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Federated States of Micronesia

COUNTRY ENVIRONMENTAL ANALYSIS

Mainstreaming Environmental Considerations in Economic and Development Planning Processes

DRAFT FINAL REPORT

Prepared by: John E. Hay and Alissa Takesy

September 2005

Sound environmental management is

a profitable investment,

not an unproductive cost.

Abbreviations

ADB	-	Asian Development Bank
ADF	-	Asian Development Fund
AG	-	Attorney General
CBO	-	Community Based Organization
CEA	-	Country Environmental Analysis
COP	-	Council of Pilung
COT	-	Council of Tamol
CSP	-	Country Strategy and Program
CSPU	-	Country Strategy and Program Update
DMC	-	Developing Member Country
DOI	-	Department of the Interior (United States of America)
EEZ	-	Exclusive Economic Zone
EIA	-	Environmental Impact Assessment
EIS	-	Environmental Impact Statement
EPA	-	Environmental Protection Agency
EPPSO	-	Economic Policy, Planning and Statistics Office
FAD	-	Fish Aggregating Device
FEMA	-	Federal Emergency Management Agency
FSM	-	Federated States of Micronesia
IDP	-	Infrastructure Development Plan
KIRMA	-	Kosrae Island Resource Management Authority
MCT	-	Micronesia Conservation Trust
MLIC	-	Micronesia Leaders in Conservation
MPA	-	Marine Protected Area
NBSAP	-	National Biodiversity Strategy and Action Plan
NEMS	-	National Environmental Management Strategy
NGO	-	Non-governmental Organization
ODA	-	Overseas Development Assistance
PARD	-	Pacific Department (ADB)
PSRP	-	Public Sector Reform Program
SBDC	-	Small Business Development Center
SD	-	Sustainable Development
SDP	-	Strategic Development Plan
SME	-	Small- and Medium-sized Enterprises
SWOT	-	Strengths, Weaknesses, Opportunities and Threats
TA	-	Technical Assistance
TTA	-	Trust Territory Administration
UN	-	United Nations
UNEP	-	United Nations Environment Programme
UNFCCC	-	United Nations Framework Convention on Climate Change
US	-	United States of America
WHO	-	World Health Organization
YESC	-	Yap Environmental Stewardship Consortium

Note

In this report, "$" refers to US dollars.

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Executive Summary

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 the Federated States of Micronesia (FSM) describes the environmental issues that are most important to FSM's development strategy, as well as ADB's role in helping remove the environmental constraints on sustained development. 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 the FSM can be addressed by way of environmentally sensitive projects in the assistance pipeline.

3. Thus the present CEA for the FSM focuses on the general environment status and trends in FSM, 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 principal constraints on, and barriers to, improved environmental management. It also identifies priority improvements in policy, institutional and legislative mechanisms, as well as programs and projects that will help to mainstream environmental concerns 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. The consultations began in Yap, followed by Chuuk, Kosrae, and Pohnpei. In each state; the stakeholders were from state and municipal governments, communities, the private sector and non-governmental organizations (NGOs). Consultations in each state concluded with a stakeholder dialogue, where the preliminary findings were presented and subsequently strengthened through discussion and sharing of additional information and insights. The extensive in-country consultations also included discussions with key national-level stakeholders, as well as organizing and hosting a one-day National Dialogue. Formal and informal activities were 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.

Governance, and Institutional, Policy, Legal and Budgetary Frameworks

5. The independent, sovereign nation of the FSM, with a constitutional government, was formed in 1979. A Compact of Free Association (the Compact) was signed by the US and FSM in 1986, leading to the trusteeship termination by the United Nations (UN) in 1991. This Compact agreement established a continuous close relationship between the FSM and the US, through agreed mutual obligations and fiscal assistance. The Compact was recently renegotiated, and a second Compact was signed on 14 May 2003. It provides less generous levels of funding, but still equivalent to US$1.8 billion over twenty years, including contributions to a trust fund which will replace direct financial assistance in 2024. As well as financial assistance, the Compact also grants FSM citizens access to US federal programs, and favorable provisions for traveling to and working in the United States. Under the Amended Compact, the US will provide a $76 million sector grant and a $16 million

contribution to the Compact Trust Fund during the first year. The annual sector grants under the Amended Compact will be administered through six sector grants for (i) education, (ii) health care, (iii) private sector development, (iv) environment, (v) capacity building in the public sector, and (vi) public infrastructure, with priorities in education and health care.

6. The legislative and institutional framework includes both national and individual state constitutions, with each of the four states functioning as semi-autonomous governments. This structure makes it a prerogative of each state to enact their own legislation in line with their powers as provided for in the FSM Constitution. This includes addressing all issues related to the management of the environment and natural resources, within the 12 mile limit. At state level, there are also municipal ordinances and traditional precedents. But even where laws and regulations have been passed, their effectiveness is impaired due to low public awareness and to poor enforcement, including a low success ratio for violators being prosecuted by the courts.

7. The FSM Constitution provides for three separate branches of government at the national level - Executive, Legislative, and Judicial. This three-tier system, which was introduced during the US Trust Territory Administration (TTA), interfaces with traditional and church-based systems of leadership. The weaknesses of FSM, which is made up of four very different islands groups with their own cultures and languages, can be traced both to its federalism and to the large size, complexity and cost of government relative to the population it serves.

8. The state governments are structurally similar to the national government. All four states having three co-equal branches of government. However, there are differences in detail in response to local factors. Each of the four states is a constitutional democracy with great independence to establish its own institutions, policies and operations, including Governor and a state legislature with a specified number of senators. The states, which enjoy considerable financial autonomy, are responsible for provision of most services, including those related to health, education, agriculture, in-shore fisheries, drinking water, sanitation and solid waste.

9. The constitutions of all states allow for the establishment, financing and operations of municipal government, including municipal councils and courts. The municipality is also a legacy of the TTA, designed in part to foster interaction between the state government, the traditional leaders and their communities. Municipal government has been less successful than traditional systems of local governance, in part due to the municipal boundaries not always coinciding with the customary areas of responsibility of the traditional leaders.

10. The ability of state governments to fulfill their resource management and environmental protection responsibilities has generally decreased since the step down of funds for the first Compact. There is no shortage of relevant laws, but the political will is not always present to enforce the laws. With flat or declining economies, state governments have redoubled their efforts to develop economic infrastructure and opportunities, often with little regard for the environment. This has led to a refocus of government departments and resource management staff on economic development, as well as serious cutbacks in staff numbers and training opportunities, which have led to low morale within government resource management/environment departments and a loss of confidence in the agencies by the communities they serve.

11. The institutional structure for environmental and natural resource management, including the supporting legislation and regulations, is complex given the mix of three levels of government as well as traditional systems. NGOs focused on conservation and environmental protection are present or emerging in all four states and there is a trend toward integration of efforts of these groups with traditional leadership and government

agencies dealing with natural resources. There is also a distinct emerging trend of community-based organizations becoming involved in the various aspects of resource management. Over the last few years, both national and state governments have made a substantial effort to more fully involve NGOs in policy development and projects.

12. Over the past decade, a series of reports have documented the nation's environmental status and strategies. The Economic Summit process has contributed significantly to the development of a coherent economic strategy for the entire nation. The Summits are highly participatory, involving months of technical preparations in each state, with inputs from government, the private sector, NGOs, and the community at-large.

13. In early 2003, FSM began a process that resulted in a Strategic Development Plan (SDP). This outlines the broad economic strategy and sectoral development policies for the FSM. In addition to being the primary national economic planning mechanism of the country, the SDP is also a requirement under the Amended Compact of Free Association with the United States. That agreement requires the Federated States of Micronesia to prepare and maintain a strategic multi-year rolling development plan that is updated through the annual budget process. The SDP also includes an Infrastructure Development Plan (IDP), FSM's long-term planning document for public investment in infrastructure.

14. A critical step in the preparation of the SDP and IDP was the convening of the third Federated States of Micronesia Economic Summit in early 2004. Together the SDP and IDP provide a comprehensive economic strategy for the FSM at a critical time in its development as an increasingly self-reliant nation. The IDP identifies the infrastructure projects that are critical to the fulfillment of the sector strategies contained in the SDP. While the IDP covers a 20-year period, both the priorities and the specific projects in each sector will be updated through the annual budget process. Although the IDP is also a requirement of the Compact, the plan is comprehensive and anticipates funding of projects from the FSM's own revenues, from its bilateral partners, from the international financial institutions, and from other development partners.

ADB's Assistance to the FSM

15. ADB's operational strategy in the FSM is consistent with the current ADB strategy for the Pacific and continues to support the Government's strategy of private-sector-led economic growth. The ADB operational strategy covers three areas - good governance, inclusive social development, and pro-poor economic growth. These are consistent with the three pillars of ADB's poverty reduction strategy. The operational strategy is also in line with the Government's development strategy and the policies and outcomes of the 3rd Economic Summit held in March–April 2004. For 2005–2006, ADB assistance is emphasizing the following themes: (i) promoting participation of civil society in development; (ii) addressing poverty issues more explicitly; and (iii) providing assistance with a long-term perspective. Such a focus is designed to increase the effectiveness of ADB assistance to FSM through broader community participation, enhanced government accountability, and sustainable long-term development for the poor.

16. Since FSM joined ADB in 1990 it has received eight loans totaling $75.136 million and 41 TAs totaling $22.678 million. Almost all loan funds come from the Asian Development Fund (ADF). Five loans of $40.036 million and five TAs of $1.993 million were active as of mid 2005. The nonlending program continues to be ADB's key modality of assistance to promote private sector development and development effectiveness in the FSM. The Government has requested a temporary halt in loan project processing in order to focus on successful implementation of the ongoing projects. This is in view of the weak debt repayment capacity of the country and its institutional and human absorptive capacity constraints.

17. In terms of this past assistance, four loans and ten TAs have been related to environmental and natural resources management. Over the years, ADB's operational strategy in the FSM has changed such that the assistance related directly to these two sectors has declined dramatically. Under the current operational strategy, assistance related to these sectors is now largely dependent on environmental and natural resource management considerations being mainstreamed into the development assistance.

18. Non-lending assistance programmed by ADB includes project preparatory as well as advisory capacity-building TAs. The 2005–2006 assistance pipeline for non-lending products and services comprises: (i) Implementation of Public Sector Capacity Building Roadmap; (ii) Youth and Gender Development; (iii) Solid Waste Management; (iv) Education and Health Sector Strategy; and (v) Capacity Building in Solid Waste Management. The planned assistance related to solid waste management presents a rare opportunity for ADB to address in a direct manner one of the key environmental concerns identified in the participatory consultations at state and local levels.

19. There is excellent agreement between the anticipated and actual environmental impacts of ADB project implementation. These are appropriately small and hence acceptable. It is contrary to ADB policy and FSM regulations for projects to have high environmental impacts during implementation. Importantly, this analysis ignores consequences for the global environment as a result of greenhouse gas emissions related to travel. The sustained environmental and related impacts post implementation are overwhelmingly beneficial. Initiatives that enhance water and sanitation services in the urban centers are clearly going to generate significant environmental and related benefits, well in excess of the adverse environmental impacts during project implementation. But projects in the tourism and health sectors have also generated significant environmental benefits, albeit less directly.

20. A number of lessons can be learned from the assistance process implemented by ADB. For example, stakeholders, especially those working at the state government level, considered that much of preparatory phase of ADB assistance is unnecessary and time consuming, with too much paperwork. Consultation with key stakeholders was often considered to be inadequate, with some individuals claiming that those involved in project preparatory activities would consult only with those who have views similar to their own. ADB consultants were also urged to consult with each other – they often work separately, but on projects where there is large overlap. To facilitate better coordination between consultants, when working in-country each consultant should be provided with the work schedules of other ADB consultants. The requirements for compliance with ADB safeguard policies should be made very clear to implementing agencies and project managers. Careful consideration needs to be given to the timing of compliance reviews.

Environmental Concerns and Constraints

21. FSM's environment and natural resources are considered to be the nation's living wealth. Maintaining the habitats and ecosystems that nurture these is vital for improving the quality of life of its people and sustaining the country's rich traditions. Participatory consultations, supported by studies of relevant policy and technical documents, resulted in identification of 17 key environmental concerns:

- Food security and affordability;
- Water security, quality and affordability;
- Public health and sanitation;
- Integrated solid waste management;
- Energy security and affordability;
- Enhanced management of land and marine areas;

- Climate change, disasters and coastal erosion;
- Sustainable tourism;
- Improving inter-island sea and air transport services;
- Dredging the reef;
- Sediment discharge to reef and lagoon;
- Landuse planning and zoning; building code;
- Increased production and use of coconut products;
- Development of community-based pearl fishery;
- Cooperation and coordination in government;
- Public buildings and infrastructure; and
- Strengthen fisheries sector

22. The influences of changing environmental quality on livelihoods, health, and vulnerability of poor and other minority groups were also explored, as were the environmental performances of key economic sectors. Global environmental changes, such as climate change and sea-level rise, as well as frequent and severe typhoons, droughts, fires, are major constraints to environmental protection and conservation of the nation's natural resources.

23. Several key cross-cutting issues which hamper achievement of good environmental performance in the FSM have been identified. These include:

- Rapidly increasing populations and more consumptive lifestyles;
- Inadequate scientific baseline biological information on biodiversity status;
- Insufficient aquatic and terrestrial conservation areas and management plans;
- Insufficient biodiversity legislation and lack of enforcement;
- Insufficient skilled/trained human resources;
- Insufficient coastal planning and zoning;
- Inadequate awareness of links between conservation and sustainable economic development; and
- Insufficient funding for conservation activities.

24. As the FSM society and economy become more "westernized", the traditional Micronesian environmental and resource management systems deteriorate, or even break down or are lost. These changes are especially driven by the transition from a subsistence to a cash economy and the development of more centralized systems of governance and oversight. The nation's very high population growth rates, as well as the migration of people towards urban centers, have placed further pressure on the environment and natural resources.

25. Special importance is attached to land in the FSM, both because of its short supply and its traditional significance. A major legal obstacle is the constitutional prohibition of foreign ownership of land (nationwide), of ownership by citizens from other FSM states (Kosrae and Pohnpei), and of any sale of land (Pohnpei). Restrictions on the length of leases in each state (25 to 50 years depending on the state, with provisions for renewal in most cases) may be regarded by investors as insufficient to realize an adequate or competitive return on an investment, especially in sectors such as tourism, which is in the early stages of development. Leasing of private lands in particular can be time-consuming, due to fractional ownership and uncertain boundaries and titles.

Priorities for Action

26. Four considerations were taken into account when identifying the priorities for action: 1) identifying environmental constraints on development; 2) identifying new opportunities where the environment and natural resources can foster economic development and social

progress; 3) recognizing that some major initiatives are already under way (e.g, public sector reform, enhancing the enabling environment for growth of the private sector and improvements in basic social services) - new priority areas should complement and not duplicate these programs; and 4) identifying strategies to alleviate poverty and hardship in the country. To facilitate the mainstreaming process, the five priority areas for action were incorporated into a road map for mainstreaming environmental management. The road map includes details on the current state of relevant environmental components, as well as targets, indicators, actions and the implementation time frame.

27. Five 'priority areas' have been identified:

- Right-sizing and refocusing government;
- Environment and resource-based small business enterprise development;
- Sustainable community development;
- Risk and hardship alleviation; and
- Improving inter-island sea and air transport services.

28. Individually and collectively the five priority areas reflect and address the environmental concerns identified during consultations with state, municipal, private sector, NGO and community stakeholders.

29. There is a widespread view that the FSM has too many policies and too many regulations – since in many cases people are simply not aware of them, compliance is poor. In addition, political will is not always present to enforce the laws. Even within government, actions are often inconsistent with policies – for example, the tourism policy now promotes eco-tourism, but most initiatives are still oriented towards mass tourism. Another governance issue is the poor coordination between and within the three levels of government – all parts of government are working reasonably hard, but they are not working together. The four states are key players in environmental management as well as in delivery of services to individuals, households and communities. They also play an important role in providing a sound enabling environment for the operation of the private sector. Thus the emphasis on public sector reform needs to be shifted to the state level, as efforts to improve efficiency, effectiveness, and accountability in government will have greatest effect if focused at that level. Adequate capacity to sustain such efforts needs to be built. To ensure that environmental protection and sustainable resource management are priorities for state governments, there is a requirement for long-term planning, tying development funding to sustainable development priorities, and long-term capacity building.

30. With assistance from the national and state governments, each municipality should be encouraged to develop a long-term sustainable development plan. All funding from higher levels of government should focus on the implementation of these plans. An important early task would be to undertake an assessment of the needs at municipal government level, as a precursor to preparing municipal development plans and budgets. It is also be important to secure ongoing funding for municipal government as well as provide centralized training for municipal government staff – at present very little training is provided, increasing the dependency on state government.

31. The agriculture, fisheries, and tourism sectors are recognized as providing the long-term growth potential and competitive advantage for the FSM. However, currently the largest single sector in the FSM economy is government services. Current commercial and business activity is dominated by informal and formal small- and medium-sized enterprises (SMEs). Apart from the government and utilities corporations, few large businesses exist that can create major employment or single markets for other businesses. As such, most small businesses in the FSM can be characterized as having a small market share, and personalized owner operator or family management.

32. Environment and resource-based small business enterprise development should be based around a three-pronged approach: (i) to replace unhealthy and high cost imported foods with local foods that are both healthy and affordable to local consumers – this can be achieved by assisting local farmers and fishers to provide a consistent supply of high quality food products to local markets as well as to the tourism industry, including restaurants; emphasis should be on local varieties but including those items common on the tables of countries such as Japan and the US; (ii) further development of small-scale and low impact tourism enterprises, based in part on diving, eco-tourism and historic and cultural attractions; and (iii) private sector involvement in waste management, including waste collection, sorting, reuse, recycling and disposal. The benefit of this approach is that the necessary production and service systems involve low technology, low start up costs, low capital, no debt and offer high margins in some instances. Relative to producing for export, the markets will be readily accessed and with simple distribution chains. In the near term demand should be relatively constant and in line with available and consistent levels of supply.

33. The community is the basic management unit for sustainable development within the FSM – communities have the right and responsibility to manage and sustainably develop their resources for their benefit as well as the benefit of future generations. The strengthening of community collective ownership is seen as a prerequisite to communities being able to fulfill their responsibilities to foster sustainable development. Water and sanitation are foundations of economic growth, social development and in some cases basic survival. The protection and conservation of the supply and quality of water is becoming an increasingly important issue in the more remote communities of FSM. Population growth and damage to river catchments as a result of deforestation, inappropriate agricultural activities and inadequate waste disposal are having an increasing impact on water supplies. Improvements in water resource management are fundamental and require a coordinated effort across many sectors including: improvements in watershed management; reductions in deforestation rates; raising public awareness of wise water use and management; controls over agricultural activities and improvements in waste disposal, especially sewage disposal facilities.

34. Throughout history the lands now comprising FSM have experienced emergencies and disasters associated with a wide range of natural and other events. These have inflicted heavy costs in terms of human, material and physical resources, including damage to the environment. They represent a potentially significant obstacle to economic growth and development. Disasters disrupt the daily life of the population and can result in a substantial loss of life and property and in social upheaval, leading to many persons becoming homeless, hungry and highly dependent on others for their survival. The situation is often further aggravated by the disruption, dislocation or loss of vital economic production and state infrastructure, including water and power supplies, and communication, transportation and other services.

35. The likelihood of many disasters will increase as a consequence of climate change. The climate risk profile shows that rainfall, wind, temperature and sea level extremes will all increase as a result of global warming, as will the frequency of drought. Each state must work with the municipal governments to develop and implement long-term plans for dealing with the impacts of climate change, including the development of integrated environmental and resource management objectives that enhance the resilience of coastal and other ecosystems to natural hazards. Structures, infrastructure, and ecosystems at risk to climate change need to be identified, and opportunities to protect critical assets should be explored. This includes "climate proofing" existing facilities and infrastructure. Considerations of climate change and sea-level rise should be integrated in strategic and operational (e.g., land use) planning for future development, including that related to structures, infrastructure, and social and other services. Environmental impact assessment procedures and building

codes should also reflect the increasing risks to infrastructure and other assets as a result of climate change.

36. Disaster preparedness plans exist for all four states, though most are still in draft form waiting for government approval. Priority needs to be given to gaining formal endorsement of these plans; ensuring that all key players, and not just state governments, are fully aware of their obligations with respect to disaster preparedness, response, relief and recovery; and building capacity at all levels so that the plans can be implemented fully, but with an emphasis on preparedness. Currently, FSM lacks a systematic and country-wide early warning system for natural and other disasters. There have been few public awareness programs to educate people on what to do during and after natural and other disasters. If early warning systems are adequate, they can help minimize damage to the economy and the people.

37. Risks to human health are also a major concern in the FSM. Several environment-related diseases of public health importance are endemic to various states of the FSM, or have the potential to cause epidemic outbreaks given the required environmental circumstances. Water-borne diseases are common cause of epidemics in the FSM. These outbreaks are in large part due to poor hygiene and the unprotected water supplies found in most states. Sanitation may improve household conditions but often pollutes adjacent areas, including water sources. These services are frequently provided from government funds or by heavily subsidized utilities, Pohnpei being the notable exception, so they are often neither operated nor maintained appropriately. Neither national nor state health departments have adequate programs to deal with water-borne and other diseases, or the onslaught of an infectious disease epidemic. Such epidemics in the past have proven expensive, often using significant amounts of the states' health budget and overtaxing the health system. A contingency plan for each state, and at the national level, is needed for such epidemics.

38. The transition from a subsistence to a cash economy has undermined the use, development and appreciation of local resources, including food. Food and beverage items account for the top ten imports. In a country where fresh fish is plentiful, canned fish is one of those top ten. Imported food has become the standard diet despite the danger this poses to human health and well being - with a significant downturn in the economy, people will not be able to afford to eat. Generally, the population lives on white rice, canned meat which has an excess of fat, canned fish and softdrinks. A large proportion of babies are also bottle feed in the first few months. This diet has lead to high rates of obesity, diabetes and hypertension and vitamin A deficiency in islands where the supply of papayas and mangoes should make this a rarity. Child malnutrition, attributed to a poorly nutritious modern diet replacing a healthier traditional diet, as well as anemia and heavy worm load, is not uncommon.

39. Improvements in the health of the population of FSM will bring considerable economic gain, particularly to the poor. To improve health, there needs to be multi-sectoral action, with the community taking more responsibility for its own health. In the long term, increased community participation should lead to better understanding of an individual's role in health, ultimately lead to healthier lifestyles, less disease burden and a greater potential for productive labor and economic return. As health or ill health is also the result of socioeconomic circumstances, there is a need to increase employment opportunities, particularly in rural areas, by private sector investment in agriculture, fisheries, industries, handicrafts, services and tourism.

40. The population of the outer islands is about 18,000 persons. These people tend to be amongst the most disadvantaged in the FSM, with poor access to both education and health services. Transport services serve as the lifeline to the outer islands. Shipping brings in essential goods and services and takes out island produce from which the people earn a substantial portion of their incomes. Shipping also brings in government services and

supplies, particularly to the schools and health clinics. Shipping provides an essential service to families by transporting children to and from secondary schools and colleges elsewhere in the FSM, and in providing links for everyone to the urban centers and the outside world. Air services, where available, provide passenger and high-value/perishable freight transport as well as emergency evacuation services for sick and vulnerable people.

41. The outer islands of the FSM are isolated by distance and by infrequent and unreliable sea transport. Where air transport is available, it is at high cost and of limited capacity, particularly for air cargo. This isolation discourages cash production and engagement in the wider national economy. It is difficult to maintain social contacts with other islands, and the delivery of government social and economic development services is costly and constrained. As a result, communities in the outer islands suffer from physical isolation leading to low incomes, lack of basic services, and poverty of opportunity. The people who live in these outer islands have significantly lower incomes than the national average.

42. The lack of refrigeration on the outer islands, and problems with shipping and transport, often mean that clinics run out of pharmacy medicines and even primary health care is not available or is unsatisfactory. At present, transport difficulties result in only the most serious cases being taken to hospitals in the state capitals for emergency treatment. This means that the treatment is often too late, causing additional suffering and, sometimes, the unnecessary deaths of outer island patients. Transport requirements of dispensaries include airfreight of pharmaceuticals and fragile medical equipment, and sea freight of bulky, lower-value and more robust supplies and building materials. More regular and reliable transport will improve lifeline services for the outer islands and will reduce the risk of unnecessary deaths in cases where urgent treatment is required.

43. Domestic air services are also affected by the absence of proper maintenance facilities. This, compounded by the poor condition of many of the outer island airstrips, has translated into frequent breakdowns. The resulting disruption to schedules severely hampers the fledgling tourist industry as well as adding to the hardship of outer islands. Short runway lengths often limit take-off weight and hence aircraft carrying capacity. Runway extensions and surface improvements could increase transport capacity and reduce aircraft damage, lowering costs. In case of emergency, air transport is usually the only practical option. For this reason, adequate, well-maintained airstrips are a strategic and lifeline necessity. Air transport is confined mainly to official or government passengers and higher-income residents or visitors. Economically, only mail and small high-value and light goods can be transported, due to limited cargo space. While complementing rather than competing with the main seaborne services, the airstrips nevertheless play an important part in the transport system.

Implications for ADB's Intervention Programs

44. The opportunities for, and constraints on, improving the environmental outcomes associated with ADB's assistance to the FSM were identified through a systematic analysis of the strengths, weaknesses, opportunities and threats (SWOT) in relation to addressing the eight priority action areas. By mainstreaming environmental considerations into development planning and processes, activities related to the five priority areas can be integrated into projects in the pipeline for ADB assistance to the FSM. In addition six new TAs are proposed because there are few opportunities to realign and strengthen currently programmed assistance in ways that would address the identified needs in the priority areas of right-sizing and refocusing government, environment and resource-based small business enterprise development, sustainable community development, risk and hardship alleviation, and improving inter-island sea and air transport services.

45. The six technical assistance projects proposed for the 2006-07 pipeline are as follows:

- Strengthening Communication, Coordination and Cooperation Between Levels of Government;
- Develop Environment- and Resource-based Enterprises through the Small Business Development Centers;
- Micronesians in Sustainable Community Development Learning Network and Pilot Projects;
- Demonstration Project on Community Adaptation to Climate Change;
- Enhancing Sustainability of Infrastructure Development Projects in FSM; and
- Improving Inter-island Sea and Air Transport Services.

46. The ADB should consider working with other development partners in relation to all six areas of proposed assistance. The focus should be on building capacity, specifically by strengthening those institutions that play key roles in environmental management and in ensuring sustainable use of natural resources. This will include their technical capacity. Enhancing the knowledge and skills of the people working in these institutions will be critical, as will education, training and outreach programs for all stakeholders.

47. Improved communication, coordination and cooperation between the national, state and municipal governments will greatly enhance the efficiency and effectiveness of government by clarifying the division of roles and responsibilities and ensuring that functions such as environmental management and the sustainable use of natural resources are undertaken by those government agencies best placed to achieve the desired results. The environment and natural resources of the FSM have the potential to support a major expansion of the currently under-developed private sector in the FSM, with the newly renamed and strengthened small business development centers being in a position to play a major role in this growth process by providing training, mentoring, guidance and other services. In the FSM, the community is considered to be the basic management unit for sustainable development. In many locations throughout the FSM, terrestrial and marine ecosystems are under severe pressure, environmental quality is degraded and there is excessive exploitation of natural resources. By establishing a Micronesians in Sustainable Community Development Learning Network, that builds on the success of a similar network for Micronesians in Conservation, these advocates will be able to encourage communities in each of the four states to demonstrate how these current trends can be reversed.

48. Most communities in the FSM are at risk from natural disasters and exposed to environment-related diseases that have the potential to cause epidemic outbreaks, and do so all to often. Increased community participation in public health care and in disaster prevention and preparation initiatives can bring major social and economic benefits, including hardship alleviation. Similarly, addressing the factors that reduce the sustainability of infrastructure development projects generates large economic and social benefits. People in the outer islands tend to be amongst the most disadvantaged in the FSM, with poor access to both education and health services. Transport services serve as the lifeline to the outer islands but their current inadequacy contributes to low incomes, lack of basic services, and poverty of opportunity. Delivery of government social and economic development services is costly and constrained. Improved inter-island sea and air transport services will, amongst other benefits, enable families to increase their production and generate regular and increased incomes with which they will be able to improve their conditions and standards of living and to meet vital periodic payments such as school fees.

Implications for the Three Levels of Government in the FSM

49. There is an urgent need to mainstream environmental and natural resource management considerations in FSM's development planning processes. There are three 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; (ii) the future of the FSM rests on its people and its environment and natural resources – if agriculture, tourism and fisheries play ever increasing roles in the state and national economies there will be growing pressures on these assets – there is thus a concomitant need to manage them to ensure their sustainability; and (iii) the population of the FSM is increasing rapidly and would be increasing more rapidly were it not for growing emigration) – by 2050 the population density for FSM will be similar to the population density of Chuuk today, with all the associated implications for the environment and natural resources if management practices are not improved dramatically.

50. Important population and economic planning decisions will have to made. Moreover, environmental and resource management decisions made today will establish the quality of life of people tomorrow and, more importantly, in more distant times. The complex nature of the issues, and also their solutions, mean that cooperation is required between all three levels of government and with the private sector, NGOs, and communities. A major constraint on effective environmental and natural resource management is the widely held belief of land and resource owners that activities and structures on the land and marine areas for which they have legal or customary ownership rights cannot be regulated or otherwise restricted. While the ultimate remedy is legal prosecution and imposition of penalties, a far more desirable approach is to ensure that land and resource owners are fully appraised of their rights and responsibilities, and of the immediate and more widespread and long-term consequences of inappropriate behaviors and facilities. Thus again the solution does not rest with government alone. Raising awareness in order to change attitudes and behaviors requires a collaborative effort that involves the media, NGOs, community and traditional leaders as well as the three levels of government.

51. However, there are instances where governments should be taking the lead with initiatives that will facilitate implementation of the environmental road map and in other ways address the five priority areas identified above. The two key practical acts by government that will help ensure effective mainstreaming of environmental management 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 and project implementation are implemented in a timely and effective manner.

52. Recent implementation of performance-based budgeting has resulted in substantial improvements in environmental monitoring (quality and compliance) and helped to elevate the status of the environment sector within government operations. However, there is an erroneous perception that under the amended Compact the environmental sector is now well-funded. The environmental road map provides targets for environmental quality and for the performance the part of the private sector made up of environment- and natural resource-based small business enterprises. Governments should recognize 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, through performance-based budgeting, an ability to meet their performance targets. Governments should follow this by allocating appropriate portions of their non-grant revenues to these agencies.

53. The challenges to secure cooperation from land owners to ensure compliance should not be underestimated. There is a widely held opinion that the issues of land tenure and traditional land uses will preclude any effective land use planning and zoning. There is a need to build on and upscale the existing examples of success in harmonizing traditional and modern approaches to land use planning, to the management of the environment and natural resources, and to meeting other relevant needs of society. It is important to raise the awareness of landowners with regard to both their rights and responsibilities as well as to 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 the availability of land for development. Absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights is another constraint that needs to be resolved with urgency.

54. 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, governments need to seriously question why there is currently no operative aluminum can recycling scheme in any of the four states. Schemes have been implemented in many of the states, but for various and complex reasons none was sustainable. The favorable price advantage that many imported foods have over local alternatives is also a situation that needs to be addressed. While in the longer term increased supplies of local produce will likely see prices decline, in the near term local farmers and fishers may need assistance to ensure their produce is competitively priced. Governments need to be more willing to make interventions that deliver benefits in the longer term.

55. 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. Certainty for developers and certainty of outcomes can be improved if a locally appropriate and meaningful requirements for building design, placement and construction are included in a building code. This may well require a national code that sets minimum standards and provided additional guidelines. Under the constitution, this would be possible due to public health and safety considerations. Each state could prepare and enforce its own building code that was consistent with the national equivalent but also took into account local circumstances and concerns, including those related to climate change.

56. Cooperation between and within the levels of government is far from optimal. Arguably the situation is worst for environmental and natural resource management. Institutional strengthening should be such that it facilitates rather then impedes the mainstreaming process. This would include taking the necessary action to secure that the full range of benefits offered by an adequately resourced and fully functional President's Council on Environmental Management and Sustainable Development. Its equivalent at state level in Pohnpei, the Natural Resource Management Committee, is chaired by the Deputy Governor of the state. That committee is assisting with cooperation and coordination within and between state and municipal governments and with non-governmental stakeholder representatives. Despite some reservations about its effectiveness due to a selective purview of development projects and lack of formal endorsement of the committee by the state legislature, the committee is an institution worthy of consideration by the other three states.

57. As government, the private sector, communities and individuals 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. The Institutional Capacity Building

Roadmap component of the ADB TA 4258-FSM: Strengthening of Public Sector Management and Administration, will assist in this process, as will the proposed follow-up TA, Implementation of Public Sector Capacity Building Roadmap. However, the focus of the roadmap is on the parts of government directly involved in addressing the implications of Compact funding phase-out. The training needs assessment performed under the TA did not therefore extend to staff in agencies responsible for environmental and natural resource management. A training needs assessment for these agencies could be a priority activity under the proposed TA Strengthening Communication, Coordination and Cooperation Between Levels of Government.

58. Opinion leaders in the community can play a key 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. FSM is fortunate to have national- and state-focused NGOs, all of which have highly professional and well-regarded staff. While in recent years, governments have been increasingly willing to involve such people in policy making and planning, there is a feeling among the NGO community that they are being used, rather than being treated as true partners. For example, they are often asked to help only when things seem to be going wrong and not from the early stages of planning and development. And even when they are involved in the planning, they are often left out when the big decisions are made, such as those related to the environment sector grant. Governments can do much to ensure that the expertise available via the NGOs 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 FSM's environment and natural resources.

59. 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. In Pohnpei, both the Environmental Protection Agency and the Survey and Mapping Division of the Department of Land and Natural Resources are providing decision makers and managers with information that allows them to be more successful in fulfilling their responsibilities. However, even in these two cases the information management systems suffer from a dearth of relevant data that can only be acquired through surveys, assessments and monitoring programs. Currently these are poorly resourced, managed and implemented. A major constraint on successful mainstreaming 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.

60. 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 amended in ways that clarify the responsibilities, intentions, powers and procedures of governments. Such legislation can then serve as the basis for informing and thereby engaging constructively the public and members of the private sector. State of the art awareness raising programs will correct false perceptions, identify mutually beneficial opportunities, and build mutual respect and confidence.

I. INTRODUCTION

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) of each of its Developing Member Countries (DMC). The CEA provides 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 environmentally sensitive projects in the pipeline.

3. The technical assistance (TA) to the Federated States of Micronesia (FSM) to assist with preparation of this CEA had as its main objectives the mainstreaming of key environmental concerns into economic and development planning processes, and to contribute to the alleviation of poverty in the FSM. The TA to FSM is 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 the FSM therefore focuses on:

- the general environment status and trends in FSM, including the role of the environment and natural resources in the economy;
- key environmental constraints and opportunities;
- characterizing current climate-related risks and how these may change as a consequence of global warming (see Appendix 1)
- the policy, legislative, institutional, and budgetary frameworks for environmental management;
- the principal constraints on, and barriers to, improved environmental management;
- priority areas in policy, institutional and legislative mechanisms, as well as programs/projects that will help to mainstream environmental concerns into economic development planning; and
- identification of the main environmental opportunities associated with FSM's country strategy and program update (CSPU), including recommending incorporation of environmental considerations in programs/projects in the pipeline as well as new priority actions and programs at the country level TA program.

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 June through August, 2005, ADB fielded a mission[1] to FSM

[1] Prof. John E. Hay, Environmental Management Specialist, assisted by Ms. Alissa Takesy, Domestic Consultant, conducted in-country activities from 25 June to 18 August, 2005. Prof. Hay's and Ms. Takesy's consultancies were supported under ADB RETA TA: 6204-REG Mainstreaming Environmental Considerations in Economic and Development Planning Processes in Selected Pacific Developing Member Countries. Mr. Edy Brotoisworo, Senior Environmental Specialist, Pacific Division (PARD) visited FSM from 9 to 13 August, 2005. Ms. Ophelia Iriberri, Senior Program Officer, PARD, visited FSM from 9 to 18, August, 2005.

