right and the responsibility to manage and use their biological resources sustainably for their benefit and that of future generations.

163. Bioprospecting involves the search for, and exploitation of, valuable chemical compounds and genetic material found in wild organisms. The effort is as old as modern science and has yielded many products useful in agriculture, materials science and, notably, pharmaceuticals, where new discoveries can lead to enormous profits. Virtually all modern medicines are derived from or modeled on chemical compounds found in nature. Marine bioprospecting, or the collection of marine specimens, in search for "drugs from the sea" has been and still is the driving force behind the funding of research on the chemistry of marine organisms. Bioprospecting related research activities are not new to Palau. In the early 1970s, cutting edge work on marine natural products, largely by U.S. and Japanese researchers, was initiated. It continues to this day. Over 150 technical publications on marine natural product compounds have been produced from studies in Palau.

164. Through the centuries, people have selected certain plants of the forests to grow around their homes or within their village. These plants serve as food and medicine. Palauan healers used over 82 species of plants for medicine. Many of the plants are found in other parts of the world and used by a wider group of people. The coconut plant, *Cocos nucifera* (*lius*) is widely used in Palau and Yap as a cure for many illnesses. The small plant, *Phaleria insidia* (*delal a kar*), also has many uses in Palau. Plants such as *Morinda citrifolia* (*ngel*), *Codiaeum variegatum*, *Macaranga carolinensis* (*bedel*) and *Carica papaya* (*bobai*) have multipurpose healing properties. Many of these plants are found near homes or in the urban forests, while some are in the savanna, the taro patch and the forests. During a woman's birth cycle, she typically uses at least 24 medicinal plants. Two types of small plants called *Limnophila aromatica* (*iaml*) with pink flowers and little *iaml* or *Limnophila fragrans* (*ulekelakele*) with white flowers, both in the snapdragon family, are used for cleaning and perfuming a woman's body after working in the taro patch (Kitalong, 2004).

165. The Palau-based Coral Reef Research Foundation (CRRF) has had the prestigious US National Cancer Institute's (NCI) shallow water marine collections contract since 1992. CRRF is the home base for the field collections in the search of new cancer drugs from the sea. The NCI collection program ranges throughout the Indo-Pacific region and is part of a world-wide effort by NCI to find new treatments for cancer and AIDS from organisms in nature. Through this program, Palau has become the most thoroughly sampled region for potential anti-cancer drugs. This work has been extended to many other areas of Micronesia over the years and has resulted in CRRF arriving at an unequalled understanding of marine species diversity, ecology and biogeography of selected invertebrates from throughout the Micronesian region.

166. CRRF works only for the US NCI, which has in place state of the art agreements to protect the biodiversity rights of the countries in which it conducts its activities. The NCI protections for countries' economic and biodiversity rights include: (i) full collaboration with countries on collection activities; (ii) full sharing of all data, photographs, and other information with source country agencies; (iii) participation whenever possible of the host country scientists at NCI laboratories in the analytical and developmental work on any drug candidates; and (iv) full disclosure of testing results on a regular basis to collaborating countries. No commercial development of any potential drug occurs without the negotiation of a royalty and licensing agreement satisfactory to the source country government. If any traditional knowledge is utilized in discovering possible drug candidates, that contribution is recognized and enters into any negotiations between the NCI and source countries. In reality, while traditional healers often have valuable information related to medicinal terrestrial plants, there is no remotely equivalent information for marine organisms, particularly those occurring deeper waters. CRRF chooses those species for screening based solely on its own knowledge and the ability to collect the specimens.

167. The present economic value of both terrestrial and marine bioprospecting activities within the Republic of Palau is at about \$200,000 per year (Table 3). This value varies from year to year. Presently, there are no royalties coming to the Republic of Palau from any drug development based on Palauan animals or plants. There might be in the future, but this is very uncertain and it is thus impossible to begin to estimate the value of any discovery.

168. The knowledge of traditional medicines is valued worldwide, to cure illness and disease. Laws are needed to protect traditional knowledge and at the same time share this valuable knowledge with the world. Palau's NBSAP calls for traditional resource owners and communities to be (i) fully involved; and (ii) the primary beneficiaries from conservation and resource management of Palau's biodiversity, with the rights of traditional ecological knowledge holders being fully protected.

169. To achieve this outcome, the NBSAP seeks to achieve the following: (i) create a multi-stakeholder committee to develop and lobby for adoption of legislation protecting Palau's genetic resources; (ii) develop and implement a public awareness/education program; (iii) develop and implement an effective enforcement and management program; (iv) promote community participation in biodiversity conservation; (v) increase awareness and promote the use of traditional management practices together with science and technology; and (vi) promote community capacity to launch and successfully manage small businesses that enhance and benefit from biodiversity.

B. Addressing the Priorities: A Road Map for Environmental Management

170. To facilitate the mainstreaming of environmental considerations in national development planning, it is useful to present the preceding five thematic priorities for action in the form of a road map for environmental management. Best practice in environmental road mapping involves the following sequential steps: (i) identify critical environmental concerns, needs and problem areas; (ii) determine the current state of relevant environmental components and systems; (iii) specify a timeframe within which improvements in environmental performance and quality are to be achieved (typically by between five and twenty years); (iv) develop goals and targets for environmental performance and quality, consistent with national policies, strategic plans and objectives; (v) identify actions and activities that are required to meet the specified targets; (vi) identify the implementers; (vii) identify and implement a system to achieve changes in environmental performance and quality; (viii) review progress at pre-determined intervals; and (ix) feed back information from the review process into the implementation process. To the extent practicable, actions and strategies to promote improvements should be innovative, test new theories and alternative technologies, and promote breakthroughs for solving difficult problems.

171. Much of the information relevant to the first stages of preparing an environmental road map has been presented in preceding sections of this report. The remaining sections of the road map focus on the outcomes, indicators, targets and actions that will improve environmental performance and quality, consistent with economic and development policies, plans and operational objectives.

172. There are three important comments to make about the environmental management road map: (i) to date Palau has not developed a national system of management targets and performance indicators—this is in fact a priority need that should be met as soon as possible; in the interim, indicators such as those included in the ADB Country Strategy and Program for Palau could be used; (ii) while consultation, training, education and awareness raising have been identified as areas requiring substantial attention if improvements in environmental performance and outcomes are to be achieved, these activities will not always be given separate attention in the issues, constraints and actions section of the road map; rather, their place in the road map is implicit - strengthening consultation, training, education and awareness raising will be infused into the work plans of the projects that are identified in the road map; and (iii) consistent with ADB's practice of mainstreaming climate change in national development planning and processes⁷, climate variability and change have not been given separate attention – addressing climate-related risks to the sustainability of projects and other development initiatives forms an integral part of the objectives and work plans of the projects that are identified in the road map.

173. In total, seven project interventions are proposed, namely:

- Enhancing Environmental Management Capacity at National and State Levels;

⁷ ADB. 2005. *Guidelines for Adaptation Mainstreaming in Pacific Department Operations*. Manila.

- Coordinated Development of Renewable Energy at Community, State and National Levels;
- Mainstreaming Environmental Considerations in Water and Sanitation Infrastructure for Babeldaob;
- Strengthening Public Land Authorities at State and National Levels;
- Preparation and Implementation of National and State Land Use Plans, Zoning Regulations and Building Codes;
- Ensuring Maximum and Equitable Flows of Benefits from Biodiversity Conservation and Resource Management; and
- Minimizing the Impacts of Land-based Sources of Pollution on Palau's Marine Ecosystems.

174. Concepts for the proposed assistance are provided in Annex 4. The roadmap is presented in Table 12. One intervention relates to strengthening the planned ADB assistance with respect to water and sanitation, and thus presents a strategic opportunity for ADB assistance to address, in a direct manner, some of the key environmental concerns identified in the participatory consultations.

175. It is unrealistic to expect that all the projects could be implemented in the immediate future. Likewise, it is not realistic to suggest that ADB could provide all the necessary technical and other assistance. Collaboration, cooperation and coordination with the Government, and amongst development assistance partners, will be required if substantial progress is to be made in implementing the proposed projects in a timely manner.

C. Implications for ADB's Intervention Programs

176. Table 13 presents the results of a systematic analysis of the strengths, weaknesses, opportunities and threats (SWOT) in relation to addressing the five priority areas for action through a more explicit consideration of environmental opportunities and constraints in ADB's assistance to Palau. The table shows that the planned assistance from ADB can make valuable contributions in all priority areas. But the full benefits of such assistance will be realized only if Government and other stakeholders take ownership and show total commitment to successful implementation of the proposed activities.

Table 12

Environmental Management Road Map

Proposed Outcomes and Indicators	Targets					
	Current (est.)	Year 5	Year 10	Year 15	Year 20	Year 25
Enhancing and Integrating Resource Development and Environmental Management.						
Sustainable contribution of environment and natural resources to GDP [% of GDP]	30	45	50	55	55	55
Policies with quantitative targets and indicators - incl. environmental [% of policies]	0	60	100	100	100	100
Area sustainably managed [% inshore marine; % land]	48; 19	55; 30	65; 45	75; 60	80; 75	85; 85
Violations reported by EQPB [% achieved]	59	30	20	10	10	5
Developing and Utilizing Indigenous and Renewable Energy.						
Energy supplied from indigenous and renewable sources [% of total]	<5	15	30	45	60	75
Providing Safe and Secure Water Supplies and Adequate Sanitation.						
Access to safe drinking water [%]	80	90	100	100	100	100
Access to improved sanitation [%]	66	80	100	100	100	100
Addressing Land Use Issues, Including Tenure, Access, Planning and Management.						
Functionality of land survey, title registration and dispute resolution systems [%]	10	40	80	95	100	100
Land use plans prepared and implemented effectively [% of land area]	0	75	100	100	100	100
Land use zoning implemented effectively [% of land area]	0	75	100	100	100	100
Building regulations established and implemented effectively [% of land area]	0	75	100	100	100	100
Managing Biodiversity, for Use and Conservation.						
Achievement of strengthened Micronesia Challenge targets	75	100	100	100	100	100
Use of biodiversity covered by benefit sharing agreements	0	100	100	100	100	100
Initial Actions						
2007 - 2010 - 2015 - 2020 - 2025 - 2030						
Enhancing and Integrating Resource Development and Environmental Management.						
▪ Enhancing Environmental Management Capacity at National and State Levels						
Developing and Utilizing Indigenous and Renewable Energy.						
▪ Coordinated Development of Renewable Energy at Community, State and National Levels						
Providing Safe and Secure Water Supplies and Adequate Sanitation.						
▪ Mainstreaming Environmental Considerations in Water and Sanitation Infrastructure for Babeldaob						
Addressing Land Use Issues, Including Tenure, Access, Planning and Management.						
▪ Strengthening Public Land Authorities at State and National Levels						
▪ Preparation and Implementation of Land Use Plans, Zoning Regulations and Building Codes						
Managing Biodiversity, for Use and Conservation.						
▪ Ensuring Maximum and Equitable Flows of Benefits from Biodiversity Conservation and Resource Management						
▪ Minimizing the Impacts of Land-based Sources of Pollution on Palau's Marine Ecosystems						