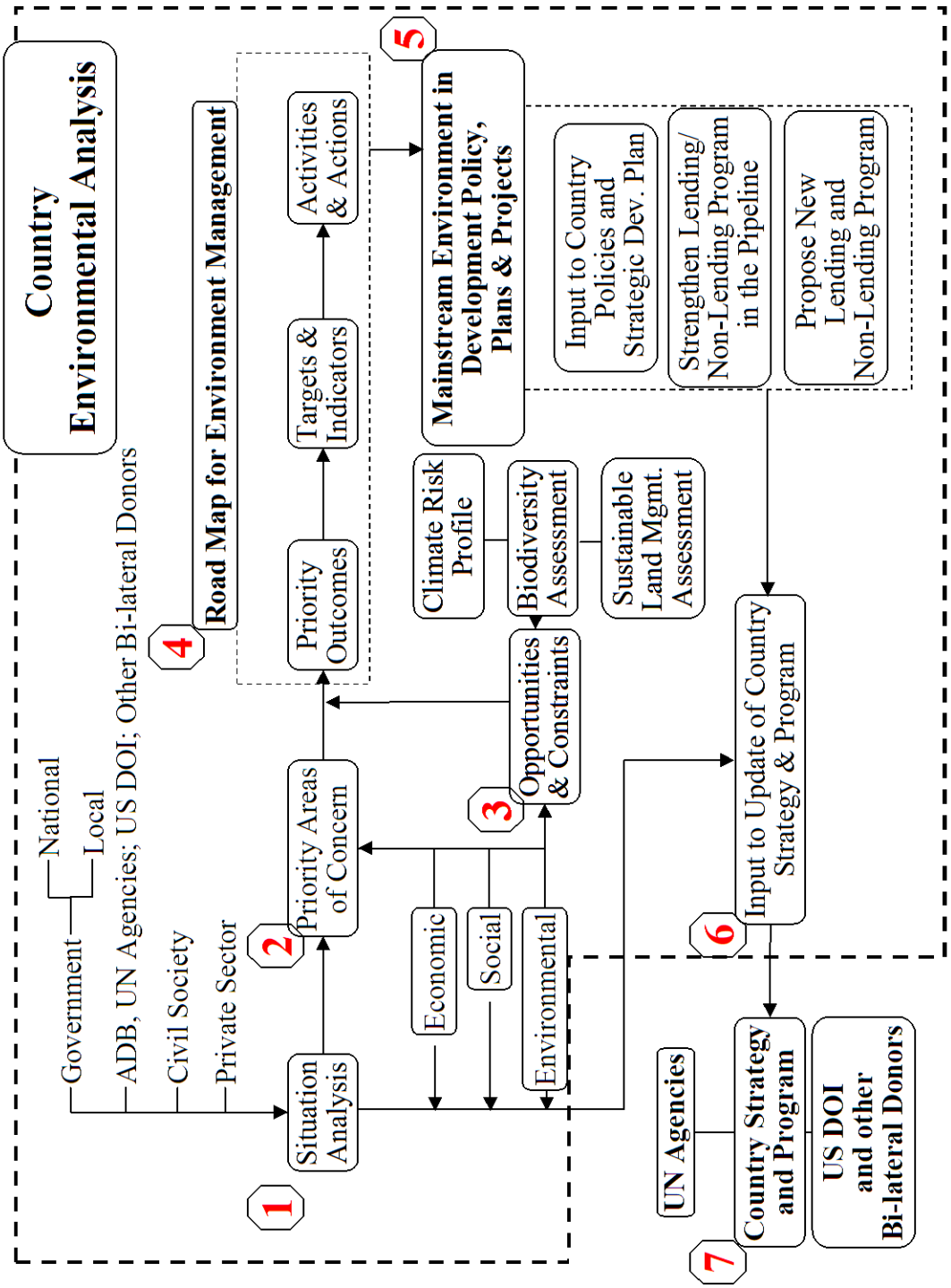


Figure 1. Process diagram for the country environmental analysis (CEA) in the FSM

during which meetings with over 110 stakeholders (individuals and groups) were conducted (see Appendix 2). The consultations began in Yap, followed by Chuuk, Kosrae and Pohnpei. In each state the stakeholders were from state and municipal governments, communities, the private sector and non-governmental organizations (NGOs). Consultations in each state concluded with a stakeholder dialogue, where the preliminary findings were presented and subsequently strengthened through discussion and sharing of additional information and insights. Lists of participants in the state-level stakeholder dialogues are provided in Appendix 3.

6. The extensive in-country consultations also included consultations with key national-level stakeholders, as well as organizing and hosting a one-day National Dialogue[2]. Over 35 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 national and local governments, NGOs, and the private sector. The consultations and National Dialogue helped to confirm the preliminary findings on key environmental and related issues, and facilitated a consensus on a proposed environmental road map, on priority areas for ADB interventions and national initiatives and on proposals for mainstreaming environment into the CSPU for the FSM.

7. A report on the National Dialogue is provided as Appendix 4. Participants in the National Dialogue, and other interested parties, were afforded the opportunity to provide further comment on both the report on the National Dialogue and on a draft of the present report.

II. BACKGROUND INFORMATION AND SITUATION ANALYSIS

A. Country Setting

8. The FSM is an independent, sovereign nation of approximately 607 small islands in the Western Pacific lying just above the equator about 4,000 km southwest of Hawaii and about 3,000 km north of eastern Australia, above Papua New Guinea (Figure 2). The federation is formed by the four states of Yap, Chuuk, Pohnpei, and Kosrae. The FSM's total land area is 702 km² and its exclusive economic zone (EEZ) covers over 2.5 million km². The land elevation ranges from sea level to the highest elevation of about 760 m. Each of the four states is centered on one or more main high islands, and all but Kosrae include numerous outlying atolls. The FSM comprises part of what was generally known as the Eastern and Western Caroline Islands, thus making it the largest and most diverse part of the greater Micronesian region.

9. The tropical climate of FSM is due to its geographical location between 1.0-9.9ºN and 138.2-162.6ºE, and the strong influence of northeast trade winds, thus generating consistently warm temperatures. Trade winds prevail from December through April. Periods of weaker winds and doldrums occur from May to November. Rainfall is generally plentiful, especially on the high volcanic islands of Kosrae, Pohnpei and Chuck, and can exceed

[2] The National Dialogue was held on 11 August, 2005.

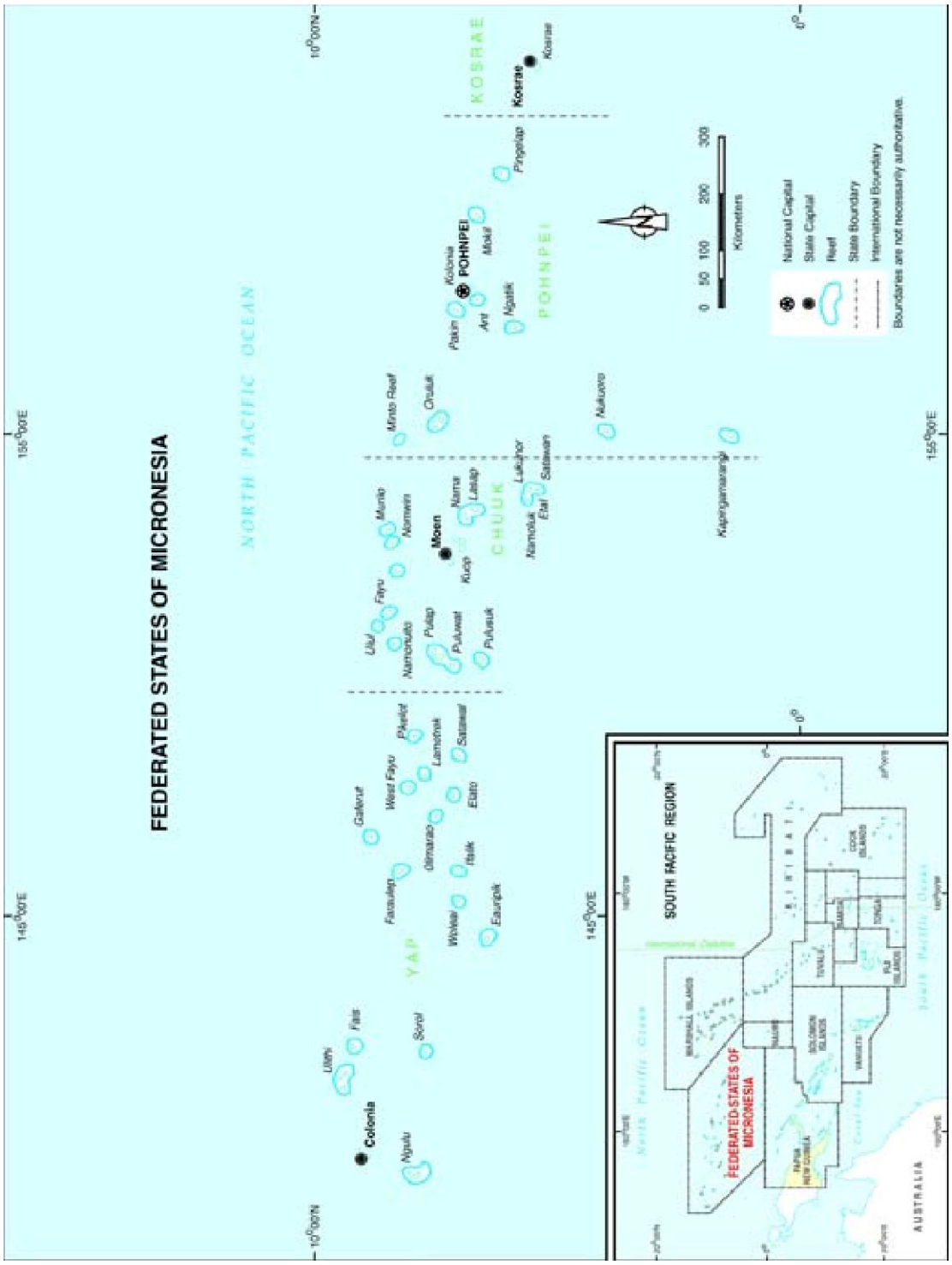
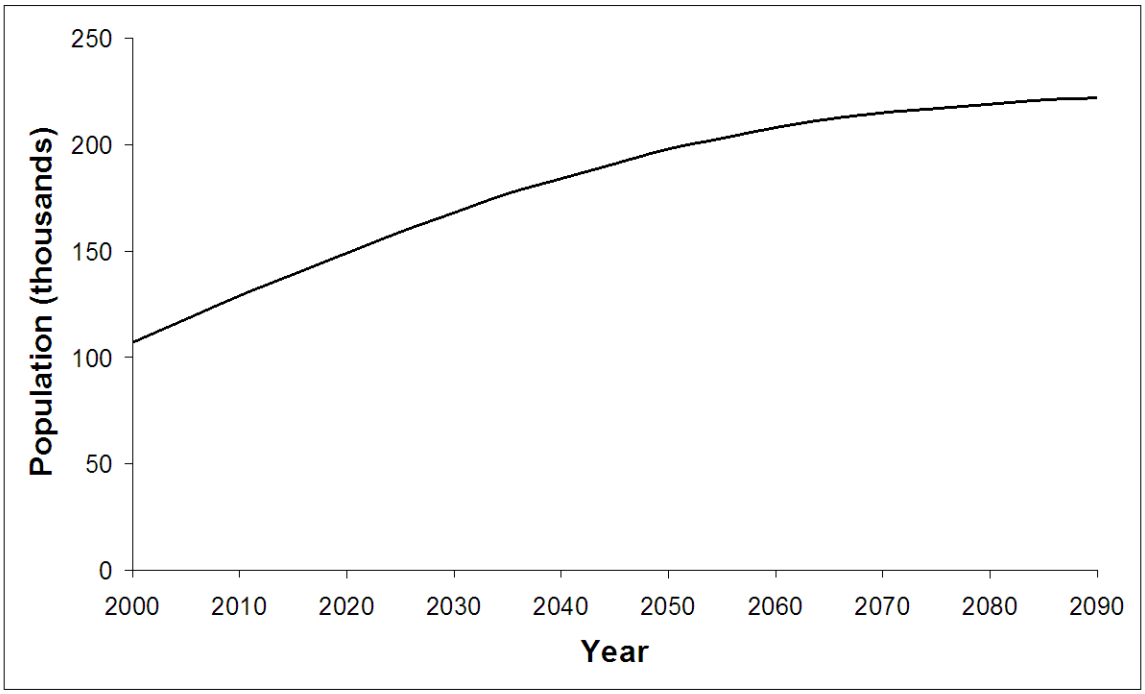


Figure 2. The Federated States of Micronesia

1,000 mm annually. The region is affected by storms and typhoons that are generally more severe in the western islands, as well as by periods of drought and excessive rainfall associated with "El Niño".

10. The total population of the FSM is 107,008, with the state populations as follows: Chuuk 53,595 (50%), Pohnpei 34,486 (32%), Yap 11,241 (11%), and Kosrae 7,686 (7%). The national population density is 395 persons per square mile - 244 in Yap, 1,094 in Chuuk, 261in Pohnpei and 179 in Kosrae. Projected population numbers are provided in Figure 3.

Figure 3. Population projection for the FSM



Source: Based on World Bank data.

11. Chuuk, formerly known as Truk, has a land area of 126.8 km² and includes five regions, namely Nomwunweito, Halls, Pattiw, Mortlocks and Chuuk Lagoon. Chuuk consists of eleven high mangrove-fringed islands in the Chuuk lagoon, and a series of fourteen outlying atolls and low islands surrounding the lagoon. Chuuk is the state with the largest population, with more than 40,000 people living on the larger islands in the main lagoon. Chuuk lagoon is one of the world's best and most well known wreck diving sites, as there were many Japanese warships and aircraft sunk in the lagoon during World War II.

12. Kosrae, formerly known as Kusaie, is only one high island of 109 km². It is the eastern-most island in the FSM, located approximately 600 km southeast of Pohnpei. Kosrae is roughly circular in shape, measuring about 16 km across at its widest point. Kosrae has the smallest population of the federation. Most people live along the coastal areas, primarily due to the inland basaltic mountains being very inaccessible. Kosrae is known for its citrus fruit production and legendary “Sleeping Lady” mountainous formation.

13. Pohnpei state, formerly known as Ponape, has 211 km² of land comprised of Pohnpei island and nine outlying atolls. It is the largest state in the federation. The national capital is located in Pohnpei, which is also the center of most economic activities in the FSM. It is sometimes referred as the "Garden Island of Micronesia" due to its lush tropical forests

and beautiful waterfalls and rivers. Pohnpei is famous for its Sokehs Rock and the ancient ruins of Nan Madol.

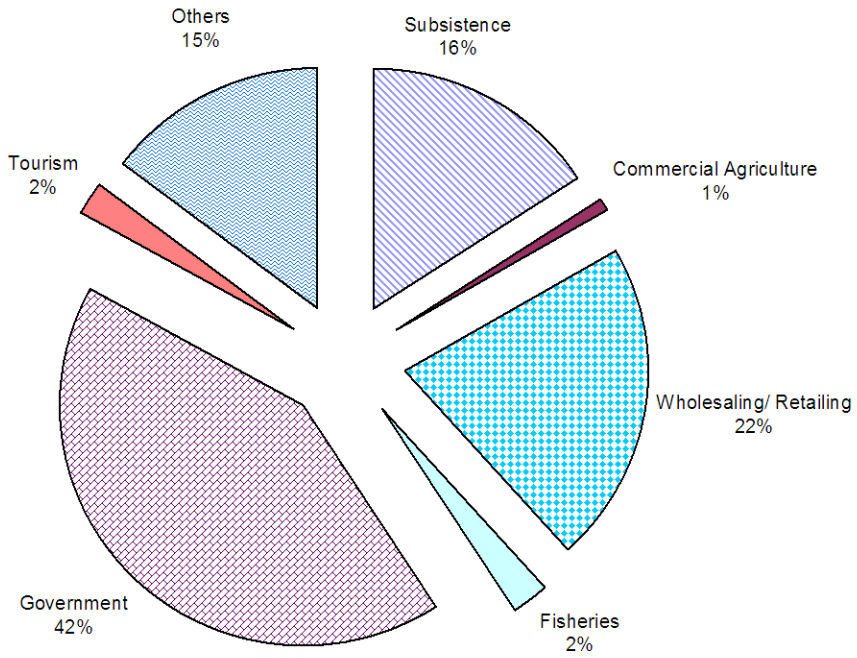
14. Yap State is the western-most state in the FSM, located about midway between Guam and Palau. Yap is made up of 4 relatively large islands, 7 small islands, and 134 atolls, with a total land area of about 71 km². Its borders extend over 1,200 km in an east-west direction. Yap is probably best known for its traditional stone money - huge disks of crystalline stone measuring up to two meters in diameter and weighing as much as four tons – which is the world's largest currency.

B. Role of Environment and Natural Resources in the Economy

15. FSM's environment and natural resources are considered to be the nation's living wealth. Maintaining the habitats and ecosystems that nurture these is vital for improving the quality of life of its people and sustaining the country's rich traditions.

16. The FSM economy is small and is largely dependent on aid provided through the Compact. In addition, it is dominated by a large public sector with a dependent non-traded goods sector providing products and services to government and its employees. The public sector contributes 42% to GDP, followed by wholesaling/retailing (22%), subsistence production (16%), and other services (20%) (Figure 4). Data are for 1996, the most recent year for which GDP data by sector are available.

Figure 4. FSM economic structure, 1996



17. Most noteworthy is the very small role currently played by the traded goods sectors - commercial agriculture (1%), fisheries (2%), and tourism (2%). However, these are the activities recognized as providing the long-run growth potential and comparative advantage of the FSM. These three sectors are highly dependent on the continued vitality and quality of the environment and natural resources. The sectors that are likely to offer the most potential for near- term income generation are fisheries and tourism. Agriculture has some potential, particularly for intra-FSM trade, but the small land area limits large-scale farming for export.

18. Out of some 29,000 employed persons in 2000, 15,000 persons (52%) were engaged in farming and fishing, of whom over 10,000 (70%) were involved in 'subsistence' (household consumption only) activities, not selling or intending to sell any of their produce. Almost 5,000 (30%) were classified as 'market-oriented' farmers and fishermen. These numbers illustrate the importance of the subsistence sector in the FSM and the need to include subsistence workers in the labor force definition to reflect their contribution to domestic production in the country.

19. **Agriculture.** Agriculture is the most important primary activity in the nation because of its contribution to employment, wage income, export earnings, and subsistence production. In-country agricultural activities provide over 60% of the food consumed, and employ almost 50% of the labor force on a full-time or seasonal basis. While FSM's climate is well suited for year-round agriculture, farmland is in short supply because of the mountainous terrain on FSM's larger islands. As revealed by a 1998 land use survey, most of the land in the FSM is in private ownership. This is especially the case in Chuuk and Yap (Table 1). The same survey found that 5% of agricultural land is arable, while 46% is used for permanent crops and 49% is used for other purposes.

Table 1

Land Tenure by State and for FSM
(area in km²)

Type	Chuuk	Kosrae	Pohnpei	Yap	Total
Private Land	127	34	231	117	509
Public Land	1	75	115	2	193
Total	128	109	346	119	702

Source: Economic Use of Land in the FSM, 1996

20. **Fisheries.** The ocean is arguably the country's most significant resource. Living marine resources are of great importance since they are a major source of subsistence, recreation, and commerce. The Micronesian culture is heavily influenced by the marine environment and resources. FSM's EEZ covers the world's major equatorial tuna migratory paths. This makes offshore tuna a primary fishery resource. The approximate market value of tuna harvested within the nation is about $200 million per year. FSM has in recent years earned $18–24 million annually in licensing fees paid by foreign vessels for tuna fishing within its EEZ. Average annual catch rates range between 80,000–250,000 metric tonnes The tuna fishery is composed of three gear types; purse seine, long line and pole and line,

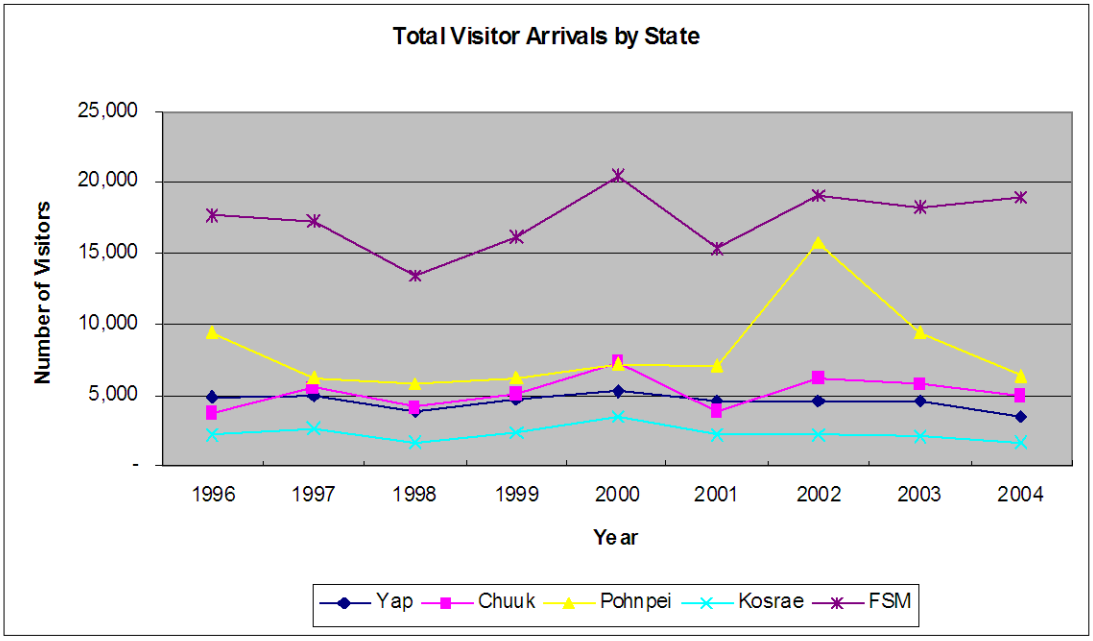
targeting three main species of tuna (skipjack *Katsuwonis pelamis*, yellowfin *Thunnus albacares* and bigeye *Thunnus obesus*).

21. Inshore reef resources are largely consumed locally and are an essential source of nutrition in the traditional Micronesian diet. All waters located within 22.2 km of land falls under the jurisdiction of the respective state governments. Within these waters all forms of foreign commercial fishing are excluded. These inshore resources are managed, conserved and developed by the respective state governments, in association with resource owners. Estimates of harvest vary widely, with up to 10,000 metric ton ($24 million) of coastal fish harvested annually by commercial and subsistence fishers. In 2002 reef fish, crabs, lobster and live clams valued at over $330,000 were exported. Assessments indicate that fish populations in reefs close to the larger, more urbanized areas are severely depleted. In some areas, reef destruction from over fishing, dynamiting and dredging is extensive.

22. **Tourism.** All of the FSM states have unique and internationally attractive characteristics that makes each a potentially world-class tourist destination. Dive tourist opportunities are unmatched anywhere else in the world. FSM can also be marketed as a sport-fishing destination, with the abundance of off-shore pelagic fish species. The lack of development in the FSM also presents opportunities in the rapidly growing ecotourism market.

23. Figure 5 shows visitor arrivals by state, while Table 2 provides details on citizenship of visitors to the FSM.

Figure 5. Visitor arrivals by state



Source: FY04 Compact Annual Report

Table 2

Visitor Numbers, by Citizenship

Selected Countries Holiday Arrivals By Citizenship									
Tourist & Visitors	1996	1997	1998	1999	2000	2001	2002	2003	2004
USA	5681	5959	4659	6000	6336	5620	6263	5436	4213
Japan	4937	3886	3084	3078	4566	2873	3650	3450	2685
Europe	941	960	940	1260	1322	1082	1301	1312	788
Australia	501	402	355	475	632	366	350	450	506
All others	2740	3249	1879	2210	2704	1902	2482	2291	4757
Total	14,800	14,456	10,917	13,023	15,560	11,843	14,046	12,939	12,949

Source: FY04 Compact Annual Report

C. Key Environmental Issues and Challenges

1. Key Environmental and Sustainability Indicators

24. FSM's natural resources and environment are generally in good condition, but significant and increasing over-exploitation and degradation is occurring in some areas, especially within and close to urban centers. By and large the information base and monitoring capabilities for natural resources are incomplete and dated, but there has been some recent improvement in the capacity to monitor water quality and other key environmental indicators. There is a need for a more coordinated and cooperative approach to environmental planning and management, especially within and between the three levels of government.

25. Appendix 5 provides quantitative information on key environmental, social and poverty indicators. While there have been some improvements, some indicators show a deteriorating situation. The absence of data highlights the point made above about inadequacies in the information base and monitoring capabilities.

2. Overview of Key Environmental and Related Concerns

26. The consultations and research revealed a large number of significant environmental and related concerns. These are listed in Table 3, which also indicates that most of the concerns are shared by stakeholders in all four states. The following paragraphs provide key information on each of the concerns.

27. **Food Security and Affordability.** The increasing reliance on imported foods is having major financial consequences (for governments as well as for families and individuals) as well as health consequences. The change is increasing vulnerability to natural disasters, while at the same time reducing opportunities for local enterprises. It is also contributing to a loss of traditional knowledge and practices related to food production and storage.

28. **Water Security, Quality and Affordability.** Only 31% of the rural population of the FSM has access to safe drinking water, while some 56% of all households use rainwater catchments. Many of these have been found to be contaminated. Severe shortages of drinking water are common during periods of drought. User pay policies

Table 3

Key Environmental and Related Concerns, By State

Key Concerns	Pohnpei	Kosrae	Chuuk	Yap
Food Security and Affordability	√	√	√	√
Water Security, Quality and Affordibility	√	√	√	√
Public Health & Sanitation	√	√	√	√
Integrated Solid Waste Management	√	√	√	√
Enhance Management (Land and Marine)	√	√	√	√
Energy Security and Affordability	√	√	√	√
Climate Change, Disasters, Coastal Erosion	√	√	√	√
Sustainable Tourism	√	√	√	√
Transportation Services – Air and Sea to Outer Is.	√	√	√	√
Public Buildings and Infrastructure		√	√	√
Dredging the Reef	√	√	√	√
Sediment Discharge to Reef and Lagoon	√	√	√	√
Land Use Planning and Zoning	√	√	√	√
Building Code		√	√	√
Increased Production and Use of Coconut Products		√	√	√
Development of Community Based Pearl Fishery			√	√
Strengthen Fisheries Sector	√	√	√	√
Cooperation and Coordination in Government	√	√	√	√

Source: Present Study

that impose charges for the supply of treated drinking water through centralized systems are adding to the hardship of many families, especially those in rural areas.

29. **Public Health and Sanitation.** Only 12% of rural households have improved sanitation, while 56% of all households have no toilet facilities. Tests of fresh and marine water quality often show high levels of contamination. In the FSM, there is a high incidence of water borne diseases.

30. **Integrated Solid Waste Management.** No state has a sanitary landfill and most communities lack access to any form of managed dump site. As a result, illegal dumping is a major issue. Littering is also a widespread problem. At one time or another, all states have had recycling schemes, notably for aluminum cans, but in all instances these have failed. Currently no state has a waste recycling scheme, but there are some attempts to sort and store scrap metal, for later export. The high proportion of biodegradable material in the waste stream should encourage composting, but this is not happening. Waste reduction initiatives are few in number, and ineffective

31. **Management of Land and Marine Areas.** Land and marine areas are managed under a complex mix of traditional and modern systems. Tenure issues related to the adjudication, survey, registration, and issuance of land titles affects the availability of land for development, as does the absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights.

32. **Energy Security and Affordability.** Nearly 70% of FSM homes have no electricity, while over 70% of homes use kerosene for cooking. Where it is available, the charges for electricity are high due to inefficient generation equipment and high, and rising, fuel prices. This contributes to hardship for individuals and families. In some states subsidies for electricity utilities divert funding from other priority uses. In some states renewable energy sources, notably solar, are being considered as an alternative to fossil fuels as well as an opportunity to supply electricity to remote communities.

33. **Climate Change, Disasters and Coastal Erosion.** As noted in Appendix 1, the FSM is at risk from climate extremes and variability, and these risks will be exacerbated by climate change. Within living memory several typhoons have caused extensive damage, most recently in Yap and Chuuk. FSM is already experiencing impacts consistent with climate change. These include accelerated coastal erosion, as well as increased flooding, droughts, and saltwater intrusion. Projected increases pose a major risk, especially for coastal communities. The states are committed to "climate proofing" infrastructure and community development projects, but there are inadequate resources to implement the policies. Levels of disaster preparedness are generally inadequate, though there has been some progress with preparation of draft state disaster preparedness plans. These have yet to be approved. No formal early warning system exists in any state. Dredging of reefs is common and is causing major impacts, including accelerated coastal erosion. While states have legislation to regulate dredging, there is no effective enforcement.

34. **Sustainable Tourism.** The natural environment, and historic sites, mean that FSM has high potential as a tourist destination, with the greatest opportunities being in small-scale sustainable tourism. There are currently only around 13,000 tourists and visitors to the FSM annually. The target is over 60,000 by 2030. The current annual occupancy rate for tourist accommodation is less that 20%. This needs to be over 65% for the industry to be economically viable. Several constraints need to be addressed, including inadequate transport services (both international and inter-island); health services not to the standard tourists require; poor quality of drinking water in some areas; too much litter; difficult for private sector to access loans etc; land tenure issues, including fact that most historic sites are in private ownership; and the declining state of historic sites, both land and marine.

35. **Inter-island Transportation Services.** Transport services serve as the lifeline to the outer islands. The most common form of such transport is the government owned and operated ferry. In most cases, these ferries are difficult to maintain and expensive to operate. Large subsidies are usually required for both passenger and cargo charges. Most outer islands lack adequate dock facilities, and loading/unloading operations are generally time limited, time consuming and hazardous. Only a small number of the outer islands have airstrips. Those that have, suffer from inadequate maintenance of the airstrips, which increases aircraft maintenance costs and reduces capacity.

36. **Public Buildings and Infrastructure.** In general, there is inadequate funding for maintenance, repairs and capital improvements to public buildings and infrastructure. This situation is affecting the efficiency and effectiveness of government services, and is also a source of health and safety risks.

37. **Land Use Planning and Zoning.** These are major issues. Even in states that have such plans and zoning there are major constraints on implementation and compliance. This lack of planning and zoning is a constraint on development and on environmental management. For example, commercial cultivation of sakau (kava) in the upland forest of Pohnpei is a major reason why some two-thirds of the forest was lost in 20 years. A "Grow Low" education campaign is now teaching sustainable methods of lowland sakau cultivation.

38. **Production and Use of Coconut Products.** Copra has many uses, with the oil being used as a substitute for fossil fuels, for cooking, cosmetics and soap. The copra cake can be used as fertilizer and also, if of sufficient quality, for pig and chicken feed. Coconut shell can be converted to charcoal, for export. Coir fibers can be extracted from the coconut husk and used in the manufacture of geotextiles. The process waste can also be used as fuel for cooking and other fires, thereby reducing the pressure on vegetation that is providing coastal protection and other benefits.

39. **Community-based Pear Fishery.** There is increasing interest and activity in marine farming, including black-lipped pearl oysters. However, in Micronesia there is insufficient wild stock of pearl oysters to establish and maintain pearl farms. As a result, hatcheries are required. Pearl farming can involve whole communities and families, providing direct benefit to local communities.

40. **Fisheries Sector.** The offshore fisheries is vulnerable to over-exploitation and inadequate enforcement of conditions imposed on foreign vessels licensed to fish in the EEZ. The offshore fishery is also susceptible to large interannual variations in fish stocks due to El Niño and other factors. Increased catches in inshore areas for local consumption and export is placing major pressures on that resource, as are destructive fishing practices. There is an urgent need for resource and habitat assessments, to ensure sustainable operation of both the offshore and inshore fisheries.

41. **Cooperation and Coordination within and between the Three Levels of Government.** There is a need for long-term planning involving all levels of government, but particularly for state and municipal governments with respect to environmental and natural resource management. The coordination can be facilitated by tying development funding to agreed sustainable development priorities, and cooperation can be assisted through longer-term capacity building.

3. Opportunities and Benefits of Environmental Improvements in the Key Economic Sectors

42. The economic sectors that are key to the sustainable development of the FSM are agriculture, fisheries and tourism. The following assessments are taken from the FSM Strategic Development Plan.

43. Appendix 6 provides, for each state, examples of the opportunities and benefits that could be generated by addressing each of the concerns listed in Table 3.

44. **Agriculture.** Though agriculture remains important to the economy, production is much lower today than in past times. Recent policies have tended to favor commercial development of agriculture, and have failed to account sufficiently for the subsistence and semi-subsistence tradition and its inherent characteristics. Over the years, agriculture's socio-cultural role as a safety net for the disadvantaged has greatly diminished. Commercial agriculture has had some successes—especially in niche export markets, e.g., kava (sakau), betel nut, cooked breadfruit, and bottled processed noni. The common feature of these products is that their markets were developed and are operated entirely by the private sector, with government support confined to quarantine services. This should be the model for the future. Products where government has been involved or is active have either largely failed (e.g., pepper, livestock) or continue to require subsidies (e.g., copra).

45. Arable land in FSM is generally sufficient to underpin food production needs. The exception is Chuuk, where a combination of high population and limited land means food production capacity is stretched under traditional farming practices. But improved land use planning and land management practices are required. For example, expansion of agriculture into upland areas is encroaching on upland forest, with the subsequent erosion causing siltation of reefs and damage to marine resources. On the outer islands alternative sources of livelihood to the traditional copra need to be sought, as villagers are being forced to rely more on sea foods while their ability to purchase imported food is diminishing. The important reality is that coconut provides the only cash crop option for the almost 20,000 people living in the outer islands. The coconut tree stock is the African Talls variety, which has an optimal 70 years productive lifespan, after which production continues but at a slowly declining rate. While the FSM tree stock is ageing, it is still productive and younger than

trees in other parts of the region (e.g., Tonga or Samoa). The prospects lie in the extraction of oil in each outer island. This will allow reduced freight costs, reduced losses and retention of by-products. There are still further opportunities for value adding to the coconut crop, by processing the oil into high-end products as has been successfully achieved elsewhere in the Pacific.

46. FSM agriculture will never develop on a foundation of large monoculture crops. The capacity to supply is too limited and the most farmers will not change their farming system. Also, exposure to one or two crops is risky. FSM agriculture can develop by accessing several small, diverse niche markets for different crops, recognizing that these markets will close off from time to time, but that others will become available. An example is the production of processed noni by an entrepreneur in Kosrae.

47. Given the rapid deterioration in environmental quality that can result from inappropriate production practices, FSM's limited land resources and fragile eco-systems require more than voluntary and ad hoc methods for addressing environmental protection. The causes and effects of environmental decline are often not immediately obvious or understood by resource users. Moreover, for those striving to make a living the issue may not be a priority. As a number of initiatives have demonstrated, a community-based approach to education and support services that focus on resource users is required, with emphasis on a proactive and integrated approach to addressing environmental sustainability. For example, when properly managed, swamp taro can last in the ground for at least 10 years. There is a need to revitalize the traditional techniques for protecting taro pits from sea flooding and salt toxicity and thus give islanders a viable, long-term alternative to imported foods.

48. **Fisheries.** Attempts to develop and sustain the small-scale commercial fishery, through projects such as the financing (or gratis provision) of fishing craft in Chuuk and Kosrae, as well as other schemes, have met with limited success. Problems with catch distribution and marketing are perennial constraints. Nevertheless a great deal of (mainly foreign) development funding has been directed towards the commercialization of inshore fisheries, and has included regional or village fisheries centers, infrastructure projects, and the provision of boats, motors and other equipment.

49. As a consequence of the gradual move to a commercial economy, nearshore marine and fisheries resources have increasingly become the target for commercial development. The introduction of new fishing methods and associated technology, and the establishment of fisheries infrastructure, have made commercial activity more prevalent and accessible, especially in proximity to urban development. Traditional communities have often yielded to unsustainable fishing methods to meet the need for immediate cash income. Increasing population over the past fifty years has placed much greater demands on the resource for income generating activity, food, housing and other coastal based developments. The competition is intensifying between resource uses and their users, and inappropriate fishing techniques have accelerated resource depletion.

50. The commercial export of reef fish has been discouraged in Yap and Kosrae and limited in Pohnpei. There are currently no controls on the export of reef fish from Chuuk. Perhaps with the exception of Chuuk, there is an increasing realization of reef fisheries depletion issues and the need for fisheries management. This is reflected in the formal establishment of 11 Marine Protected Areas (MPAs) in Pohnpei and well progressed plans for MPAs in Kosrae and Yap. Management arrangements appear to be most effective in those states or areas where a community-based or participatory approach is used. This applies equally to the more traditional systems in place in Yap and in the outer-island areas of other states, as well as the more modern participatory approach. Attention needs to be directed to enforcing state-level fishery regulations. Currently, enforcement is impeded at

every step: there are not enough enforcement officers or patrols, enforcement officers often turn a blind eye to offenders because of family or personal connections, and on the rare occasions that cases are brought to court, they are often dismissed or dealt with lightly, providing no disincentive to the offender.

51. Increasingly the focus of effort in relation to coastal and nearshore resources is turning to resource management and issues relating to sustainability and the need to preserve fisheries for subsistence and community access. This is clearly exemplified in the work activities of state marine resource agencies and NGOs. The ease of access to the marine resources, and the opportunities for commercial exploitation, are two of the key factors influencing the need for coastal resource management in each state. Other important factors are population density, and the degree to which other developments are taking place in the coastal zone. Minimizing the negative consequences for coastal living marine resources of dredging and sand-mining, the construction of roads, wharves and buildings, disposal of solid waste and waste water, deforestation and agriculture development will bring large benefits. The impacts of coastal development in FSM are most pronounced in and adjacent to urban areas where population, infrastructure development and pollution are concentrated. This is where maximum effort must also be made to reduce commercial pressure on coastal fish stocks.