Table 13

SWOT Analysis of Mainstreaming Environment in Proposed ADB Assistance to Palau

Priority Area	Strengths	Weaknesses	Opportunities	Threats
Enhancing and Integrating Resource Development and Environmental Management	There is general political will as well as social/community will to integrate and enhance resource development and environmental management.	Capacity is lacking at every level, even to assess capacity needs.	Fully realizing how sound environmental management can underpin sustainable resource development will support environmental management initiatives at all levels. This will in turn promote environmental considerations being integrated with planning at all levels and in all sectors.	Some disbelief in the benefits of environmental management and resource development remain as the benefits are only seen in the long term.
Developing and Utilizing Indigenous and Renewable Energy	Renewable energy is sustainable and cost saving in the long-term. Renewable energy also reduces and/or avoids the creation of adverse impacts to the environment and natural resources. Indigenous energy sources, if reserves are significant, can aid Palau in becoming more self-sufficient. Both can aid in poverty alleviation and economic self-sufficiency.	For both renewable and indigenous sources of energy the weakness may be the governments' impatience to adequately explore this area without giving enough attention and time to environmental considerations. This desire to develop the resource quickly relates to increasing fuel costs, increasing energy needs, and the desire to become energy and economically self-sufficient through indigenous energy exploitation.	There are several options for renewable energy in every state in Palau. Renewable energy not only can benefit small isolated islands where grid-tie energy systems cannot be built, but also on the large scale with grid-tie options.	Threats that may arise from this priority area from the exploration and exploitation of indigenous sources of energy. If Palau proceeds in this priority area without the proper framework in place direct adverse impacts on the environment and economy could occur from which Palau will not be able to respond to or recover from. Opportunities to make progress in this area need to be well thought out and key stakeholders involved as there is an undercurrent of animosity between national and state governments over ownership, benefit sharing, and processes.
Providing Safe and Secure Water Supplies and Adequate Sanitation	Consistent with ADB priorities. Also a project is already in the pipeline.	In the rush to provide water and sanitation systems, States may opt for designs that do not take environmental considerations into play. They may also not take into consideration opportunities for centralization and/or harmonization of State designs.	Providing water security and adequate sanitation compliments all efforts in environmental and resource management, as well as biodiversity conservation.	Unless environmental considerations and integrated opportunities are taken into account, this area may not support sustainable development. Without water security and adequate sanitation, benefits may be lost for both biodiversity and development.

Priority Area	Strengths	Weaknesses	Opportunities	Threats
Addressing Land Use Issues, including Tenure, Access, Planning and Management	Privatization of land is a strategy area for the ADB.	Until land use issues are resolved, land use planning cannot be collaboratively developed and efficiently implemented.	There is already some work completed in the area of land tenure, although more is needed. Also some work has been done in land planning and management that can be enhanced.	Most land in Palau is customarily owned. Therefore, in order for any land use plan to be effectively prepared and implemented, land owners must contribute and take ownership of this process.
Managing Biodiversity, for Use and Conservation	Managing biodiversity provides long-term benefits alleviating poverty.	There needs to be an assessment of the benefits that have arisen from conservation, management, and protection of biodiversity. Although the need for conservation is recognized, it needs to be supported by assessment.	Opportunities are apparent with the establishment of the PAN and implementation of the MC, as well as other management and conservation programs.	Without capacity to monitor, and implement initiatives in conservation and use, all efforts to conserve will be in vain.

1. Mainstreaming Environment in Planned ADB Assistance

177. Table 14 illustrates how, by mainstreaming environmental considerations into development planning and processes, activities related to the five priority areas for action can be integrated into the water and sanitation project currently in the pipeline for ADB assistance to Palau.

2. Proposed New ADB Interventions, with Environment Mainstreamed

178. Table 15 illustrates how the proposed assistance will assist in mainstreaming environmental considerations into development planning and processes in relation to the five priority areas for action. A national consensus on the contributions the environment and natural resources can make to national and community development would provide a framework for the other projects that are required if the priority areas are to be addressed in an adequate manner.

Table 14

**Integration of the Planned Assistance from ADB into the
CEA Priority Action Areas for Mainstreaming Environmental Considerations**

Planned Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Enhancing and Integrating Resource Development and Environmental Management	Developing and Utilizing Indigenous and Renewable Energy	Providing Safe and Secure Water Supplies and Adequate Sanitation	Addressing Land Use Issues, Including Tenure, Access, Planning and Management	Managing Biodiversity, for Use and Conservation
TA: Water and Sanitation Project	The project will further benefit from integrating and enhancing resource development and environmental management into the design and implementation of this project.	Opportunities should be explored when designing the project to assess the extent to which it can be energy self sufficient or even a net energy supplier.	The proposed assistance will support development initiatives on Babeldoab.	The project will enhance sustainability of land uses in developed areas. The project will also aid in land use planning and management.	Improvements in water and sanitation with considerations to environmental concerns reduces vulnerabilities such as habitat loss, pollution, and other pressures that may affect biodiversity.

Table 15

Integration of the Proposed Assistance from ADB into the
CEA Priority Action Areas for Mainstreaming Environmental Considerations

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Enhancing and Integrating Resource Development and Environmental Management	Developing and Utilizing Indigenous and Renewable Energy	Providing Safe and Secure Water Supplies and Adequate Sanitation	Addressing Land Use Issues, Including Tenure, Access, Planning and Management	Managing Biodiversity, for Use and Conservation
Enhancing Environmental Management Capacity at National and State Levels	Proposed assistance will aid National and State levels to sustainably address resource and environmental management through capacity building.	The Palau Energy Policy currently being formulated can be developed in a more comprehensive manner to include environmental considerations, thereby complimenting and enhancing environmental management efforts and capacity. It will be important to ensure staff are equipped with relevant skills.	Environmental considerations must be included in water and sanitation management. In providing water security and sanitation, Government at all levels will be better able to define and implement its management strategies.	Increasing the security and certainty of land ownership and use will aid Government to better address environmental management priorities.	This proposed assistance will directly address managing biodiversity through capacity building of government at all levels. Improved environmental management will reduce adverse effects on biodiversity.
Coordinated Development of Renewable Energy at Community, State and National Levels	Communities, State, and National Government will reduce impacts on the environment by avoiding impacts resulting from fossil fuel use and inefficient energy using technologies.	Through coordination, collaboration and partnership, and providing an enabling environment for renewable energy and energy efficiency.	Coordinated development of renewable energy at all levels provides for more opportunities for energy efficient water and sanitation design and self-sufficiency.	The ability and opportunities available to land owners and land users increases in all areas where energy is currently not provided or is overly expensive.	Biodiversity security increases as alternative options for energy needs are met, thereby reducing pressures on biodiversity.

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Enhancing and Integrating Resource Development and Environmental Management	Developing and Utilizing Indigenous and Renewable Energy	Providing Safe and Secure Water Supplies and Adequate Sanitation	Addressing Land Use Issues, Including Tenure, Access, Planning and Management	Managing Biodiversity, for Use and Conservation
Mainstreaming Environmental Considerations in Water and Sanitation Infrastructure for Babeldaob	In this area, water security and sanitation for Babeldaob will provide more opportunities for resource development and sound environmental management.	Options for energy self-sufficiency need to be incorporated into the design of the infrastructure for Babeldaob.	By mainstreaming environmental considerations when providing new water and sanitation services, States in Babeldaob will be more prepared for drought. At the same time they will be better equipped to engage in resource management and planning. In addition, agriculture security and opportunities will increase.	By securing land ownership, access, planning and management the government will be better able to plan and design the infrastructure in Babeldaob for water and sanitation.	Improved and new water and sanitation infrastructures will increase biodiversity sustainability.
Strengthening Public Land Authorities at State and National Levels	Improved certainty and efficiency with respect to land ownership and tenure will facilitate more efficient and effective management of both terrestrial and marine resources.	Strengthening land security will make it easier for the government to address issues arising from exploration and exploitation of indigenous energy sources, such as benefit sharing and management. It will also provide more opportunities to explore and implement this priority during land use planning that will result from strengthened land authorities and land security.	Strengthening land authorities will enable States to complete land use plans and provide certainty of title. This will in turn increase the ability of the Land Commission to collaborate with communities in sustainable land use planning.	Strengthening of public land authorities will in turn increase land security and through this will better able Land Commissions and owners to collaboratively plan and manage land in a sustainable manner.	Through the resulting increased land security communities will be better equipped to address benefits from biodiversity, including ventures arising from, and management of, biodiversity for sustainability and poverty alleviation.

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Enhancing and Integrating Resource Development and Environmental Management	Developing and Utilizing Indigenous and Renewable Energy	Providing Safe and Secure Water Supplies and Adequate Sanitation	Addressing Land Use Issues, Including Tenure, Access, Planning and Management	Managing Biodiversity, for Use and Conservation
Preparation and Implementation of National and State Land Use Plans, Zoning Regulations and Building Codes	Assistance in this area will aid the development and implementation of sustainable land use plans and associated regulations. It will also facilitate visioning and materialization of sustainable resource use and development.	Integration of renewable energy and utilizing indigenous sources of energy can change the way in which a State plans land use with respect to location and design of energy plants, etc. Integration of this priority into this proposed assistance can also create a more sustainable economy, filled with innovative and sustainable development.	Safe and secure water and adequate sanitation must be included in the proposed assistance. This priority is key to sustainable land use planning. It will also minimize the cost of providing water and sanitation services in an environmentally sound manner.	Implementation of the proposed assistance will be strengthened by addressing this priority area. Collaboration with land owners will aid in implantation and finding a consensus on how land will be used, what type of zoning does the states want and also what building codes are appropriate for each state, or conversely for all of Palau.	Biodiversity conservation and use will benefit from land use planning, zoning regulations and appropriate building codes.
Ensuring Maximum and Equitable Flows of Benefits from Biodiversity Conservation and Resource Management	The proposed assistance will mainstream resource use and environmental management. Through this project, clear correlations will be made and can therefore be used and incentive measures for sustainable resource use and environmental management.	By providing energy alternatives, the vulnerability to the impacts associated with current energy generation is reduced and biodiversity security is enhanced.	Sustainable, secure, and environmentally sound water and sanitation infrastructures will increase ecosystem safety, thereby increasing the availability of benefits from biodiversity.	Clearly defined land use laws and ownership will help ensure the maximum equitable flow of benefits and will provide incentives for biodiversity management.	Ensuring mechanisms for the maximum equitable flow of benefits will act as incentives for biodiversity management.

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Enhancing and Integrating Resource Development and Environmental Management	Developing and Utilizing Indigenous and Renewable Energy	Providing Safe and Secure Water Supplies and Adequate Sanitation	Addressing Land Use Issues, Including Tenure, Access, Planning and Management	Managing Biodiversity, for Use and Conservation
Minimizing the Impacts of Land-based Sources of Pollution on Palau's Marine Ecosystems	The proposed assistance will strengthen institutions, legislation, enforcement, education and awareness, and infrastructure and management.	Renewable energy will directly reduce land based pollution arising from energy produced from fossil fuels. In addition, developing and utilizing indigenous energy sources with environmental considerations at the forefront can reduce lost costs that can then be used to help minimize the impacts of land-based pollution sources. However, this will occur only if the government provides an adequate framework for exploration and exploitation.	Minimizing impacts arising from land-based activities will not only increase security for marine ecosystems but also for water and sanitation services. Mainstreaming environmental considerations when improving water and sanitation services have direct links to water security and sanitation will help minimize land-based sources of marine pollution.	The proposed assistance will mainstream environmental considerations in this priority area through collaboration and cooperation with land authorities and owners in planning and management of land.	Minimizing land-based sources of marine pollution is an essential action for biodiversity conservation.

D. Implications for the Government, Communities and People of Palau

179. There is an urgent need to mainstream environmental and natural resource management considerations in Palau's development planning processes. There are two principal reasons: (i) such a move would provide a significant opportunity to improve on current management regimes – most indicators suggest that environmental quality is declining and natural resources are being consumed at unsustainable rates; and (ii) the future of Palau rests on its people, its environment and on its natural resources – if tourism, agriculture and fisheries are to play increasing roles in the national economy, and in community well-being, there will be growing pressures on these assets and thus a concomitant need to manage them to ensure their sustainability.