52. The main role of small-scale fisheries is likely to continue to be in providing subsistence protein, contributing to dietary health, and helping maintain rural lifestyles in the face of a tendency to urban drift or emigration. Artisanal fishing may be able to expand in some areas through local market development or by taking advantage of export opportunities to Guam and Saipan. Where marketing problems can be overcome, however, resource constraints will quickly limit commercial fishery expansion. One area of possible development potential is in linking the management of inshore resources to key activities in the tourism industry, based on sound environmental management. A pristine marine environment is one of the underpinning sales opportunities for tourism development. In some situations, there may be a greater potential benefit to be had from the closure or preservation of selected sites through the establishment of marine reserves, sanctuaries, or marine protected areas. For example, if key selected areas of coral biodiversity or fish abundance were reserved as dive sites and marketed accordingly, it may be that there would be greater overall community benefit generated from income generated by the dive industry.

53. There may also be scope to further develop coastal pelagic fisheries. Deployment of Fish Aggregating Devices (FAD's) in coastal areas has potential to divert fishing effort from nearshore and reef based fishing to targeting of tuna and other coastal pelagic species. The emphasis in this scenario would likely be on diverting fishing effort from heavily fished resources rather than increasing overall fishing effort.

54. Despite widespread investment and interest among both national and state governments in the commercial potential of various aquaculture pursuits, there has been very little commercial development. Traditional land tenure systems are a further impediment to the development of terrestrial aquaculture projects in some areas. Prospects for commercial activities have probably been overstated, and it seems unlikely that the sector will become a significant revenue earner for FSM, at least in the near future. However, there is still potential for subsistence and artisanal aquaculture activities to be successful, either in income generation or simply for food production. After at least 20 years of investment and technical support there is still not a single commercial aquaculture enterprise in FSM, and aquaculture activities have not yet had any demonstrable consequence in regard to resource conservation and management. Future development of aquaculture in the FSM will likely revolve around high-value export products such as pearls, aquarium life, sponges, and perhaps organisms with pharmaceutical properties. Given the high likelihood of continuing

support for aquaculture by FSM's development partners, it may be more appropriate for the government to consider channeling its own resources into other development or conservation activities with more tangible or immediate benefits.

55. The most significant problem with oceanic fisheries in FSM is the failure to date to fully realize the potential benefits associated with the exploitation of available resources. While FSM has enjoyed a reasonably consistent return from receipt of fisheries access fees, attempts to promote returns through infrastructure investment, transshipment, domestic fishing, value added processing, vessel servicing and employment have essentially failed to add significant value or return on investment. This is exemplified in the current non-operational or under-utilized status of infrastructure facilities across the states.

56. Development of the oceanic fisheries in FSM will have to overcome the following constraints: air freight capacity and availability and the economic limitations of restricted freight volumes due to aircraft and runway limitations; increases in the cost of air freight due to escalating fuel costs; a poor business environment and inadequate provision of services; government agencies with commercial involvement in the tuna industry detracting from the functioning of private sector tuna firms; requirements for local vessels fishing in FSM waters to undergo customs and immigration formalities and the high cost of these services; and the high cost of operation, including the costs of fuel and skilled labor; and the need to air freight many parts and supplies. The potential will not be realized until there is a commitment to a concerted strategy to deal with the issues and constraints to development. Priority steps are to remove government from the operation of business enterprise (not necessarily the ownership) and attract large scale investment partners.

57. **Tourism.** The FSM continues to under-perform as a tourism destination, both relative to global trends and to those in the Pacific islands. Even based on current hotel capacity, the FSM is far short of reaching the 42,000 visitors it requires to achieve a successful (65% occupancy) utilization of current hotel capacity. FSM has so far failed to break the mould and move forward to become an internationally "recognized" destination in the way other small island destinations have succeeded. The FSM appears to remain in limbo, with tourism affected by a "closed circle" in which it under-performs due to a lack of infrastructure, quality and promotion, providing a weak case for additional public or private investment in the sector, creating unfavorable word-of-mouth recommendations from those who do visit the FSM and thus perpetuating its underperformance.

58. The key issue for tourism in the FSM is to determine how best to break this circle - by investment, by promotion, by the creation of appropriate institutions, by stimulating private investment, by using public investment to leverage an acceleration of activity or by any other means. The FSM has much to offer the leisure tourist, and considerable development potential. This potential lies both on the main islands (and especially in Pohnpei and within the Chuuk lagoon), and also perhaps in the outer islands in the longer term. The FSM clearly offers a range of physical attractions, and especially a very high quality marine environment for divers and non-divers alike. Much of the interior of the main islands offers attractive possibilities for those interested in scenery, jungle, plant and birdlife. The absence of common tropical risks such as malaria and poisonous reptiles is an advantage. In addition, the traditional lifestyles, social structures and cultures of the FSM offer a range of interests to the visitor. The unspoilt nature of the FSM is attractive to tourism markets that are increasingly seeking undeveloped destinations.

59. The FSM primarily offers the potential for eco-tourism, cultural tourism, water-based tourism, diving and various special interests (e.g., birdwatching, social anthropology, traditional plant medicines). Sophisticated and experienced tourism markets are increasingly looking for something different, and especially for environments that are clean, pristine and unspoilt by overdevelopment. The FSM's very isolation and remoteness and the mainly high

quality physical environment that it offers have the capacity a priori to attract visitors with the above interests. The FSM offers one of the finest diving environments on earth, and already exploits this asset to some extent in leisure tourism markets. It also offers exceptional physical beauty in some of the islands, deep-rooted and unique social cultures, historical interests and an opportunity to relax far from the more pressured and troubled parts of the world.

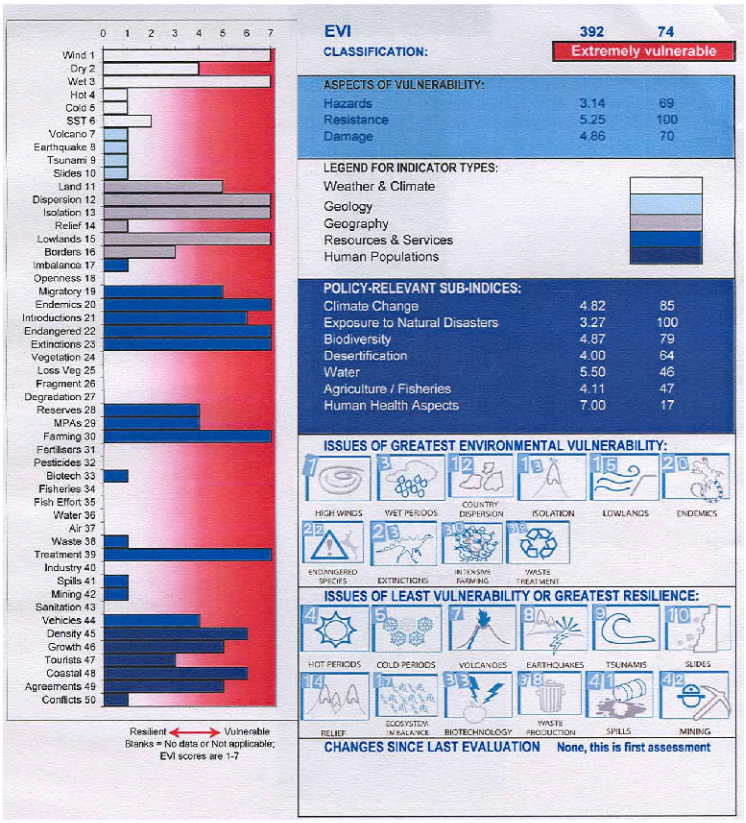
60. For tourism to play its full part in the development of the nation, a clear commitment to the sector needs to be made by all those involved - social and political leaders, traditional leaders, the general populace. Adequate resources - financial and personnel - need to be devoted to the sector's long term development. Extraordinary efforts need to be made to present and promote the nation in such a way that its attractiveness to visitors is enhanced in parallel with raising the living standards but safeguarding the lifestyles of its residents. Long term development of tourism in the FSM will require: influential tourism sector "champions" at the highest level of government to ensure that development initiatives are pursued effectively; concerted action on all fronts simultaneously - it will not be enough to take action in one area (e.g., product development), but fail to take action in another (e.g. marketing and promotion); real investment resources will be required over a sustained period, maining that a higher priority should be given to tourism than has been the case in the past; product development and diversification will be needed to attract visitors; an overall plan for these actions will be required; and in order to gain the desired economic benefits, a special effort will be required to develop genuine inter-sectoral linkages.

61. Tourism offers one of the best - arguably the best - opportunities to develop the FSM economy. Although it has its dangers in terms of potential environmental damage and an adverse impact on island traditions, tourism's natural labor intensity, ability to stimulate other sectors (e.g., agriculture, construction, local services), and to create revenue potential for the public sector through taxation, appears to meet some of the key development imperatives for the country. It is difficult to identify any other sector that offers the prospect of the same widespread potential benefits that a well-balanced tourism sector could contribute.

4. Constraints and Barriers to Improved Environmental Performance

62. Global environmental changes, such as climate change and sea-level rise, as well as frequent and severe typhoons, droughts, fires, are major constraints to environmental protection and conservation of nation’s natural resources (Figure 6).

Figure 6. FSM Environmental Vulnerability Index.



source: FSM Environmental Vulnerability Index Country Report.

63. The FSM National Biodiversity Strategy and Action Plan (NBSAP) identified key cross-cutting issues which hamper achievement of good environmental performance in the FSM:

- Rapidly increasing populations and more consumptive lifestyles;
- Inadequate scientific baseline biological information on biodiversity status;
- Insufficient aquatic and terrestrial conservation areas and management plans;
- Insufficient biodiversity legislation and lack of enforcement;
- Insufficient skilled/trained human resources;
- Insufficient coastal planning and zoning;
- Inadequate awareness of links between conservation and sustainable economic development; and
- Insufficient funding for conservation activities.

64. As the FSM society and economy become more "westernized" the traditional Micronesian environmental and resource management systems deteriorate, or even break down or are lost. These changes are especially driven by the transition from subsistence to a cash economy and the development of more centralized systems of governance and oversight. The nation's very high population growth rate, as well as the migration of people towards urban centers, have placed further pressure on the environment and natural resources.

65. Other barriers that can be identified include:

- The remoteness of the FSM and its geographically dispersed nature – personal travel is expensive, and it is expensive to ship goods to and from the FSM;
- Local markets for goods and services are dispersed over thousands of square kilometers of ocean, making them expensive to serve;
- The local market is small - there are no economies of scale to balance the high cost of serving such a limited market;
- The basic infrastructure is often either inadequate or unreliable, due to inconsistent maintenance - coping with inadequate infrastructure adds to the cost of doing business;
- Land tenure laws and foreign investment regulations impose additional costs and constraints, are time consuming, and may discourage investors; and
- Most importantly, entrepreneurship - the driving force behind economic development in a capitalist economy - is a relatively foreign concept in the FSM.

66. Special importance is attached to land in the FSM, both because of its short supply and its traditional significance. A major legal obstacle is the constitutional prohibition of foreign ownership of land (nationwide), of ownership by citizens from other FSM states (Kosrae and Pohnpei), and of any sale of land (Pohnpei). Restrictions on the length of leases in each state (25 to 50 years depending on the state, with provisions for renewal in most cases) may be regarded by investors as insufficient to realize an adequate or competitive return on an investment, especially in sectors such as tourism, which is in the early stages of development. The restriction of foreign ownership of land in the FSM limits the use of secured loans by the foreign commercial banks operating in the FSM, as they cannot arrange direct, mortgage-secured lending. The current state mortgage statutes (except Kosrae, which has only a deed of trust) lack an efficient mechanism of nonjudicial foreclosure, redemption, and other procedures for the commercial banks to take a security interest in the property, including land leasehold.

67. Leasing of private lands in particular can be time-consuming, due to fractional ownership and uncertain boundaries and titles. Many parcels of land are held by families or clans, which may have different factions, all of whom assert interest in the land.

68. Appendix 7 describes the constraints and barriers to improved environmental performance identified during the consultations within each state.

D. Governance, and Institutional, Policy, Legal and Budgetary Frameworks

1. Governance

69. The lands and ocean areas now constituting FSM were part of the United Nations Trust Territory of the Pacific Islands, administered by the United States of America (US). The independent, sovereign nation of the FSM, with a constitutional government, was formed in 1979. A Compact of Free Association (the Compact) was signed by the US and FSM in 1986, leading to the trusteeship termination by the United Nations (UN) in 1991. This Compact agreement established a continuous close relationship between the FSM and the US, through agreed mutual obligations and fiscal assistance.

70. **National Government.** The FSM Constitution provides for three separate branches of government at the national level - Executive, Legislative, and Judicial. This three-tier system, which was introduced (some would say imposed) during the US Trust Territory Administration (TTA), interfaces with traditional and church-based systems of leadership. The weaknesses of FSM, which is made up of four very different islands groups with their own cultures and languages, can be traced both to its federalism and to the large size, complexity and cost of government relative to the population it serves. Under the

Constitution, the states have broad jurisdiction while the powers of the national government are essentially limited to international relations, immigration, defense, taxation and to international trade and commerce. As of 2000 national government employees comprised 6.5% of the formal workforce of just under 14,000 persons.

71. The National Constitution contains a Declaration of Rights similar to the U.S. Bill of Rights, specifying basic standards of human and individual rights, including provisions recognizing and protecting traditional rights. The Legislative branch, the FSM Congress, is a unicameral law making body with fourteen Senators - one from each state elected for a four-year term, and ten who serve two-year terms, whose seats are apportioned by population. Currently Chuuk holds six seats, Pohnpei four, while Yap and Kosrae each have two seats.

72. The Executive Branch is led by the President and Vice President who are elected by the members of the FSM Congress, from among the four-year Senators. The vacant seats are then filled in special elections. The Executive Branch has the duty to execute the laws and administer national government services. The Judicial Branch, the FSM Supreme Court, is comprised of Justices who sit in trial and appellate divisions. Justices are nominated by the President for a lifetime appointment, and confirmed by the Congress. The main role of the judicial branch is to interpret the constitution and laws of the nation.

73. **State Governments.** The state governments under their constitutions are structurally similar to the national government. All four states having three co-equal branches of government but there are differences in detail in response to local factors. Each of the four states is a constitutional democracy with great independence to establish its own institutions, policies and operations, including Governor and a state legislature with a specified number of senators. The states, which enjoy considerable financial autonomy, are responsible for provision of most services, including those related to health, education, agriculture, in-shore fisheries, drinking water, sanitation and solid waste.

74. The constitutions of all states allow for the establishment, financing and operations of municipal government, including municipal councils and courts. The municipality is also a legacy of the TTA, designed in part to foster interaction between the state government, the traditional leaders and their communities. Practically, creation of municipal governments duplicated other forms of assembly that brought the regions and the villages together as needed, to discuss and resolve issues. Municipal government has been less successful than traditional systems of local governance, in part due to the municipal boundaries not always coinciding with the customary areas of responsibility of the traditional leaders.

75. Yap is unique in FSM in that its constitution establishes the Council of Pilung (COP) for the traditional leaders from the main islands and the Council of Tamol (COT) for the traditional leaders from the outer islands. The original intent was for the Councils to comprise one senior traditional leader from each of the municipalities. While this is still the case for the COT, the COP has evolved such that many of the representatives are not themselves a traditional leader, but are chosen from the municipality to represent the community. Some of the representatives may even have weak regard for the authority or value of the traditional system.

76. All four states' executive branches are under the direction of an elected Governor and Lieutenant Governor whose primary duties are executing the laws and administering state government services. The four State Legislatures are the state law making power. Chuuk State Legislature consists of two houses, the Senate and the House of Representatives. The Chuuk Senate consists of 10 members, with the President of the Senate as its highest officer. The Chuuk House of Representatives consists of 28 members, with the Speaker as its highest officer. The Kosrae unicameral Legislature is composed of fourteen senators who are elected by the voters of the four electoral districts. The Pohnpei

Legislature is composed of 23 senators who are elected by the voters of the 11 electoral municipalities. The Yap Legislature is composed of ten members, elected by the qualified voters of their respective election districts.

77. The four State Supreme Courts have constitutional jurisdiction to review the actions of any state administrative agency, and decide all relevant questions of law, interpret constitutional and statutory provisions and determine the meaning or applicability of the terms of an agency action. Each of the state constitutions contains provisions recognizing and preserving local custom and tradition. For example, the Pohnpei constitution upholds, respects, and protects the customs and traditions of its traditional kingdoms, while Yap's Council of Pilung and the Council of Tamol have equal status at the executive level, where traditional leaders perform functions concerning tradition and custom.

78. The four states are key players in environmental and resource management as well as in delivery of services to individuals, households and communities. They also play an important role in providing a sound enabling environment for the operation of the private sector. Thus the emphasis on public sector reform needs to be shifted to the state level, as efforts to improve efficiency, effectiveness, and accountability in government will have greatest effect if focused at that level. Adequate capacity to sustain such efforts needs to be built.

79. The ability of state governments to fulfill these resource management and environmental protection responsibilities has generally decreased since the step down of funds for the first Compact. There is no shortage of relevant laws, but the political will is not always present to enforce the laws. With flat or declining economies, state governments have redoubled their efforts to develop economic infrastructure and opportunities, often with little regard for the environment. This has led to a refocus of government departments and resource management staff on economic development, as well as serious cutbacks in staff numbers and training opportunities, which have led to low morale within government resource management/environment departments and a loss of confidence in the agencies by the communities they serve. The recognition of environmental protection and sustainable resource management as a priority for state governments needs to be encouraged through various approaches such as long-term planning, tying development funding to sustainable development priorities, and long-term capacity building.

80. **Municipal Governments.** Municipal governments are the mirror image of their state counterparts, but play an important communal-bridging role to the village level by keeping the local communities current and in harmony with technical and economic changes. Heads of local government are mostly traditional village chiefs or other prominent community figures. While municipal governments have the potential to serve as the front-line decision makers in sustainable resource management and economic development matters, this potential is far from being realized. With assistance from the national and state governments, each municipality should be encouraged to develop a long-term sustainable development plan. All funding from higher levels of government should focus on implementation of these plans.

81. **Traditional Systems.** Traditional, social and cultural institutions are still very strong in Micronesia. Micronesian society is based on the extended family, which is responsible for the welfare of family members, especially in relation to customary family land. Local custom, going back centuries, plays an important role in the economic and social debate and the organization of government services. The tenure systems for land and marine areas differ between states (Table 4). In Kosrae and Pohnpei, land is privately and state owned, while aquatic areas are managed by the state as public trusts. In Chuuk, most land and aquatic areas are privately owned and acquired through inheritance, gift, or recently, by purchase.

In Yap, almost all land and aquatic areas are owned or managed by individual estates and usage is subject to traditional control. In all states land can be sold only to FSM citizens.

Table 4

Summary of Land and Marine Tenure in the FSM States

State	Terrestrial tenure	Marine tenure
Chuuk	All land is privately owned	Mangrove forests and inshore marine areas are privately-owned or controlled by communities, while outer reef and open lagoon areas are public property
Kosrae	Previously, all lands above 100 meters (Japanese line) were considered public watershed forest reserve, but 1996 Constitutional amendment returned all land to private owners	Mangroves and lagoon "below the high tide mark" are considered public lands
Pohnpei	Nearly 50% of the island, including most of the mountainous interior and large coastal swamps are considered public lands	Mangroves and lagoon "below the high tide mark" are considered public lands
Yap	All land is privately or clan owned	Mangrove and lagoon areas are village-owned and controlled

Source: FSM Strategic Development Plan 2004 – 2025.

82. Kosraean traditional culture was highly influenced by the missionaries in the mid-19th century. Currently, religious activities influence the Kosraean daily livelihood. Tradition recognizes the local chiefs as more important than elected political leaders. The chiefs reflect the opinion of the people and little can happen without their consent. Such attitudes also influence Pohnpeian, Chuukese, and Yapese cultures. Pohnpeian daily life includes a series of annual activities to honor the paramount chiefs under the traditional system. The majority of the Chuuk municipal mayors are the traditional leaders. The Yap Councils of Chiefs have the right to review and veto any legislation affecting traditional values and practices.

83. The chiefs themselves are not usually eager to be openly involved in politics. Otherwise, they would have to take the blame for water and power problems and all the other minor catastrophes that befall the island. The position of the chief requires that he distance himself to some extent from such mundane considerations.

84. As the modern political system developed, the power of elected officials increased. This was in large part due to the increased powers of these officials and the access they enjoyed to government funding. Since then, modern and traditional leaders seem to have staked out separate spheres of influence, with traditional chiefs retreating to the domain of customary rule and elected leaders becoming the major agents in development programs and the like. But these areas are by no means entirely distinct; there is sometimes much overlapping of powers. Only in Kosrae have traditional leaders faded entirely from the scene, but this happened in the last century and was in large part due to the major depopulation that wiped out the early social system as it destroyed ninety percent of the people. To all appearances, the chiefly systems in other places have an astonishing resilience.

85. While the traditional systems have survived many of the challenges coming from the more modern systems of governance, their integrity and effectiveness have been impaired. The struggle for recognition and survival have often resulted in adoption of competitive relationships with state and municipal governments, and even a total disregard of national

government. Even if today they are not adding much if any value to the quality of life of individuals and communities, traditional systems can place an added social and financial burden, such as the customary giving associated with festivals and other celebrations.

2. Institutional Framework

86. The institutional structure for environmental and natural resource management, including the supporting legislation and regulations, is complex given the mix of three levels of government as well as traditional systems. The principal government agencies and committees, and NGOs, are identified in Table 5. The table illustrates the intricacy of the institutional framework. The committees and councils were established primarily to improve coordination, and thus have cross-sectoral representation.

87. **Non-government Organizations.** NGOs focused on conservation and environmental protection are present or emerging in all four states and there is a trend toward integration of the efforts of these groups with traditional leadership and government agencies dealing with natural resources. There is also a distinct emerging trend of community-based organizations becoming involved in the various aspects of resource management. Over the last few years both national and state governments have made a substantial effort to more fully involve NGOs in policy development and projects, with NGO representatives being appointed to the President's Council on Environmental Management and Sustainable Development (SD Council), the Climate Change Country Team, and the NBSAP Task Force. The national government has also employed staff of NGOs to prepare environmental reports, including the Initial National Communication to the UNFCC, the NBSAP and the report to the World Summit on Sustainable Development. State governments are also attaching increasing importance to the views and expertise of NGOs and the private sector, such as through the Yap Stewardship Consortium and the Pohnpei Resource Management Committee. To further develop the FSM's conservation NGOs and improve NGO-government relations and coordination, The Nature Conservancy launched the Micronesia Leaders in Island Conservation (MLIC) network in 2002.

Table 5

National and State Government Agencies, Committees and NGOs Involved in Environmental and Natural Resource Management

	National Level	Yap State	Chuuk State	Pohnpei State	Kosrae State
Council and Committees	The President's Environmental Management and Sustainable Development Council	Environmental Stewardship Committee		Resource Management Committee	Resource Management Committees
Terrestrial Biodiversity	Department of Economic Affairs	Department of Resources and Development, Division of Agriculture and Forestry	Department of Agriculture	Department of Land and Natural Resources Bureau of Economic Affairs	Development Review Commission (KIRMA) Department of Land, Agriculture & Fisheries
Marine Biodiversity	Department of Economic Affairs	Department of Resources and Development, Marine Resources Management Division	Department of Marine Resources	Department of Land & Natural Resources Bureau of Economic Affairs	Development Review Commission Department of Land, Agriculture & Fisheries
Environmental Quality	Department of Health, Education and Social Affairs	Environmental Protection Agency	Environmental Protection Agency	Environmental Protection Agency	Development Review Commission
Non-government	Micronesian Island Conservation College of Micronesia USDA NRCS Office	Yap Community Action Program Yap Institute of Natural Sciences		The Nature Conservancy Conservation Society of Pohnpei	Kosrae Conservation & Safety Organization

3. Policy Framework

88. Over the past decade a series of reports have documented the nation's environmental status and strategies. The foremost report, the 1993 FSM National Environmental Management Strategy (NEMS), was the initial statement by the FSM on the environment. Implementation of the NEMS included establishing the President's Council on Environmental Management and Sustainable Development. A comparison of the findings and recommendations within the NEMS with those in more recent documents shows that they are still largely valid, suggesting that in reality little has been achieved over the decade. The major strategies of the NEMS were to integrate environmental considerations in economic development; improve environmental awareness and education; manage and protect natural resources; and improve waste management and pollution control. All are priority strategies today.

89. The Economic Summit process has contributed significantly to the development of a coherent economic strategy for the entire nation. The Summits are highly participatory, involving months of technical preparations in each state, with inputs from government, the private sector, NGOs, and the community at-large. The 1st FSM Economic Summit was held in November 1995, with follow-up Economic Summits in the four states. These resulted in significant improvements in economic management and adoption of an impressive policy reform agenda for the national and state governments. Partly as a result of that event, the difficult fiscal and economic reforms to adjust to the second Compact step down were implemented.

90. The 2nd FSM Economic Summit, in September 1999, was held at the sunset of a significant and painful reform period for the FSM. Although it also advanced the economic strategy of the nation, because of its timing the Summit produced positive, but less than substantial outcomes. Prior to 1999, environment was considered as a crosscutting sector. However, for the 1999 FSM Economic Summit environment was treated as a stand-alone sector. During the Summit representatives of state and national government, NGOs and community representatives developed an environment sector policy matrix that included the following policy elements: encourage states to establish and support a system of conservation areas where special measures are taken to conserve biological integrity and biodiversity; create sustainable financing mechanisms for environmental and sustainable resource initiatives; expand and promote environmental ethics; support the development of environmental NGOs and Community Based Organizations (CBOs); create a strong regulatory climate when and where appropriate; improve cooperation and coordination between different levels of government; and develop technical support for existing and future environmental programs.

91. In early 2003 FSM began a process that resulted in a Strategic Development Plan (SDP). This outlines the broad economic strategy and sectoral development policies for the FSM. In addition to being the primary national economic planning mechanism of the country, the SDP is also a requirement under the Amended Compact of Free Association with the United States. That agreement requires the FSM to prepare and maintain a strategic multi-year rolling development plan that is updated through the annual budget process. The SDP also includes an Infrastructure Development Plan (IDP), FSM's long-term planning document for public investment in infrastructure.

92. A critical step in the preparation of the SDP and IDP was the convening of the 3rd Economic Summit from March 28 to April 2, 2004. Together the SDP and IDP provide a comprehensive economic strategy for the FSM at a critical time in its development as an increasingly self-reliant nation. The IDP identifies the infrastructure projects that are critical to the fulfillment of the sector strategies contained in the SDP. While the IDP covers a 20-year period, both the priorities and the specific projects in each sector will be updated

through the annual budget process. Although the IDP is also a requirement of the Compact, the plan is comprehensive and anticipates funding of projects from the FSM's own revenues, from its bi-lateral partners, from the international financial institutions and from other development partners.

93. At a multi-sector national assessment workshop held in conjunction with preparations for the World Summit on Sustainable Development several guiding principles for the sustainable development of the FSM were formulated. The principles, which provide the basis for FSM's future commitments to achieving sustainable development, include: sovereign rights - the people of the FSM hold the sovereign rights over their natural resources; good governance and leadership - the national and state governments actively promote sustainable development with appropriate levels of transparency, accountability and strengthen legislation and policies that are proactive and responsive; community-based approach - the community is the basic management unit for sustainable development within the FSM, and communities have the right and responsibility to manage and sustainably develop their resources for their benefit and that of future generations; nation partnerships – improve and encourage partnerships at all levels of government, with the private sector, NGOs and civil society to be actively responsible for sustainable development; traditional heritage - build upon and utilize the rich traditional knowledge and experience of our ancestors to devise and implement strategies for the sustainable development and stewardship of the nation's resources; ecological integrity - maintain and improve the diversity and quality of our ecosystems, conserving and enhancing our ecosystems' capacity to adapt to change whilst allowing all citizens to sustainably conserve and manage our resources.

94. In addition, several other documents have been produced from multi-sectoral meetings and workshops. These include the:

- FSM Initial National Communication to the United Nations Framework on the Convention on Climate Change (UNFCCC), 1997;
- Climate Change Action Plan, 1997;
- Addendum to the Initial National Communication to the UNFCCC;
- FSM National Biodiversity Strategy and Action Plan, 2002;
- Kosrae State Biodiversity Strategy and Action Plan, August 2004;
- Chuuk State Biodiversity Strategy and Action Plan, September 2004;
- Pohnpei State Biodiversity Strategy and Action Plan, September 2004; and
- Yap State Biodiversity Strategy and Action Plan, September 2004.

95. The state governments have also undertaken internal environmental reviews and prepared status reports, and are working in conjunction with all stakeholders to develop programs that manage the environment, based on sustainable protocols. The FSM has embarked on a program to conserve, preserve, manage and protect the ecosystems in order to maintain biodiversity as well as to allow sustainable development through implementation of conservation areas, wise land use and marine management plans, environmental community awareness and capacity building programs. These efforts are supported, in part, by a national conservation trust fund, the Micronesia Conservation Trust (MCT). The MCT acts as a permanent endowment that can generate investment income, providing stable sources of funding for activities that support conservation and effective management of natural resources, build consensus on conservation priorities, complement and support government funded programs as well as national sustainable development and conservation strategies.

4. Legal Framework

96. The legislative and institutional framework includes both national and individual state constitutions, with each of the four states functioning as semi-autonomous governments. This structure makes it a prerogative of each state to enact their own legislation in line with their powers as provided for in the FSM Constitution. This includes addressing all issues related to the management of the environment and natural resources, within the 12 mile limit. At state level there are also municipal ordinances and traditional precedents.

97. Over the past few years there have been many initiatives to improve the regulatory climate for environmental and natural resource management. For example, KIRMA has prepared a Land Use Plan using a highly participatory process. The Plan includes regulations protecting the use of natural resources and thus assists decision making concerning environmental impact statements and overall assessments of development proposals and permit applications. Pohnpei has pioneered a joint law enforcement agreement with the state's municipal governments to allow them authority and provide support to enforce state laws, including those governing resource conservation. Pohnpei also hired several Marine Conservation Officers to enforce state laws, especially those pertaining to the marine protected areas. The state also added a full-time environment and conservation lawyer in the Attorney General's (AG) Office, and promulgated rules and regulations for the 1999 Sanctuary Act and the 1987 Watershed Forest and Mangrove Reserve law, allowing the two acts to be fully enforced for the first time. The state is also using $250,000 from a fishing violation fee shared with the national government to further improve marine enforcement within the State's 12 mile zone. Chuuk State has increased surveillance for dynamite fishing, a major problem, and police are inspecting all fish for signs of dynamite damage before allowing fish to be exported. In Yap State, the Yap Environmental Stewardship Consortium (YESC) introduced legislation to incorporate environment and community input into the development review process and other improvements to existing legislation that is currently awaiting action by the Yap Legislature.

98. Even where laws and regulations have been passed, their effectiveness is impaired due to low public awareness and to poor enforcement, including a low success ratio for violators being prosecuted by the courts. All states as well as the national government have enacted legislation requiring environmental impact assessments (EIAs) for development activities. However, EIA legislation is only occasionally enforced, and in some cases in the past, especially for large government projects, has been waived or ignored. Moreover, the real costs of environmental impact are not being fully assessed for all projects, both private and public. Decisions should be made based on the current and future costs of the proposed development, including the costs of environmental and ecosystem degradation. All four state Environmental Protection Agency (EPA) Boards and staff, who currently review and make decisions based on EIAs, need to be fully trained in EIA procedures, environmental protection and sustainable development. Existing state development review processes (including foreign investment permitting) should be strengthened, to take into account environmental considerations, and community input, at all stages of project planning and implementation.

99. The national government has yet to update key legislation to remove references to the TTA and to clarify the authority of the national government to set minimum standards for air and water quality, sanitation, and toxic waste management, consistent with its authority to safeguard public health. The latter legislation would in turn bind the states to at least comply with such minimum standards. Neither has the national government passed legislation regulating bioprospecting (i.e. genetic resource access and benefit sharing), although progress has been made on drafting such legislation. Also, much remains to be done to assist states to develop legislation that ensures compliance with national obligations under the various environmental treaties and conventions the FSM has ratified in recent years.

5. Budgetary Framework

100. The Compact was recently renegotiated, and a second Compact was signed on 14 May 2003 (the first was signed in 1986). It provides less generous levels of funding, but still equivalent to US$1.8 billion over twenty years, including contributions to a trust fund which will replace direct financial assistance in 2024. As well as financial assistance, the Compact also grants FSM citizens access to US federal programs, and favorable provisions for traveling to, and working in, the US. Under the Amended Compact, the US will provide a $76 million sector grant and a $16 million contribution to the Compact Trust Fund during the first year. The annual sector grants under the Amended Compact will be administered through six sector grants for (i) education, (ii) health care, (iii) private sector development, (iv) environment, (v) capacity building in the public sector, and (vi) public infrastructure, with priorities in education and health care.

101. Further details on the budgetary framework can be found in Annex 8.

E. Nature and Coordination of External Assistance Related to the Environment

102. A total of approximately $824,000.00 was received under the AUSAID Micronesia Bilateral Program in FY2004, for projects related to border management, weather services, tide gauge repairs, a small grants scheme and for program administrative expenses. FSM received $240,000 from the World Health Organization (WHO) in FY2004 to support health services programs in areas including technical assistance, training, workshops, vital statistics, health surveys, food safety and sanitation, leprosy prevention and control and health promotion. FSM also received $120,000 from the United National Environmental Program (UNEP) to assist the FSM to develop its national bio-safety framework. FSM received $4,500,000 from the Government of Japan through its Overseas Development Assistance (ODA) to fund Phase I of a project to complete pavement of Pohnpei circumferential road. Phase II will be funded and implemented in FY2005.

F. Effectiveness of Environmental and Natural Resource Management in the FSM

103. Responsibility for environmental and natural resource management is shared between the national government and the individual FSM states. Under a tentative, unsigned Joint Opinion, state and national jurisdictions related to environmental and natural resource management have been clarified. Protection of ecosystems, such as reefs and mangrove ecosystems, is the responsibility of the states; agriculture, forestry and watershed protection in general are regulated by the states, although the national government has regulatory authority if any aspect of these areas has a clear effect on foreign or interstate commerce, or concerns public health. In essence, the opinion recognizes that the primary responsibility for land management, natural resource management and development planning rests with the four states. The states take the lead role in ensuring that development is avoided in vulnerable and other inappropriate areas and in ensuring that critical natural systems are protected. Each state has made efforts to control development and manage natural resources through the creation of plans, legislation and regulations. As needed and requested, the national government provides guidance and technical assistance to the states, on matters relating to planning, economic development, natural resources, fisheries, and the environment.

104. A number of trends in environmental and natural resource management can be discerned from the activities in the FSM. Public awareness and capacity building are gaining importance and are seen as critical factors for successful efforts to conserve or protect natural resources. The need for coordination of resource management efforts between the national government and national-level organizations and state governments is recognized

and is beginning to be addressed through activities such the national- and state-level economic summits.

105. Whether it is for the management of government designated protective areas, or of islands where traditional management is being enhanced through application of conservation science, communities are being increasingly involved in the management of the environmental and natural resources. The precedent and legacy of traditional management systems in the FSM are being combined with modern conservation (wise use) science, the result being an especially effective system of environmental and resource management. The states of Pohnpei and Kosrae, which have considerable areas of state-owned land and marine areas, have led the nation in establishing formal protected areas, with the full participation of communities.

106. Efforts to involve the community in natural resource management include the participatory rural appraisal component of Pohnpei's watershed program, a "grow low" campaign to encourage sakau (kava) producers to grow lowland sakau and thus spare forested uplands, community visioning, community awareness of the marine environment, training of community conservation officers, identification of spawning aggregation sites for groupers and community environmental awareness through the youth to youth program in Pohnpei. The State of Kosrae has developed a Kosrae Island Resource Management Program with participation of both government and all segments of the public, including youth, senior citizens, municipal leaders and church leaders. Creation of similar protected areas in Chuuk and Yap is complicated by land and marine tenure issues, but progress is being made. Since in these states the government does not own the resources that need to be protected, it cannot designate protected areas. At the same time, however, the existence of traditional controls may make it possible to revitalize and where necessary, revise and strengthen traditional management systems into especially cost effective and sustainable systems of resource stewardship. In Yap an Environmental Stewardship Committee has been formed by the Council of Chiefs to work cooperatively with the state government and the private sector to develop an integrated program involving Yap's communities.

107. FSM is committed to improving environmental legislation, strengthening institutions and increasing capacity building for those agencies (both governmental and non-governmental) responsible for the environment, natural resources and sustainable development. It is also committed to increased community awareness and overall increased actions and commitments for Agenda 21 implementation.