180. Important economic and social planning decisions will have to be made. Moreover, environmental and resource management decisions made today will establish the quality of life of people tomorrow and, more importantly, in decades to come. People are already suffering the consequences of inadequacies in past management of the environment and natural resources. Palauans now prefer to buy food, rather than produce it, usually with a preference for imported processed convenience foods rather than more nutritious and often more expensive local foods. Catching reef fish and other marine resources, and selling them locally to fund the purchase of canned fish and similar imported foods, is not an uncommon practice. These observations indicate many of the challenges now being faced by those responsible for ensuring high standards of environmental quality, natural resource conservation and human health. Commercial exploitation of the in-shore fishery, albeit for predominantly local consumption, has placed immense pressure on the resource. Catch levels are declining significantly, due to this unsustainable extraction. Food security and affordability have both declined, and there is a real risk that knowledge of traditional food production and processing will be lost. Many human health indicators, especially those related to so called life style diseases such as diabetes, are showing worrying levels of change.

181. The complex nature of the issues, and the many dimensions to the solutions, highlight the need for greater cooperation between Government (National and State), the private sector, and civil society, including community leaders and members and NGOs. The importance of such partnerships has already been highlighted by way of Figure 12. Much of the land and other natural resources of Palau are under customary ownership and management. This is where the greatest opportunities exist for using these resources in a sustainable manner to further the development of communities, and the country as a whole. However, at present the majority of customary land owners and users lack the capacity to make and implement decisions that will result in more productive and sustainable use of their resources.

182. But National and State institutions are the principal source of development assistance (including expert advice, technologies and financial and other resources), or it must pass through them in the form of overseas development assistance. Similarly, development decisions are made at National and State levels, but their implementation is dependent on local resource owners and users being well informed, motivated and capable of taking the requisite actions. Another reality is that Government mechanisms are inefficient and often ineffective at building capacity at community level. Moreover, few of the decisions made at national level reach those in whose hands successful implementation resides.

183. NGOs have demonstrated much greater success at supporting good environmental and development practices at community and family levels. They are being used increasingly as the conduit for delivering information and national and international assistance to communities. The Government might best focus its efforts on initiatives that will assist local resource owners and users to make and implement decisions that result in

more productive and sustainable use of their resources, including supporting the work of those who are efficient and effective in providing development assistance that will build the capacity and hence self reliance of needy families and communities.

184. The two key practical acts by Government that will help achieve these outcomes are strengthening the enabling environment for environmental management and working to ensure that the existing policies that integrate environmental considerations into current and new development plans, project implementation and development assistance are implemented in a timely and effective manner.

1. Enhancing the Enabling Environment for Improved Management of the Environment and Natural Resources

185. **Performance-based Budgeting.** Early attempts to implement performance-based budgeting have yet to deliver the full range of benefits in terms of public sector management and service delivery. For example, performance-based budgeting should result in substantial improvements in environmental management, including incorporating environmental targets in all sector plans and in the management plans of line and other ministries and not just EQPB. Significantly, the budget for EQPB has been at the same level for the last five years, with a significant decline in funds allocated through the national budget. Performance based budgeting requires that an adequate level of funding be available to meet baseline operational needs.

186. Such developments would in themselves represent a major step towards mainstreaming environmental considerations and would do much to elevate the status of the environmental management within Government operations. The environmental road map (Table 12) provides suggested targets for environmental performance, not only by Government but also by the private sector. Government may wish to respond to the fact that sound environmental management is a profitable investment rather than an unproductive cost, and in so doing redefine the core functions and the targets of agencies that have demonstrated, as a result of performance-based budgeting, an ability to meet their performance targets. This could be followed by allocating appropriate portions of Government revenues to these agencies.

187. **Enabling More Productive and Sustainable Use of Land.** This is a high priority, particularly for land which is in customary ownership. Progress in this regard requires concerted action in at least three respects, namely: (i) increasing the timeliness, certainty and equity in resolving land disputes; (ii) ensuring land use is consistent with land capability and with adjacent land uses; and (iii) assisting land owners and users to make informed decisions and to implement them in a timely and successful manner. The challenges to secure cooperation from land owners and achieve compliance with land use plans and other regulations should not be underestimated. It is not only important to raise the awareness of landowners with regard to both their rights and responsibilities, but also to ensure that they are fully aware of the environmental and related consequences of non compliance. Tenure issues related to the adjudication, survey, registration, and issuance of land titles need to be resolved in order to enhance access to land for development. Absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights is a constraint that needs to be resolved with urgency.

188. **Progressive and Enforced Legislation and Regulations.** Legislation and regulations should be reviewed to ensure that they are not providing perverse incentives that result in environmental degradation but are, on the contrary, encouraging decision making and actions that result in good environmental outcomes. For example, the Government could encourage the local production of healthy foods by not giving a tariff advantage to imported foods and also encourage the uptake of environmentally sound technologies by reducing

import tariffs. It could also further promote recycling through regulations that authorize refundable deposits on wider range of recyclable products and support the further engagement of the private in recycling activities.

189. The absence of effective controls on siting, design and construction of buildings has adverse consequences not only for the environment but also for human health, safety and well being. Some of these consequences can be avoided through full compliance with rigorous and comprehensive EIA regulations, backed by the required legislation. Certainty for developers, and certainty of outcomes, can result from improved enforcement of a building code that includes locally appropriate and meaningful requirements for building design, placement and construction.

190. **Institutional Strengthening.** Realigning and clarifying mandates and increasing inter-agency cooperation is required. Incorporation of environmental targets and performance indicators in all sector and national plans would go a long way towards achieving greater coordination of environmental and resource management policy and management initiatives between Government agencies, as well as with the private sector and NGOs.

191. **Upgrading Staff Knowledge and Skills.** Government, the private sector, communities and individuals will have to respond to the growing need for improved environmental and natural resource management, and seize the opportunities. Their initiatives will need to be supported by coordinated and continuing efforts to enhance the knowledge and skills of all the players. Roles of staff in Government agencies are changing rapidly, as are the demands being placed on the private sector and NGOs with the outsourcing of many services that have to date been provided by the public sector. These changing roles and responsibilities need to be reflected in training and other capacity building initiatives, including institutional strengthening.

192. **Supporting Environmental Advocates and Champions.** Opinion leaders in the community can play an important role in mainstreaming environmental management. This can be achieved as much by highlighting the widespread and diverse benefits of improving and maintaining environmental quality as by documenting systemic and specific failures that lead to environmental degradation and unsustainable use of natural resources. Palau is extremely fortunate to have NGOs which are highly professional and with well-regarded staff. The Government should make every effort to ensure that the expertise available within the private sector and civil society is used productively to complement rather than substitute for the work of Government employees. In a true partnership, there will be mutual respect and a shared vision for the management of Palau's environment and natural resources.

193. **Information Acquisition and Management Systems.** Information management systems can be used to improve the quality and environmental outcomes of decision making, as well as contribute to environmental compliance and enforcement. Increasingly, decision makers and managers are being provided with targeted information that allows them to be more successful in fulfilling their responsibilities. However, many information management systems suffer from a dearth of relevant data that can only be acquired through surveys, assessments and monitoring programs. Currently, these needs are poorly resourced, managed and implemented. A major constraint on the successful mainstreaming of environmental considerations in development planning processes is the lack of the information required to demonstrate the need for Government interventions and the allocation of appropriate financial and other resources. Information is also required to determine the optimum nature and timing of the intervention, and to demonstrate the success, or otherwise, of the actions.

194. **Integrated Approach.** Greater certainty and quality in decision making, and in the application of laws and regulations related to environmental quality and conservation of natural resources, will result if the value of policy advice submitted to Government is improved and if decision makers show more commitment to heading this advice rather than being influenced by other factors. This requires a comprehensive knowledge base that is readily accessed by all stakeholders. Laws and regulations should be strengthened in ways that clarify the responsibilities, intentions, powers and procedures of Government, and better reflect the economic, social and environmental circumstances of Palau. Such legislation can then serve as the basis for informing, and thereby engaging constructively with members of civil society as well as the private sector. State of the art awareness raising programs will correct false perceptions, identify mutually beneficial opportunities, and build mutual respect and confidence.

VI. CONCLUSIONS AND RECOMMENDATIONS

195. This CEA for Palau focused on the general environmental status and trends in the country, including the role of the environment and natural resources in the economy, the key environmental constraints and opportunities, the policy, legislative, institutional, and budgetary frameworks for environmental management, and the principal constraints on, and barriers to, improved environmental management. It has also identified priority areas in policy, institutional and legislative mechanisms, as well as programs and projects that will help to mainstream environmental considerations into economic development planning. The main environmental opportunities associated with ADB's assistance to Palau have also been identified. These include recommending incorporation of environmental considerations in programs/projects in the pipeline as well as new priority actions and projects at national and community levels. The aim was to proactively incorporate, integrate and support sound environmental and resource management practices, not only in economic development planning and policy-making for the Palau, but also in specific project-level interventions.

196. Participatory consultations, supported by research of relevant policy and technical documents, resulted in identification of five priority areas for action, namely:

- Enhancing and Integrating Resource Development and Environmental Management;
- Developing and Utilizing Indigenous and Renewable Energy;
- Providing Safe and Secure Water Supplies and Adequate Sanitation;
- Addressing Land Use Issues, Including Tenure, Access, Planning and Management; and
- Managing Biodiversity, for Use and Conservation.

197. Addressing these priorities would bring many benefits to the Palauan economy as well as to civil society, especially the poor and other marginal groups. However, a number of constraints on achieving these improvements were also recognized. All are resolvable with commitment and cooperation. A road map for environmental management was prepared. Consistent with the road map, specific recommendations were developed for mainstreaming the environment in projects in ADB's future investment program for Palau.

198. Seven specific projects that address the priority areas for action are proposed, namely:

- Enhancing Environmental Management Capacity at National and State Levels;
- Coordinated Development of Renewable Energy at Community, State and National Levels;
- Mainstreaming Environmental Considerations in Water and Sanitation Infrastructure for Babeldaob;
- Strengthening Public Land Authorities at State and National Levels;

- Preparation and Implementation of National and State Land Use Plans, Zoning Regulations and Building Codes;
- Ensuring Maximum and Equitable Flows of Benefits from Biodiversity Conservation and Resource Management; and
- Minimizing the Impacts of Land-based Sources of Pollution on Palau's Marine Ecosystems.

199. It is recommended that action be taken to implement the environmental road map and thereby address the five priority action areas. There is also a need to strengthen the enabling environment for environmental management and to integrate environmental management into existing and new development policies, plans and project implementation.

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Agenda and List of Participants

National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau

Thursday, 1 February 2007

Ngarachamayong Cultural Center, Koror

A. Agenda

- 09:00 Welcome by the Chair: Hon Elbuchel Sadang, Minister of Finance
- 09:05 Opening Address: H. E. President Tommy Esang Remengesau, Jr
- 09:25 Enhancing Environmental Sustainability in Economic Development: The Role of CEA (Edy Brotoisworo, Asian Development Bank)
- 09:40 Purpose of Dialogue, the Agenda, and the Dialogue Process (Midth Bells, ADB Consultant)
- 09:45 *Refreshments*
- Palau's Natural Resources and Environment - Opportunities and Constraints for Development**
- 10:15 A Government Perspective (Delegate Noah T. Idechong)
- 10:40 A Private Sector Perspective (Ken Uyehara, President, Palau Chamber of Commerce)
- 11:05 An NGO Perspective (Tiare Holm, Executive Director, Palau Conservation Society)
- 11:30 Discussion: Building a Consensus on the Opportunities and Constraints
- 12:30 *Lunch*
- 1:30 Key Findings of the Country Environmental Analysis for Palau (Midth Bells, ADB Consultant)
- 1:50 Discussion, and Validation of Findings
- 2:20 Proposed Priority Areas and Action Agenda (John Hay, ADB Consultant)
- 2:30 Discussion, and Building Consensus on the Way Forward
- 3:00 Closing Remarks (Hon Fritz Koshiba, Minister of Resources & Development)*
- 3:15 Close of National Dialogue
- 3:30 *Refreshments*

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Hon. Alexander Merep	Minister	Min. Community and Cultural Affairs	mcca@palaunet.com
Hon. Fritz Koshiba	Minister	Ministry of Resource and Development	mrd@palaugov.net
Hon. Otoichi Besebes	Minister	Ministry of Commerce and Trade	mincat@palaunet.com
Hon. Temmy Shmull	Minister	Ministry of State	state@palaugov.net
Hon. Victor Yano	Minister	Ministry of Health	moh@palau-health.net
Dr. Joel Miles	National Invasive Species Coor.	OERC	jmiles@palau-oerc.net
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Annex 3

Keynote Presentation at National Dialogue

A. Opening Address

**His Excellency, the Honorable
Tommy E. Remengesau, Jr.
President of the Republic of Palau
At**

**'The National Dialogue on Integrating Environmental Considerations in Economic and
Development Planning Processes in Palau'**

February 1, 2007

On behalf of the people and Government of the Republic of Palau, “ungil tutau” and welcome to this very important ‘National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau’. I would like to offer a special recognition and thanks to High Chief Ibedul, representatives of the Governor’s Association, Delegate Noah Idechong and other representatives from the Olbiil Era Kelulau for their willingness to attend this very important one day dialogue. The outcomes of this Dialogue will be critical not only in the discussions that we have later this month at the National Economic Symposium, but also in establishing a comprehensive roadmap for our country’s sustainable development over the next decade.

I would also like to offer a very special thanks to Dr. John Hay from the Asian Development Bank, who has organized this National Dialogue within the context of his work for the ADB to provide a comprehensive overview of Palau’s Environmental Protection progress and needs. Only with his resulting report and planning document will we come to understand the environmental needs for our future. I must also express my appreciation to the ADB for funding this study, which will lead the way to the identification of future technical assistance from the Bank.

Over the past six years, I have consistently stated that “For Palau, The Environment is the Economy.” It is our pristine environment that provides us with our unique development opportunities in this new millennium. We must therefore use and protect the mother goose that laid the golden egg in order to ensure that our development potential lasts over the long haul.

For this to occur, we must select our development partners very carefully, always with an eye towards the real benefits of any proposal and the real long-term impacts of the project on our mother goose. If we are to be successful in our development efforts, we must recognize that strong economies are not simply handed out like Christmas presents. They are carefully crafted by a country’s leadership. They are developed through thoughtful planning and the formulation of appropriate government policies. And in Palau, our planning process must include a careful inclusion of the issues of environmental protection in order that our economy have staying capacity and that we preserve our natural gifts, as protected by our fathers -- our waters, our coral reefs, our rock islands, our land, our clean air, and our way of life – for our children.

My friends, when we look towards our future development, it is important to recognize who and what we are. While we may not be a modern, sophisticated society, we can take great pride in

the fact that we are a simple society, with simple problems requiring simple solutions. This is true of our economy as well as our environment. With careful attention to detail and diligent planning, we can prevent most of our current and potential environmental problems and thereby strengthen our economic potential. And while we will not always be able to compete with the developed world for economic wealth and possessions, we can take pride in our environmental wealth.

So how do we proceed in our efforts to preserve our environment within the context of our developing economy? First, we must use what we already know. Our ancestors understood how to sustainably manage their resources in less complex times. For thousands of years, our predecessors were successful in sustaining their way of life. If they were not, we would not have our forests, mangroves, fish species, and many other unique wonders that the Pacific Islands are renowned for. Unfortunately, somewhere along the way, we determined that the 'old ways' of our ancestors were obsolete. We were wrong. Now we all must reconsider, re-group, and merge traditional resource use practices with new technology. We must return to traditional practices, such as the traditional 'Bul' in Palau to reconstitute the Earth's environmental balance. This is especially true in the new world, one that is far more complicated and our vulnerability is far more pronounced.

We must also recognize that many of the environmental challenges we face are not within our control. We must therefore work with the international community to solve global environmental problems and incorporate new technology and science into our traditional practices to create a sophisticated, comprehensive and effective response mechanism.

My friends, with development on our immediate horizon, it is now the time to establish a comprehensive response both to the impending environmental issues resulting from our impending domestic growth, and to the expanding international attack on the environment resulting from the unsustainable exploitation of the world's resources by mankind. The facts are clear. Biodiversity is declining a thousand times faster than its natural rate. Half of the tropical rainforests and mangroves have already been lost. About 75% of the marine fisheries have been fished to capacity and 70% of coral reefs are endangered. We must take whatever actions are possible and feasible in Palau to reverse this process now - before it's too late.

To respond to Palau's unique environmental challenges, the leadership of Palau, over the past six years, has developed many initiatives at the national and state level to begin to address this attack on our environment. Our approach is to find an appropriate balance between economic development and the environmental. In this effort, we are attempting to take a holistic approach to addressing sustainable development issues. Only by removing the sectoral barriers that impede an effective and integrated approach to sustainable development can we save our environment for our future.

In the area of environmental planning, we have created the National Environmental Protection Council, or the NEPC, to incorporate environmental issues into the government's planning process. The creation of the NEPC followed on the heels of the creation of the Office of Environmental Response and Coordination, known as the OERC. This Office provides an integrated approach to our international environmental treaties and serves as the Secretariat to the NEPC. The OERC has already monitored the development of a National Climate Change plan as well as the National Biodiversity Strategic Action Plan, known as the NBSAP. These two integrated plans go a long way towards providing us with the medium and long term planning documents to direct our environmental conservation efforts.

The Olbiil Era Kelulau has also passed a Protected Area Network law that establishes the mechanisms to set aside natural resources throughout our country to ensure their long-term protection and the protection of our many unique terrestrial, and in some cases, marine species. State governments have also passed state laws for the same purposes. In order to finance this centerpiece of our conservation strategy, we have committed Palau to the Micronesia Challenge. This regional Challenge obligates the Republic, along with the Federated States of Micronesia, the Republic of the Marshall Islands, the Territory of Guam and the Commonwealth of the Northern Mariana Islands to effectively conserve 20% of our near shore marine and 30% of our terrestrial resources by 2020. Through the Challenge, it is our goal to establish the first long-term self-funding protected area network in the world.

In the area of resource management, we have gained a commitment of approximately \$600,000 from the World Bank, the Faroe Islands and Taipei, China, to assist us in establishing the appropriate laws, regulations and policies for the exploitation of our potential Oil and Gas reserves, as well as the exploration of other natural resources. It is time that we undertake to establish the proper oversight structure if we are to seriously consider exploring our potential oil and gas reserves.

In order to address the very urgent need to establish planning and zoning laws at the national and state level, we have developed another grant of approximately \$600,000 with the Global Environment Facility to implement Phase II of our planning effort, which we hope will result in cohesive planning and zoning laws in all of our 16 states.

To assist in our planning for the issue of Solid Waste management, we have developed, along with the FSM, the RMI, Guam and Saipan a Pacific Islands Regional Recycling Initiative Committee, known as PIRRIC. This regional Committee is currently organizing a one-off metal waste removal in Palau and in our region. The Committee is also responsible for identifying on-going projects on the sub-regional level that recognize that only by using economies of scale can our region affordably deal with its solid waste removal issues. In order to support this effort, the Olbiil Era Kelulau recently passed a recycling law and we are working to establish regulations to implement this critical program.

We have also created the Regional Invasive Species Council, known as RISC, a Committee that is diligently working together to establish a sub-regional response to the invasion of our islands by unwanted species from other jurisdictions.

The Olbiil Era Kelulau has also passed a shark-finning law which is directed at reducing the mutilation and killing of sharks through shark finning, the reduction of the taking of by-catch, including marlin, sailfish, swordfish and sharks, the development of sustainable commercial fishing limits, the reduction of the discharge of waste and other pollution into Palau's waters, and the protection of Palau's tourism and diving industries.

These many national, state, sub-regional and international efforts to respond to the complex issues of environmental degradation have put us in a strong planning position for our future work. But much still remains to be accomplished. That is why we have requested the assistance of the Asian Development Bank and why we are holding this National Dialogue today.

For us to succeed in preserving our environment in this coming decade of rapid economic growth, we must continue to integrate environmental issues into our planning structure and establish the necessary laws that mandate and finance our preservation efforts.

At the broad level, this means that we must improve the working organization of our Executive Branch through the establishment of a separate Ministry for the Environment. Only when the environment has the same stature and status as our development structure will the issues of environmental preservation and sustainable resource use gain the same level of treatment by our decision-makers.

In addition to this reorganization, we must pass the necessary enabling legislation that will ensure the protection of our different natural resources. At the primary level, we must take a comprehensive look at all of our environment laws and integrate and combine them into a single environmental statutory regime. It is my hope that the ADB will assist us in this effort. Within this context, we must pass legislation that will protect, restore and enhance our coral reefs. We must also upgrade our Environmental Quality Protection laws to improve enforcement and to streamline procedures.

To ensure a strong terrestrial system in the future, we must develop comprehensive forest and mangrove monitoring and management plans. To protect our unique terrestrial and marine species, we must strengthen our endangered species laws. We must also improve our regulatory regimes in a number of different areas, including a watershed protection and rehabilitation plan, a forest and mangrove management plan, an aquaculture management plan and a comprehensive marine management plan.

Within this context, we must also do a much better job at monitoring environmental impacts on our marine and terrestrial resources. Only when we have established a baseline can we then move towards realistic and rational protection programs.

My friends, clearly, the work to preserve our environment is critical to our future and the collective future of mankind. And this work will require the on-going dedication of everyone in this room if we are to find success. It is not only a practical need that we preserve the environment to serve as the basis for the growth of our economy – It is a moral imperative that we leave in place the unique wonders that we all know as Palau – for our Children and in memory of our mothers and fathers. It is time for the world, and for our people, to recognize that sometimes, limitations that preserve are past are in themselves beautiful.

I look forward to the outcome of the ADB assistance and of this National Dialogue. It is my expectation that this work to identify Palau's future needs in the area of environmental protection will be strongly incorporated into the outcomes of the Economic Symposium. Once again, thank you for your participation today and in this endeavor for the future of Palau.'

B. Enhancing Environmental Sustainability in Economic Development: The Role of CEA

Edy Brotoisworo
Sr. Safeguards Specialist
Pacific Department, Asian Development Bank
1 February 2007, Koror, Palau

H. E. President Remengesau, Jr.
Hon. Minister Sadang;
Distinguished Ladies and Gentlemen:

On behalf of the Asian Development Bank, we would like to express our appreciation for the warm reception and hospitality extended by the Government of Palau, and also for supports provided to us in undertaking this Country Environmental Analysis (CEA). Under the Asian Development Bank (ADB) technical assistance program for the Pacific for mainstreaming environmental consideration in economic development planning processes, we have so far assisted seven countries in preparing CEA, and the Republic of Palau is the eighth country. CEA is prepared through stakeholders consultation with major objectives to mainstream key environmental concerns into economic and development planning processes, so that environment is adequately factored in economic development processes.