III. REVIEW OF COUNTRY STRATEGY AND PROGRAM UPDATE (CSPU)

108. FSM joined ADB in 1990. The CSPU was last updated in 2004 and covers the period 2005-2006[3]. The update focused on: (i) a strategic analysis of development trends and issues and implications for the country strategy and program; (ii) a review of progress with the existing country strategy; and (iii) revisions to lending and non-lending assistance.

A. ADB's Strategic Priorities for the FSM

109. ADB's operational strategy in the FSM is consistent with the current ADB strategy for the Pacific[4] and continues to support the Government's strategy of private-sector-led economic growth. The operational strategy covers three areas - good governance, inclusive social development, and pro-poor economic growth. These are consistent with the three pillars of ADB's poverty reduction strategy. The operational strategy is also in line with the

[3] ADB. 2004. Federated States of Micronesia Country Strategy and Program Update (2005-2006).

[4] ADB. 2000. A Pacific Strategy for the New Millennium. Manila.

Government's development strategy and the policies and outcomes of the 3rd Economic Summit held in March–April 2004.

110. For 2005–2006 ADB assistance is emphasizing the following themes: (i) promoting participation of civil society in development; (ii) addressing poverty issues more explicitly; and (iii) providing assistance with a long-term perspective. Such a focus is designed to increase the effectiveness of ADB assistance to FSM through broader community participation, enhanced government accountability, and sustainable long-term development for the poor.

B. Summary of Past and Current ADB Operations for FSM

111. Since FSM joined ADB in 1990 it has received eight loans totaling $75.136 million and 41 TAs totaling $22.678 million. Five loans of $40.036 million and five TAs of $1.993 million were active as of mid 2005. The nonlending program continues to be ADB's key modality of assistance to promote private sector development, and development effectiveness, in the FSM. The government has requested a break in loan project processing in order to focus on successful implementation of the ongoing projects. This is in view of the weak debt repayment capacity of the country and its institutional and human absorptive capacity constraints.

112. Table 6 shows cumulative ADB lending and technical assistance as of as of 30 April, 2005. Almost all loan funds come from the Asian Development Fund (ADF). Figure 7 shows ADB lending and disbursements to the FSM for 1999 to 2004.

113. Table 7 classifies the cumulative loans and technical assistance in terms of the current three ADB strategic priorities. It is clear that while almost all of the technical assistance is directed towards addressing the strategic priorities, the loans are not as highly focused, as measured in terms of either the number or value of the loans.

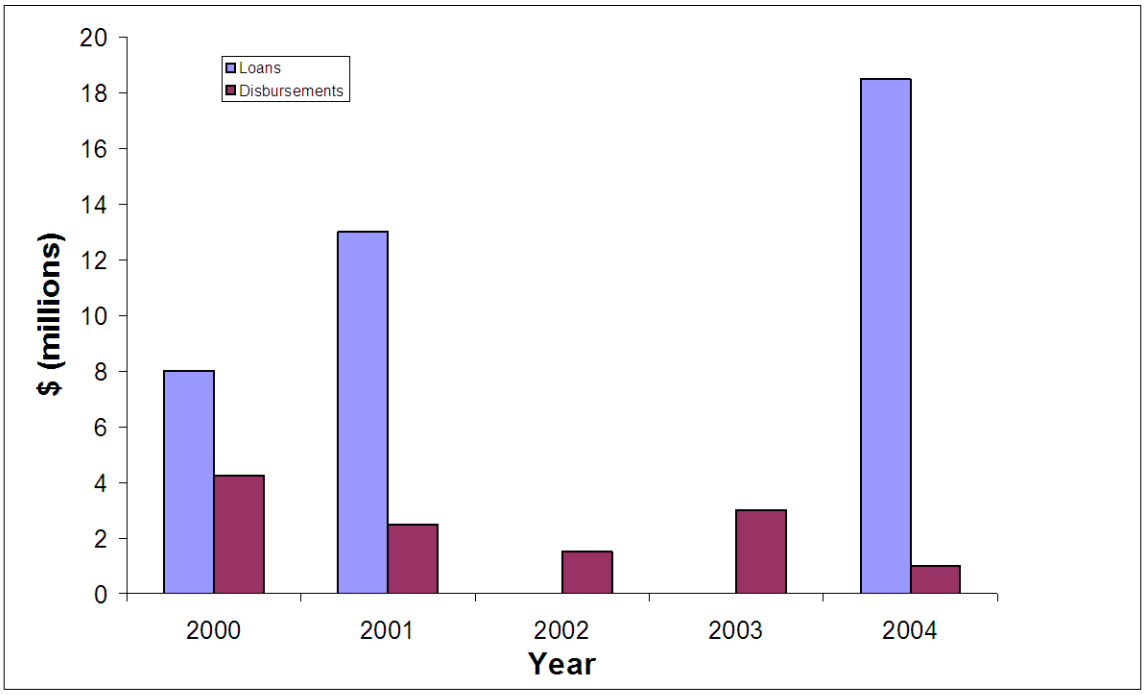
Table 6

Cumulative ADB Lending and Technical Assistance, by Sector

Sector	Number		$ million		Per Cent	
	Loan	TA	Loan	TA	Loan	TA
Agriculture and Natural Resources	1	8	6.500	3.799	8.65	16.75
Education		3		0.745		3.29
Energy		2		0.665		2.93
Finance		9		3.187		14.05
Law, Economic Management and Public Policy	2	13	31.017	12.245	41.28	54.00
Transport and Communication		1		0.000		0.00
Water Supply, Sanitation and Waste Water	1	2	10.600	0.837	14.11	3.69
Multi Sector	2	3	27.019	1.200	35.96	5.29
TOTAL	**6**	**41**	**75.136**	**22.678**	**100.00**	**100.00**

Source: ADB Database.

Figure 7. ADB lending and disbursements to the FSM, 1999 to 2004 ($million).



Source: ADB Database

Table 7

Cumulative ADB Lending and Technical Assistance, by Strategic Priority

Strategic Priority	Number		Value ($ million)	
	Loan	TA	Loan	TA
Promoting Participation of Civil Society in Development	1	9	13.017	2.565
Addressing Poverty Issues More Explicitly	1	1	8.019	0.150
Providing Assistance With a Long-Term Perspective	4	28	54.100	19.218
Others (Those Not Falling in Any of the Above Three Priorities)		3		0.745
TOTAL	**6**	**41**	**75.136**	**22.678**

Source: ADB Database.

114. In terms of this past assistance, four loans and ten TAs have been related to environmental and natural resources management (Table 8). Over the years ADB's operational strategy in the FSM has changed such that the assistance related directly to these two sectors has declined dramatically. Under the current operational strategy, assistance related to these sectors is now largely dependent on environmental and natural resource management considerations being mainstreamed into the development assistance.

Table 8

ADB Assistance Related to Environmental and Natural Resources Management

Assistance	Project Name	Amount ($)	Date Approved
Loan 1257	Fisheries Development	6,500,000	19 Oct 1993
Loan 1459	Water Supply and Sanitation	10,600,000	19 Sep 1996
Loan 2099	Omnibus Infrastructure Development	14,200,000	05 Nov 2004
Loan 2100	Omnibus Infrastructure Development	4,800,000	05 Nov 2004
TA 1392	Fisheries Development	100,000	16 Oct 1990
TA 1462	Agriculture Sector Development	450,000	09 Jan 1991
TA 1925	Watershed Management and Environment	585,000	06 Aug 1993
TA 1965	Marine Resources Management and Conservation	520,000	19 Oct 1993
TA 2137	Water Supply and Sewerage	250,000	08 Aug 1994
TA 2484	Strengthening of Agricultural Support Services	560,000	19 Dec 1995
TA 2551	National Fisheries Policy	100,000	29 Mar 1996
TA 2646	Capacity Building For Management and Operation of Water Supply and Sanitation Systems	587,000	19 Sep 1996
TA 2758	Improved Economic Use of Land	550,000	04 Feb 1997
TA 2832	Fisheries Management and Development	934,000	23 July 1997

115. Non-lending assistance programmed by ADB includes project preparatory as well as advisory capacity-building TAs. The 2005–2006 assistance pipeline for non-lending products and services comprises: (i) Implementation of Public Sector Capacity Building Roadmap; (ii)

Youth and Gender Development; (iii) Solid Waste Management; (iv) Education and Health Sector Strategy; and (v) Capacity Building in Solid Waste Management. The planned assistance related to solid waste management presents a rare opportunity for ADB assistance to address, in a direct manner, one of the key environmental concerns identified in the participatory consultations at state and local levels.

C. Assessment of Environmental Impacts of ADB's Assistance to FSM

116. In Table 9 the environment-related TAs and loans are classified in terms of: (i) their pre-implementation environmental rating; (ii) environmental impacts during implementation; and (iii) the sustained environmental and related impacts post implementation. Two important conclusions are immediately obvious. Firstly, there is excellent agreement between the anticipated and actual environmental impacts of project implementation. These are appropriately small and hence acceptable. It is contrary to ADB policy and FSM regulations for projects to have high environmental impacts during implementation. Importantly, this analysis ignores consequences for the global environment as a result of greenhouse gas emissions related to travel.

117. Secondly, the sustained environmental and related impacts post implementation are overwhelmingly beneficial. Initiatives that enhance water and sanitation services in the urban centers are clearly going to generate significant environmental and related benefits, well in excess of the adverse environmental impacts during project implementation. But projects in the tourism and health sectors have also generated significant environmental benefits, albeit less directly.

118. The following section summarizes the lessons learned from these experiences.

D. Lessons Learned from ADB Assistance

119. Stakeholders, especially those working at the state government level, considered that much of preparatory phase of ADB assistance is unnecessary and time consuming, with too much paperwork. They noted that in some cases there were as many as five preparatory missions for infrastructure projects that were considered to be very straightforward and conventional.

120. Consultation with key stakeholders was often considered to be inadequate, with some individuals claiming that those involved in project preparatory activities would consult only with those who have views similar to their own. ADB consultants were also urged to consult with each other – they often work separately, but on projects where there is large overlap. To facilitate better coordination between consultants, when working in-country each consultant should be provided with the work schedules of other ADB consultants.

121. If conditionalities and/or pre-requisites are tied to the TA or loan approval process, care needs to be taken to ensure they are appropriate. Stakeholders noted that at times unhelpful pre-conditions are placed on assistance. For example, it was considered inappropriate to link infrastructure assistance and government reform.

Table 9

Environmental Performance of Environment-related ADB Projects Implemented in the FSM

Project Name	Environmental Category[5]	Environmental Impact	
		Due to Implementation	Sustained, Post Implementation[6]
Fisheries Development	B	B	1
Water Supply and Sanitation	B	B	2
Omnibus Infrastructure Development	B	-	-
Omnibus Infrastructure Development	B	-	-
Fisheries Development	C	C	1
Agriculture Sector Development	C	C	1
Watershed Management and Environment	C	C	3
Marine Resources Management and Conservation	C	C	2
Water Supply and Sewerage	C	C	1
Strengthening of Agricultural Support Services	C	C	2
National Fisheries Policy	C	C	1
Capacity Building For Management and Operation of Water Supply and Sanitation Systems	C	C	1
Improved Economic Use of Land	C	C	0
Fisheries Management and Development	C	C	1

Source: ADB loan documentation and present study.

122. For projects implemented in the FSM there should be considerable sensitivity to the unique constitutional realities and peculiarities of the national and state relationships, and the political environment. These characteristics have the effect of restricting the ability of national agencies to effect change at the state level. Although there is the potential for improvement in this facet of FSM governance, relatively short and technically specialized TAs should not be expected to alter the constitutionally specified relationships between national and state governments.

123. The ADB priority for assistance is poverty alleviation, but user pays is also a requirement – these often conflict, especially in communities that are largely subsistence

[5] Available in advance only for loan projects; estimated retrospectively for TAs. Category A: Projects judged to have significant adverse environmental impacts (potential or actual); Category B: Projects judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for category A projects; Category C: Projects unlikely to have adverse environmental impacts.

[6] Environmental benefits post project implementation range between zero (Category 0) and substantial (Category 3).

based. Even when there is a commitment to provide, say, free water to poor villages, this leads to a loss of pride. Also other villages will argue for similar preferential treatment. Electricity may come with a "lifeline rate" – e.g., the first 5kW are free. But again there are social and cultural problems with this approach.

124. There is little opportunity for project designs to reflect guidance from people with local experience. Rather, there is often a requirement to hire international consultants. For one project being implemented in FSM a request to use technical experts from the Pacific region was declined. Instead a consultant from Asia was provided, but he had little understanding of the local operational context.

125. Given the pressures on government budgets, there is a need to build operation, maintenance and repair costs into project budgets. When implementing a project unidentified or unanticipated costs often arise – the inability to meet these costs frequently results in poor project outcomes. There is also a tendency to perpetuate the use of high cost US-based systems and technologies

126. ADB's projects should be consistent with individual state needs and performance, including their commitment to reform. In order to create a policy and legal environment that is more business friendly, reforms should precede ADB's investments in revenue-generating sectors. Weak local capacity should be taken into consideration in preparing projects.

127. The requirements for compliance with ADB safeguard policies should be made very clear to implementing agencies and project managers. Careful consideration needs to be given to the timing of compliance reviews.

128. Possibly the situation that raises the most serious concerns relates to the recent installation of 16 deep wells on Weno, to augment the public water supply. This project was funded by a loan from ADB. Three of the wells are now degraded due to salt water intrusion, one well is contaminated (possibly due to its location near a dump site), one well is pumping silty material and for two wells the yellow film that covers the filtration screen stops the water flow. As a result the pumps burn out. In contrast, the upgrading of water supplies on Yap Proper, also funded by ADB, is considered to be a success story.

129. A community participatory approach, when implemented by competent practitioners, can be highly successful. But such efforts should be complemented by raising awareness of political leaders and government planners to instill in them an equal sense of project "ownership, and to ensure that the impetus to foster a community participatory approach is sustained after the external assistance ceases.

130. Intermittent consultancy inputs allow time for step-by-step implementation. Capacity building assistance needs a longer time frame. There is a need to remain flexible in designing the implementation period and inputs of TAs that attempt to change traditional and social values.

IV. IMPEDIMENTS TO MAINSTREAMING THE ENVIRONMENT IN DEVELOPMENT PLANNING PROCESSES

131. Under the amended Compact, establishment of the environment as a sector has in many respects been contrary to the process of mainstreaming the environment in development planning processes. While the initiative has certainly raised the profile of environment management, it has also lent support to suggestions that responsibility for the administration and implementation of national government environmental programs be assigned to a single agency. For example, the first strategic goal for the environment sector in the SDP is to mainstream environmental considerations, including climate change, in national policy and planning as well as in all economic development activities. One of the

proposed activities to achieve the strategic goal is to consolidate national environmental programs under a central office/division with responsibilities including coordination of environment and natural resource conservation activities and assistance to states in addressing their environmental implementation needs. It is argued that combining all these functions in single national office or division would greatly facilitate coordination and improve assistance to the states.

132. Such an initiative is in fact likely to be contrary to mainstreaming the environment in development planning processes. There is no doubt that environmental and related concerns are not always fully represented in national policy and decision-making, and certainly achieving such outcomes requires more effective coordination and advocacy. But the optimal solution is unlikely to be establishment of a single environmental agency at national government level, thus taking away environmental responsibilities from other government agencies. Experience has shown that this encourages the latter to ignore environmental considerations, on the basis that these are being addressed by the central environment agency.

133. The most successful example of mainstreaming environmental considerations at national government level is the Environmental and Community Health Section of the Department of Health, Education and Social Affairs. It has done much to facilitate compliance with international environmental conventions, as well as coordinating capacity building and technical assistance for the states. Not only are the activities related to environmental and community health mainstreamed within a key government department, but they are also focused on fulfilling national responsibilities in relation to food import, export, distribution or processing for export or interstate distribution, management of persistent organic pollutants and to bioterrorism. The Section is also successful in adding value to activities being undertaken at state level in these same areas, as well as with respect to solid waste management, water supply and sanitation.

134. Replication of this approach in other key government departments (such as Transport, Communications and Infrastructure; Foreign Affairs; and Finance and Administration) and divisions (such as Education and Social Affairs), and by strengthening the Sustainable Development Unit of the Department of Economic Affairs, would likely be more productive in mainstreaming environmental considerations. Clearly the requirement for effective coordination would not, in itself, be resolved by such replication. The President's Council on Environmental Management and Sustainable Development was intended to have a significant coordination role, not only within national government but between it and the states and NGOs. But the Council meets irregularly and also suffers from a lack of credibility with the statesdue to communication and related problems.

135. Even where there is a clear policy to mainstream environmental considerations, as is the case for the IDP and for the health sector of the SDP, a lack of the necessary information, expertise and financial resources severely impedes implementation. For example, the IDP acknowledges the need to take into account climate-related risks in the design and implementation of infrastructure development projects. However, the budgets allocated to such projects have, as yet, not included provisions for such “climate proofing”. In this respect, the Government of Kosrae is committed to complying with the IDP policies, such when completing construction of the circumferential road. To date the government has held off implementing the project as the budget does not allow for the increased drainage works required to because of projected increases in rainfall during intense storms. Despite its best efforts, to date the state government has been unsuccessful in obtaining funding to cover the incremental cost of the project due to climate change.

136. The accessibility, relevance and quality of environmental information are key considerations in ensuring that development decisions deliver good environmental

outcomes. While there have been some improvements in environmental monitoring and reporting, further substantial progress is required. Until this happens, policy and decision makers and managers in key sectors such as health, education, social services, infrastructure and finance will lack the basis for ensuring that their decisions and actions take into account environmental and natural resources management imperatives. At another level analyses to show the importance of the environment and natural resources to the economy are hampered by the lack of timely and comprehensive financial reporting by the five governments. For example, the most recent year for which GDP data by sector are available is FY1996.

137. As noted above, special importance is attached to land in the FSM, both because of its short supply and its traditional significance. In many cases private ownership extends to the adjacent in-shore marine resources. Ownership considerations often result in the expedient decision making at best, or total inaction at worst, usually with adverse consequences for the environment and natural resources, and often for the public as well. Until there is greater acceptance of the right of government to regulate activities on private land, including controls on use and structures, environmental benefits will be severely constrained.

138. The overlap and lack of clarity in allocating responsibilities to the national and state governments for environmental and natural resource management has resulted in inconsistencies, and also in gaps in laws and regulations. This is a significant barrier to the successful mainstreaming of environmental considerations. So too is the fact that many government agencies tasked with resource conservation also have a mandate to gain economic benefits from these same resources. Complex, harmonious, but highly hierarchical traditional systems of Yap, Chuuk, and Pohnpei have been established over the centuries. While these systems are significant barriers to change, they also serve as a source of social and political stability. The prevailing social and economic values and attitudes of individuals and communities often mean that environmental quality, and the sustainable use of natural resources, are not given high priority. Politicians and other policy and decision makers reflect this when establishing the mandates of government agencies and allocating resources.

V. PRIORITIES FOR ACTION

A. Findings

139. In developing the 'priority areas' for the FSM, four considerations were taken into account: 1) identifying environmental constraints on development; 2) identifying new opportunities where the environment and natural resources can foster economic development and social progress; 3) recognizing that some major initiatives are already under way (e.g. public sector reform, enhancing the enabling environment for growth of the private sector and improvements in basic social services) - new priority areas should complement and not duplicate these programs; and 4) identifying strategies to alleviate poverty and hardship in the country.

140. Five 'priority areas' have been identified. Mainstreaming responses that address these priority areas will help ensure that the FSM progresses quickly towards achieving sustainable development. Table 10 demonstrates how the five priority areas elaborated below are related to the environmental concerns identified during consultations with state, municipal, private sector, NGO and community stakeholders.

Table 10

Relationship Between CEA Priority Areas and Key Environmental Concerns

CEA Priority Action Areas	Key Environmental Concerns Addressed
Right-sizing and Refocusing Government	▪ Cooperation and coordination in government ▪ Enhanced management of land and marine areas ▪ Public buildings and infrastructure ▪ Landuse planning and zoning; building code
Environment and Resource-based Small Business Enterprise Development	▪ Food Security and affordability ▪ Water security, quality and affordability ▪ Public health and sanitation ▪ Integrated solid waste management ▪ Energy security and affordability ▪ Enhanced management of land and marine areas ▪ Sustainable tourism ▪ Transportation services – air and sea to Outer Is. ▪ Increased production and use of coconut products ▪ Development of community-based pearl fishery ▪ Strengthen fisheries sector
Sustainable Community Development	▪ Food security and affordability ▪ Water security, quality and affordability ▪ Public health and sanitation ▪ Integrated solid waste management ▪ Energy security and affordability ▪ Enhanced management of land and marine areas ▪ Climate change, disasters and coastal erosion ▪ Sustainable tourism ▪ Dredging the reef ▪ Sediment discharge to reef and lagoon ▪ Landuse planning and zoning; building code ▪ Increased production and use of coconut products ▪ Development of community-based pearl fishery ▪ Strengthen fisheries sector
Risk and Hardship Alleviation	▪ Food security and affordability ▪ Water security, quality and affordability ▪ Public health and sanitation ▪ Integrated solid waste management ▪ Energy security and affordability ▪ Enhanced management of land and marine areas ▪ Climate change, disasters and coastal erosion ▪ Sustainable tourism ▪ Transportation services – air and sea to Outer Is. ▪ Public buildings and infrastructure ▪ Sediment discharge to reef and lagoon ▪ Landuse planning and zoning; building code ▪ Increased production and use of coconut products ▪ Strengthen fisheries sector
Improving Inter-island Sea and Air Transport Services	▪ Food security and affordability ▪ Sustainable tourism ▪ Transportation services – air and sea to Outer Is. ▪ Public buildings and infrastructure ▪ Strengthen fisheries sector

1. Right-sizing and Re-focusing Government

141. There is a widespread view that the FSM has too many policies and too many regulations – since in many cases people are simply not aware of them, compliance is poor. In addition, political will is not always present to enforce the laws. Even within government,

actions are often inconsistent with policies – for example, the tourism policy now promotes eco-tourism, but most initiatives are still oriented towards mass tourism. Many stakeholders expressed the opinion that there is no agreed development vision for FSM, jeopardizing development progress. This view is held despite the preparation of the SDP at the 3rd Economic Summit. The SDP is based on a high growth scenario, with fast tracked economic growth. But there is a general feeling that the choice of an economic growth scenario was never debated, and a consensus reached.

142. Another governance issue is the poor coordination between and within the three levels of government – all parts of government are working reasonably hard, but they are not working together. At national government level staff tend to overtrained, but underutilized. The opposite is often the case at the other two levels of government. The four states are key players in environmental management as well as in delivery of services to individuals, households and communities. They also play an important role in providing a sound enabling environment for the operation of the private sector. Thus the emphasis on public sector reform needs to be shifted to the state level, as efforts to improve efficiency, effectiveness, and accountability in government will have greatest effect if focused at that level. Adequate capacity to sustain such efforts needs to be built. To ensure that environmental protection and sustainable resource management are priorities for state governments, there is a requirement for long-term planning, tying development funding to sustainable development priorities, and long-term capacity building.

143. The change in government policy from public sector-led growth to private sector-led growth, initiated through the Public Sector Reform Program (PSRP), represents a fundamental shift in strategy for the FSM. Policy initiatives under way include restraining government employment and wages, reforming public enterprises, promoting foreign investment, liberalizing banking regulations, improving leaseholds, and improving business support. However, the government is also realizing the complexities of these initiatives and what is involved in the shift from government-led development to a private sector-led approach. Hurdles include the process of developing public understanding; refining policies and strategies; gaining acceptance; passing laws; and most importantly, effectively implementing agreed programs.

144. The formal private sector is small, inexperienced, locally focused, and relatively isolated from international opportunities. Economic constraints include an environment that is not conducive for business, poor public infrastructure, a poorly functioning collateral framework, poor skills, ineffective and often inconsistent investment policies for both local and foreign investors, and state-owned enterprises that provide unreliable, expensive services while crowding out private-sector initiatives. Both national and state governments in FSM have tried to address the problem of size by financing the start-up and operation of several large fishery (e.g. fresh tuna) and agricultural (e.g. coconut soap) ventures. But none of these operations has ever been turned into a self-supporting, profitable business. They exist more as government departments, run by government appointed managers and dependent on the government for some form of subsidy, than they do as independent businesses.

145. Government should focus on fostering the development of small businesses in the tradable sector rather than on establishing big projects such as a giant tourist hotel, a gambling casino, or an ambitious fishing project thought to be capable of making big taxable profits. Moreover, government involvement should be limited to providing essential support services, including production marketing and other economic data, technical support services, oversight and enforcement of standards and ethical business practices.

146. There is a piecemeal approach to implementation and enforcement. For example, the environmental impact statement (EIS) for the southern road upgrade in Yap stated that

60,000 cubic yards of aggregate would be dredged from the reef. In reality some 130,000 cubic yards were dredged. The real costs of environmental impact must be fully assessed for all projects, both private and public, and decisions made based on the current and future costs of the development, including the costs of environmental and ecosystem degradation. All four state EPA Boards and staff, who currently review and make decisions based on EIAs, need to be fully trained in EIA procedures, environmental protection and sustainable development. Existing state development review processes (including foreign investment permitting) should be strengthened, to take into account environmental considerations and community input at all stages of project planning and implementation.

147. Municipal governments are largely at the whim of national and state governments for funding. With the $8 million step-down in Compact funding in FY2004, as well as a $0.8 million annual decrement from FY07 onwards (the latter reduction serves to build a Trust Fund over a 20 year period), this situation will be exacerbated. In Pohnpei state there is a constitutional requirement that 30% of state revenue is transferred to municipalities, but this requirement is not being met. Hence municipal governments are not able to attract educated and qualified people. Moreover, in general there are substantial differences in the personalities of state and national government employees and those working at the municipal level. When training is provided, the most appropriate people may not be selected. Also, it is difficult to retain people after they have been trained. The result is a lack of capacity to develop plans and to prepare justifications for specific projects. Currently proposals prepared for the state government by municipalities are simplistic (e.g. propose construction of sea wall or road, when neither may be in the best interests of the local community) and poorly justified. If states could obtain higher quality guidance for development planning and projects, they would be in a better position to serve municipalities and communities.

148. The traditional system also plays a major role in environmental management, with leaders deciding when there should be a clean up of village, community lands and road verges. As a result, municipal government has often tended not to become involved in the management of the environment and natural resources. In Chuuk governance systems include a chief and council for each village, plus municipal governments headed by a mayor. Lack of integrity, honesty, accountability and transparency results in these systems being largely dysfunctional. Family and clan ties mean there is substantial nepotism. Younger voters are becoming increasingly disillusioned with the methods used to choose representatives at village and municipal levels.

149. Most states have provisions to delegate law enforcement to local municipalities, but there is little confidence that the municipal police officers have the capability to perform their duties to a sufficient standard, leading to liability issues. For this reason, and many others, many stakeholders consider that the third level of municipal government is not only dysfunctional but also superfluous. However, municipal governments serve as the front-line decision makers in sustainable resource management and economic development matters. The solution is not to do away with municipal government, but in fact bring the government closer to the people and the resources on which they rely, by having: (i) a national government that is highly focused on its niche responsibilities, and sized appropriately; (ii) state governments that ensure a favorable enabling environment, regulate and enforce and deliver essential services; and (iii) municipal governments with the capacity to plan and fulfill responsibilities related to environmental management and sustainable use of both terrestrial and marine resources.

150. With assistance from the national and state governments, each municipality should be encouraged to develop a long-term sustainable development plan. All funding from higher levels of government should focus on the implementation of these plans. An important early task would be to undertake an assessment of the needs at municipal government level, as a

precursor to preparing municipal development plans and budgets. It is also important to secure ongoing funding for municipal government as well as provide centralized training for municipal government staff – at present very little training is provided, increasing the dependency on state governments.

151. State and municipal governments will also need assistance to accommodate the transitions that come with the amended Compact. Recurrent operational expenditures will no longer be eligible for Compact funding and must be either cut or funded from domestic revenues. Public sector capacity building grants will undergo a five year phase out, from a requirement of $8.49 million in FY2005 to zero in FY2009. As a result, public works are now totally state funded, with little funding available for capital improvements. For example, in Kosrae 93% of the public works budget is for payroll costs, leaving only 7% for operations and maintenance. With flat or declining economies, state governments have redoubled their efforts to develop economic infrastructure and opportunities, often with little regard for the environment. This has led to a refocus of government departments and resource management staff on economic development, as well as serious cutbacks in staff numbers and training opportunities, which have led to low morale within government resource management/environment departments and a loss of confidence in the agencies by the communities they serve.

152. There is a need for better coordination among the four states and national government, including updating the division of roles and responsibilities between the national and state governments in order to address new challenges. A more productive and efficient public sector is a prerequisite to achieving improved environmental and related outcomes. For example, national and state government agencies with oversight for the environment sector are currently located across several departments and divisions. In some cases the host agency's mission is not in line with, or is actually contradictory to, environmental protection and sustainable resource management. This has led to an overall lack of coordination between environmental functions within and between levels of government, as well as relegating environmental management to a relatively low priority in national and state policy. Further, some important areas of resource management, e.g. wildlife management, are not represented at all in the current national and state government structure.

153. The responsibility for environmental health and sanitation, although vitally important to primary health care, is divided between each state's EPA, or its equivalent, and the state health department. Although there should be no conflict in responsibility between the two, in several states the EPA has taken their mandate to include home water and sanitation issues. Consequently, water and sanitation have often been inadequately managed by both agencies. Promotion of clean water, good hygiene and sanitation at the village and home level is an important aspect of primary health care. The health department needs to refocus its attention on this issue as an essential part of primary health care services.

154. A major issue facing FSM is how to address the challenges (e.g. a decline in Compact funding that represents some 4% of GDP) and opportunities (e.g. planned major infrastructure investments), but without degrading the environment, and/or being so preoccupied with balancing the budget and giving priority to voter favorites such as health and education that there is failure to exploit the economic and social development prospects presented by the abundant environmental and natural resource assets with which FSM is endowed. The solution is to ensure that environmental considerations, be they opportunities, constraints or bottom lines, are mainstreamed in development planning and processes.

155. As noted above, the most successful example of the national government facilitating compliance with international environmental conventions, ensuring effective border controls related to food safety, and coordinating capacity building and technical assistance for the states is provided by the Environmental and Community Health Section of the Department of

Health, Education and Social Affairs. The President's Council on Environmental Management and Sustainable Development should play a greater role in ensuring coordination and cooperation between and within the three levels of government, and enhance linkages with traditional leaders and NGOs.

2. Environment and Resource-based Small Business Enterprise Development

156. The agriculture, fisheries, and tourism sectors are recognized as providing the long-term growth potential and competitive advantage for the FSM. However, currently the largest single sector in the FSM economy is government services. Although the contribution of government services to GDP has fallen from 36 percent of GDP in FY1987 to 23 percent in FY2001, this is still high by international standards, including other Pacific countries. The second largest sector is wholesale and retail trade, which has grown largely in response to the spending power of salaried government workers. Subsistence production from agriculture and inshore fisheries is estimated to be the third largest sector. An estimated 51 percent of the market economy arises from wholesale and retail trade, while the two major export sectors, fisheries and tourism, account for only 11 percent. Commercial agriculture is even smaller, representing only 2 percent of the market economy.

157. Current commercial and business activity is dominated by informal and formal small- and medium-sized enterprises (SMEs). Apart from the government, and utilities corporations, few large businesses exist that can create major employment or single markets for other businesses. As such, most small businesses in the FSM can be characterized as having a small market share, and personalized owner operator or family management. Most are too small to gain access to commercial banking services. Excluding occasional sales from subsistence production, SMEs comprise more than 90% of the total number of enterprises, and employ about 9,500 of a potential labor force of 59,000. Hence, any meaningful and effective intervention for private sector development in the FSM will have to consider the important role SMEs play in the economic and social development of the country.

158. Environment and resource-based small business enterprise development should be based around a three-pronged approach: (i) to replace unhealthy and high cost imported foods with local foods that are both healthy and affordable to local consumers – this can be achieved by assisting local farmers and fishers to provide a consistent supply of high quality food products to local markets as well as to the tourism industry, including restaurants; emphasis should be on local varieties but including those items common on the tables of countries such as Japan and the US; (ii) further development of small-scale and low impact tourism enterprises, based in part on diving, eco-tourism and historic and cultural attractions; and (iii) private sector involvement in waste management, including waste collection, sorting, reuse, recycling and disposal. The benefit of this approach is that the necessary production and service systems can involve low technology, low start up costs, low capital, no debt and offer high margins in some instances. Relative to producing for export, the markets will be readily accessed and with simple distribution chains. In the near term demand should be relatively constant and in line with available and consistent levels of supply.

159. Major constraints on further development of the tourism sector include:

- transport – the national government controls negotiations, but is not always aware of the needs of the states and municipalities;
- health services – typically not up to the standards tourists require;
- quality of water, and in some cases a secure supply of water (e.g. during a drought)
- degraded landscapes, due to litter, abandoned cars and other waste; and
- weak private sector, unable to provide facilities and services tourists deem to be a priority.

160. Most historic sites of interest to tourists are on private land. In Kosrae the recently approved landuse plan has identified historic sites and provided some protection. But since most sites are on private land the level of protection is not always adequate. There is a need for negotiated co-management agreements between landowners, government and the private sector. But this process takes time and requires the involvement of visionaries and champions.

161. While Micronesians have traditionally fished and planted gardens they are not necessarily equally adept at performing these same activities commercially. The benefits from these subsistence activities are personal, social and immediate, qualities that more often than not are missing in most commercial situations. Commercialization changes an activity and in large part explains the absence of sustainable commercial agriculture, even on islands in FSM that have excellent soil and abundant rainfall. Currently more than 50% of food supplies are imported.

162. An awareness of the fundamental differences between the two economies is very important and should form, at least in part, the basis of assistance provided for business development and training in management strategies. There is also a need to provide guidance as how best to take into account the competing demands of family and business. Such assistance might best be delivered through the newly renamed small business development centers (SBDCs) that are being strengthened as part of the PSDP. These centers will provide a comprehensive small business support service, improved delivery of skills training, and a labor market information system. They will expand their outreach business extension services to the informal sector, outer islands, women and youth, and targeted priority sectors. Delivery of business training and advisory services will closely consider factors such as the current level of commercialization, business development, and educational attainment of beneficiaries. For these reasons the SBDCs would seem ideally suited to supporting environment and resource-based business enterprise development.

163. Most of the business development assistance in Micronesia has been directed at those who are not in business, but would like to be. Classes, workshops and loan programs have been funded by governments to assist potential entrepreneurs to start their own businesses. In comparison, little assistance has been provided to existing businesses to help them expand. A key element for this priority area for action is to assist successful small business operators to diversify into production of healthy and affordable local foods and/or into development of small-scale and low impact tourism enterprises.

164. An example of such diversification is provided by SEMO-Micronesia in Kosrae. This private sector enterprise was established six years ago, as a shipyard for ship repair and maintenance, when fish transhipment meant there was a demand for such services. But over time the demand declined, due in part to the government having vessels serviced outside FSM and to sub-standard maintenance of private vessels. In order to survive, and retain its experienced workforce, the company has diversified into fibreglass boat construction, prefabricated buildings, manufacture and sale of PVC window frames and the processing and marketing of noni.

165. Increasing focus is needed on enhancing the capacity of the subsistence and informal sectors to encourage "graduation" into the formal private sector, enabling the generation of employment opportunities. Experience shows that the informal sector is an important source of entrepreneurial talent, particularly of women. Market associations can facilitate this process. In Chuuk the main form of transport between islands in the lagoon is small boats with outboard motors. These have high operating costs given the price of fuel, and reliability is impacted by weather and related factors. Each farmer brings the produce to the markets on Weno. Often this is sold at prices that do not provide an adequate return. A market association could organize the collection of produce from farmers, or provide a

convenient collection point, with one boat then making the trip to Weno. Such a system has operated previously, but was subsequently discontinued.

3. Sustainable Community Development

166. At the National World Summit on Sustainable Development Workshop, held in 2002, the community was identified as the basic management unit for sustainable development within the FSM – communities have the right and responsibility to manage and sustainably develop their resources for their benefit, as well as the benefit of future generations. The strengthening of community collective ownership was seen as a prerequisite to communities being able to fulfill their responsibilities to foster sustainable development.

167. Water and sanitation are foundations of economic growth, social development and in some cases basic survival. The protection and conservation of the supply and quality of water is becoming an increasingly important issue in the more remote communities of FSM. Population growth and damage to river catchments as a result of deforestation, inappropriate agricultural activities and inadequate waste disposal are having an increasing impact on water supplies. Improvements in water resource management are fundamental and require a coordinated effort across many sectors including: improvements in watershed management; reductions in deforestation rates; raising public awareness of wise water use and management; and controls over agricultural activities and improvements in waste disposal, especially sewage disposal facilities.