ADB's vision in assisting countries in Asia and the Pacific is to assist in achieving an Asia and Pacific region that is free of poverty. In 1999, ADB adopted poverty reduction as its overarching goal. Pro-poor sustainable growth, social development, and good governance were identified as the three pillars of our poverty reduction strategy. Following this, the long-term strategic framework (LTSF) 2001-2015 adopted these three pillars as its core areas of intervention. The Strategic Framework has also specified three crosscutting themes to reinforce these three pillars: promoting the role of the private sector, supporting regional cooperation and integration, and addressing environmental sustainability.

The medium-term strategy II (MTS II) 2006–2008 is designed to flesh out the approach of the LTSF for shorter time periods. In the area of environmental management, the region is experiencing considerable environmental stress as a consequence of demographic pressure, combined with high population growth. Particularly for the Pacific region where land and natural resources are limited, in many cases, population pressures has caused degradation of the environment and the natural resources on which the people depends, and has caused further hardships for the people. Therefore, emphasis is not just growth but environmentally sustainable growth. If the environment is not protected, the region will continue to experience many forms of environmental degradation.

The Pacific Region Environmental Strategy 2005–2009 has identified 8 major environmental challenges of highest priority which will persist. These are: (i) threats to freshwater resources, (ii) degradation of the marine and coastal environment, (iii) degradation of land and forest, (iv) problems of urbanization and waste management, (v) depletion of biodiversity, (vi) concern on energy use, (vii) adaptation to climate change, and (viii) weaknesses in environmental management capacities and governance. These are common problems for the small islands development states in the Pacific. Further, the ADB Pacific Strategy 2005–2009 highlights the increasing environmental challenges that may undermine

sustainable development, particularly from these eight critical environmental issues, if not addressed.

There is general consistency between the identified regionally-important issues and those identified as priorities for each country. We see from the draft CEA report that there are similarities of environmental problems at regional level and at the country level in Palau. The National Dialogue will discuss these findings and come out with priority actions. A “green growth” course must be pursued, i.e., protect the environment and at the same time maintain high growth. Since the environment agenda is broad, there is the need for coordination among all stakeholders, including the people, CSOs, NGOs, government agencies, and donor agencies in providing assistance in environmental area.

We learned from available information that the country has put high priority in environmental conservation. We noted several initiatives have already been in place, such as preparation of the National Environmental Management Strategy, the 2020 National Master Development Plan, and the Sustainable Tourism Development Plan, and of course, the establishment of the Office of Environmental Response and Coordination. These will provide a strong foundation for further building an environmentally sustainable development in Palau.

The purpose of the present activity is to prepare the CEA. The CEA will (i) identify priority areas in policy, institutional and legislative mechanisms, and programs/projects that will help to mainstream environmental concerns into economic development planning; and (ii) strengthen the understanding among policymaking, economic planning, and environmental authorities about key environmental and natural resource management issues and their link with national development goals. The CEA recommendations will provide inputs to the Country Partnership Strategy (CPS) and the countries’ medium term development plan. The country partnership strategy is prepared together by ADB and the Government describing ADB lending and non-lending programs for the country. We also learned that the Palau Economic Summit will be held by end of February. We expect that the outputs and recommendations of this study could also provide contribution to the Economic Summit in particular and economic development planning of the country in general.

HE President Remengesau, Jr., Hon. Minister Sadang, distinguished ladies and gentlemen – the National Dialogue is an important event that will provide inputs to the draft Country Environmental Analysis which is now under preparation. We hope this workshop will help facilitate in the realization of our mission for assisting the developing member countries, to mainstream environmental aspects in economic and development planning processes. We are grateful to the Ministry of Finance and the Office of Environmental Response and Coordination for their support in facilitating the CEA preparation; to Professor John Hay for having worked hard to facilitate this process; to Ms. Midth Bells who has assisted Prof. Hay; and to all participants of this National Dialogue who will discuss the draft reports and contribute in finalizing the report. We wish we will have fruitful and successful discussions.

Thank you,

Edy Brotoisworo

C. A Government Perspective

**Delegate Noah Idechong
Chairman, Committee on Resources and Development
Seventh Olbiil Era Kelulau**

My views toward natural resource management have evolved over the course of 28 years from the following work experience and personal participation in the preparation of Palau's key development plans.

Practical Experience:

Trust Territory Aquaculture Development Program Administration (MMDC), 1978-1983
ROP Fisheries/Marine Resources Development & Administration, 1983-1994
NGO Community Environmental Advocacy (PCS), 1995-2000
OEK, (Palau National Congress) Standing Committee on Resources and Development, 2001-Present

Main References:

1. National Master Development Plan, March 1996 reviews various sectors and develops recommendation for long-term development.
2. Economic Development Plan – Set priorities for mostly U.S. funded projects.
3. JICA Economic Study – Most recent extensive planning study for Palau by Japan. Discusses 3 development scenarios; HOD endorsed the medium scale development scenario.
4. HOD Vision and Legislative Agenda for Island Life and the recognition of globalization issues in island development and targets Palauans at the center of development considerations.
5. Access to CRC reports and meeting notes as a non-voting member.

“Palau is small, beautiful, fragile and complicated,” so begins “The Setting” chapter for National Master Development Plan.

For Palauans it is easy to understand and appreciate the smallness, the beauty, and the fragility of Palau. The “complications”, however, has been most difficult to breakdown into understandable sizes, let alone, how they connect and act to provide a dynamic system for Palau. To sustain a healthy environment and ensure ecosystem productivity, Palau needs strong resource agencies with strong management and administration capacity to deal with current and arising issues.

We need to build capacity to deal directly and swiftly with local issues and enhance our understanding on the globally generated issues and build mechanisms to ease the impacts. We need to prioritize and devote limited resources towards actions that achieve results.

Critical: Within 2 years

1. Fully establish foundation policies encouraging developments that are sensitive to the environment and culture with highest accrued benefits. I concede that there are laws that need to be enacted by OEK, but I argue that there are sufficient enabling legislation, traditional edicts, ministerial portfolios and administrative policies that could be employed in a variety of ways to enhance our management capacities.

2. Restructure (modernize) relevant government ministries and agencies to be able to handle present work demand and deal with future issues as they arise. I am a proponent of a dedicated and capable Ministry for natural resource or environment management.
3. Establish clear and formal line of authorities and communication between national and state governments. Promote better coordination and communications among agencies traditional leaders and groups and encourage NGO involvement. Fold the various committees into the Ministries to give them more permanence if the program is important.
4. Establish relevant performance measures, accountability checks, and a credible and transparent means to handle sensitive information and protect intellectual property rights.

Next 10 years:

Work to implement, mainstream, refine or redirect as necessary. But they need to be entrenched in our system and we need to view this as a new culture to be cultivated.

In conclusion, we Palauans take great pride in our island environment, and our personal relationship with it, especially the seas around us. So far most important actions have come from individuals, communities, state governments and NGOs. We need to turn these actions into our government system, in order to ensure permanence.

Current OEK Bills under consideration

1. Amendment to Protected Area Network Act to add sustainable finance mechanism
2. Dedicated ministry for Natural resource management
3. Petroleum Exploration Regulations
4. Continental Shelf Extension

D. A Private Sector Perspective

Ken Uyehara
President, Palau Chamber of Commerce
Palau's Natural Resource and Environment
A Private Sector Perspective

Palau is blessed to have the great natural resources that it has. The natural beauty that Palau has makes it unique. It is rich in culture and history and our people have vast potential. We are also still at an early phase of our development where we have not made any real mistakes yet.

It is a great responsibility to be a steward of this country's future.

To be a good steward of our resources we must balance preservation, with development and growth and we must do it as Palauans.

Our country has grown and developed over the last few decades and there is one constant that has prevailed during that time. That is "change" is inevitable. Change is our greatest challenge. We as Palauans must meet change, embrace it and most of all manage it. It is under this premise that my presentation is based on.

I will address some of the issues that face Palau as a developing nation. I will begin with one of our biggest challenges.

"Under all is the Land." This is the motto of the Realtors Land Institute.

It means many things. Land is under all of our investments, it is the root of much of our culture, and is the basis of many of our disputes.

Hernando Desoto – The Author of The Mystery of Capital sheds light on the obstacle and the solutions to gain access to the elusive capital market. That Capital that is necessary for developing economies. He states in his book that the United States is the most successful country in accessing capital. He reveals that the Mystery of Capital lies in Land Tenure Laws and the ability to convert assets to cash. The ability to have clear and mortgageable title to real estate is the answer. Countries like the Dominican Republic and the Philippines that have capital deficient markets and have difficulty converting land and improvements to mortgageable assets. This obstacle keeps a nation from being able to convert its largest asset, its land, to cash.

Palau is a country faced with that very challenge. Our inability to resolve Land ownership issues has had an impact on our ability to develop as a nation and has restricted the development of our standard of living. Many may wonder how this is possible. Let me show you how land issues are related to land values and how that impacts our nation's worth which directly impacts us individually.

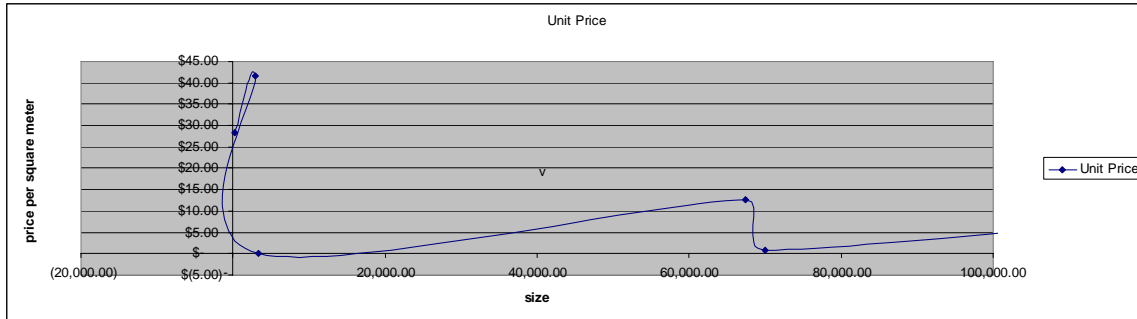
Palau has a land area of 189 square miles. That is equal to 489,541,820 square meters. The average square meter value of land in Palau is \$2 per meter, that equates to an asset value of \$979,083,640 or \$1 billion. That is an asset value of \$61,000 per Palauan; \$10.00 per meter would equate to a value of \$4,895,418,200 and \$306,000 per Palauan; \$30 per square meter would equate to a value of \$14,686,254,600 or almost \$1,000,000 per Palauan.

Is this a possibility?