168. In the FSM land and coastal resources are the basis for the majority of subsistence living and commercial production. High population growth rates and densities, replacement of traditional land and resource management systems by introduced agricultural systems leading to poor catchment management, over exploitation of natural resources, mining reefs, and other practices continue to place serious stress on land and coastal resources and the communities that depend on them. Monitoring of resources, habitats and ecosystems reveals major reductions in key species and in environmental and resource quality. Such trends are particularly serious on smaller islands, and especially atolls, due to their limited land and water resources, and sensitive biodiversity systems.

169. In many instances landowners feel free to do whatever they want, not realizing the implications of their actions. In this respect there is a somewhat different attitude to land and marine areas. People cultivate their individual areas land, and people are buried on the land. But some people still engage in destructive fishing practices. This in part reflects socio-economic problems such as unemployment. In light of the growing recognition of the adverse consequences of such practices, fish markets are refusing to trade in dynamited fish. People have been arrested when trying to sell such fish. Five years of monitoring of marine resources in Kosrae shows major reductions in key species. The considerable pressure on reef fisheries highlights the priority to protect reef sites where fish spawn. But such efforts to improve management are handicapped by a lack of information on fish habitats, stocks and harvesting data. In Kosrae there have been initiatives to divert fishers from reef to inshore, but so far the efforts have not been successful due to factors such as increased time and expense. Sustainable fisheries will include restrictions on the mesh size of nets, designation of no take areas and seasonal closures of other areas.

170. The diverse agroforests and related traditional agricultural systems of the FSM are possible models for sustainable agricultural development. These extensive “man-made” forests are complex and environmentally sustainable agriculture systems, the result of thousands of years of development. They mimic natural forest ecosystems and shelter extremely high species and cultivar diversity. Promotion of sustainable agroforestry practices and development can help ensure the longevity of traditionally important agriculture practices and culture methods as well as protecting the remaining forest systems and other

forms of biodiversity. There is a requirement to identify and make use of technologies, both hard and soft, that can assist in the conversion of land to agriculture, with minimum adverse consequences. People must also be trained in the use of such technologies

171. The land use plans currently being developed through community/government consultations in each state will have a direct and positive impact on the implementation of ecosystem management programs and assist in the preservation, conservation, and sustainable development of land resources. Effort should be made to improve the engagement by communities in preparation and implementation of such development plans. This will require capacity building at community and municipal levels. Importantly, any project that does not receive the blessing of traditional leaders is very likely to fail.

172. For water, sanitation, as well as energy, there are issues of high costs for installing, operating and maintaining centralized systems when much of the population is dispersed in remote areas. It is desirable that provision of such services reflects both the large distances between communities in remote areas as well as their limited ability to pay, given the predominantly subsistence nature of the economies in these areas. For example, properly maintained and regularly tested rainwater catchments may be more appropriate sources of drinking water, with other water requirements being met by way of untreated, community-based water systems. Water sealed toilets may also be more appropriate as they are less demanding on water resources. For remote communities properly sited and installed and well maintained septic tanks, or small scale treatment plants (less than 100 houses), are likely to be most appropriate and affordable. For community systems there will again be issues of who owns and who operates. If it is the public utility company, there would have to be a fee, due to user pays policies, raising questions of affordability.

173. The widely distributed and isolated islands and communities of the FSM has made the challenge of providing safe, reliable and cheap energy to all communities a very difficult and expensive task. Traditionally, energy requirements of the nation were limited and restricted to wood; wood products and other vegetable matter were used to meet household cooking needs. The utilization of wood from forests is a nation wide concern. Management plans are being developed that limit the area and amount of wood that can be cleared for such purposes. The islands of the FSM have abundant and consistently high levels of solar radiation, wind and water (high islands), which can be utilized to provide sustainable energy. Several outer atoll communities have developed small alternative power generation schemes utilizing solar energy and wind, whilst hydroelectricity has been developed in the high islands. The use of alternative sustainable energy systems is paramount for the development of the rural and remote communities.

174. The impact of pollution and the need for waste management programs in the past in the FSM were small as most waste products were biodegradable and populations were dispersed. However, recent increases in population densities and the importation of non-biodegradable materials and chemicals have brought with them ever-increasing pollution problems and the urgent need for correct collection, disposal and management of wastes. Public solid waste collection and disposal systems are still limited. Consequently, the disposal of household waste is poor, with large amounts of roadside litter and large numbers of informal garbage dumps. The effect of pollution on the terrestrial, marine and freshwater environment is a major concern for the sustainable development of the FSM. The nation's small land size, isolation and subsistence dependence on the environment greatly increases vulnerability to contamination by solid, liquid and toxic wastes and chemicals. Identifying and implementing community-based sustainable and environmentally sound waste management practices is a high priority. These will of necessity include waste reduction, sorting, reuse and recycling initiatives as well as appropriate disposal of the residual items in the waste stream.

175. Increasing pig production is a priority in all four states, with a move from subsistence to semi-commercial systems. Given that piggeries are a major contributor to environmental degradation, it is imperative that the environmental impacts of such plans be given careful consideration. There are a number of options to reduce such impacts, including use of a dry pig waste management system. But in some states current regulations require that a piggery has a septic tank system, thus limiting the opportunity to use innovative environmental technologies. Another constraint to increased pig production is a current shortage of local pig feed.

176. Coastal erosion is a major concern as rates are accelerating and some 80% of settlement is on the coast. Dredging of the reef for construction aggregates is a major contributing factor. Without intact stable shorelines, the integrity of local infrastructure such as roads, airports, buildings, and residences may be threatened. Furthermore, significant amounts of salt water may infiltrate the groundwater and degrade drinking water sources, wetlands, and agriculture (e.g. taro patches). Humans can play a positive role in preserving vegetation and coral reef communities to help maintain shoreline integrity. Intact native vegetation communities are ideal for stabilizing shorelines since native plants have evolved to survive in tropical environments, tolerating tropical heat, humidity, salt water, extreme sunlight, and storms. Native vegetation communities function as soil binders, maintaining coastal berms and forests. These communities are part of the dynamic coastal system, well adapted to conforming to shifting shorelines. In contrast, seawalls are static, immobile objects that do not conform to the advance and retreat of shorelines. Thus sea walls may become undermined in light of shifting shorelines, and no longer function. Furthermore, seawalls and other similar construction activities often disrupt or displace native vegetation communities.

177. Intact coral reef communities are also ideal for protecting shorelines. Coral reefs function as buffers, dispersing wave energy that would otherwise contribute to the erosion of coastal shorelines. However, coral reefs in much of the FSM are susceptible to direct destruction and sedimentation from poorly designed dredging and reclamation practices. Also, alien species, such as invasive macro algae attracted by high nutrient levels in coastal waters, may degrade reefs by growing over coral colonies and blocking sunlight. Other negative impacts that contribute to the degradation of coral reefs include pollution, anchor damage, and coral bleaching.

178. Even within FSM there are many, but as yet isolated, examples of initiatives and plans related to sustainable community development. These can serve as models, to be adapted prior to implementation by other communities. The Utwe-Walung Marine Park sanctuary covers 421 hectares and spans a large portion of the mangrove and reef area on the southern side of the island of Kosrae. No harvesting is allowed on the ocean-side strip of land of the mangrove channels and in Utwe Lagoon. A management plan for a biosphere reserve is being developed by the local community for approval by the Utwe municipal government, along with a state law to legally recognize and protect the biosphere reserve. Two enforcement officers will be employed and trained to enforce state law.

179. The municipality of U held an economic summit to identify solutions to various complex social and development issues and problems confronting the municipality and its people. The vision and goal for the summit were focused on three major areas: (i) cultural, social affairs and youth; (ii) resources and economic development; and (iii) health and education. As a result of extensive collaboration and discussions by summit participants, major issues were addressed and resolutions adopted, primarily in areas reflecting traditional culture, social affairs and youth, and resources and economic development. The result was a comprehensive policy framework for the municipality that will guide it in terms of current and future development. Various sources of development aid assistance allocated to

U municipality will implement this policy that was established pursuant to the laws and constitution of U municipality.

180. The community visioning process that underpinned preparation of the policy framework for U municipality was based on a shared vision for sustainable development and the creation of a sustainable economy. Sustainable approaches that preserve core resources and assets, while contributing to social, economic, and environmental justice, were given preference, along with community-based approaches that benefit all people through individual and community capacity building. New and innovative partnerships and collaborative problem-solving relationships were sought, in order to achieve systemic change to sustain adaptive efficiency through inclusive community-based governance, including the ability to innovate, continuously learn, and productively change.

181. Piherarh is one of the five inhabited islands in Namonweito Atoll, located in the northwest corner of Chuuk State. Piherarh is one of the more traditional islands in the state, primarily due to its relative isolation from Weno. The state capital is some 100 miles from Piherarh. The present population of the island is approximately 300. Two systems of governance exist side by side on Piherarh, in a very successful relationship. There are an elected mayor and municipal council as well as a traditional chief. The elected government handles interactions with state and national government agencies, including financial matters. However, the traditional chief has the final say when major island decisions are made. An infrastructure development master plan was formulated under the guidance of a steering committee representing all segments of the Piherarh community. The goal of the plan was improvement in the standard of living of the residents of Piherarh Island, through an orderly plan for development of the island for a 20 year period. Development projects for Piherarh included in the plan have the following major objectives: (i) raising the educational level of the population – a school building is an essential ingredient of the educational process; (ii) fulfillment of basic infrastructure needs, including power and water supply systems as well as solution of the twin problems of transportation and communication that face outer island residents; (iii) income generation, with careful consideration of the potential impact of economic development on both tradition and the environment; and (iv) improvement in housing, with every nuclear family having a permanent home - at present, married children (and *their* children) often live with their parents. Specific projects are designed to preserve valuable cultural practices and environmental resources.

182. Following successes in the pearl oyster industries of French Polynesia and the Cook Islands, there is increasing interest and activity in farming black-lipped pearl oysters in Micronesia. However, the islands in Micronesia do not have sufficient wild stocks of pearl oysters to establish and maintain pearl farms. Hatcheries are used to solve this problem. There are several farm operations and a hatchery in the Marshall Islands and one farm in operation in Nukuoro Atoll, Pohnpei and a hatchery and pilot and demonstration farms on the main island of Pohnpei. Yap state is planning a small scale hatchery and several farming areas. While the initial activities related to training and demonstration will be on Yap Proper, the project will be extended to neighboring islands with big lagoon areas that can accommodate large scale farming of pearl oysters. The intention is to involve whole communities and families, providing direct benefit to entire communities.

183. Currently in FSM there is chronic under utilization of copra, to the detriment of many communities, especially those on outer islands. Copra has many uses, with the oil being used as a substitute for fossil fuels, for cooking, cosmetics and soap. The copra cake can be used as fertilizer and also, if of sufficient quality, for pig and chicken feed. Coconut shell can be converted to charcoal, for export. Coir fibers can be extracted from the coconut husk. The process waste can also be used as fuel for cooking and other fires, thereby reducing pressure on vegetation that is providing coastal protection and other benefits. Thus the coconut is a local resource that continues to have potential for community development,

especially in the outer islands. For example, Yap has plans to develop coconut-based industries in communities, to enhance the production and trade in diversified and value-added products from coconuts through improved utilization of this abundant resource

4. Risk and Hardship Alleviation

184. Throughout their history, the lands which now make up the FSM have experienced emergencies and disasters. These have inflicted heavy costs in terms of human, material and physical resources, including damage to the environment. They represent a potentially significant obstacle to economic growth and development.

185. Disasters disrupt the daily life of the population and can result in a substantial loss of life and property and in social upheaval, leading to many persons becoming homeless, hungry and highly dependent on others for their survival. The situation is often further aggravated by the disruption, dislocation or loss of vital economic production and state infrastructure, including water and power supplies, and communication, transportation and other services.

186. The risk of disaster in the FSM is associated with a wide range of natural and other events, including the following:

- Tropical Cyclones (Typhoons and Tropical Storms)
- Fires
- Storm Surges
- Epidemics
- Floods
- Landslides
- Oil and Chemical Spills and other Environment Pollution
- Tsunamis
- Earthquakes
- Major Accidents
- Volcanic Eruptions
- Droughts
- Acts of Terrorism

187. Tropical cyclones, termed typhoons when at their most intense, comprise the most frequently occurring disaster category in the FSM. They are therefore considered the major threat to the islands and the people of FSM. Payments to FSM by the Federal Emergency Management Agency (FEMA) have been as much as $40 million, though lesser sums are usually involved. For example, on April 9th, 2004, Yap was struck by Typhoon Sudal, the most severe typhoon to affect Yap in at least 50 years. The spring tide peaked during the most intense time of the typhoon, resulting in a major storm surge. Surf at the reef edge was estimated to be 16 to 22 feet. Debris lines left by the storm surge were recorded at heights up to 11.5 feet. As a result many houses were destroyed, coastal taro patches were damaged by salt water, and debris and mangrove forests suffered die back. A survey of the 1700 homes on Yap Proper revealed that 700 had been destroyed while only 41 had no damage. All power lines and most water lines were damaged.

188. The likelihood of many disasters will increase as a consequence of climate change. The climate risk profile (Appendix 1) shows that rainfall, wind, temperature and sea level extremes will all increase as a result of global warming, as will the frequency of drought. Each state must work with the municipal governments to develop and implement long-term plans for dealing with the impacts of climate change, including the development of integrated environmental and resource management objectives that enhance resilience of coastal and other ecosystems to natural hazards. Structures, infrastructure, and ecosystems at risk to

climate change need to identified, and opportunities to protect critical assets should be explored. This includes "climate proofing" existing facilities and infrastructure. Considerations of climate change and sea-level rise should be integrated in strategic and operational (e.g. land use) planning for future development, including that related to structures, infrastructure, and social and other services. Environmental impact assessment procedures and building codes should also reflect the increasing risks to infrastructure and other assets as a result of climate change.

189. Disaster preparedness plans exist for all four states, though most are still in draft form waiting for government approval. The plans define the measures to be taken by state governments to ensure that effective disaster preparedness, response, relief and recovery are carried out. A national disaster mitigation preparedness plan, with state components, has been developed and is also awaiting government approval. Priority needs to be given to gaining formal endorsement of these plans; ensuring that all key players, and not just state governments, are fully aware of their obligations with respect to disaster preparedness, response, relief and recovery; and building capacity at all levels so that the plans can be implemented fully, but with an emphasis on preparedness. Currently FSM lacks a systematic and country-wide early warning system for natural and other disasters. At present radio broadcasts are used to alert and warn people about impending natural and other disasters, but radio stations are not on air for much of the night. There have been few public awareness programs to educate people on what to do during and after natural and other disasters. If early warning systems are adequate they can help minimize damage to the economy and the people.

190. Risks to human health are also a major concern in the FSM. Several environment-related diseases of public health importance are endemic to various states of the FSM, or have the potential to cause epidemic outbreaks given the required environmental circumstances. For these diseases there are existing hosts, intermediate hosts or vectors already present in the FSM that allow or predispose residents to disease transmission and outbreaks. These diseases include leptospirosis, filariasis, dengue fever, typhoid and cholera. For example, dengue fever sweeps through the region in epidemic form generally every 3-6 years, but can be prevented though mosquito source reduction and personal protection measures, such as screening of houses, protective clothing and mosquito repellants. There were nearly 500 recorded cases in the 2004 dengue fever epidemic in Yap.

191. Water-borne diseases, including cholera, typhoid and leptospirosis, are common causes of epidemics in the FSM. These outbreaks are in large part due to poor hygiene and the unprotected water supplies found in most states. There have been alarming out-breaks of cholera in Chuuk and Pohnpei in the last two decades. The 2000 cholera outbreak in Pohnpei resulted in more than 2,400 hospital visits, 540 hospitalizations,19 deaths and widespread disruption of travel, social and traditional events. Only 41% of the population has access to improved water sources and about 45% to improved sanitation. Even improved water sources may not be safe, and supply may be limited during droughts. For example, a survey of 43 out of 75 households in Mand municipality, Pohnpei, revealed that 72% of households use rain catchments for drinking water, and none had faecal contamination. However, 40% of households use the river as a source of drinking water. It had levels of faecal contamination that even exceeded standards for swimming. Some 5% of households used the community piped water system as the source of drinking water, but this also showed significant faecal contamination.

192. Sanitation may improve household conditions but pollute adjacent areas, including water sources. These services are often provided from government funds or by heavily subsidized utilities, Pohnpei being the notable exception. As a result they are often neither operated nor maintained appropriately. Neither national nor state health departments have programs to deal with the diseases noted above, or the onslaught of an infectious disease

epidemic. Such epidemics in the past have proven expensive, often using significant amounts of the states' health budget and overtaxing the health system. A contingency plan for each state, and at the national level, is needed for such epidemics.

193. The transition from a subsistence to a cash economy has undermined the use, development and appreciation of local resources, including food. Food and beverage items account for the top ten imports. In a country where fresh fish is plentiful, canned fish is one of those top ten. Imported food has become the standard diet despite the danger this poses to human health and well being - with a significant downturn in the economy, people will not be able to afford to eat. Generally, the population lives on white rice, canned meat which has an excess of fat, canned fish and softdrinks. A large proportion of babies are also bottle feed in the first few months. This diet has lead to high rates of obesity, diabetes and hypertension and vitamin A deficiency in islands where the supply of papayas and mangoes should make this a rarity. Child malnutrition, attributed to a poorly nutritious modern diet replacing a healthier traditional diet, as well as anemia and heavy worm load, is not uncommon.

194. Around 2000 the Norwegian rat (*Ratus ratus*) was introduced into Yap proper, likely from cargo ships docking at the port of Colonia. Since then, this rat, which is much more aggressive and voracious than the local species, has dispersed and now occupies over 1/3 of the Yap main island cluster. In addition to spreading leptospirosis, typhus and angiostrongulus cantonensis, this rat has a voracious appetite for local food staples in garden plots, causing economic damage to already impoverished communities as well as increased dependence on processed imported foods. In Yap the rate of dental decay (defined as decayed, missing or filled teeth) in pre-school age children is 95%, one of the highest rates in the world. In the most recent survey, 97% of the decayed teeth in these children had not been treated. The only source of dental care in the Yap main island cluster is the dental clinic at the Yap State Hospital. The hospital has been able to apply fluoride varnish to only 253 pre-school age children (out of a target population of more than 1200) and dental sealants to 38 (target population over 1500).

195. The poor share a disproportionate burden of avoidable deaths and suffering since they are more susceptible to diseases because of malnutrition, inadequate sanitation, lack of clean water and are less likely to have access to medical care. The incidence of poverty in the FSM is high, with approximately 30% of the FSM population falling below the national poverty line. Basic social services are failing to reach the poorer strata of society, most notably in the outer islands and rural areas. The dispensaries in the municipalities are part of the state health department, but their day-to-day operations are under the supervision of the mayors of the municipalities in which the dispensaries are located. Services that can be provided by the health assistants staffing the dispensaries relate mainly to diagnosis and treatment of common ailments. Cases demanding more advanced treatment are referred to the central hospitals. The ability to provide adequate health care through the outer island dispensaries is also impeded due to inadequate inter-island transport. A suitably qualified health care professional should visit each dispensary at least quarterly. This is not being achieved.

196. Improvements in the health of the population of FSM will bring considerable economic gain, particularly to the poor. To improve health, there needs to be multi-sectoral action, with the community taking more responsibility for its own health. In the long term, increased community participation should lead to better understanding of an individual's role in health, ultimately lead to healthier lifestyles, less disease burden and a greater potential for productive labor and economic return. As health or ill health is also the result of socioeconomic circumstances, there is a need to increase employment opportunities, particularly in rural areas, by private sector investment in agriculture, fisheries, industries, handicrafts, services and tourism.

5. Improving Inter-island Sea and Air Transport Services

197. The population of the outer islands is about 18,000 persons (17%). These people tend to be amongst the most disadvantaged in the FSM, with poor access to both education and health services. Transport services serve as the lifeline to the outer islands. Shipping brings in essential goods and services and takes out island produce from which the people earn a substantial portion of their incomes. Shipping also brings in government services and supplies, particularly to the schools and health clinics. Shipping provides an essential service to families by transporting children to and from secondary schools and colleges elsewhere in the FSM, and in providing links for everyone to the urban centers and the outside world. Air services, where available, provide passenger and high-value/perishable freight transport as well as emergency evacuation services for sick and vulnerable people.

198. The outer islands of the FSM are isolated by distance and by infrequent and unreliable sea transport. Where air transport is available, it is at high cost and of limited capacity, particularly for air cargo. This isolation discourages cash production and engagement in the wider national economy. It is difficult to maintain social contacts with other islands, and the delivery of government social and economic development services is costly and constrained. As a result, communities in the outer islands suffer from physical isolation leading to low incomes, lack of basic services, and poverty of opportunity. The people who live in these outer islands have significantly lower incomes than the national average.

199. The lack of refrigeration on the outer islands, and problems with shipping and transport, often mean that clinics run out of pharmacy medicines, and even primary health care is not available or is unsatisfactory. At present, transport difficulties result in only the most serious cases being taken to hospitals in the state capitals for emergency treatment. This means that the treatment is often too late, causing additional suffering and, sometimes, the unnecessary deaths of outer island patients. Transport requirements of dispensaries include airfreight of pharmaceuticals and fragile medical equipment, and sea freight of bulky, lower-value and more robust supplies and building materials. More regular and reliable transport will improve lifeline services for the outer islands and will reduce the risk of unnecessary deaths in cases where urgent treatment is required.

200. Domestic shipping services are largely limited to services being provided to the outer islands by the Pohnpei, Chuuk and Yap State Governments, National Government interstate services, primarily cargo services, and what might be characterized as “emergency services” being provided to the Chuuk State outer islands by a variety of privately-owned and operated vessels.

201. Transport operations are at present hampered by shortcomings in equipment as well as infrastructure and facilities in the outer islands. Services are unreliable and costly, due in the main to the age and poor maintenance of the vessels, and the consequent high running costs and frequent breakdowns. Almost always the number of passengers exceeds the capacity of the vessel. The vessel operated by the Yap State Government and the vessel operated by the Pohnpei Government underwent, in 2000 and 2001, respectively, major repair and rehabilitation efforts, and therefore are once again able to keep fairly regular service schedules. In Chuuk there is difficulty obtaining funds to buy fuel for the ship that services the outer islands, despite the importance of the service. Approximately a year ago a new vessel was purchased using a grant from China, but even within the one year warranty period the ship was inoperative for three months while waiting for engine parts. The new vessel is not fuel efficient – fuel consumption has doubled relative to the previous ship. Freight charges and passenger fares are usually below cost – for example if Chuuk’s new vessel is operating to capacity, only 65% of costs are covered. Raising costs would cause undue hardship for the people in the outer islands the vessel is intended to serve.

202. The physical constraints of sea approaches and berthing at outer island points of call, combine with the difficulties of sustaining a reliable shipping service where distances are long and transport volumes are low. The institutional capacity for administering shipping service franchises and for operating government-owned vessels is limited, and the need to subsidize the shipping service has been a long-term drain on the government budget.

203. Improvement of maritime transportation services to the outer islands of Pohnpei, Chuuk and Yap states involves:

- For some inhabited islands, where appropriate, improvement of access to the lagoons by dredging; this would need to be preceded by hydrographic survey and mapping activities to define the dredging programs;
- Construction of dock facilities on one or more inhabited island of an atoll, where accessible and where direct service by ocean-going vessels is realistically possible;
- In cases where the atoll lagoon is not accessible, an anchored detached and floating dock can be constructed to assist with the transfer of passengers and cargo from ocean-going vessels to small boats;
- Construction of fuel stations on Nukuoro, Puluwat, Satawan, Onoun, Ulithi and Woleai to fuel outer island ferries on their longer routes;
- On the principal islands in each of the three states, construction of separate outer island ferry terminals apart from the commercial port operations; and
- After completion of hydrographic and dredging activities, a navigational aids program to improve the safety of the outer island ferry services.

204. Most of the Chuuk lagoon islands do not have an adequate dock to accommodate ferries. Most islands had a useful dock during the Japanese administration, but these facilities are now mostly in advanced stages of deterioration. The islands of Tonoas, Fefen, and Romanum have adequate docks, however, and both Uman and Etten have docks that could be satisfactorily rehabilitated for ferry accommodation. The outer islands are virtually bereft of dock facilities and at present, loading/unloading operations are generally hazardous. Potential does, however, exist for making the operations at most islands much less hazardous. To integrate the economy of Chuuk lagoon, it is essential to establish an adequate ferry service, providing safe, reliable service connections among the inhabited islands. The FSM IDP proposes that the principal ferry terminal for this system will be on the Weno west coast. This facility will be part of the redevelopment of the Weno waterfront. Once the Weno terminal is established, renovation of the existing docks in Tonoas and Fefen will equip them for regular accommodation of inter-island ferries. Both Tonoas and Fefen will require second terminals located diagonally across the islands to minimize ferry trip distances from different directions. The smaller island of Romanum has an adequate dock, whilst the islands of Etten and Uman have docks that can be made adequate through rehabilitation. The four closely grouped Outer Faichuk Islands will require three terminals, with the islands of Paata and Wonei being jointly served by a terminal along the planned causeway between them. New ferry docks will need to be provided on the islands of Parem, Siis, Udot, Fanapaanges, Fono and Piis-Paneu.

205. Sea approaches and landings are often constrained by narrow reef passages, navigation obstructions, and shallow reef flats, making landing difficult. Weather, sea, and light conditions restrict the time available for anchoring and lightering goods and passengers ashore; passengers are subject to greater risk and discomfort; and there is frequent damage to cargo. Navigation aids are largely absent and there are few ship docks or small boat jetties. Where beach landings are required, channels need to be cleared to allow small boats to reach the shore. On land, warehousing for storing goods and local produce for shipment is required at a central location to improve the efficiency of shipping operations.

206. Lit beacons are needed to enable nighttime navigation through main reef passages and along inner lagoon routes. Beacons, indicating the position of the main reef passage into the lagoon, are needed for daytime navigation at locations where there are insufficient physical points of reference from the surrounding land above the high water mark and where the passage is either narrow, branching, or bending. The unmarked reef passages can only be navigated safely in daylight and, even then, shoals may not be clearly visible if the weather is overcast or the surface is rough. The primary purpose of lit beacons is, however to provide for safe passage and to save ship time by enabling nighttime navigation. These lit beacons could be solar powered to minimize operation and maintenance costs.

207. Three of the five Pohnpei outer islands, namely Pingelap, Sapwuahfik and Mokil have short airstrips that permit use of aircraft. The Pingelap airstrip requires near term attention as one end of the runway reportedly dips toward the sea and constitutes a risk for air service operations. The Sapwuahfil and Mokil airstrips are reportedly in satisfactory condition. Three of the twenty-four municipalities in the Chuuk outer islands have airstrips, namely Onoun (Namonuito Atoll), Ta (Lower Mortlocks), and Houk (Western Islands). Air transport services are largely demand based and thus somewhat irregular. Inadequate maintenance of airstrips increases aircraft maintenance costs and limits capacity. There are three airstrips on Yap outer islands, namely on Ulithi, Fais and Woleai. The Ulithi runway is in good condition, that on Fais is operable but the condition is such that landing of aircraft can be somewhat risky and that on Woleai cannot be used due to the condition of the runway. Thus improvement of the following airstrips in the outer islands is required: Pingelap, Woleai, Fais, Onuon, Murilo, Ta and Houk.

208. Domestic air services are also affected by the absence of proper maintenance facilities. This, compounded by the poor condition of many of the outer island airstrips, has translated into frequent breakdowns. The resulting disruption to schedules severely hampers the fledgling tourist industry as well as adding to the hardship of outer islands. Short runway lengths often limit take-off weight and hence aircraft carrying capacity. Runway extensions and surface improvements could increase transport capacity and reduce aircraft damage, lowering costs. In case of emergency, air transport is usually the only practical option. For this reason, adequate, well-maintained airstrips are a strategic and lifeline necessity. Air transport is confined mainly to official or government passengers and higher-income residents or visitors. Economically, only mail and small high-value and light goods can be transported, due to limited cargo space. While complementing rather than competing with the main seaborne services, the airstrips play an important part in the transport system.

209. The benefits of improved inter-island sea and air transport services will be felt by three key stakeholders:

- outer island residents, who will be able to:
  - access basic services (e.g., basic health and education) and commodities (e.g. staple food, fuels, and other household goods) on a more regular and reliable basis and with more choice and greater competition;
  - more easily and regularly ship handicrafts, fish, and agricultural produce to main centers;
  - increase family incomes, enabling easier payment of school fees and increasing levels of consumption of goods from island stores;
  - have additional income to invest in better housing, household assets, water tanks, and domestic sanitation facilities;
  - reduce their travel times, making the shipping service more attractive and thereby increasing patronage;

- the people of the FSM, who will benefit from:
  - the reduced budgetary costs of providing public services to the outer islands and in running the shipping service as a result of reduced voyage times, increased safety, and less damage to ships and cargo during loading/unloading;
  - these savings allowing more resources to be allocated to priority sectors, including health and education, and to other poverty reduction activities;
- the inter-island transport sector and island traders, who will benefit from:
  - a safer, more regular, and more reliable shipping service;
  - competitive pressures between government shipping and private operators will help lower or at least maintain freight costs;
  - and increased reliability and shorter trip times will allow lower stock levels to be maintained and will increase overall profitability of enterprises.

B. Road Map for Environmental Management

210. To facilitate the mainstreaming process, it is useful to present the five 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 and state 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; (vi) review progress at pre-determined intervals; and (vii) feed back information from the review process into the implementation process. To the extent practicable, actions and strategies to promote improvement should be innovative, test new theories and alternative technologies, and promote breakthroughs for solving difficult problems.

211. Much of the information produced during 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, presented in Table 11, focus on the outcomes, indicators, targets and actions that will improve environmental performance and quality, consistent with national and state development policies, plans and operational objectives. There are three important comments to make about the environmental management road map: (i) many of the indicators and targets are based on those specified in the SDP and other government planning documents; (ii) while consultation, education and awareness raising have been identified earlier as areas requiring major attention if improvements in environmental performance and outcomes are to be achieved, these activities have not always been 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, 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 and state development planning and processes[7], climate variability and change have not normally been given separate attention – rather, 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.

212. In total, eleven project interventions are proposed. Some interventions relate to strengthening the five TAs currently in the pipeline, namely:

[7] Guidelines for Adaptation Mainstreaming in Pacific Department Operations, ADB, Manila, 2005.

- Implementation of Public Sector Capacity Building Roadmap;
- Youth and Gender Development;
- Solid Waste Management;
- Education and Health Sector Strategy; and
- Capacity Building in Solid Waste Management.

213. In addition, it is proposed that six new TAs be considered since the projects in the pipeline do not provide sufficient opportunity for substantial contributions to the five priority areas for action. The proposed TAs are:

- Strengthening Communication, Coordination and Cooperation Between Levels of Government;
- Develop Environment- and Resource-based Enterprises through the Small Business Development Centers;
- Micronesians in Sustainable Community Development Learning Network and Pilot Projects;
- Demonstration Project on Community Adaptation to Reduce Risk and Alleviate Hardship;
- Enhancing Sustainability of Infrastructure Development Projects in FSM; and
- Improving Inter-island Sea and Air Transport Services.

214. The ADB should consider working with other development partners in relation to all six areas of proposed assistance. The focus should be on building capacity, specifically by strengthening those institutions that play key roles in environmental management and in ensuring sustainable use of natural resources. This will include their technical capacity. Enhancing the knowledge and skills of the people working in these institutions will be critical, as will education, training and outreach programs for all stakeholders.

215. Concepts for the proposed TAs are provided in Appendix 9. The following sections describe how activities related to the five priority areas can be integrated into the eleven project interventions, initially from an overall perspective and subsequently for the six proposed TAs.

Table 11

Environmental Management Road Map

Proposed Outcomes and Indicators	Targets					
	Current (est.)	Year 5	Year 10	Year 15	Year 20	Year 25
Right-sizing and Re-focusing Government						
National government – focus on biosecurity, negotiation of MEAs, safety of food imports/exports and benefit sharing for genetic resources [% of national environment budget]	50	60	80	100	100	100
States with comprehensive and enforceable land use plan	0	3	4	4	4	4
States with comprehensive and enforceable building code	0	4	4	4	4	4
Projects subject to EIA regulations [%]	70	100	100	100	100	100
EIA Conditions for approved projects monitored and enforced by regulator [%]	10	20	40	70	90	100
Environmental violations successfully prosecuted	60	100	100	100	100	100
Municipalities with sustainable development plans [%]	<5	20	50	80	100	100
State and municipal government staff with required expertise [%]	60	80	95	100	100	100
Environment and Resource-based Small Business Enterprise Development						
Training courses in environment and resource-based small business enterprise development offered by the Small Business Development Centers [Number/year]	0	8	16	20	20	20
People trained in environment and resource-based small business enterprise development [Number/year]	0	80	160	200	200	200
Employment in environment and resource-based small business enterprises [% of total employed]	2	10	20	30	30	30
Domestic food production [% of total food consumption]	40	60	70	80	80	80
Tourist and visitors to FSM [Thousands/year]	13	26	32	40	50	62
Occupancy rates of tourist accommodation[%]	17	50	65	70	70	70
Sustainable Community Development						
Rural population with access to safe drinking water [%]	31	50	75	90	100	100
Rural households with improved sanitation [%]	12	50	70	90	100	100
Rural electricity from renewable energy sources [%]	1	10	30	50	60	70
Environmentally sound solid waste management practices in rural municipalities [%]	0	50	80	90	100	100
Marine and fresh water bodies not meeting standards [%]	80	50	30	10	5	5
No take marine reserves [% of reef area of FSM]	<5	10	15	20	20	20
Deforestation/agricultural conversion rates in protected areas (%)	20	0	0	0	0	0

Risk and Hardship Alleviation						
Population with 24 h access to early warning system [%]	<1	50	90	100	100	100
Population with adequate preparedness for disaster [%]	<1	50	90	100	100	100
Under 5yr mortality rate (per '000 live births)	23	15	8	6	5	5
Maternal mortality ration(per 100,000 live births)	317	200	80	60	50	50
Households below poverty line [%]	28	20	15	10	5	5
Infrastructure projects compliant with SDP [%]	0	75	100	100	100	100
Communities with adequate protection from natural disasters	0	25	60	80	100	100
Improving Within-state Sea and Air Transport Services						
Islands with adequate ferry services – vessels, infrastructure and quality of service [Number]	0	10	50	80	100	100
Market associations operating product collection point/service and retail outlets [Number]	0	4	8	12	12	12
Commercial docks in state capitals meet all operational and security requirements [Number]	0	4	4	4	4	4
Vessels regularly maintained and upgraded, to meet industry performance standards [Number]	0	4	8	8	8	8
Services with subsidized passenger fares and freight charges – facilitating entry of private sector [%]	100	80	40	10	0	0
Outer island airstrips meet all operational and safety requirements [%]	40	80	100	100	100	100

Initial Actions	2005	2010	2015	2020	2025	2030
Right-sizing and Re-focusing Government						
Strengthen Planned TA: Implementation of Public Sector Capacity Building Roadmap						
Implement New TA: Strengthening Communication, Coordination & Cooperation Between Levels of Government						
Environment and Resource-based Small Business Enterprise Development						
Strengthen Planned TAs: Youth and Gender Development Solid Waste Management						
Implement New TA: Develop Environment- and Resource-based Enterprises through the Small Business Development Centers						
Sustainable Community Development						
Strengthen Planned TAs: Youth and Gender Development Solid Waste Management Education and Health Sector Strategy						
Implement New TA: Micronesians in Sustainable Community Development Learning Network and Pilot Projects						
Risk and Hardship Alleviation						
Strengthen Planned TAs: Youth and Gender Development Solid Waste Management Education and Health Sector Strategy						
Implement New TAs: Demonstration Project on Community Adaptation to Reduce Risk and Alleviate Hardship Enhancing Sustainability of Infrastructure Development Projects in FSM						
Improving Within-state Sea and Air Transport Services						
Implement New TA: Improving Inter-island Sea and Air Transport Services						

C. Implications for ADB's Intervention Programs

216. Table 12 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 the FSM. It is clear that assistance from ADB could make valuable contributions in all priority areas, but only if governments and other stakeholders take ownership and show full commitment to successful implementation of the proposed actions.

1. Mainstreaming Environment in Planned ADB Assistance

217. Table 13 illustrates how, through mainstreaming environmental considerations into development planning and processes, activities related to the five priority areas for action can be integrated into projects currently in the pipeline for ADB assistance to the FSM.

2. Proposed New ADB Interventions, with Environment Mainstreamed

218. As noted above, concepts for the proposed new TAs are presented in Appendix 9. Six TAs are proposed because, practically, there are only limited opportunities to realign and strengthen the programmed assistance in ways that would address the identified needs in the five priority areas for action. Table 14 illustrates how the proposed technical assistance will assist in mainstreaming environmental considerations into development planning and processes in relation to the five priority areas for action.