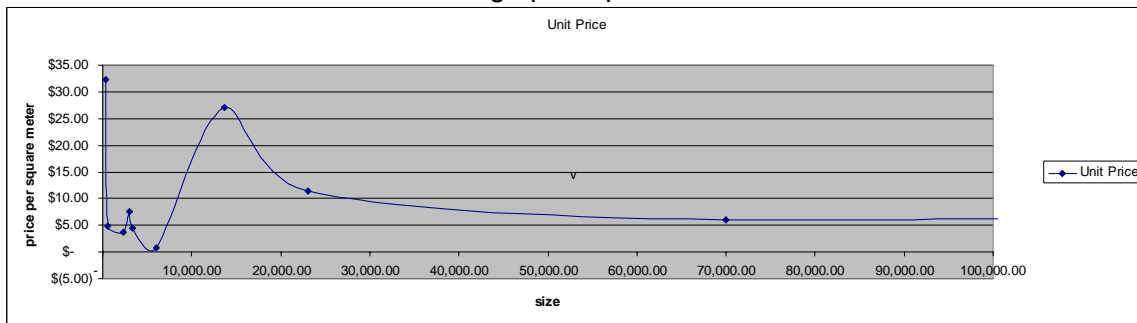
Let us examine Real Estate transaction values over the last 20 years.
 Historic Value Trends

Palau

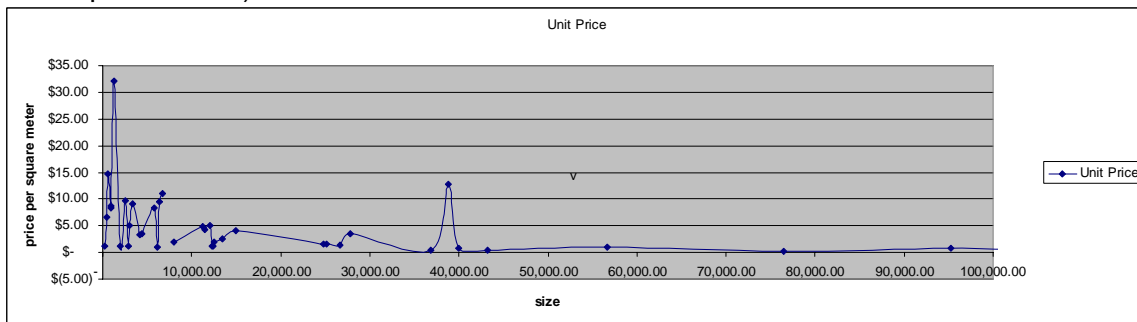
1988 to 1992 land values in Babeldaob Average per square meter \$8.10



1994-1999 Babeldaob Land values average per square meter \$9.70



Palau 2000-2005 Land values in Babeldaob per square meter \$1.63 (land claims increase and become a public issue)



In 1992 there appeared to be a scarcity of large parcels available for sale. Foreigners were the primary buyers of real property during this period. The market appeared to peak between 1994 and 1999. In today's market there are more transactions but few foreigners are buying. The predominant buyers are composed of a group of a dozen local families that are actively purchasing real property. This shift in demand has influenced the average price per square meter of property and has settled it at \$1.63 per square meter from 2000 to 2005.

Saipan as an example

Saipan experienced a land boom 1985 to 1991

Average transaction value is \$61.00 per square meter.

1991-2005 Average transaction value \$48.70 per square meter.

Saipan's total asset value based on the transaction from 2000 to 2005 average unit value of \$38.14 is 47 square miles or 121,737,913 square meters equates to a total value of \$4,643,033,998. Saipan is ¼ the size of Palau and has over four times the value.

How did land values change? To understand that, we must follow the developments in the real estate market.

History of Land Ownership

Much of the land in Palau is Clan owned. The privately held land and even State land ownership are continuously challenged in Land court. **This instability in land ownership has made it difficult to convert land into liquid capital.**

Current Land Alienation Laws

Article XIII – General Provisions

Section 8.

Only Citizens of Palau and corporations wholly owned by citizens of Palau may acquire title to land or waters in Palau.

The land ownership by foreigners is restricted to 50 years by case law. This adds to the difficulty of foreign investments.

Just to note: There are pending constitutional amendments and legislation that will lengthen the term to 99 years.

Land Ownership Issues

a. Heritage

In Palau, as with many island nations, land ownership is traced back many years and is tied to family or clan lineage. The ownership of land by clans has complicated the task of clearing up land ownership. Clan land administration is a complicated process that has numerous times ended up in court.

The disputes further complicated by the application of western law to local customs. This disconnect has raised more issues on the validity of past traditions. Much of Palau's history is oral. It was also how land ownership was transferred. Disputes were mediated by the Council of Chiefs using traditional methods. Western courts do not accept these methods.

b. Survival and/or Prosperity

The inability to convert Palau's land asset to capital has slowed the development of the country and restricted the rise of the standard of living for Palauans. This slow growth is a double edged sword. It has kept the standard of living in Palau relatively low.

The advantage is it enables Palau as a country to develop slowly and cautiously, learning from the mistakes of its neighbors. This allows for the proper allocation of

infrastructure and capital to the select industries that are beneficial to Palau's environment and citizens.

The disadvantage is that the slow growth and low standard of living has worked against retaining Palau's bright, younger generation. Many of the off island educated Palauans have chosen to live and work in the United States where they are able to earn substantially more and enjoy a higher standard of living. We are losing the "Brain Drain" battle.

Social Standing

Land ownership has always been linked to social status in the West as well as in the islands. The more land you owned the better your social standing. It is also common practice to approach those in the community with good social and economic standing for assistance. This has evolved over time to the sale of land in exchange for monetary assistance.

c. Economic Exchange

The Real Estate Market - Factors of Supply and Demand.

How has all this impacted Palau's land values?

In island communities the impact of supply and demand are more pronounced. It is common for there to be limited demand, a few well off families as buyers, and a large pool of supply or sellers.

This is especially true when land tenure laws restrict the sale or transfer of land ownership to outsiders. In most cases these laws were created to protect the local or indigenous people from selling or losing their land to foreigners. In most cases the result is limited demand from outsiders. **With limited demand comes lower marketability resulting in lower values.** The outcome is that a few local families or companies with the financial capability are the buyers in the real estate market and **land ownership shifts from the many to the few.**

Hawaii, Guam, and Saipan have gone through this process. The land alienation laws have had an unexpected outcome of facilitating the transfer of land and wealth from the many to the few.

Eminent Domain

The land value situation is further exacerbated by the flawed eminent domain process here in Palau. Much of the land under the Babeldaob Road is still privately owned. It is a constitutional right that if private property is taken by the government then it must be compensated for justly.

Saipan, after 30 years of mismanagement of their condemnation process, is still trying to compensate land owners whose property was taken for roads. It has cost them \$40 million and there are still claims pending. It is estimated that the CNMI will now need to float a \$70 million bond to satisfy these claims.

Use and Preservation

Wetlands and costal lands are protected in most islands. In Guam, the CNMI as well as in Palau, there are conservation areas set aside.

Ngaremaduu Conservation Area in Palau is a large conservation area that spans three states.

The designation of conservation land reduces the supply. This has little impact on islands with low population density like Palau where the population is relatively small in relation to land area. In higher population density areas like Guam and Saipan this can lead to an under supply and overcrowding.

Do not misinterpret what I am saying. I believe that there should be conservation areas. These areas should be preserved for future generations to enjoy. I believe that these areas should be put into use and not kept idle. There should be programs that assist land owners in the designated conservation areas to assist in the development of their properties with projects that are consistent with the conservation and preservation objectives.

Programs such as these are present in the National Parks throughout the United States. There are private enterprises that operate in the Everglades of Florida.

Leases to Non-indigenous population

This has been a topic of long discussions and involves much deliberation. The right of local ownership and control must be balanced with foreign investments and developments. Many people confuse the two concepts when evaluating the 99-year lease issue, which is a hot topic here in Palau.

The leasing of land for 99 years does not give or relinquish control to foreigners. It does not automatically allow outsiders to dictate how or what they can develop on the land. However, it does allow them the right to use the land for 99 years after the applicable compensation.

Let me give you two examples to consider.

Which is more desirable: the sale of land to someone local, in which ownership is transferred for good, or a lease for 99 years to a foreigner, after which the land is returned to the grandchildren?

The issue of controlling the type of development on the property is a separate issue and should not be confused with land alienation. The allowance of building casinos, bars, or other undesirable developments are controlled by other laws.

The second example is, if you owned a car and wanted to sell it, would you want laws restricting its sale? Would it be appropriate to have a law that said you could only sell it to someone local? You could only lease it to a foreigner and for only 6 months. This law would impact the marketability of your car.

That is how land alienation laws impact the land sale market.

There is a sign that is an oxymoron posted in front of the OEK. It says that “Give a Gift to future generations – Stop 99 year lease”.

A 99-year lease is a gift to future generations.

The outright sale of land is a denial of the land ownership privilege to the sellers future generations. A sale to other Palauans is final. There is no return of the property to the seller. A lease on the other hand has a reversion of the property and improvements at the conclusion of the lease.

Imagine owning a hotel, a commercial building, or even a subdivision of homes at the end of the lease terms. What better gift can you give future generations. In the mean time as they are growing up their improved standard of living is supported by the proceeds of the leased land.

Long term ownership of clear titled land to foreigners will induce investment and development of lands in Palau. This will lead to higher land values and more capital in the Republic.

Tourism and other Industries

Palau’s primary industry is Tourism. The industries main draw or attraction is the natural beauty of the islands. This includes the reefs, rock islands and the sea.

This industry will continue to develop as Palau enjoys more and more exposure to the rest of the world. It is becoming evident that different segments of this industry have differing impact and demand on the islands resources.

As the industry grows so will be the need for supporting infrastructure. The balance of growth and the proper allocation of resources to support this industry is key to the future of Palau. Too much development and we become just another over commercialized destination.

Palau’s Economy

The International Monetary Fund has indicated that Palau’s economy has grown 6% during the last year. This is good news for Palau. It is unfortunate that there is little evidence of this growth.

- If there is a drop in wage tax - this indicates a drop in employment
- A drop in containers of 23% indicates a drop in retail activity
- A drop in visitor arrivals indicate a decline in our primary industry
- A drop in land values indicates a decrease in the nation’s wealth

There is uncertainty as to the source of this growth.

Future Growth and Development

- Land ownership titles must be cleared up

This will ensure that buyers and investors are getting what they pay for. It also enables the land owner to convert their equity into capital.

- Land alienation laws must be pro-investment
Land laws must allow foreign investors enough time to recover their investments and realize a fair return.
- Land restrictions and eminent domain must be accompanied by just compensation
The government's use of their eminent domain and police powers over private land holders must be accompanied by the constitutional "Just Compensation." Procrastination erodes the credibility of the government and increases the cost at final compensation. The denial or delay unjustly penalizes the private land owners.
- Foreign investment must be encouraged
The allowance of foreign investors with clear rules on development and preservation can further enhance the nation's development.

The importance in having in place reliable laws, ownership determination system, boundary designation and identification process, and a process to obtain and maintain clear title is essential for the future development of the Republic of Palau. Without these systems in place it is impossible to convert our wealth beneath into capital needed to continue to develop our islands and raise our standard of living.

Palau is now a recipient country. We need to envision ourselves as a donor country. That is our objective, to have a self-sustaining economy that supports not only our country but other countries.

- Palau's beauty is in its natural resources.
- Palau's natural resources are its greatest assets.
- The preservation and development of these assets are its future.
- Palau's future is promising with the right course of action.

Let us look to the resources beneath our feet for there lies our acres of Diamonds.

Thank You.

E. An NGO Perspective

**Tiare Holm
Executive Director
Palau Conservation Society
“Integrating Environmental Considerations in Economic Development Planning
Processes in Palau”**

What are the Roles of a NGO

- Serve the interests of its constituency (community members, individuals or groups with special interests, private sector, etc.)
- Perform without pressure or undue influence from governments
- Access and utilize resources that are not accessible to government agencies, private sector, etc.
- Act as a “friendly watchdog” to government decisions, activities, procedures, etc.

Palau Conservation Society

PCS was established in 1994, the same year that Palau achieved sovereignty. PCS is governed by a Board of Directors, with 11 members. PCS has a staff of 22 focusing on three focal areas (i) protected areas; (ii) resource-use planning; and (iii) strengthening capacity, awareness and will. PCS works through a spirit of collaboration and funding base is entirely non-government, with the occasional contracted work.