219. Improved communication, coordination and cooperation between the national, state and municipal governments will greatly enhance the efficiency and effectiveness of government by clarifying the division of roles and responsibilities and ensuring that functions such as environmental management and the sustainable use of natural resources are undertaken by those government agencies best placed to achieve the desired results. The environment and natural resources of the FSM have the potential to support a major expansion of the currently under-developed private sector in the FSM, with the newly renamed and strengthened small business development centers being in a position to play a major role in this growth process by providing training, mentoring, guidance and other services. In the FSM the community is considered to be the basic management unit for sustainable development, but in many locations throughout the FSM terrestrial and marine ecosystems are under severe pressure, environmental quality is degraded and there is excessive exploitation of natural resources. By establishing a Micronesians in Sustainable Community Development Learning Network, that builds on the success of a similar network for Micronesians in Conservation, the advocates will be able to encourage communities in each of the four states to demonstrate how these current trends can be reversed.

220. Most of the communities in the FSM are at risk from natural disasters and exposed to environment-related diseases that have the potential to cause epidemic outbreaks, and do all to often. Increased community participation in public health care, and in disaster prevention and preparation initiatives, can bring major social and economic benefits, including hardship alleviation. Similarly, addressing the factors that reduce the sustainability of infrastructure development projects generates large economic and social benefits. People in the outer islands tend to be amongst the most disadvantaged in the FSM, with poor access to both education and health services. Transport services serve as the lifeline to the outer islands but their current

inadequacy contributes to low incomes, lack of basic services, and poverty of opportunity. Delivery of government social and economic development services is costly and constrained. Improved inter-island sea and air transport services will, amongst other benefits, enable families to increase their production and generate regular and increased incomes with which they will be able to improve their conditions and standards of living, and to meet vital periodic payments such as school fees.

D. Implications for the Three Levels of Government in the FSM

221. There is an urgent need to mainstream environmental and natural resource management considerations in FSM's development planning processes. This is for three 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; (ii) the future of the FSM rests on its people and its environment and natural resources – if agriculture, tourism and fisheries play ever increasing roles in the state and national economies there will be growing pressures on these assets and thus a concomitant need to manage them to ensure their sustainability; and (iii) the population of the FSM is increasing rapidly (from about 62,300 in 1973 to 107,008 in 2000 and will likely be double present values by 2050; the population would be increasing more rapidly were it not for growing emigration) – this means that by 2050 the population density for FSM will be similar to the population density of Chuuk today, with all the associated implications for the environment and natural resources if management practices are not improved dramatically.

222. Important population and economic planning decisions will have to 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. For example, people 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 rapidly 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 declines.

Table 12

SWOT Analysis of Mainstreaming Environment in Proposed ADB Assistance to the FSM

Priority Area	Strengths	Weaknesses	Opportunities	Threats
Right-sizing and Refocusing Government	Consistent with Public Sector Reform Program and with needs identified in the CSPU, as well as with ADB's operational strategy and strategic priorities for FSM. Widespread stakeholder support. Consistent with changes driven by amended Compact. Links well with planned TA: Implementation of Public Sector Capacity Building Roadmap	Timing and scale of reforms not ideal given current economic and social vulnerabilities due to changes in Compact funding. Need to reflect differences between and within states. Capacity constraints very large – considerable time and resources required to address them.	Bringing government closer to the people and to the environment and resources on which they depend will improve sustainability. System of governance can become more consistent with local culture and custom.	Current system of governance deeply entrenched, with considerable self-interest in its retention. Major reforms may require constitutional amendments, which are difficult to pass. Uncertainty during transition may derail the reform process.
Environment and Resource-based Business Enterprise Development	Consistent with ADB's operational strategy and strategic priorities for FSM and builds on initiatives that form part of current ADB assistance via the Private Sector Development Program/Project. Scale of development in line with capacities and strategic advantages, especially those related to FSM's environment and natural resources.	Unclear if emphasis should be on the start up of new businesses, with financial and other assistance, or diversification of established businesses where growth can be largely self financed and there is less need for assistance to build capacity. Increased commercial activity may place additional pressures on the environment and natural resources.	FSM is endowed with an attractive environment and with abundant and diverse natural resources. These can provide the basis for sustainable production systems that will reduce importation of unhealthy processed foods and for sustainable tourism development. Increased reliance on these assets will lead to recognition that they must be managed sustainably.	Continuation of government business development policies that result in the accumulated skills and capital of established businesses being ignored, including excluding them from policy dialogues and from small business governmental technical assistance. SBDCs unable to provide the necessary assistance to the private sector. Unwillingness of key players to think long term, but rather to seek short term profits, with no consideration for the sustainability of the enterprises.
Sustainable Community Development.	Consistent with ADB's operational strategy and strategic priorities for FSM and with the FSM SDP and NBSAP. Will increase self reliance of	Only weak linkages with projects in the pipeline. Requires that communities accept the responsibility to manage and sustainably develop their	Improved health and environmental outcomes will result from such community-based initiatives, and natural resources use is more likely to be	Inability to secure agreement on community collective ownership, which is a prerequisite to communities managing their resources in a sustainable

	communities, consistent with the need to resize government and reduce financial assistance. Within FSM there are many examples of communities taking ownership of their future development, as well as of supporting networks and institutions.	resources, for their benefit as well as the benefit of future generations. Need municipality wide agreement and support before sustainable community development initiatives are implemented. Sound development and management decisions require targeted information, which is often lacking	sustainable. Revitalization of traditional knowledge and practices. Improves ability of communities to make the transition from subsistence to cash economies, without adding to hardship and with less reliance on external assistance.	manner. Lack of encouragement and support from municipal and state governments to implement the new resource and environmental management approaches.
Risk Reduction and Hardship Alleviation.	Consistent with ADB's operational strategy and strategic priorities for FSM and with the FSM SDP. FSM communities have high exposure to natural and other hazards, including those related to health. Strong links between vulnerability to natural and other hazards and levels of hardship experienced by individuals and families.	Only weak linkages with projects in the pipeline. Requires information and understanding in order to take actions that reduce risk and in so doing help alleviate hardship. Many risks are not part of traditional experience or have been modified due to western influences, meaning significant behavioral change is required. People will need to be motivated and empowered to make these changes.	Reducing risks associated with current natural and other hazards, including those related to health, prepares communities to face the increase in risk as a result of climate and other changes. Since the poor are impacted disproportionately by natural and other disasters and by disease and other causes of poor health, reducing risks will also alleviate hardship	Despite best efforts, disasters caused by natural and other hazards, and epidemics, cannot be avoided even if reasonable preventive steps are taken. People will have to be made aware of such possibilities, and encouraged to take preventive steps even if they may not always be successful.
Improving Inter-island Sea and Air Transport Services.	Improvements are a high priority for government and for inhabitants of outer islands. Good understanding of the issues and optimal solutions, including effective public-private partnerships. Consistent with ADB's operational strategy and strategic priorities for FSM and with the FSM SDP.	No linkages with projects in the pipeline or with previous ADB assistance. Solutions will likely require some ongoing government investment as transport is more a social service than an economic operation; no related projects in the ADB pipeline. The institutional capacity for administering shipping service franchises and for operating government-owned vessels is limited.	Required assistance is consistent with the ADB strategic priorities and operational strategy. Long-term sustainable solutions will require effective public-private partnerships. Improvements in service will result in major reductions in the high levels of hardship experienced by people in the outer islands.	Current lack of clear and robust rules governing engagement of private sector. Change in government policy regarding outer island development may change levels of funding by state and national governments. The need to subsidize the shipping service has been a long-term drain on the government budget.

Table 13

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				
	Government Reform	**Business Development**	**Community Development**	**Risk/Hardship Alleviation**	**Improving Transport**
TA: Implementation of Public Sector Capacity Building Roadmap	Should take into account the need to right-size and re-focus government. Will contribute directly to this priority area by strengthening economic planning, financial management, auditing, law enforcement, immigration controls, the judiciary, and compilation and analysis of appropriate statistical indicators.	Will help strengthen the enabling environment for private sector development. Should take into account the special requirements environment- and resource-based small business enterprises	Current provisions in the project to improve law enforcement and strengthen economic planning, financial management, the judiciary and information management of high relevance to this priority area. But the capacity building activities will need to focus on state and municipal governments.	Current provisions in the project to improve economic planning and financial management of high relevance to this priority area. But the capacity building activities will need to focus on state and municipal governments. Project should also include activities that build the capacity of state and national disaster management offices	Assistance should address the need for structural change to achieve greater private sector employment and development – currently such change is slow to occur due to fundamental constraints in the FSM's legal and institutional structures. The institutional capacity for administering shipping service franchises and for operating government-owned vessels is limited, and the need to subsidize the shipping service has been a long-term drain on the government budget.

TA: Youth and Gender Development	Few if any opportunities to strengthen the TA in ways that address this priority area.	Assistance should take into account that in recent years most of the people involved in highly innovative new business development in FSM have tended to be young and relatively less well educated.	There are major opportunities for this TA to contribute to sustainable community development. Youth, including young women, can play a major role in revitalization of traditional knowledge and practices in ways that improve the ability of communities to make the transition from subsistence to cash economies in a sustainable manner, without adding to hardship and with less reliance on external assistance.	Youth, including young women, can also play key roles in reducing risks related to natural and other hazards and in alleviating hardship. Traditional knowledge and practices are important in coping with such challenges, and pave the way for addressing changes that are imposed by forces external to the community and the nation.	Improved transport services will enable social, health and other services to be delivered with greater regularity and effectiveness. Youth can be encouraged to gain knowledge and skills that mean they are employable in the expanded transportation sector.
TA: Solid Waste Management	State governments have an important policy role in solid waste management, ensuring that an integrated and environmentally sound approach is taken, including development of waste minimization policies. They can also strengthen the enabling environment in ways that will encourage engagement of the private sector in such activities as waste collection, separation, reuse, recycling and disposal.	The private sector has major roles to play in all aspects of integrate solid waste management, including waste collection, separation, reuse, recycling and disposal. The TA should identify ways to enhance the entry and sustained involvement of the private sector.	Much of the solid waste is generated at the household level. The TA should recognize the difficulty of ensuring environmentally sound and sustainable management of solid waste in small, dispersed communities in remote areas. Any methods will require community ownership, including support from traditional leaders. Locally acceptable and viable methods for solid waste management need to be identified and implemented.	The TA should recognize and respond to the fact that initiatives to management solid waste should not exacerbate risks of natural and other disasters or add to health risks or hardship for families or communities. For example, consideration user pay fees and deposits on returnable containers should take into account that many communities are almost entirely subsistence based.	Inter-island transport policies should discourage the transfer of unnecessary packaging and other materials and should encourage the return of packaging and other non-consumable items to the point of origin, for reuse, recycling or disposal, as appropriate.

TA: Education and Health Sector Strategy	The TA should take into account the need to right-size and re-focus government.	A major refocus of education and training programs is required if there is to be significant growth in environment- and resource-based business enterprises. Vocational training will be important, as well as advisory services. The TA should also recognized the increasing involvement of the private sector in the delivery of health services.	There are major opportunities for this TA to contribute to sustainable community development. Education can improve the ability of communities to make the transition from subsistence to cash economies in a sustainable manner, without adding to hardship and with less reliance on external assistance. Improvements in delivery of health services at the community level are urgently needed.	There are major opportunities for this TA to contribute to risk reduction and to poverty alleviation. Education can equip people with the knowledge and skills required to prepare for natural and other disasters and reduce risks related to climate and other changes. Increased community participation in public health care can bring major social and economic benefits, including hardship alleviation.	When inter-island transport services are improved the education and health sectors need to be positioned to take immediate and full advantage of the new opportunities. This includes the movement of supplies and personnel, to allow improvements in the standards of both health care and education in the outer islands.

Table 14

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				
	Government Reform	**Business Development**	**Community Development**	**Risk/Hardship Reduction**	**Improving Transport**
TA: Strengthening Communication, Coordination and Cooperation Between Levels of Government	The objective of the TA, to improved communication, coordination and cooperation of government, will be achieved largely through government reform. Relevant government agencies will be assisted to prepare land use plans, zoning regulations and building codes, and encourage compliance with these instruments through education and awareness raising programs, monitoring and, where necessary, enforcement.	The TA will enhance the enabling environment for the private sector, including start up and sustained operation of environment- and resource-based business enterprises.	The TA should focus, in part, on ensuring that government reforms result in strengthened policies (at state level) and plans (at municipal level) related to sustainable management of both land and marine areas. These should result, in turn, in improved delivery of development assistance and services to communities, including integrated waste management and access to clean water, environmentally sound sanitation and energy, with the last being predominantly from renewable sources.	The TA should focus, in part, on ensuring that government reforms result in strengthened policies (at state level) and plans (at municipal level) related to disaster preparedness and reduction of health risks as well as those related to climate and other changes. The links between risk reduction and poverty alleviation should be recognized explicitly in the policies and plans to ensure that synergies are fully exploited. Capacity should be enhanced wherever governments have a major role to play in risk reduction and hardship alleviation.	The TA should focus, in part, on ensuring that government reforms result in strengthened policies and plans related to inter-island transport services, with increasing participation by the private sector in the actual provision of such services. Strengthening institutional capacity to manage shipping and air services to the outer islands should be a priority.

TA: Promote Environment and Resource-based Enterprises through the Small Business Development Centers	Assistance should address the need for structural change to achieve greater private sector employment and development – currently such change is slow to occur due to fundamental constraints in the FSM's legal and institutional structures.	The objective of the TA, to promote the establishment and sustained operation and growth of environment and resource-based business enterprises, in part through assistance provided by the SBDCs. This will be achieved largely through business training and advisory services, and operation of a labor market information system. Businesses that will benefit will include those related to farming, fishing, tourism and solid waste management.	The transition of communities from a predominantly subsistence economy to one where income generation is not only desirable but a necessity, will be aided by the establishment and sustained operation and growth of environment and resource-based business enterprises. The challenge will be to ensure that these initiatives are harmonized with efforts to ensure the protection of the environment and the sustainable consumption of natural resources.	Small scale commercial enterprises in communities will help build their resilience to natural and other disasters and to health and climate-related risks. Such enterprises will also provide meaningful employment to members of the community, with the income generated being instrumental in reducing hardship.	Improved transport services will make it easier for farmers and fishers to ship their produce to markets, such as those servicing the urban centers in each state, with assurance of reliability, zero damage and reasonable cost. Farmers and fishers will also benefit from dependable supply items on which their operations rely, including fuel and packaging materials. The tourism sector also stands to gain considerably from improvements in inter-island transportation.
TA: Micronesians in Sustainable Community Development Learning Network and Pilot Projects	Priority for assistance is to ensure legislation and regulations related to land use planning, zoning, building codes, EIA and management and harvesting of marine resources is enforceable and that there is the capacity within government to educate, prosecute and penalize violators, as appropriate.	The efforts to promote the establishment and sustained operation and growth of environment and resource-based business enterprises will complement the initiatives to be undertaken through this TA.	The learning network will be based on the highly successful Micronesians in Conservation learning network, but in this case the advocates and experienced practitioners will focus on encouraging and supporting volunteer communities in each state to demonstrate how they are enhancing their sustainability while at the same time providing improved quality of life for those living in the community. The network will also be used to encourage replication by other communities.	A community that is living sustainably will likely also have increased resilience to natural and other disasters and to health and climate-related risks. Hover, it is likely that additional assistance will be required to ensure that disaster preparedness plans are prepared and implemented, that there is increased community participation in public health care, and that coping and adaptation strategies are in place to reduce climate-related risks.	At least one pilot project will be on an outer island of each state. The aim will be to show how improvements in the transport services have allowed the volunteer communities to reduce their reliance on imported foods and other commodities, derive increased incomes from sustainable farming, fisheries and tourism, and benefit from improved practices in solid waste management, including waste minimization, reuse and recycling.

TA: Reducing Risks and Alleviating Hardship	Legislation and regulations related to land use planning, zoning, building codes, EIA and management and harvesting of marine resources will be strengthened in ways that contribute to risk reduction (including risks related to natural and other disasters, human diseases and climate change) and to poverty alleviation through improved environmental quality and food security.	The TA will demonstrate how community-based commercial enterprises will help build resilience to natural and other disasters and to health and climate-related risks. Such enterprises will also provide meaningful employment to members of the community, with the income generated being instrumental in reducing hardship.	The TA will show how the limited resources of island inhabitants, including the poor, can be protected and mobilized through initiatives such as improving post-harvest facilities and storage methods, soil fertility improvement, seed banks, seed dispersal, plant propagation, diversifying crops, promotion and production of disaster resistant and other indigenous crops, employment support through public works schemes, statutory provisions (e.g., social insurance), non-contributory social assistance such forms of food subsidy and revolving credit.	The TA will identify and facilitate rejuvenation of traditional risk-sharing mechanisms and safety nets for the poor, such as asset pooling and kinship networks. Longer-term investments will also be evaluated, including planting of trees around dwellings, establishment of a community medical facility, training of village health workers, and education for functional literacy. Support mechanisms that facilitate better decision-making and managing community wide activities for evacuation and emergency response will also be investigated, including counter disaster planning, disaster response committee formation, leadership training, functional literacy, and day care services.	Improvement of inter-island transport services will result in improved delivery of basic social services, including those related to education and health. The TA will identify and explore the ways in which the improved services can reduce risks. Examples are the ability to mobilize disaster assessment and recovery teams as well as their equipment, increased food security and improved capability for emergency evacuations. Improved transport services will also enable the outer-island economies to become increasingly integrated with the cash economies of the state capitals and other urban centers, thereby reducing hardship related to a dependency on a subsistence economy.

TA: Enhancing Sustainability of Infrastructure Development Projects in the FSM	The SDP recognizes the need for infrastructure to be designed, located, built and maintained to avoid unacceptable risks associated with natural hazards, including weather and climate extremes, variability and change. This TA will assist governments to conduct risk assessments at state level and strengthen national- and state-level building codes and EIA procedures to help ensure risks to infrastructure development projects are identified and addressed in a cost effective manner at the design stage.	Relevant professionals (e.g., engineers and architects) will be trained to undertake infrastructure risk assessments and provided with guidance on how such risks can be reduced through changes in design.	Educational programs will be conducted for staff in municipal governments and community and traditional leaders, in order to raise awareness of the risks natural and other hazards, including climate change, pose to the sustainability of infrastructure. The aim will be to ensure that such individuals recognize the need for infrastructure development projects to take such risks into account, especially at the design stage, in order to increase their longevity.	By helping to increase the sustainability of infrastructure development projects this TA will contribute to risk reduction. In so doing it will also contribute to hardship alleviation by ensuring that infrastructure development projects are more sustainable and will provide the necessary services over a longer period of time with reduced maintenance and repair costs.	Many infrastructure development projects relate to support facilities for inter-island transport services. Thus this TA will contribute to improvements in such facilities in terms of their longevity and reduced maintenance and repair costs.

TA: Improving Inter-island Sea and Air Transport Services	One focus of the TA will be strengthening institutional capacity to manage inter-island sea and air transport services. This will include relevant government agencies as well as the private sector.	The TA will explore ways to reduce the high level of subsidies currently being provided for inter-island sea and air transport services. Reductions in subsidies will assist the private sector to play a great role in providing such services.	Improvements in inter-island sea and air transport services are essential if the economies of communities in the more remote parts of FSM are to become increasingly integrated with the cash economies of the state capitals and other urban centers. Such integration will reduce hardship related to a dependency on a subsistence economy.	Inter-island sea and air transport services are critical elements in disaster reduction strategies, in part through the ability to mobilize disaster assessment and recovery teams, as well as their equipment. Service improvements will also enhance food security, thereby reducing both risks and hardship. Boats and planes provide emergency evacuation services for sick and vulnerable people.	Transport services serve as the lifeline to the outer islands. Shipping brings in essential goods and services and takes out island produce which is a major income earner. Shipping also brings in government services and supplies, particularly to the schools and health clinics. Shipping provides an essential service to families by transporting children to and from secondary schools and colleges elsewhere in the FSM. Air services, where available, provide passenger and high-value/perishable freight transport.

223. The complex nature of the issues, and also their solutions, mean that cooperation is required between all three levels of government and with the private sector, NGOs and communities. Another example will serve to reinforce this point. In 2001, funds were appropriated to survey and mark the boundary of the Pohnpei watershed forest reserve. A recent survey of Pohnpei Island's vegetation cover conducted by The Nature Conservancy, in partnership with the state government, revealed a loss of more than two thirds of forest cover in just 20 years. Although legally designated in 1987, by the Watershed Forest Reserve and Mangrove Protection Act, the reserve has been suffering from heavy encroachment by commercial sakau (*Piper methysticum*) growers, mainly as a result of the lack of a clear boundary and of approved rules and regulations. The Department of Lands, in cooperation with Pohnpei AG office, the Conservation Society of Pohnpei, and the island's five municipal governments, developed rules and regulations for the Act. These were approved in 2003. Several miles of the boundary line were subsequently surveyed and marked. The Conservation Society of Pohnpei and the municipal governments carry out quarterly monitoring of activity within the reserve and provide their findings to leaders at all levels of government and the traditional chiefs, for action. However, further survey of the boundary line has been halted due to widespread public disquiet with what is seen as a process that imposes a boundary in a somewhat arbitrary manner, without adequate consultation with affected landowners and other stakeholders. The state government has agreed to a moratorium until the requested consultation has occurred and a consensus is reached.

224. The above example also highlights another major constraint on effective environmental and natural resource management, namely the widely held belief of land and resource owners that activities and structures on the land and marine areas for which they have legal or customary ownership rights cannot be regulated or otherwise restricted. While the ultimate remedy is legal prosecution and imposition of penalties, a far more desirable approach is to ensure that land and resource owners are fully appraised of their rights and responsibilities, and the immediate and more widespread and long-term consequences of inappropriate behaviors and facilities. Thus again the solution does not rest with government alone. Raising awareness in order to change attitudes and behaviors requires a collaborative effort that involves the media, NGOs, community and traditional leaders, as well as the three levels of government.

225. However, there are instances where governments should be taking the lead with initiatives that will facilitate implementation of the environmental road map and in other ways address the five priority areas identified above. The two key practical acts by governmental that will help ensure effective mainstreaming of environmental management 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 and project implementation are implemented in a timely and effective manner.

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

226. **Performance-based Budgeting.** The recent implementation of performance-based budgeting has resulted in substantial improvements in environmental monitoring (quality and compliance) and helped to elevate the status of the environment sector within government operations. However, there is an erroneous perception that under the amended Compact the environmental sector is now well-funded. The environmental road map provides targets for environmental quality and for the performance of the part of the private sector made up of environment- and natural resource-based small business enterprises. Governments should

recognize 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, through performance-based budgeting, an ability to meet their performance targets. Governments should follow this by allocating appropriate portions of their non-grant revenues to these agencies.

227. **Land Use Plans and Zoning Prepared using Participatory Processes.** Arguably, Kosrae has led the way and established good practice standards with respect to participatory approaches to land use planning and zoning. As noted above, KIRMA used highly participatory processes when preparing the Kosrae Land Use Plan. The plan is now being used as the basis for making decisions related to environmental impact statements and overall assessments of development proposals and permit applications. While the relative homogeneous nature of Kosraean society and culture, the high proportion of land in public ownership, the decline of traditional systems, the ascendancy of the church and the one island nature of the state may facilitate agreement on land use planning and zoning, similar success is not beyond the reach of other states. Pohnpei has also prepared a land use plan, though not in such a participatory manner. It has been awaiting approval for several years, and the early momentum is now lost.

228. The challenges to secure cooperation from land owners to ensure compliance should not be underestimated, even in the case of Kosrae. As noted above, it is important to raise the awareness of landowners with regard to both their rights and responsibilities as well as to 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 the availability of land for development. Absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights is another constraint that needs to be resolved with urgency.[8]

229. **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, governments need to seriously question why there is currently no operative aluminum can recycling scheme in any of the four states. Schemes have been implemented in many of the states, but for various and complex reasons none was sustainable. The favorable price advantage that many imported foods have over local alternatives is also a situation that needs to be addressed. While in the longer term increased supplies of local produce will likely see prices decline, in the near term local farmers and fishers may need assistance to ensure their produce is competitively priced. Governments need to be more willing to make interventions that deliver benefits in the longer term.

230. 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. Certainty for developers and certainty of outcomes can be improved if a locally appropriate and meaningful requirements for building design, placement and construction are included in a building code. This may well require a national code that sets minimum standards and provides additional guidelines. Under the constitution this would be possible due to public health and safety considerations. Each state could prepare and enforce its own building code that was consistent with the national equivalent but also took into account local circumstances and concerns, including the consequences of climate change.

[8] Addressing these priority issues is a major focus of current work, funded by ADB Loans 1873/74-FSM (SF): Private Sector Development Program and Project.

231. **Institutional Strengthening.** Cooperation between and within the levels of government is far from optimal. Arguably the situation is worst for environmental and natural resource management. But as noted above, the imperative to mainstream environmental considerations in development planning processes, and the proposal to have a single agency at national level with responsibility for environmental management, are in conflict. Institutional strengthening should be such that it facilitates rather then impedes the mainstreaming process. This would include taking the necessary action to secure that the full range of benefits offered by an adequately resourced and fully functional President's Council on Environmental Management and Sustainable Development. Its equivalent at state level in Pohnpei, the Natural Resource Management Committee, is chaired by the Deputy Governor of the state. That committee is also assisting with cooperation and coordination within and between state and municipal governments, and with non-governmental stakeholder representatives. Despite some reservations about its effectiveness due a selective purview of development projects, and lack of formal endorsement of the committee by the state legislature, the committee is an institution worthy of consideration by the other three states.

232. **Upgrading Staff Knowledge and Skills.** As government, the private sector, communities and individuals 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. The Institutional Capacity Building Roadmap component of the ADB TA 4258-FSM: Strengthening of Public Sector Management and Administration will assist in this process, as will the proposed follow-up TA Implementation of Public Sector Capacity Building Roadmap. However, the focus of the roadmap is on parts of government directly involved in addressing the implications of Compact funding phase-out. The training needs assessment performed under the TA did not therefore extend to staff in agencies responsible for environmental and natural resource management. A training needs assessment for these agencies could be a priority activity under the proposed TA Strengthening Communication, Coordination and Cooperation Between Levels of Government.

233. **Supporting Environmental Advocates and Champions.** Opinion leaders in the community can play a key 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. FSM is fortunate to have national- and state-focused NGO's, all of which have highly professional and well-regarded staff. While in recent years governments have been increasingly willing to involve such people in policy making and planning there is a feeling among the NGO community that they are being used, rather than being treated as true partners. For example, they are often asked to help only when things seem to be going wrong and not from the early stages of planning and development. And even when they are involved in the planning, they are frequently left out when the big decisions are made, such as those related to the environment sector grant. Governments can do much to ensure that the expertise available via the NGOs 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 FSM's environment and natural resources.

234. **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. In Pohnpei, both the EPA and the Survey and Mapping Division of the Department of Land and Natural Resources are providing decision makers and managers with the information that allows them to be more successful in fulfilling their responsibilities. However, even in these two

cases the information management systems suffer from a dearth of relevant data that can only be acquired through surveys, assessments and monitoring programs. Currently, these are poorly resourced, managed and implemented. Consultations with stakeholders in all four states, and personal knowledge, confirmed that a major constraint on successful mainstreaming 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.

235. **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 amended in ways that clarify the responsibilities, intentions, powers and procedures of government. Such legislation can then serve as the basis for informing and thereby engaging constructively the public as well as members of 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

236. This CEA for the FSM focused on the general environment status and trends in FSM, 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 principal constraints on, and barriers to, improved environmental management, priority areas in policy, institutional and legislative mechanisms, as well as programs/projects that will help to mainstream environmental concerns into economic development planning and identification of the main environmental opportunities associated with the CSPU. This includes recommending incorporation of environmental considerations in programs/projects in the pipeline as well as new priority actions and programs at the country level. The aim was to proactively incorporate, integrate and support sound environmental management practices, not only in the economic development planning and policy-making for the FSM, but also in specific project-level interventions.

237. Participatory consultations, supported by research of relevant policy and technical documents, resulted in identification of numerous key environmental concerns:

- Food security and affordability;
- Water security, quality and affordability;
- Public health and sanitation;
- Integrated solid waste management;
- Energy security and affordability;
- Enhanced management of land and marine areas;
- Climate change, disasters and coastal erosion;
- Sustainable tourism;
- Improving inter-island sea and air transport services;
- Dredging the reef;
- Sediment discharge to reef and lagoon;
- Landuse planning and zoning; building code;
- Increased production and use of coconut products;
- Development of community-based pearl fishery;

- Cooperation and coordination in government;
- Public buildings and infrastructure; and
- Strengthen fisheries sector

238. Many opportunities for environmental and related improvements were identified as a result of both consultations and research. These would bring many benefits to the FSM economy as well as to society, especially the poor and other marginal groups. However, a number of constraints on achieving these improvements were also recognized, but all would be resolvable with commitment and cooperation.

239. A review of ADB's current investment portfolio was also undertaken. Based on the preceding analysis and review, priority areas for action were identified and a road map for the environment sector was prepared. Consistent with the road map, specific recommendations were developed for mainstreaming the environment in projects in ADB's future investment program for the FSM.

240. Five priority areas action resulting in the mainstreaming of environmental considerations were identified, namely:

- Right-sizing and refocusing government;
- Environment and resource-based small business enterprise development;
- Sustainable community development;
- Risk and hardship alleviation; and
- Improving inter-island sea and air transport services.

241. For each priority action area the ability of the planned ADB assistance was assessed, leading to a decision as to whether strengthening the currently planned assistance would be sufficient to making a meaningful contribution to addressing the five priority action areas. If so, the type of strengthening required was described. Where the planned assistance was thought to be insufficient the essential elements of the additional assistance were described in concept briefs for the proposed projects, namely:

- Strengthening communication, coordination and cooperation between levels of government;
- Develop environment- and resource-based enterprises through the small business development centers;
- Micronesians in sustainable community development learning network and pilot projects;
- Demonstration project on community adaptation to reduce risk and alleviate hardship;
- Enhancing sustainability of infrastructure development projects in FSM; and
- Improving inter-island sea and air transport services.

242. It is recommended that the necessary actions be undertaken at national, state and municipal levels 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. The environmental sustainability development priorities as set out in the SDP have yet to be mainstreamed into the current strategic and operational plans of Government departments and agencies.

243. There is an urgent need to mainstream environmental and natural resource management considerations in FSM's development planning processes. There are three 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; (ii) the future of the FSM rests on its people and its environment and natural resources – if agriculture,

tourism and fisheries play ever increasing roles in the state and national economies there will be growing pressures on these assets – there is thus a concomitant need to manage them to ensure their sustainability; and (iii) the population of the FSM is increasing rapidly and would be increasing more rapidly were it not for growing emigration) – by 2050 the population density for FSM will be similar to the population density of Chuuk today, with all the associated implications for the environment and natural resources if management practices are not improved dramatically.

244. Important population and economic planning decisions will have to made. Moreover, environmental and resource management decisions made today will establish the quality of life of people tomorrow and, more importantly, in more distant times. The complex nature of the issues, and also their solutions, mean that cooperation is required between all three levels of government and with the private sector, NGOs and communities. A major constraint on effective environmental and natural resource management is the widely held belief of land and resource owners that activities and structures on the land and marine areas for which they have legal or customary ownership rights cannot be regulated or otherwise restricted. While the ultimate remedy is legal prosecution and imposition of penalties, a far more desirable approach is to ensure that land and resource owners are fully appraised of their rights and responsibilities, and of the immediate and more widespread and long-term consequences of inappropriate behaviors and facilities. Thus again the solution does not rest with government alone. Raising awareness in order to change attitudes and behaviors requires a collaborative effort that involves the media, NGOs, community and traditional leaders as well as the three levels of government.

245. However, there are instances where governments should be taking the lead with initiatives that will facilitate implementation of the environmental road map and in other ways address the five priority areas identified above. The two key practical acts by governmental that will help ensure effective mainstreaming of environmental management 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 and project implementation are implemented in a timely and effective manner.

246. Recent implementation of performance-based budgeting has resulted in substantial improvements in environmental monitoring (quality and compliance) and helped to elevate the status of the environment sector within government operations. However, there is an erroneous perception that under the amended Compact the environmental sector is now well-funded. The environmental road map provides targets for environmental quality and for the performance the part of the private sector made up of environment- and natural resource-based small business enterprises. Governments should recognize 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, through performance-based budgeting, an ability to meet their performance targets. Governments should follow this by allocating appropriate portions of their non-grant revenues to these agencies.

247. The challenges to secure cooperation from land owners to ensure compliance should not be underestimated. There is a widely held opinion that the issues of land tenure and traditional land uses will preclude any effective land use planning and zoning. There is a need to build on and upscale the existing examples of success in harmonizing traditional and modern approaches to land use planning, to the management of the environment and natural resources, and to meeting other relevant needs of society. It is important to raise the awareness of landowners with regard to both their rights and responsibilities as well as to 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 the availability of land for development. Absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights is another constraint that needs to be resolved with urgency.

248. 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, governments need to seriously question why there is currently no operative aluminum can recycling scheme in any of the four states. Schemes have been implemented in many of the states, but for various and complex reasons none was sustainable. The favorable price advantage that many imported foods have over local alternatives is also a situation that needs to be addressed. While in the longer term increased supplies of local produce will likely see prices decline, in the near term local farmers and fishers may need assistance to ensure their produce is competitively priced. Governments need to be more willing to make interventions that deliver benefits in the longer term.

249. 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. Certainty for developers and certainty of outcomes can be improved if a locally appropriate and meaningful requirements for building design, placement and construction are included in a building code. This may well require a national code that sets minimum standards and provided additional guidelines. Under the constitution this would be possible due to public health and safety considerations. Each state could prepare and enforce its own building code that was consistent with the national equivalent but also took into account local circumstances and concerns, including those related to climate change.

250. Cooperation between and within the levels of government is far from optimal. Arguably the situation is worst for environmental and natural resource management. Institutional strengthening should be such that it facilitates rather then impedes the mainstreaming process. This would include taking the necessary action to secure that the full range of benefits offered by an adequately resourced and fully functional President's Council on Environmental Management and Sustainable Development. Its equivalent at state level in Pohnpei, the Natural Resource Management Committee, is chaired by the Deputy Governor of the state. That committee is assisting with cooperation and coordination within and between state and municipal governments and with non-governmental stakeholder representatives. Despite some reservations about its effectiveness due to a selective purview of development projects and lack of formal endorsement of the committee by the state legislature, the committee is an institution worthy of consideration by the other three states.

251. As Government, the private sector, communities and individuals 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. The Institutional Capacity Building Roadmap component of the ADB TA 4258-FSM: Strengthening of Public Sector Management and Administration, will assist in this process, as will the proposed follow-up TA, Implementation of Public Sector Capacity Building Roadmap. However, the focus of the roadmap is on the parts of government directly involved in addressing the implications of Compact funding phase-out. The training needs assessment performed under the TA did not therefore extend to staff in agencies responsible for environmental and natural resource management. A training needs assessment for these agencies could be a priority activity under the proposed TA Strengthening Communication, Coordination and Cooperation Between Levels of Government.

252. Opinion leaders in the community can play a key 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. FSM is fortunate to have national- and state-focused NGO's, all of which have highly professional and well-regarded staff. While in recent years governments have been increasingly willing to involve such people in policy making and planning there is a feeling among the NGO community that they are being used, rather than being treated as true partners. For example, they are often asked to help only when things seem to be going wrong and not from the early stages of planning and development. And even when they are involved in the planning, they are often left out when the big decisions are made, such as those related to the environment sector grant. Governments can do much to ensure that the expertise available via the NGOs 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 FSM's environment and natural resources.

253. 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. In Pohnpei both the Environmental Protection Agency and the Survey and Mapping Division of the Department of Land and Natural Resources are providing decision makers and managers with information that allows them to be more successful in fulfilling their responsibilities. However, even in these two cases the information management systems suffer from a dearth of relevant data that can only be acquired through surveys, assessments and monitoring programs. Currently these are poorly resourced, managed and implemented. A major constraint on successful mainstreaming 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.

254. 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 amended in ways that clarify the responsibilities, intentions, powers and procedures of governments. Such legislation can then serve as the basis for informing and thereby engaging constructively the public and members of the private sector. State of the art awareness raising programs will correct false perceptions, identify mutually beneficial opportunities, and build mutual respect and confidence.

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Appendix 1

Climate Risk Profile

Federated States of Micronesia[9]

Summary

The likelihood (i.e., probability) components of climate-related risks in the Federated States of Micronesia are evaluated, for both present day and future conditions. Changes over time reflect the influence of global warming.

The risks evaluated are extreme rainfall events (both hourly and daily), drought, high sea levels, strong winds and extreme high air temperatures.

Projections of future climate-related risk are based on the output of global climate models, for given emission scenarios and model sensitivity.

With the exception of maximum wind speed, all the likelihood components of climate-related risk show marked increases as a result of global warming.

Introduction

Formally, risk is the product of the consequence of an event or happening and the likelihood (i.e. probability) of that event or happening.

While the consequence component of a climate-related risk will be site or sector specific, in general the likelihood component of a climate-related risk will be applicable over a larger geographical area and to many sectors. This is due to the spatial scale and pervasive nature of weather and climate. Thus the likelihood of, say, an extreme event or climate anomaly, is often evaluated for a country, state, small island or similar geographical unit. While the likelihood may well vary within a given unit, there is often insufficient information to assess this spatial variability, or the variations are judged to be of low practical significance.