In 2006, 80.28% of PCS's expenses went directly to the implementation of conservation programs, while 19.72% was retained for administration and development purposes. PCS aims at keeping administrative and development costs below 20%. In 2005, PCS income was mostly in the form of grants (96.20%) with of income form corporate partners, merchandise, guest match programs, membership, individual contributions, and other miscellaneous income. Also in 2005, 96.20% of revenues were restricted for conservation projects.

NGO Contribution to Economic Development

In the last 6 years, PCS has contributed over USD5.5 million. PCS also contributes to the economy through job opportunities, with much of PCS's income remaining in Palau. PCS also contribute to private sector and professional development. Additionally NGO's contribute by being able to access resources not available to other entities – such as GEF SGP (now GEFSGP/NZAIDPEF).

Focal Areas

Why these focal areas?

1. Protected Areas (that allow for sustainable use)
2. Resource-use planning (land and marine)
3. Capacity, Awareness and Will (individual, community and political)

Biodiversity in Palau

- About 1,264 species and varieties of plants –approximately 200 of those are endemic
- 141 Species of Birds – 9 endemics (likely more endemics at both the species and subspecies level)
- 46 species of freshwater fish – 2 endemic candidates
- Approx. 50 species of terrestrial reptiles and amphibians, 3 species of Bats, 1500 species of reef fish, 425 species of hard corals, 200 species of soft corals.

Babeldaob

- Second Largest Island in Micronesia
- Most biologically diverse forest in Micronesia
- Largest contiguous pristine forest
- Five major watersheds
- Largest Freshwater Lake in Micronesia
- 11 of Palau's 12 Endemic Birds
- Supplies water to 95% of Palau's population
- Important surrounding Marine Systems (Mangrove, sea grass, coral reefs) home to many important species including turtles, dugong, crocodiles

Challenges Facing a Small, Young, Progressive Island Nation

- Development: balancing development needs with needs of our communities and ecosystems
- Resource-use (Land and Marine): planning and implementing wisely, controlling over-use/degradation
- Tourism: ensuring we don't destroy what people come to see
- Invasive Species: control, eradication, prevention

Our Strengths

- Biodiversity and Natural Resources
- Community rooted in tradition that includes a strong conservation ethic
- Growing capacity, political will and other key enabling factors

Protected Areas

1. Conserve sites that we know are critical for communities, biodiversity and natural resources
 - Ngeruangel
 - Ngeriungs
 - Northern Reefs
 - Babeldaob forests and watersheds,
 - Ngermeduu Bay, Lake Ngardok, Ngerikiil
 - Rock Islands
 - Peliliu forests
 - Angaur restoration of forests
 - Fana and Merir
 - Helen Reef
2. Build community capacity and opportunities
 - Skills
 - Jobs
 - Resources

Resource Use Planning

- Begins with Community and National Visioning processes
- Land-use planning
- Marine resource-use planning
- Ecosystem-based approaches
- Bridge gaps between sound science/information and decision making for resource-use
Example: Managing for Cumulative Impacts!

Strengthen Capacity, Awareness, and Will

Strengthening capacity, awareness, and will will enable other focus areas to successfully be implemented and mainstreamed.

Healthy Eco-systems and Healthy Communities

Environmental Planning is Economic and Development Planning

Target industries: tourism, agriculture, and fisheries

Managing Our Accounts: Assets/Revenues vs. Expenditure

Can we develop economies and industries that not only expend from our natural and social environment but also sustain and contribute to natural and social assets and revenues?

How Can It All Come Together?

...Through partnership and collaboration. PCS works with partners from all sectors and through existing collaboration mechanisms between and among national, state, community, and traditional partnerships.

What is Working Well?

- Good basic mechanisms for collaboration in place
- Committed community members, professionals and leadership
- Partnerships (local, national, regional, international)
- Strong traditions and ethics

What is Not Working Well?

- Participation - need to improve participation in coordinating/collaborating mechanisms
- Collaboration and planning across sectors - need to strengthen individual and institutional commitment to collaboration and planning, particularly across sectors
- Human resources and capacity limited - so few people doing so much

Priority Areas for Moving Forward

- Strengthen Collaboration by making existing collaboration mechanism work or improve on them
- Information/Research
- Improve on Resource-use planning and effective resource management
- Build capacity and will (political, community, individual)
- Develop and articulate a clear, compelling and agreed vision for our best Palau Future.

Technical Assistance Needed From ADB

1. National visioning and planning.
2. Land-use and marine resource-use planning using ecosystem based approaches.
3. Guidance in unique and sustainable approaches to large development initiatives such as the Free Trade Port, natural resource extraction (including oil and minerals), agriculture, aquaculture, tourism facilities and activities, etc.
4. Enhancing collaboration. The mechanisms are there! How can we strengthen them?
5. Direct assistance to NGOs and CBOs.

Great results have small beginnings!
"Mesulang"

Annex 3

Expenditures on Environmental and Natural Resources Management, By Fiscal Year

	2000	2001	2002	2003	2004	2005
EQPB						
National	500,000	453,900	448,843	447,705	398,046	382,100
Total	513,026	498,155	449,582	497,652	449,716	414,052
PICRC - National	577,000	500,000	450,000	450,000	450,000	450,000
OERC	-	-	40,484	187,353	223,397	198,630
Marine Resources Admin.						
National	237,360	236,676	245,173	433,406	395,396	435,271
Total	237,360	279,476	305,855	552,331	514,949	607,818
Agriculture Admin.						
National	286,940	290,570	301,809	354,506	368,108	385,087
Total	345,710	379,952	432,209	481,120	709,735	548,565
TOTAL	1,673,096	1,657,583	1,637,646	1,981,103	2,124,400	2,020,435

Annex 4

Project Concepts

A. Enhancing Environmental Management Capacity at National and State Levels

Background:

The current priority area for action recognizes the need for further development of Palau's natural resources to proceed in an integrated and sustainable manner, thereby ensuring that increasing use of one resource does not have adverse consequences for the health and value of another resource or, indeed, for the overall health and well-being of Palau's natural resources. For example, residential, commercial and agricultural development in Babeldaob must not compromise the integrity of the watersheds providing the water on which such development relies. Furthermore, future development will also have to give full consideration to any wider environmental implications.

Goal and purpose:

To ensure a sustainable future for Palau, enhancement and integration of environmental and natural resource considerations into development planning processes and plans must occur. This will be achieved through strengthening of environmental and natural resource management, taking into account the revolving impact relationship they share with economic development. The goal is to increase and enhance capacity to effectively manage our environment at both the National and State Levels.

Components and outputs:

Key components would be the evaluation and strengthening of environmental ministries and agencies, as well as the regulatory, monitoring, enforcement, and policy framework. Another component would be developing a straight-forward and streamlined institutional framework for preparing and implementing economic development strategies. This framework has four major components – (i) an over-arching development strategy, such as Palau's Master Development Plan; (ii) sector planning; (iii) project planning; and (iv) performance budgeting.

Expected results and deliverables:

From this TA, it is expected that capacity is built to enable sound environmental and resource management as well as implementation capacity.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

Ministry of Finance and the Ministry of Resources and Development.

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.

B. Coordinated Development of Renewable Energy at Community, State and National Levels

Background:

The Government of Palau recognizes the importance of energy services to economic stability and addresses it in the Palau National Master Development Plan (PNMMDP). However, the PNMMDP address energy needs only insofar as articulating the need to expand the generating capacities of the power plants. At the time the PNMMDP was being prepared, renewable energy (RE) technology was still being developed and until recently efforts were never made to fully explore or utilize indigenous energy resources. Consequently, Palau still relies heavily on imported petroleum fuels for energy generation.

The Palau Public Utilities Corporation (PPUC) is the sole public utilities corporation in Palau. The PPUC is a semi-government corporation, overseen by a Board of Directors. The PPUC is responsible for supplying power to all consumers in Palau. The PPUC currently operates six plants using 18 diesel powered generators with eighteen and six megawatt capacities to provide energy. The PPUC utilizes an estimated 8 million gallons of diesel annually. Legislation establishing the PPUC does include provisions mandating the PPUC to investigate, research and, where feasible and practical, implement RE. However, with no Government energy policies fostering the promotion of RE, PPUC has limited its use of RE to equipping some outer islands with solar photovoltaic panels.

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

Through the completion and implementation of the PECS, Palau will take its first step toward developing an enabling environment for the use of renewable energy.

Goal and purpose:

The goal and purpose of this project would be to increasing capacities to assess, develop, implement, and maintain renewable energy projects and equipment; and mainstream renewable energy and energy efficiency into planning and development process.

Components and outputs:

It is important that the first step in promoting renewable energy at any level is to support the development and implementation of the PECS. For this project it would then be necessary to develop a committee to assess and develop an approach to identify, develop, implement and promote renewable energy. It would be necessary to be comprised of National, State and Community representatives, as well as the Palau Public Utilities Corporation.

Expected results and deliverables:

From the work of the committee it is expected that a high level policy on the integration of renewable energy will be incorporated into all new development, improvement, or energy projects is defined. This policy will provide the policy context and serve as a guide for

implementing renewable energy at all levels. Through the implementation of this policy an enabling environment will emerge for the use of renewables.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

Ministry of Finance, the Ministry of Resources and Development, and the Palau Public Utilities Corporation

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.

C. Mainstreaming Environmental Considerations in Water and Sanitation Infrastructure for Babeldaob

Background:

The primary source of fresh water in Palau is from precipitation, with the majority of freshwater used being surface water. The area's major water source is the Ngirikiil watershed, located on Babeldaob. During non-drought periods the Ngirikiil watershed supplies approximately four million gallons of water per day. Studies indicate that a total of 450 billion gallons of internal renewable water is available in Palau. While groundwater is found in Palau, the groundwater lens is relatively thin. Groundwater has also not been extensively developed because of well maintenance problems, water quality problems (chlorides, iron, manganese, taste and odor), and limited well yields in certain areas. Most water pumped from the ground is non-potable.

The National Master Development Plan describes a strategy to provide an adequate supply of safe potable water to meet the needs of the people of Palau, and to protect the water supply areas from pollution. It is estimated that over 95% of the population of Koror and Airai states, and about 80% of the population of rural states, are served by public water systems. In addition, many homes in Palau have their own rainwater catchment systems to provide drinking water, with water from the public system, if available, being used for bathing and washing. Some populations on remote smaller islands obtain their water solely from rainwater catchments, using very shallow wells only during periods of drought.

Currently, only Koror and Melekeok have centralized water and sanitation systems in place. However, with the completion of the Compact Road and the move of the capitol to Melekeok State, it is expected that an increase in development will occur in Babeldaob. In order to support this development, while balancing environmental and human health, the water and sanitation infrastructure needs to be improved for all the States in Babeldaob, taking into account environmental considerations.

Additionally, currently only around 10% of dumpsites in Palau meet EQPB regulatory requirements (EQPB, 2006). A commercial operator is now providing a waste collection service in Airai, on a user pays basis. In Koror, the State provides a similar service. All other states have dumpsites located alongside mangroves or in coastal areas.

Goal and purpose:

The goal and purpose would be to support the mainstreaming of environmental consideration into the development of water and sanitation infrastructure in Babeldaob. This would not only enhance water and sanitation planning, but further mainstream environmental consideration, compliment and enhance land use and resource use planning.