The following climate conditions are considered to be among the potential sources of risk:

- extreme rainfall events;
- drought;
- high sea levels;
- strong winds; and
- extreme high air temperatures

Methods

Preparation of a climate risk profile for a given geographical unit involves an evaluation of current likelihoods of all relevant climate-related risks, based on observed and other pertinent data.

Climate change scenarios are used to develop projections of how the likelihoods might change in the future. For rainfall and temperature projections the Hadley Centre (United Kingdom) global climate model (GCM) was used as it gave results intermediate between

[9] At this time the profile is limited to the States of Pohnpei and Kosrae, with emphasis on the former.

those provided by three other GCMs, namely those developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO), Japan's National Institute for Environmental Science (NIES) and the Canadian Climate Centre (CCC). For drought, strong winds and sea level the Canadian GCM was used to develop projections.

Similarly, the SRES A1B greenhouse gas emission scenario was used when preparing rainfall, temperature and sea level projections. Figure 1.1 shows that this scenario is close to the middle of the envelope of projected emissions and greenhouse gas concentrations. For drought both the A2 and B2 emission scenarios were used while for strong winds only the A2 scenario was used.

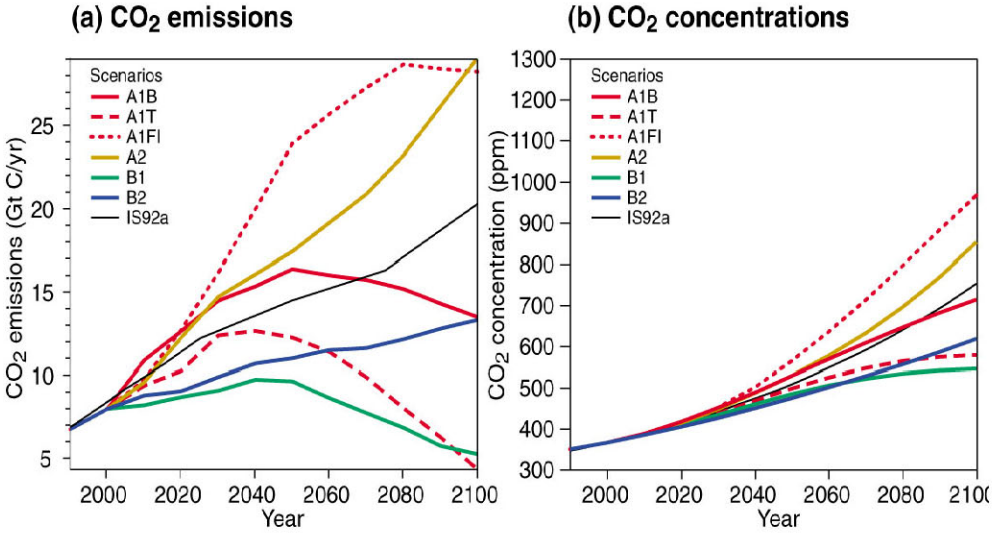


Figure 1.1: Scenarios of CO_2 gas emissions and consequential atmospheric concentrations of CO_2 (from IPCC, 2001).

Information Sources

Daily and hourly rainfall, daily temperature and hourly wind data were obtained through the Pohnpei Weather Service Office and with the assistance of Mr Chip Guard, National Oceanic and Atmospheric Administration, Guam. Sea level data for Pohnpei were supplied by the National Tidal Facility, The Flinders University of South Australia, and are copyright reserved. The sea level data derived from Topex-Poisidon satellite observations were obtained from //podaac-esip.jpl.nasa.gov.

Data Specifications

While much of the original data was reported in Imperial units, all data are presented using System International units.

Uncertainties

There are numerous sources of uncertainty in projections of the likelihood components of climate-related risks. These include uncertainties in greenhouse gas emissions and those arising from modelling the complex interactions and responses of the atmospheric and ocean systems.

Figure 1.2 shows how uncertainties in greenhouse gas emissions impact on estimates of the return periods of a daily precipitation of at least 250 mm for Pohnpei.

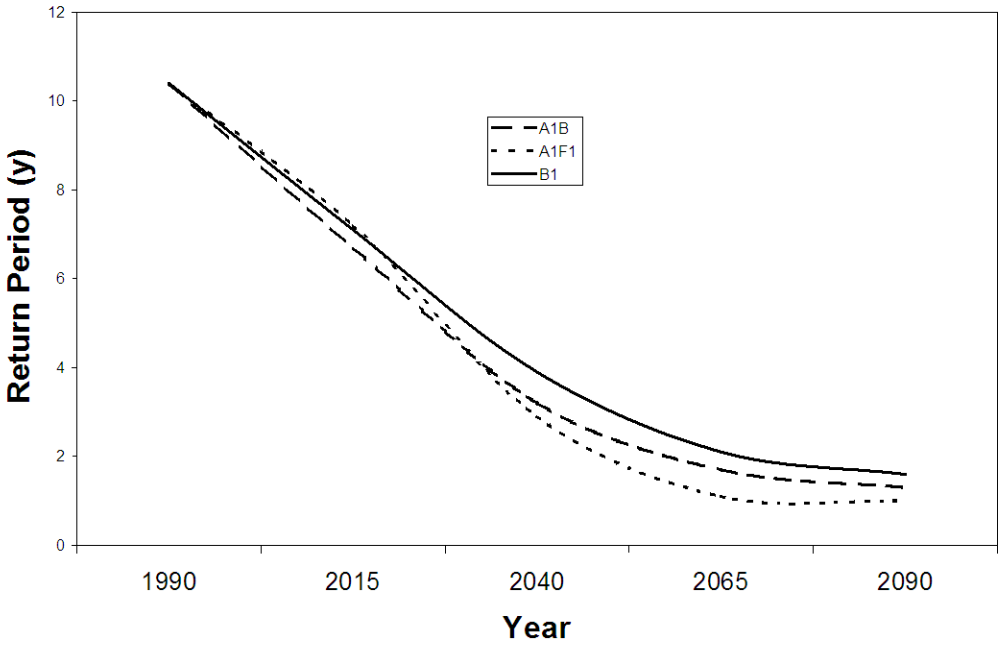


Figure 1.2: Return Periods for Daily Rainfall of 250 mm in Pohnpei for Given Greenhouse Gas Emission Scenarios. Calculations used Hadley Center GCM with Best Judgment of Sensitivity.

Similar graphs can be prepared for other GCMs and extreme events, but are not shown here. Policy and decision makers need to be cognizant of uncertainties in projections of the likelihood components of extreme events.

Graphical Presentations

Many of the graphs that follow portray the likelihood of a given extreme event as a function of time horizon. This is the most appropriate and useful way in which to depict risk since design life (i.e. time horizon) varies depending on the nature the infrastructure or other development project.

Extreme Rainfall Events

A. Daily Rainfall

Figure 1.3 shows the frequency distribution of daily precipitation for Pohnpei. A daily total above 250 millimeter (mm) (9.8 inches (in)) is a relatively rare event, with a return period (i.e., recurrence interval) of 10 years (yr).

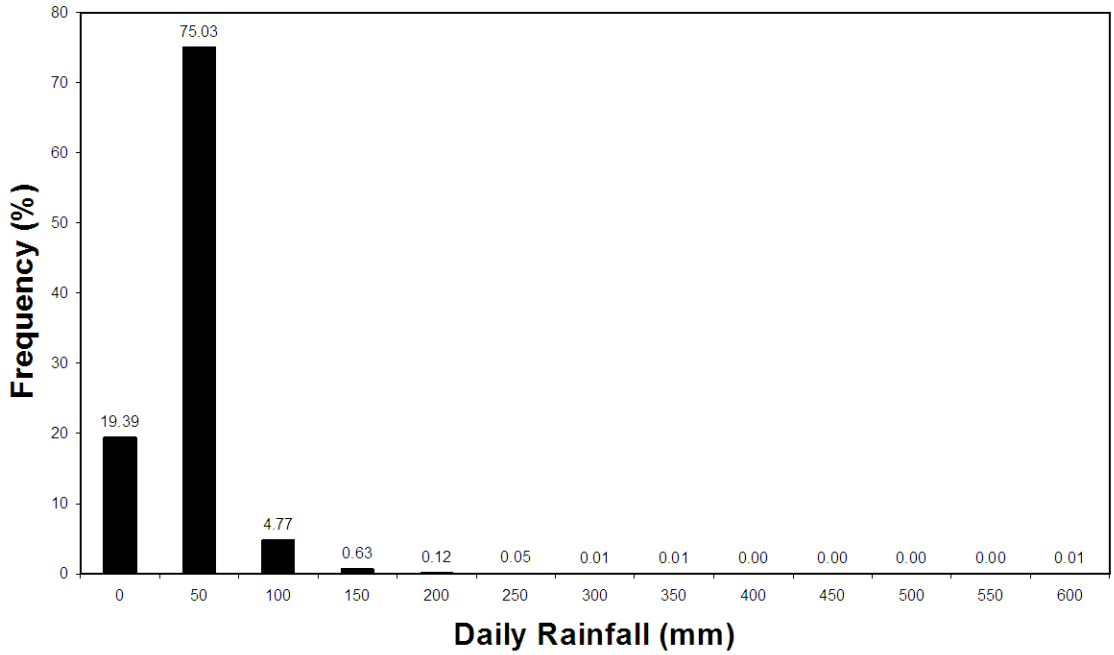


Figure 1.3: Frequency distribution of daily precipitation for Pohnpei. Data for 1953 to 2003. The numbers above the bars represent the frequency of occurrence, in percent, for the given data interval.

Figure 1.4 shows the likelihood of such an extreme rainfall event occurring in Pohnpei and Kosrae, within a given time horizon ranging from 1 to 50 yr.

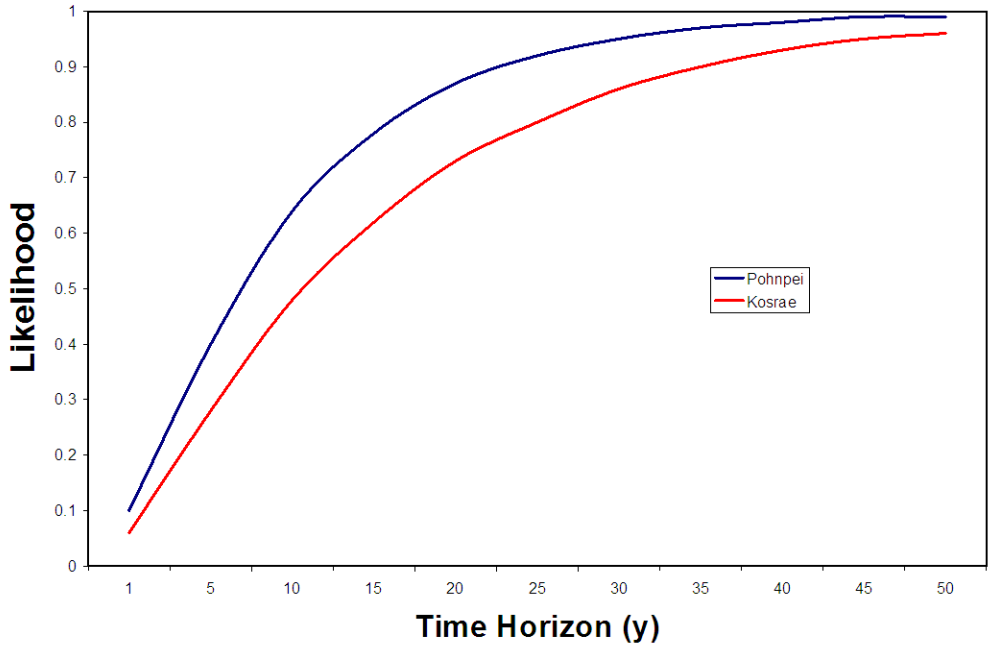


Figure 1.4: Likelihood (0 = zero chance; 1 = statistical certainty) of a daily rainfall of 250 mm (9.8 in) occurring within the indicated time horizon (years). Data for Pohnpei (1953-2003) and Kosrae (1953-2001,with gaps). A daily rainfall of 250 mm has a return period of 10 and 16 yr, respectively.

As shown in Table 1.1 global warming will alter significantly the return periods, and hence the likelihoods, of the extreme rainfall events. For example, Figure 1.5 illustrates how the likelihood of a daily rainfall of 250 mm will increase over the remainder of the present century.

Table 1.1: Return Periods (yr) for Daily Rainfall, Pohnpei and Kosrae

Rainfall (mm)	Present	2025	2050	2100
Pohnpei				
100	1	1	1	1
150	2	1	1	1
200	5	2	1	1
250	10	5	2	1
300	21	9	4	2
350	40	17	8	2
400	71	28	13	3
450	118	45	20	5
500	188	68	30	7
Kosrae				
100	1	1	1	1
150	3	2	1	1
200	6	4	2	2
250	16	9	5	2
300	38	21	12	4
350	83	50	31	9
400	174	119	83	22
450	344	278	237	64
500	652	632	410	230

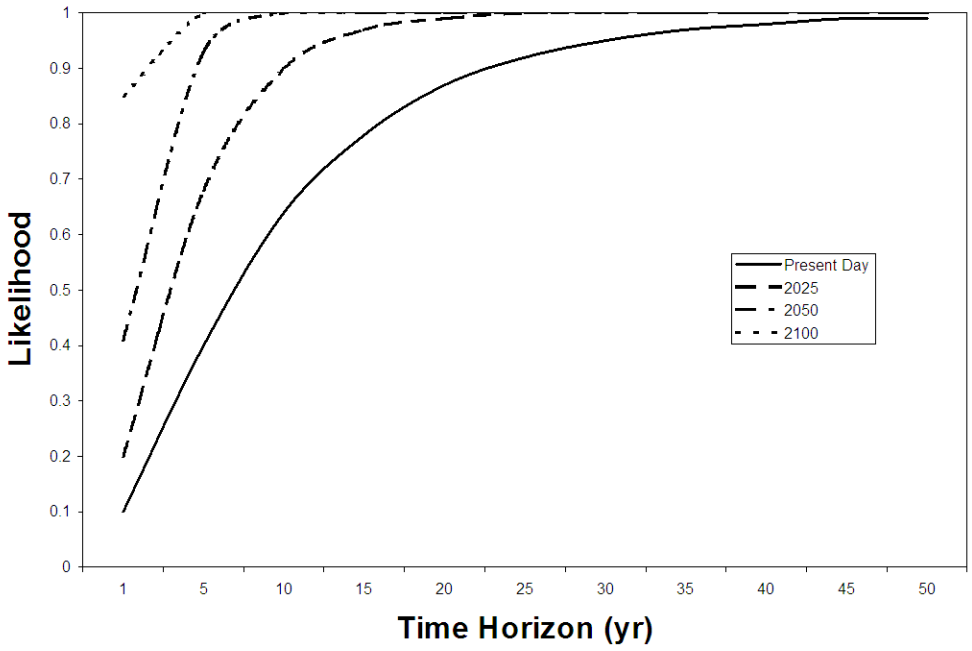


Figure 1.5: Likelihood (0 = zero chance; 1 = statistical certainty) of a daily rainfall of 250 mm (9.8 in) occurring within the indicated time horizon (years). Data for Pohnpei.

B. Hourly Rainfall

Figure 1.6 shows the frequency distribution of hourly precipitation for Pohnpei. An hourly total above 100 mm (3.9 in) is a relatively rare event. Table 1.2 shows such a rainfall has a return period of 6 yr. The table also shows, for both Pohnpei and Kosrae, that global warming will have a significant impact on the return periods of extreme rainfall events.

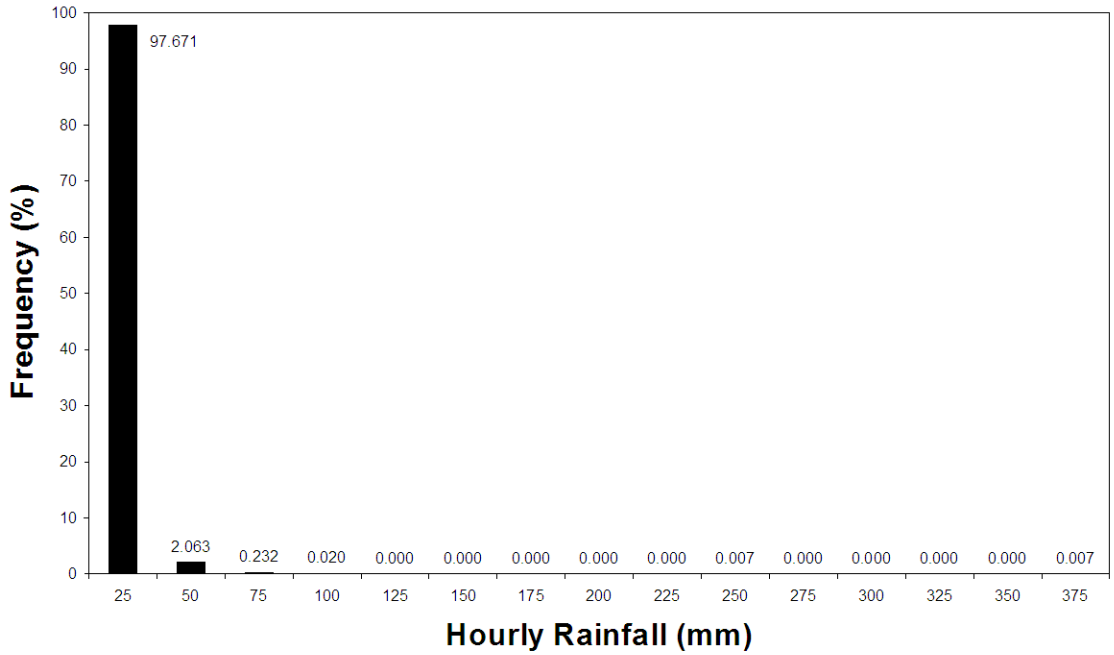


Figure 1.6: Frequency distribution of hourly precipitation for Pohnpei. Data for 1980 to 2002, with gaps. The numbers above the bars represent the frequency of occurrence for the given data interval, in percent of hours of observed rainfall.

Table 1.2: Return Periods (yr) for Hourly Rainfall, Pohnpei and Kosrae

Rainfall (mm)	Present	2025	2050	2100
Pohnpei				
50	2	1	1	1
100	6	3	2	1
150	14	7	4	2
200	23	12	7	4
250	34	18	11	5
300	47	25	15	8
350	61	32	20	10
400	77	40	26	13
Kosrae				
50	2	2	1	1
100	8	6	5	3
150	16	13	10	6
200	28	21	16	11
250	41	31	24	16
300	56	42	33	22
350	73	55	43	29
400	91	68	54	37

Figure 1.7 depicts the impact of global warming on the likelihood of an hourly rainfall of 200 mm for Pohnpei.

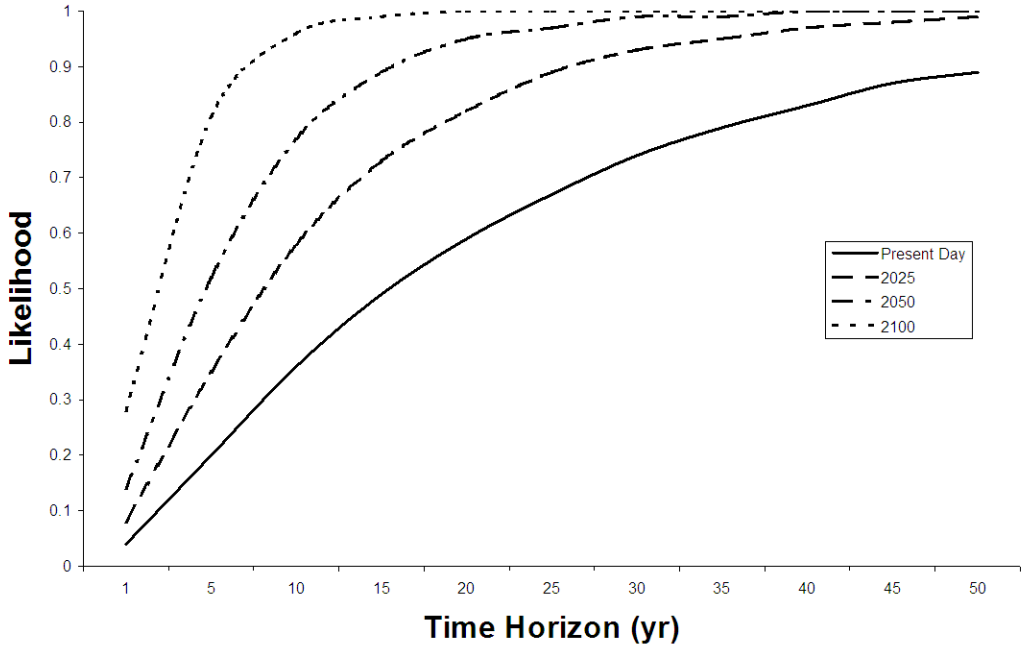


Figure 1.7: Likelihood (0 = zero chance; 1 – statistical certainty) of an hourly rainfall of 200 mm (7.9 in) occurring within the indicated time horizon (years) in Pohnpei. Values for present day based on observed data for 1980 to 2002, with gaps.

Drought

Figure 1.8 presents, for Pohnpei, the number of months in each year (1953 to 2003) and each decade for which the observed precipitation was below the five percentile. A monthly rainfall below the five percentile is used here as an indicator of drought.

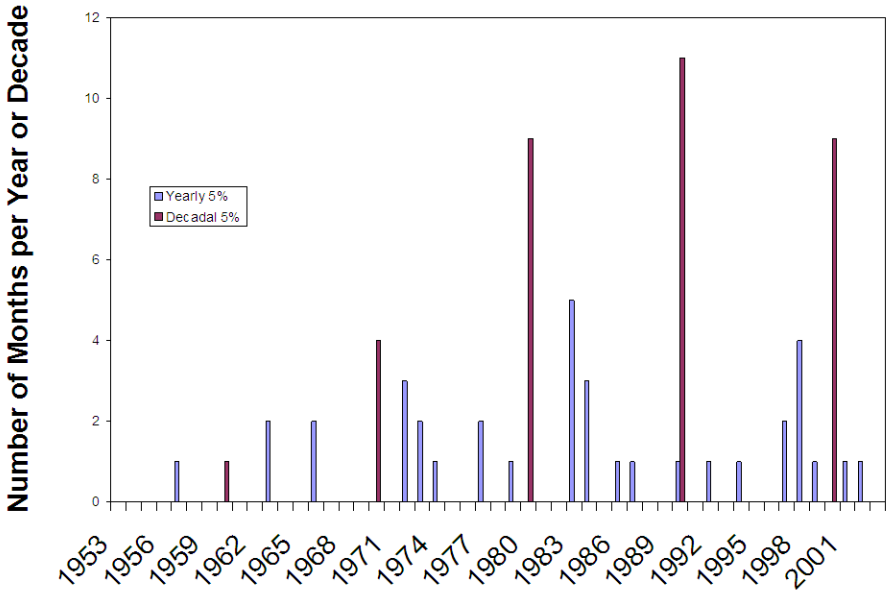


Figure 1.8: Number of months in each year or decade for which the precipitation was below the five percentile. Data for Pohnpei.

Most of the low rainfall months are concentrated in the latter part of the period of observation, indicating that the frequency of drought has increased since the 1950s. The years with a high number of months below the five percentile coincide with El Nino events.

Due to the incomplete rainfall record for Kosrae a similar analysis could not be undertaken for that State.

Figure 1.9 shows the results of a similar analysis, but for rainfall estimates (1961 to 1990) and projections (1991 to 2100) by the Canadian GCM. The results are presented for both the A2 and B2 emission scenarios.

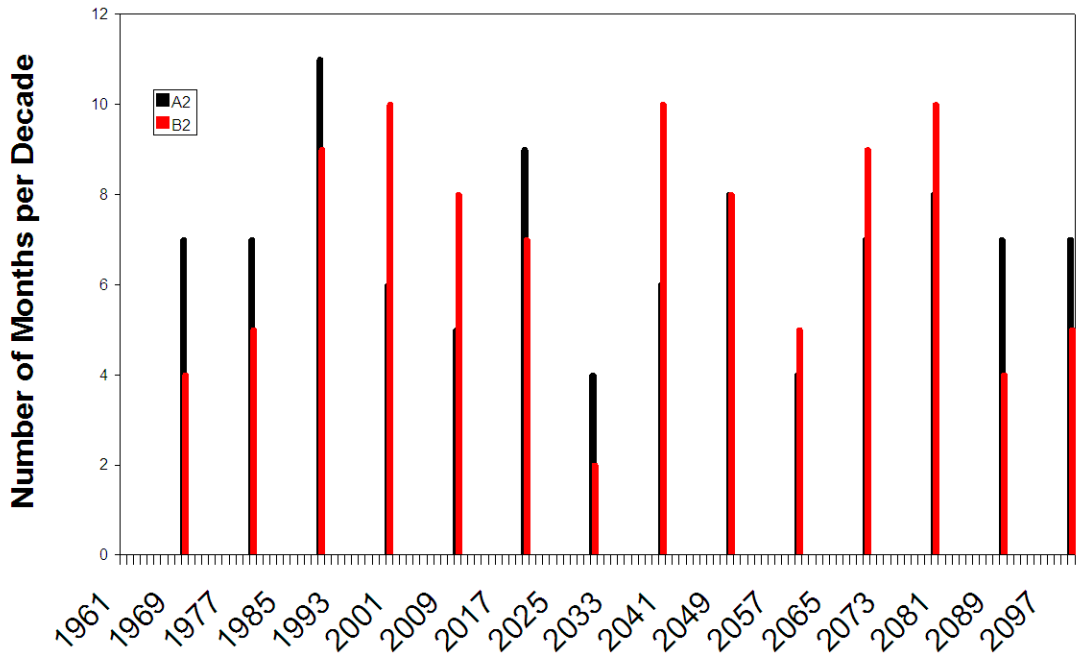


Figure 1.9: The number of months per decade for which the precipitation for Pohnpei is projected to be below the five percentile. Data from the Canadian GCM, with A2 and B2 emission scenarios and best estimate for GCM sensitivity.

Figure 1.9 also shows that the GCM replicates the increased frequency of months with extreme low rainfall during the latter part of the last century. The results also indicate that, regardless of which emission scenario is used, the frequency of low rainfall months will generally remain high relative to the latter part of last century.

High Sea Levels

Figure 1.10 shows daily mean values of sea level for Pohnpei, relative to mean sea level. There is large interannual variability in sea level. Low sea levels are associated with El Nino events, while exceptionally high sea levels occurred in October 1988.

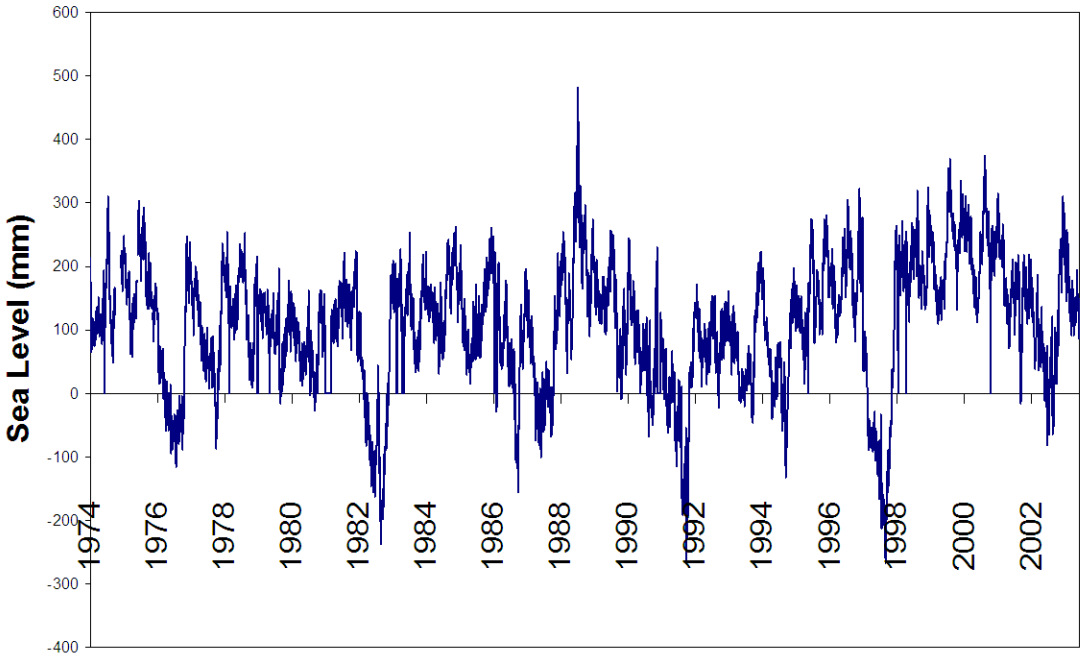


Figure 1.10: Daily mean values of sea level for Pohnpei (1974 to 2003). The sea level elevations are relative to surveyed mean sea level.

Even more extreme high sea levels occur over time scales less than a day. Table 1.3 provides return periods for given sea level elevations for Pohnpei, for both the present day and into the future. The latter projections are based on the Canadian GCM 1 GS and the A1B emission scenario.

Table 1.3: Return Periods (yr) for Extreme High Sea Levels, Pohnpei

Sea Level (cm)	Present Day	2025	2050	2100
80	1	1	1	1
90	1	1	1	1
100	4	2	1	1
110	14	5	2	1
120	61	21	5	1
130	262	93	20	1
140	1149	403	86	2

The indicated increases in sea level over the next century are driven by global and regional changes in mean sea level as a consequence of global warming. Figure 1.11 illustrates the magnitude of this contribution,

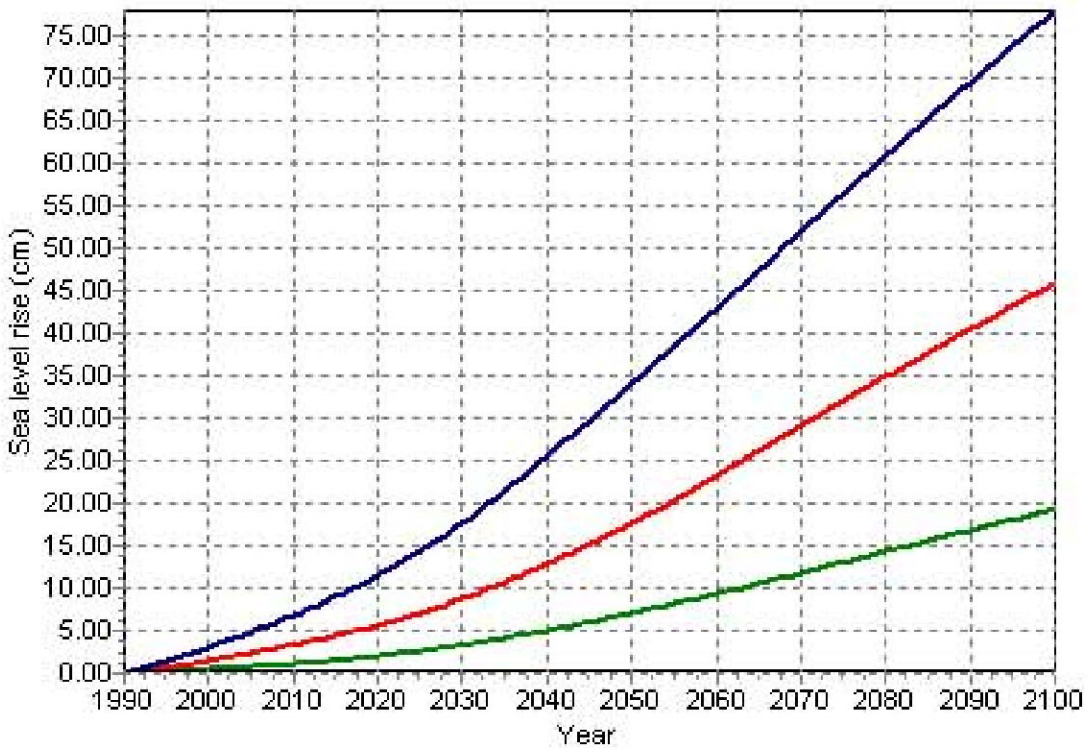


Figure 1.11: Sea level projections for Pohnpei, based on the Canadian GCM 1 GS and the A1B emission scenario. Uncertainties related to GCM sensitivity are indicated by the blue, red and green lines – representing high, best estimate and low sensitivities, respectively.

Sea level elevations are not recorded in situ for Kosrae. However, satellite observations of sea level are available and can add some understanding to both historic and anticipated changes in sea level.

There is a high level of agreement between the tide gauge and satellite measurements of sea level, at least for monthly averaged data (Figure 1.12).

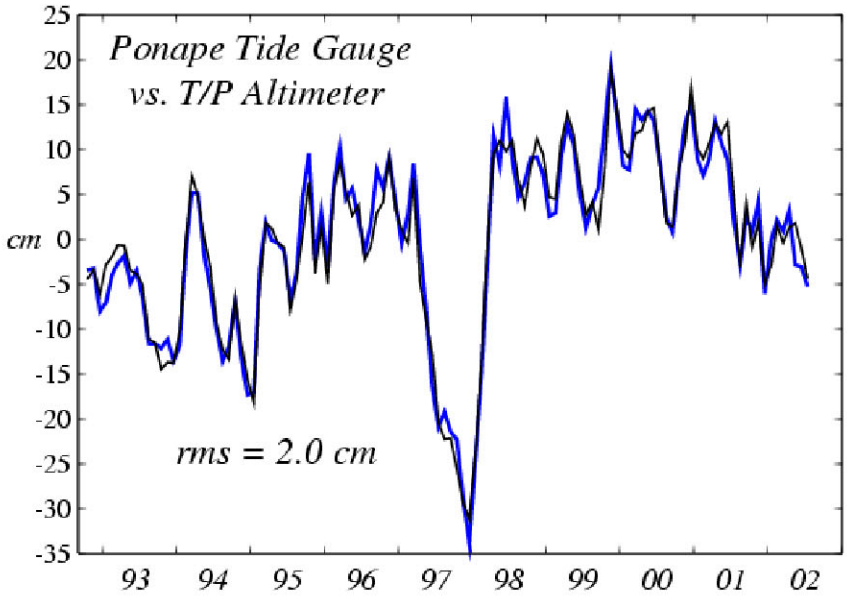


Figure 1.12: Sea level (departure from normal) as determined by the Pohnpei tide gauge and by satellite.

This gives confidence in the use of satellite data to characterize sea level for Kosrae. Figure 1.13 presents satellite-based estimates of sea level for a grid square centred on Kosrae.

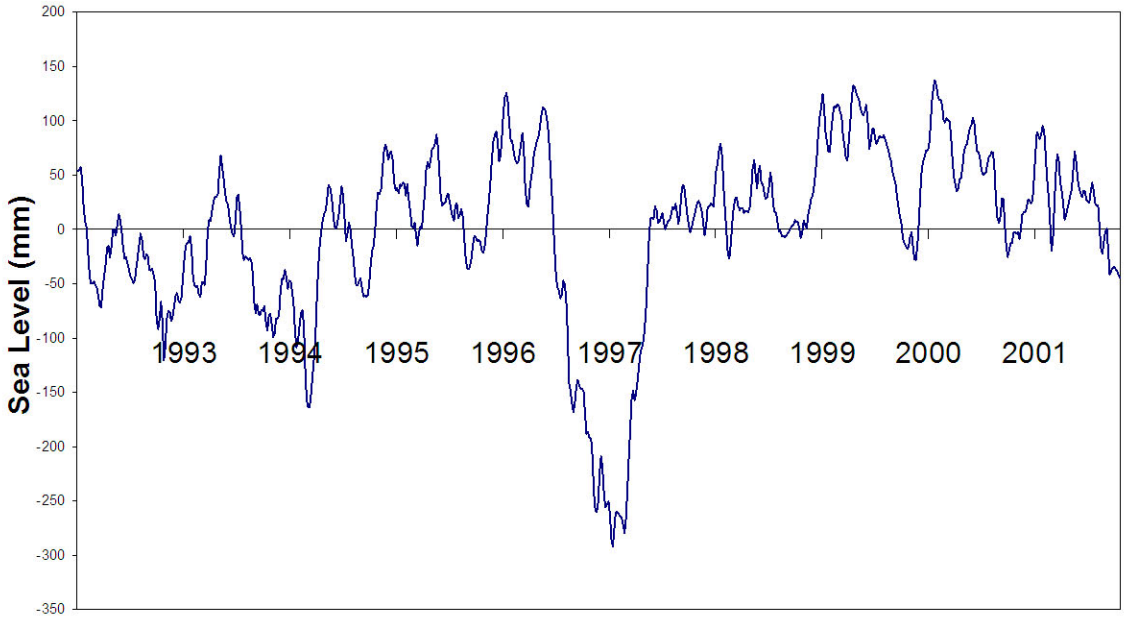


Figure 1.13: Five-day mean values of satellite-based estimates of sea level for a grid square centred on Kosrae (5.25 to 5.37 N; 162.88 to 163.04 E). Values are departures from the mean for the period of record – November 1992 to August 2002.