Components and outputs:

The main components and outputs of this project would be to:

- Identify the needs of all the States in Babeldaob
- Identify the environmental considerations for all the States in Babeldaob
- Promote harmonization of water and sanitation infrastructure in Babeldaob
- Improve water quality, accessibility, and availability
- Improve water security

Expected results and deliverables:

Water and sanitation infrastructures enhanced in all of the States in Babeldaob. Improved sanitation systems (i) ensuring appropriate protection all watersheds that are currently used to provide potable water to both urban and rural populations, as well as those watersheds that may be used for this purpose in the foreseeable future; (ii) ensuring that the water and sanitation infrastructure has a capacity consistent with the anticipated current and future demand; (iii) land use plans and zoning and building regulations are such as to minimize the cost of providing water and sanitation services in an environmentally sound manner; and (iv) the design, construction and operation of the required water and sanitation systems demonstrate best practice in terms of addressing environmental considerations, with respect both to the impact on the environment and to the ways in which environmental conditions will influence the sustainability of the infrastructure investment.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

Ministry of Finance and Ministry of Natural Resources

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.

D. Strengthening Public Land Authorities at State and National Levels

Background:

Clear property rights are a fundamental requirement for a modern market economy. As Palau moves towards such an economy, issues related to land tenure and effective land use planning are taking on ever increasing importance. A major constraint on economic development in Palau is the uncertainty over property rights and, particularly, over title and rights to land. This uncertainty is a serious barrier to investment in all sectors of the economy and is also causing considerable social hardship and distress.

The land tenure system in Palau is complex and deeply rooted in the social structure, and is divided into private and public lands. Private land is titled either individually or by a clan. Since the approval of the clan must be obtained, development of clan titled land is oftentimes a tedious venture. Most land was held on a customary basis prior to 1971, with State-owned land constituting only a small share of the total area. Since 1971, Palau has been engaged in a titling process that has seen individual lots surveyed and ownership determined under the auspices of the Land Court. Land titles are drawn up on a clan or individual basis, depending on custom, agreements reached within clans, and history. About 10,000 out of 17,000 lots in the central land register, established under the Japanese administration, have been surveyed and had their ownership determined. The Government has recently directed that the titling process be completed by February 2008. Since land is a highly sensitive issue in Palau, it is likely that the titling process will extend beyond the 2008 deadline. A supplementary process of splitting lots is expected, even for titled land. The Government expects this to potentially affect more than 10,000 lots.

Only Palauans can own land and in effect only Palauan-owned banks can take land as security. However, foreigners can obtain leases and foreign-owned banks can accept leases as security for loans. The Constitution provides for 99-year leases, but courts have ruled that this is effectively ownership and, in practice, leases are for a maximum of 50 years.

Goal and purpose:

The goal and purpose is to increase and enhance the capacity of the public lands authorities and the National and State levels address land use and land tenure.

Components and outputs:

The components and outputs of this project would include:

- Promote the establishment of public land authorities in all States
- Increase the capacity of the National and State public land authorities through evaluation and strengthening of land authorities responsibilities and mechanisms for transferring land ownership.

Expected results and deliverables:

By strengthening the capacity of National and State land use authorities, it would enable more productive and sustainable use of land, particularly for land which is in customary ownership. Progress in this regard requires concerted action in at least three respects, namely: (i) increasing the timeliness, certainty and equity in resolving land disputes; (ii) ensuring land use is consistent with land capability and with adjacent land uses; and (iii) assisting land owners and users to make informed decisions and to implement them in a timely and successful manner. Tenure issues related to the adjudication, survey, registration, and issuance of land titles need to be resolved in order to enhance access to land for development. Absence of a valuation

methodology for determination of fair market assessment of transaction prices for land rights is a constraint that needs to be resolved with urgency.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

Palau Public Lands Authority, Ministry of Resources and Development, State Governments

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.

E. Preparation and Implementation of National and State Land Use Plans, Zoning Regulation and Building Codes

Background:

In 2001, the Association of Governors initiated a project to develop land use master plans for each State in Palau. Funding for the project was budgeted by the National Government. The result of this initiative was a resource management and development suitability study that indicated the most appropriate use for each tract of land. This information is invaluable for the preparation of comprehensive land use plans, but falls far short of the original intention to prepare land use master plans. Since then the Association of Governors has not resumed efforts to collectively develop their master plans. In general, States have been unable to complete their land use plans due to a severe shortage of available technical, financial and human resources, rather than any lack of commitment.

With the Compact Road nearing completion, it is becoming ever more critical that at least the affected States develop their master plans and accompanying land use laws. The Compact Road is a 52-mile circumferential road that connects all the States in the northern island of Babeldaob. In addition, the new National Capitol Building located in the State of Melekeok has been completed. Government offices transferred to the new National Capitol in the last quarter of 2006. These developments provide an opportunity and incentive for large scale business, residential, agriculture, aquaculture, and agroforestry development throughout Babeldaob. The Ngaremeduu Conservation Area, Ngaremeduu Bay, Rock Islands, and Babeldaob as a whole, are key areas in terms of environmental value and biodiversity. These areas are under threat from unplanned development and require the adoption of comprehensive integrated planning. A holistic, coastal zone/catchment management approach is required to mitigate the impacts, such as those related to runoff, siltation, waste disposal and habitat loss and associated with recent and planned Babeldaob development, including the Compact Road and beach, foreshore and wetland development.

However, currently the affected States do not have the capacity to plan and manage these developments in ways that will maximize economic and social benefits while minimizing any environmental consequences. This lack of capacity relates at least in part to the fact that, while State public land authorities are established by the State Governments and receive their operating budget from them, they are actually part of the National Government under the Palau Public Lands Act and must administer and manage lands in the best interest of the Republic as a whole and not in the interests of the individual State Governments. Hence, public land authorities in many States do not have the resources to function properly and much of the decision making about public lands is still being done inappropriately through the State Governments.

Goal and purpose:

The goal would be to support the development of National and State Land Use Plans, which would include zoning regulations and building codes.

Components and outputs:

The components and outputs of this project would be:

- Strengthening institutional mechanisms and capacity for land use planning;
- Promote harmonization of land use plans, zoning regulations, and building codes;
- Mainstream environmental considerations into land use planning at all levels;

- Strengthening of the management infrastructure regarding land degradation and land use planning; and
- Strengthening and development of regulations, incentive structures, and policies for land use planning at the state and national level.

Expected results and deliverables:

The expected result would be a harmonized National Land Use Plan with State Land Use Plans, taking into account environmental considerations with focus on zoning regulations and building codes. The Plans would be implemented at the State and National level with respective endorsements.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

Ministry of Natural Resources and Development, EQPB, PPLA, State Governments (perhaps...Governors Association)

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.

F. Ensuring Maximum and Equitable Flows of Benefits from Biodiversity Conservation and Resource Management

Background:

The National Biodiversity Strategy Action Plan (NBSAP) was completed in 2005. It was developed through an extensive process of research and multi-sectoral consultative activities involving a broad range of Government (State and National), NGO, and private sector and community stakeholders. The vision of the NBSAP is, "The people of Palau are living in harmony with their diverse natural and cultural heritage." The NBSAP identified eight strategic areas for action to address biodiversity management. From the NBSAP, several other initiatives have emerged.

To further support the protection of Palau's natural resources, the National Government has passed the Protected Areas Network (PAN) Act. The PAN Act will enable the National Government, through MRD, to assist the States by: (i) providing technical assistance to the States; (ii) acting as a conduit for funding; and (iii) facilitating cooperation among the States where areas of biodiversity importance cross State boundaries. The States will be responsible for: (i) nominating areas for inclusion in the PAN; (ii) applying for financial and technical support from the National Government to manage these areas; and (iii) for managing the areas. The Micronesia Challenge (MC) is more evidence of Palau's commitment to conserving its biodiversity. The MC is a regional initiative entered into by Palau with four neighboring island nations. In the MC, each Party has declared that it will work to conserve 20% of its terrestrial areas and 30% of its near-shore marine areas.

The present economic value of both terrestrial and marine bioprospecting activities within the Republic of Palau is at about \$200,000 per year. This value varies from year to year. Presently, there are no royalties coming to the Republic of Palau from any drug development based on Palauan animals or plants. There might be in the future, but this is very uncertain and it is thus impossible to begin to estimate the value of any discovery.

The knowledge of traditional medicines is valued worldwide, to cure illness and disease. Laws are needed to protect traditional knowledge and at the same time share this valuable knowledge with the world. Palau's NBSAP calls for traditional resource owners and communities to be (i) fully involved and (ii) the primary beneficiaries from conservation and resource management of Palau's biodiversity, with the rights of traditional ecological knowledge holders being fully protected. This aspect of equitable sharing of benefits from biodiversity, one of the principles on which the Palau's NBSAP is based, has not been addressed.

Goal and purpose:

The goal and purpose would be to develop, adopt, and implement laws to protect tradition knowledge; establish the mechanism for the equitable sharing of benefits arising from biodiversity; establish the framework for allowing bioprospecting and other such ventures which investigate the profitable benefits of biodiversity; and promoting community based ventures that enhance and conserve, as well as benefit from biodiversity. This would thereby ensure maximum and equitable flows of benefits from biodiversity conservation and resource management.

Components and outputs:

The components and outputs of this project in line with those of the NBSAP is to: (i) create a multi-stakeholder committee to develop and lobby for adoption of legislation protecting Palau's

genetic resources; (ii) develop and implement a public awareness/education program; (iii) develop and implement an effective enforcement and management program; (iv) promote community participation in biodiversity conservation; (v) increase awareness and promote the use of traditional management practices together with science and technology; and (vi) promote community capacity to launch and successfully manage small businesses that enhance and benefit from biodiversity.

Expected results and deliverables:

Mechanisms and frameworks in place to ensure equitable sharing of benefits.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

OERC, Ministry of Resources and Development

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.

G. Minimizing the Impacts of Land-based Sources of Pollution on Palau's Marine Ecosystems

Background:

Accumulation of mud resulting from erosion in adjacent catchments has become a major issue for many communities, especially those living around the estuaries of Babeldaob. In particular, the Ngerikiil River leading to Airai Bay in southeastern Babeldaob, has been drastically altered by the construction of the Palau International Airport, the Babeldaob Compact Road and extensive land clearing for agriculture. Completion of the 53 mile Compact-funded circle road on Babeldaob has been delayed by mudslides and bridge wash outs. The slides occurred in places where major cuts were made for the roadbed. In addition, mangroves are being cleared for coastal developments, potentially negating their useful role as a sediment buffer. These combined developments have caused dramatic increases in soil erosion.

Principle opportunities for growth lie in sectors which are highly reliant on access to, and development of key natural resources, mainly land, marine and terrestrial ecosystems, and water and renewable energy. In order to minimize the impacts on the environment and natural resources from development, it is important to strengthen natural resource and environmental management.

Goal and purpose:

The goal and purpose would be to enhance and integrate natural resource development and environmental management.

Components and outputs:

Key components requiring strengthening are institutions, legislation, the development planning cycle, infrastructure, education, awareness raising, monitoring (status, performance and compliance) and enforcement.

Expected results and deliverables:

Expected results and deliverables would include a policy and plan that would include institutional strengthening in order for the EQPB to implement the plan. Increasing the EQPB's ability to manage, monitor, assess, and enforce restriction (regulations or otherwise) on certain development types or practices. More collaboration and strengthening of planning commission to enable better land use planning with the EQPB in order to prevent the current trend of "case-by-case" development.

Social and/or environmental concerns:

Numerous social and environmental benefits will result from this TA. There will be no adverse social or environmental impacts.

Plans for disseminating results/deliverable:

Reports, meetings, workshops, and seminars.

Proposed executing/implementing agency:

EQPB, Ministry of Resources and Development, Planning Commission

Nature/extent of government/beneficiary involvement in identifying or conceptualizing the assistance:

This TA is a direct consequence of participatory consultations conducted as part of the country environmental analysis (CEA), including a National Dialogue on Integrating Environmental Considerations in Economic and Development Planning Processes in Palau.