Figure 1.14 presents the projected increase in sea level for Kosrae, as a consequence of global warming. The global and regional components of sea-level rise for Kosrae are very similar to those for Pohnpei.

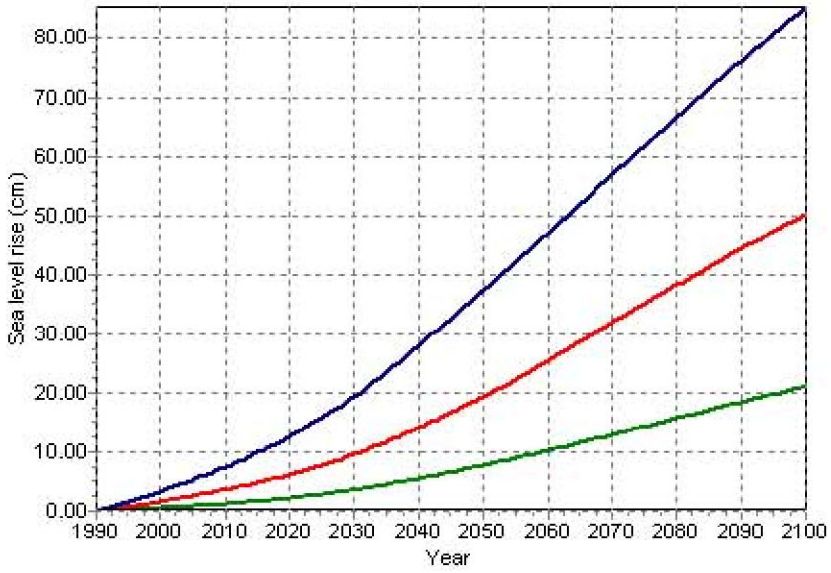


Figure 1.14: Sea level projections for Kosrae, based on the Canadian GCM 1 GS and the A1B emission scenario. Uncertainties related to GCM sensitivity are indicated by the blue, red and green lines – representing high, best estimate and low sensitivities, respectively.

Strong Winds

Figure 1.15 shows the annual maximum wind gust recorded in Pohnpei for the period from 1974 to 2003.

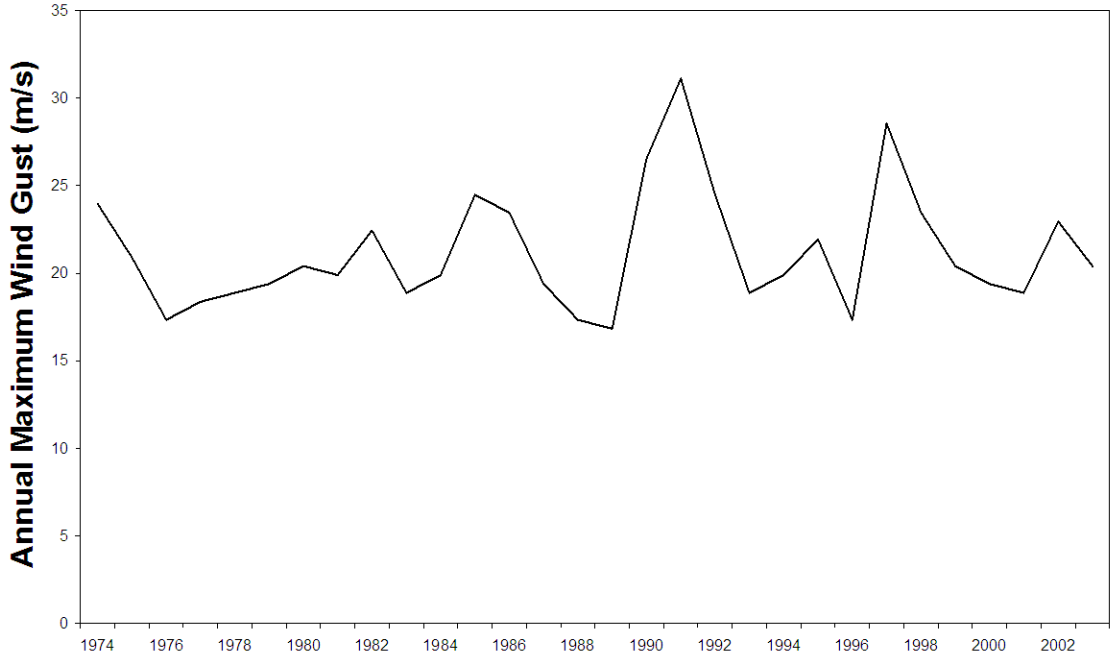


Figure 1.15: Annual maximum wind gust recorded in Pohnpei for the period from 1974 to 2003.

Table 1.4 presents return periods for extreme high winds in Pohnpei, based on observed data. Also shown are return periods for 1990 to 2020 and for 2021 to 2050. The latter are estimated from projections of maximum wind speed using the Canadian GCM 2 with the A2 emission scenario.

Table 1.4: Return Periods (yr) for Maximum Wind Speed, Pohnpei

Wind Speed ($m\ s^{-1}$)	Hourly	Daily		
	1974-2003	1961-1990	1991-2020	2021-2050
20	2	2	2	2
25	8	10	10	9
28	20	47	40	20

Figure 1.16 depicts the impact of global warming on the likelihood of a maximum wind gust of 28 m^{s-1} for Pohnpei.

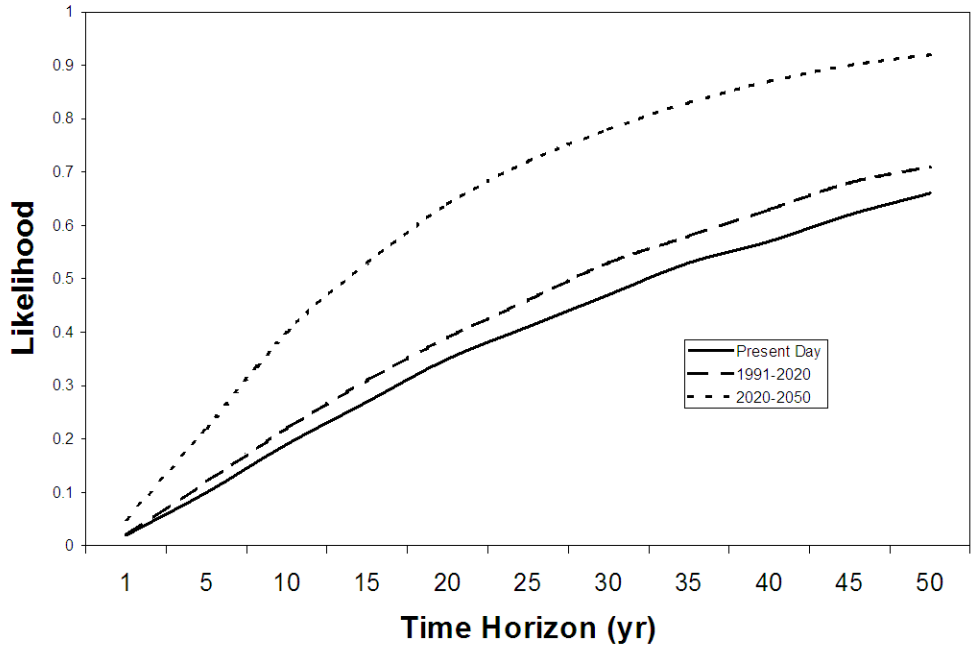


Figure 1.16: Likelihood (0 = zero chance; 1 – statistical certainty) of a maximum wind gust of 28 m^{s-1} (55 knot) occurring within the indicated time horizon (years) in Pohnpei. Values based on Canadian GCM 2, with A2 emission scenario.

Extreme High Temperatures

Figure 1.17 presents the frequency distribution of daily maximum temperature for Pohnpei.

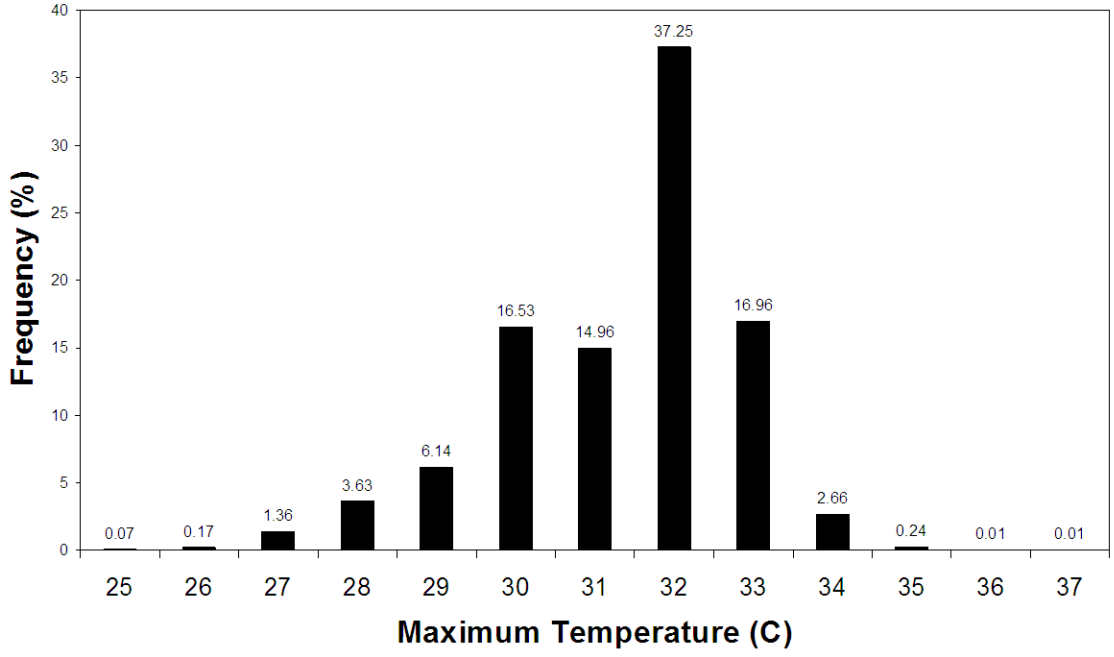


Figure 1.17: Frequency distribution of daily maximum temperature for Pohnpei. Based on observed data from 1953 to 2001

Table 1.5 details the return periods for daily maximum temperature for Pohnpei, based on observed data (1953-2001) and projections using the Hadley Centre GCM and the A1B emission scenario.

Table 1.5: Return Periods (yr) for Daily Maximum Temperature, Pohnpei				
Maximum Temperature (C)	Observed (1953-2001)	Projected		
		2025	2050	2100
32	1	1	1	1
33	1	1	1	1
34	4	2	2	1
35	24	11	6	2
36	197	80	39	10
37	2617	1103	507	101

Figure 1.18 depicts the impact of global warming on the likelihood of a daily maximum temperature of 36 C for Pohnpei.

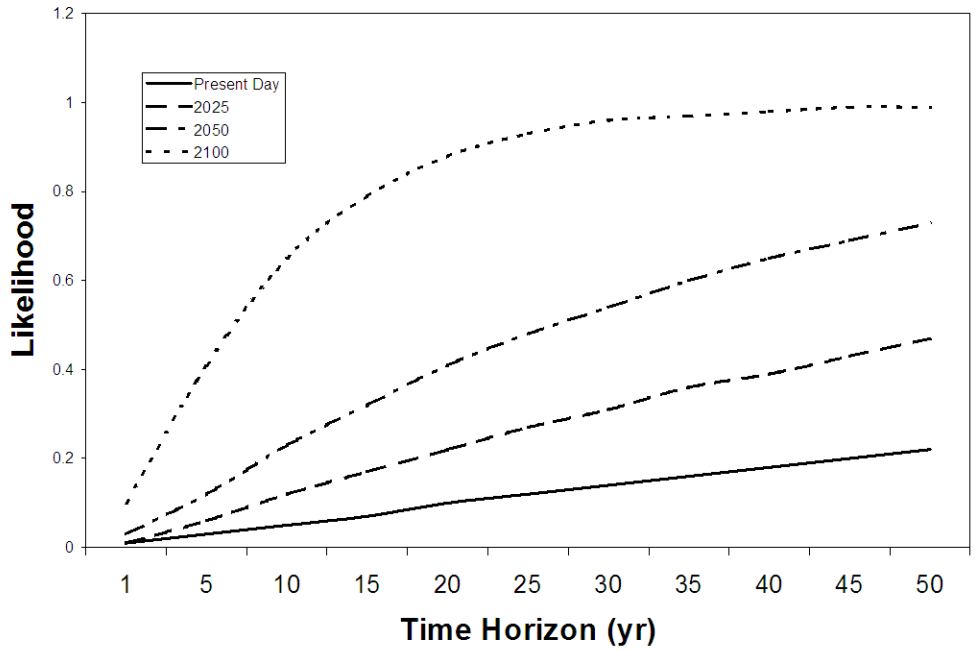


Figure 1.18: Likelihood (0 = zero chance; 1 – statistical certainty) of a maximum temperature of 36 C (97 F) occurring within the indicated time horizon (years) in Pohnpei. Values based on observed data (1953-2001) and on projections from the Hadley Centre GCM with A1B emission scenario and best estimate of GCM sensitivity.

Appendix 2

List of Individuals Consulted

Yap State, June 27 – July 1, 2005:

1. Office of Planning & Budget: Phillip Rafilpiy, Chief of Planning
2. Governor Robert Ruecho and Lt. Governor Joe Habuchumai
3. EPA: Leo Yinnug, Director & Lisa Johnson, PCV
4. Yap State Public Service Corporation: Faustino Yangmog, Gen. Manager, Francis Faney, Asst. Manager, and John Sohlith, Project Manager
5. Resources & Development: Joseph Giliko, Director and Jesse T. Gajdusek, Asst. Director
6. USDA-Forest Services & Environment Stewardship Consortium/Yap Institute of Natural Science: Margie Falanruw
7. Health Services: Mark Durand, Director
8. COM-FSM Land Grant: Stan J. Falmngar, Asst. Director & Murukesan V. Krishnapillai, Researcher
9. Yap Fisheries Authority: Dominic Brug
10. Yap Community Action Program: Charles Chieng, Executive Director

Chuuk State, July 4 – 5 & August 15 – 16, 2005:

1. EPA: Ismael Mikel, Acting Director; Joe Konno, Special Asst. to Director; Steve Winter, Environmental Engineer; Jack Sham, Sanitation; Julita Albert, Conservation; Joshua Simor, Water Quality; Mercy Danis Sos, POPS; Tita Joseph; &; Elina Raymond, Admin. Officer
2. Dept. Admin. & Services (Finance, Budget & Planning): Homopher Reselap, Finance Deputy Chief; Sisinio Willy, Budget Chief; Joe N. Suka, Commerce & Industry Chief; & Hiroshi Muludy, Planning Dep. Chief
3. Dept. of Agriculture: Thomas Mazawa, Agriculture Dep. Director; Masahiro Mori, A.O.; Akilino Kouch, Prog. Coord.; Sleeper Sared, Forestry Chief; & William Billimon, Urban Forestry Stewardship Coord.
4. Chuuk Women's Advisory Council: Shinobu Poll, President
5. Dept. of Public Works: Nelsin Killion, Acting Director
6. Div. of Transportation: Thomas Narruhn, Chief
7. Dept. of Marine Resources Development: Romeo Osiena, Director
8. Chuuk Power and Utilities Corporation: Hentrick Eveluck, CEO/Gen. Manager & Krescio Billy, Sewage and Water Division Chief
9. Governor's Office: Wesley Simina, Governor
10. Land Management: Kaster Sifam, Chief
11. GATA: Jaypo Rescue, Member
12. Disaster Office: Kasto Eis, Hazard & Mitigation Officer
13. Dept. of Health Services, Div. of Public Health & Sanitation: Julita Muritok, Admin. Officer; Rosa Stanis, Immunization Coord.; Elden Eldhart, TB Health Coord.; Eleanor Sos, HIV Coord.; and Nathan Aten, Sanitation
14. Weno Municipal Govt.: Les Aidel, Chief of Staff
15. Chuuk Visitor Bureau: Mason Fritz, Director

Kosrae State, July 8 – 15, 2005:

1. Governor Rensper Sigrah
2. Dept. of Health Services: Arthy Nena, Director; Ken Mongkeya, Quality Insurance & Acting A.O; Roslyn Reynold, Prevention Services; Katchuo William, Sanitation; Norleen Livaie, Food Safety; and Keithson Jonas, Kosrae Public Radio V6AJ
3. Dept. of Admin. & Finance: Boldon Abraham, Director
4. Dept. of Agriculture, Land & Fisheries: Robinson Timothy, Survey & Mapping; Tony

Abraham, Marine Surveillance; Robert Towlung, Fisheries Development; Klasdin Cornelius, Crop Production; Berlin Sigrah, Land Management & Historic Preservation; and Mordaniel Tolenna, Livestock Production
5. Disaster Management: Henry Shrue
6. Dept. of Administrative Services: John William, A.O.
7. Kosrae Utilities Authority: Fred Skilling, Gen. Manager; Vincent Henry, Board Member; and Robert Tau'ulupe, Engineer
8. Dept. of Education: Alaistair Tolenoa, Acting Director & Widmer Robert, A.O. Instruction Div.
9. Kosrae Conservation and Safety Organization: Andy George, Executive Director
10. Dept. of Public Works: Bruce Howell, Director
11. AG's Office: Judy Diane Lee, AG
12. Lelu Municipal Govt.: Iona Weilbacher, Acting Mayor and David Robert, Project Manager
13. Micronesia Petroleum Corporation: Weston Luckymis, Director
14. SEMO-Micronesia, Inc.: Robert Weilbacher, Vice President and Mr. Jung, President

Pohnpei State, July 18 – 22, 2005:
1. Governor Johnny David
2. Conservation Society of Pohnpei: Willy Kostka, Executive Director
3. The Nature Conservancy: Bill Raynor, Program Manager
4. Public Works: Peter Aron, Administrator
5. AG's Office: Ricky Carl, Asst. AG
6. Div. of Forestry: Herson Anson, Chief
7. Pohnpei Utilities Corporation: Marcelino Actouka, General Manager and Esmond Moses, A.O.
8. Div. of Marine Development: Donald David, Chief
9. EPA: Elden Hellan, Director
10. Dept. of Land & Natural Resources Management: Youser Anson, Director
11. Nett Municipal Govt.: Marcus Rosario, District Administrator & Municipal Govt. Committee Chair
12. Pohnpei Transportation Authority: Johnny Bravo, Legal Counsel and Swingley Poll, Administrator
13. Dept. of Health Services: Wincener David, Director & Simao Nanpei, Primary Health Chief
14. Pohnpei Port Authority: Melson Darra, Airport Manager; Daniel Isaac, Facilities & Construction Manager; and Zorro Donre, Personnel Officer
15. Bureau of Economic Affairs: Kikuo Apis, Administrator
16. Div. of Agriculture: Adelino Lorens, Chief
17. Adams Brother Corporation: Larry Adams, Owner
18. James Movick, Fisheries Private Sector

FSM National Govt., July 25 – 29, 2005:
1. Dept. of Finance: Nick Andon, Secretary & Vincent Pangelinan, International Financial Coordinator
2. Dept. of Economic Affairs: Akilino Susaia, Secretary; Marion Henry, Sector Chief; & Cynthia Ehmes, SD Planner
3. Dept. of Health, Education & Social Affairs: Moses Pretrick, Environmental Health
4. Dept. of Justice: Maristella Jack, Secretary

Appendix 3

Participants in State Dialogues

Yap Stakeholder Dialogue

Leo Ying	Director, Yap State Environmental Protection Agency
John Sohlith	Yap State Public Service Corporation
James Lukan	Yap State Historic Preservation Office
Francis Reg	Yap State Historic Preservation Office
Arnold Yokbay	Department of Education
Philip Raffilpiy	Office of Budget and Planning
Benedict Rikin	Director, Department of Public Works and Transportation
Dominic Brug	Yap Fishing Authority
Mark Durand	Department of Health Services
Leo D. Pugram	Department of Education
Jesse Gajdubeck	Department of Resources and Development
Stan J. Fal'mngar	College of Micronesia/FSM Land Grant Program
Murukesan Krishnapillai	College of Micronesia/FSM Land Grant Program
Melisa Iwamoto	University of Hawaii at Manoa (former Peace Corps Volunteer)
Charles L. Chieng	Yap Community Action Program
Francis Faney	Yap State Public Service Corporation
Dominic Taruwemal	Office of the Council of Tamol
Ron Ledgerwood	Office of the Attorney General and Private Sector Dev. Comm.
John M. Hasmai	Department of Youth and Civic Affairs
Alissa Takesy	ADB Consultant
John Hay	ADB Consultant

Kosrae Stakeholder Dialogue

Simpson Abraham	Kosrae Island Resource Management Authority
Katchuo William	Department of Health - Sanitation
Mason Timothy	FSM Department of HESA
Roslyn Reynold	Department of Health
Jordan Browning	Kosrae Conservation and Safety Organisation
Andy George	Kosrae Conservation and Safety Organisation
Bruce Howell	Department of Public Works
Fred Skilling	Kosrae Utilities Authority
Tony Abraham	Marine Resources
Nena G. Nena	Kosrae Utilities Authority
David Robert	Lelu Town Government
Nimos Salik	Tafunsak Municipal Government
Vinson Henry	Disaster Management Office
Henry Shrew	Disaster Management Office
Fred Annand	The Nature Conservancy
Betty Sigrah	Kosrae Island Resource Management Authority
Merinda Nena	Kosrae Island Resource Management Authority
Alissa Takesy	ADB Consultant
John Hay	ADB Consultant

Pohnpei Stakeholder Dialogue

Simao Nanpei	Dept. of Health
Kiped Albert	Agriculture, Economic Affairs
Adelino Lorens	Agriculture, Economic Affairs
Marcus Rosario	Nett Municipality
Charleston Bravo	Attorney General's Office
Youser Anson	Dept. of Land
Albert Roby	Environmental Protection Agency
Patterson Lawerence	Disaster Office, Dept. of Public Safety
Daniel Isaac	Pohnpei Ports Authority
Etiny Hadley	Environmental Protection Agency
Donald David	Marine Department, Economic Affairs
Bill Raynor	The Nature Conservancy
Ricky Carl	Attorney General's Office
Herson Anson	Department of Land and Natural Resources
Elden Hellan	Environmental Protection Agency
Lorrie Asher	Environmental Protection Agency
Donna Scheuring	Environmental Protection Agency
Henry Susaia	Environmental Protection Agency
Prof. John Hay	ADB Consultant
Alissa Takesy	ADB Consultant

Chuuk Stakeholder Dialogue

Mercy D. Sos	Chuuk EPA
Kolid Keybond	Chuuk Hospital
Akilino Kouch	Agriculture Department
Tiser Lippwe	Chuuk SBDC
Kind Kanto	Chuuk EPA
Ismael Mikel	Chuuk EPA
Thomas R. Narruhn	Chuuk DOT and PW
Linda Mori Hartmann	NGO
Steve Winter	Chuuk EPA
Krescio Billy	CPUC
Kaster Sisam	Land Management
Les Aidel	Weno Municipality
Pintas Kenneth	Weno Municipality
Cathy M. Asor	Environmental Health & Sanitation
Nathan Aten	Environmental Health & Sanitation
Romio Osiena	Marine Resources Department
Joanes Risin	Public Works, Dept. of Transport & PW
Kasto Eis	Disaster Coordination Office
Eleanor Sos	Public Health
Andita Meyshine	Public Health
Michael Jordan	Peace Corps
Albert Johnny	Agriculture Department
Hon. Wesley Simina	Governor, Chuuk State
Ophelia C.A. Iriberri	ADB
Prof. John Hay	ADB Consultant
Alissa Takesy	ADB Consultant

Appendix 4

Report on the National Dialogue

Background

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 (DMC). The CEA provides 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 exploiting environment-related opportunities.

Preparation of the CEA involves a participatory process at both country and ADB levels. It 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 environmentally sensitive projects in the pipeline.

As part of the participatory consultation for preparation of the CEA for the Federated States of Micronesia (FSM) a National Dialogue was held in Palikir, Pohnpei State, on August 11, 2005.

Objectives of the National Dialogue

The main objectives of the national dialogue were to:

- review the preliminary findings and recommendations of the ADB consultants, and add value to these through a group discussion that took a more holistic view of the constraints, needs, and opportunities the environment provides for development in the RMI; and

- to seek consensus on the priority areas and interventions that will reduce environmental constraints and take advantage of the development opportunities provided by RMI's environmental assets and natural resources.

Program and Venue

The program for the National Dialogue is provided in Annex 1. The National Dialogue was held in the Central Facility of the National Capital at Palikir, FSM.

Workshop Participants

The participants represented a wide cross-section from various sectors, including national and state governments and the private sector. A list of participants is provided in Annex 2.

Opening Session

The National Dialogue opened with a prayer, delivered by Elden Hellan. In his opening remarks, the Honorable Redley Killion, Vice President of the FSM and Chairman of the FSM Sustainable Development Council, highlighted the significance of the environment and natural resources to the future economic and social development of the FSM, and acknowledge the important technical and financial assistance provided by the Asian Development Bank (ADB). A copy of his speech is provided in Annex 3.

Mr. Edy Brotoisworo of the ADB described how the ADB Poverty Reduction Strategy, Long-Term Strategic Framework (2001–2015), and the Medium-Term Strategy (2001–2005) promote the integration of sound environmental management into economic and development planning processes and require environmental concerns to be integrated into all ADB operations. ADB's Environment Policy (2002) specifies the CEA as the tool that may help assist early incorporation of environmental considerations into the country strategy and program (CSP). Therefore, the CEA for the RMI is undertaken as integral part of the CSP process.

He also noted that in the recently published Pacific Region Environmental Strategy (PRES) 2005-2009, eight environmental challenges were identified as being of highest priority in the region: (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, which most of problems are also experienced in the RMI.

Mr. Brotoisworo also explained the country strategy and program update (CSPU). This document is prepared together by ADB and the Government, describing ADB lending and non-lending programs for the country for the next 2 years. The document is prepared through wide consultation involving various stakeholders. The CSP is reviewed and updated every year. ADB is presently implementing the Country Strategy and Program Update (2005-2006) for the RMI. Mr Brotoisworo's presentation is provided in Annex 4.

The Environment - Opportunities and Constraints for Development

Three speakers presented their views on this topic.

Mr Marion Henry of the FSM Department of Economic Affairs, provided a national government perspective. He noted that government's attention to environmental and natural resource constraints and opportunities had evolved over time. In the 1970s the focus was on addressing environmental problems, such as the crown of thorns. Infrastructure development was the focus in the 1980s, including construction of wastewater treatment plants. The focus in the 1990s was on efforts to increase government revenues. Thus fisheries and tourism development had been important. The emphasis in the 200s is on sustainable development. For this reason the government is concentrating on community development, with attention to economic opportunities as well as social progress and environmental management.

Mr Willy Kostka, Executive Director of the Conservation Society of Pohnpei, spoke from the perspective of non-governmental organizations (NGOs). He highlighted the fact that environmental constraints can lead to opportunities. The main constraint is a lack of a collective vision and a road map. Key questions related to the environment and natural resources are – what do we want to keep; what are we prepared to give up? This requires increased coordination and prioritization of government work programs. While all parts of government are working hard, they are not working together. For example, the government says it wants eco-tourism, yet there is a push for mass tourism. Many government employees are over trained but under utilized, highlighting the need for professional development plans. The environment of the FSM has many values. These need to be identified and priorities set. Mr Kostka's speech is provided as Annex 5.

Mr James Movick spoke from the perspective of the private sector. He began by asking and answering the question – what is the private sector? The private sector is pervasive through

the whole of the FSM society and economy, rather than being a distinct entity. He saw mainstreaming as a key priority, rather than leaving environmental management to just the NGOs and the environmental protection agencies of government. The approach to mainstreaming is to consciously build environmental considerations into the activities of every organization. For example, economic development should be aimed at giving a sustained, quality livelihood to all people, with recognition that there are alternative sources of livelihood outside government and the public sector.

Concerns for the environment must be held by everyone. The common goal should be to allow people to live in an appropriate standard of livelihood, and in a sustainable manner. Reaching this goal will bring difficult choices. There is a need to acknowledge the right of people in remote rural areas to have a quality of life similar to that which exists in the urban centers. Stakeholders should be engaged at all stages of the mainstreaming process, with a requirement for openness and honesty. Planning must also acknowledge that we live in a dynamic situation. There is therefore a need to be adaptable when planning.

Professor John Hay, ADB consultant, provided insights on mainstreaming environmental considerations into national and state development planning processes. The topics he covered included what is “mainstreaming”, why mainstream environmental considerations, examples of mainstreaming environmental considerations in the FSM, and implementation of mainstreaming. In general, mainstreaming is the integration into core institutional thinking, including full coordination, harmonization and coherence with existing policies, plans and implementation activities. The alternative to mainstreaming is to have a stand alone situation. Professor Hay presented three models of mainstreaming, using these to illustrate why sound environmental management is a profitable investment rather than an unproductive cost.

Key Findings in the Country Environmental Analysis

Ms Alissa Takesy, ADB consultant, presented the environmental constraints and opportunities identified as part of the CEA. Participatory consultations, supported by studies of relevant policy and technical documents, resulted in identification of the following environment-related constraints and opportunities:

- Food security and affordability
- Water security, quality and affordability
- Public health and sanitation
- Integrated solid waste management
- Energy security and affordability
- Enhanced management of land and marine areas
- Climate change, disasters and coastal erosion
- Sustainable tourism
- Improving Inter-island sea and air transport services.
- Dredging the reef
- Sediment discharge to reef and lagoon
- Landuse planning and zoning; building code
- Increased production and use of coconut products
- Development of community-based pearl fishery
- Cooperation and coordination in government
- Public buildings and infrastructure
- Strengthen fisheries sector

Each of the above was discussed in turn, including presentation of specific examples.

Ms Takesy also reviewed the lessons learned from ADB assistance to the FSM. Much of preparatory phase of assistance is considered unnecessary and time consuming. Requirements for compliance with ADB safeguard policies need to be clarified, including the and timing of compliance reviews. There are often unhelpful pre-conditions on assistance. Individuals involved in project preparatory activities tend to consult only with those who have similar views. There is often inadequate consultation with key stakeholders. Little opportunity for project designs to include guidance from local experts, was also noted. International consultants often have little understanding of the local operational context. Assistance should build in the need to build in operation, maintenance and repair costs. Often there are unidentified or unanticipated costs – the inability to meet these costs often results in poor project outcomes. There is also a tendency to perpetuate the use of high cost US systems and technologies. The influences of changing environmental quality on livelihoods, health, and vulnerability of poor and other minority groups were also explored, as were the environmental performances of key economic sectors.

Priority Areas for Action and the Roadmap for Environmental Management

Professor Hay presented the proposed priority areas and the roadmap for environmental management. In identifying the priority areas, the focus of the stakeholder consultations was not only on identifying environmental constraints that hinder development, but also on identifying areas where the environment and natural resources can provide new opportunities for economic development and social progress. By mainstreaming environmental considerations, whether they be constraints on, or opportunities for development, into development planning processes, the FSM will progress more quickly towards the end goal of achieving sustainable development.

Five priority areas for action were presented:

- Right-sizing and Re-focusing Government;
- Environment and Resource-based Small Business Enterprise Development;
- Sustainable Community Development;
- Risk Reduction and Hardship Alleviation; and
- Improving Inter-island Sea and Air Transport Services.

A road map for environmental management was also presented and discussed.

Proposals for Mainstreaming Environmental Considerations in ADB's Assistance to the FSM and in FSM Development Planning Processes

Professor Hay noted that, due to capacity and other constraints, the FSM has requested a two-year break in loan project processing in order to focus on successful implementation of ongoing projects. Thus ADB assistance related to the above priority areas is limited to strengthening technical assistance (TA) already in the pipeline and to preparing and implementing new technical assistance projects. Governments (national, state and municipal) can also contribute directly, especially by working in partnership with the private sector.

Thus three action strategies related to the above priority areas are proposed in the CEA:

1. Strengthen ADB assistance in the pipeline

- TA: Implementation of Public Sector Capacity Building Roadmap – e.g., ensure the planned capacity building is consistent with the need to right-size and re-focus government, such as increased ability to successfully prosecute violators of environmental regulations;

- TA: Youth and Gender Development – e.g. build on the fact that in recent years most of the people involved in highly innovative new business development in FSM have tended to be young and relatively less well educated;
- TA: Solid Waste Management – e.g. ensure environmentally sound and sustainable management of solid waste in small, dispersed communities in remote areas;
- TA: Education and Health Sector Strategy – e.g. a major refocus of vocational training programs is required if there is to be significant growth in environment- and resource-based business enterprises as well as increased involvement of the private sector in the delivery of health services; and
- TA: Capacity Building in Solid Waste Management – e.g. build the capacity and strengthen the enabling environment in ways that will allow the private sector to play a major role in all aspects of integrated solid waste management, including waste collection, separation, reuse, recycling and disposal.

2. Additional ADB assistance

Since strengthening ADB assistance in the pipeline provides only limited opportunities to address the priority areas for action, the following new TAs are proposed:

- TA: Strengthening Communication, Coordination and Cooperation Between Levels of Government;
- TA: Develop Environment- and Resource-based Enterprises through the Small Business Development Centers;
- TA: Micronesians in Sustainable Community Development Learning Network and Pilot Projects;
- TA: Reducing Risks and Alleviating Hardship;
- TA: Enhancing Sustainability of Infrastructure Development Projects in FSM; and
- TA: Improving Inter-island Sea and Air Transport Services.

3. In-country Initiatives

There are numerous initiatives that national, state and municipal governments, and the private sector, can take to enhance environmental sustainability through policies, plans and actions that address the five priority areas for action. For example, in addition to improving centralized services related to water, sanitation, energy and solid waste management, there is a need to ensure that such services in remote communities are also improved through the use of technologies that reflect such factors as the small and dispersed nature of these communities and their low ability to pay for services due to the subsistence nature of their economies.

Discussion and Conclusions

Discussion focused on the need for a common and realistic vision for development in the FSM, especially with respect to both the rate and type of growth. Currently, a common vision is lacking. The Third Economic Summit assumed fast tracked economic growth, but this assumption was never debated and a consensus reached. The challenge after that is to implement the vision and make sure there are improved environmental outcomes during development activities. Participants supported proposed five priority areas for action and encouraged early implementation of the road map for environmental management. The proposals for mainstreaming environmental considerations in ADB's CSP for FSM were acceptable to participants, who called for emphasis to be placed on implementation.

Closing Remarks

Mr Nick Andon, Secretary of Finance and Administration in the National Government, presented the closing remarks. He emphasized the importance of the environment and natural resources to the future of the FSM, and urged all participants to work collectively and energetically to ensure the priority areas for action are addressed in a timely manner.

Annex 1

Agenda

National Dialogue on Mainstreaming Environmental Considerations in Economic and Development Planning Processes in the FSM

Palikir, August 11, 2005

09:30	Opening Remarks (Vice President Redley Killion)
09:45	Enhancing Environmental Sustainability in Economic Development: The Role of CEA (Edy Brotoisworo, Asian Development Bank)
10:00	Purpose of Dialogue, Agenda, Dialogue Process (Alissa Takesy, ADB Consultant)
10.10	Refreshments
10:30	The Environment - Opportunities and Constraints for Development: A Government Perspective (Marion Henry, Department of Economic Affairs)
10:45	The Environment - Opportunities and Constraints for Development: An NGO Perspective (Willy Kostka, Conservation Society of Pohnpei)
11.00	The Environment - Opportunities and Constraints for Development: A Private Sector Perspective (James Movick)
11:15	Mainstreaming Environmental Considerations into National and State Development Planning Processes (John Hay, ADB Consultant)
11.30	Discussion
12:00	Lunch
13:00	Key Findings of the Country Environmental Analysis for FSM (Alissa Takesy, ADB Consultant)
13:30	Discussion, and Validation of Findings
13:45	Proposed 'Priority Areas' and Roadmap for Environmental Management (John Hay, ADB Consultant)
14:15	Discussion, and Consensus on Recommendations
14:30	Refreshments
14:45	Proposals for Mainstreaming Environment in ADB's Country Strategy and Program for FSM (John Hay, ADB Consultant and O. Iriberri, ADB)
15:15	Discussion, and Consensus on Recommendation
15:45	Closing Remarks (Secretary Nick Andon, Department of Finance and Administration; E. Brotoisworo, ADB)
16:00	Close of National Dialogue
18:00	Social Function (PCR)

Annex 2

List of Participants

Redley Killion	FSM Vice President
Kester James	FSM Public Information Office
Kyal Albert	FSM Department of Economic Affairs
Etiny Hadley	Environmental Protection Agency, Pohnpei State
Ricky Carl	Attorney General's Office, Pohnpei State
Wincelle J. David	Health Services, Pohnpei State
Daniel Isaac	Pohnpei Ports Authority
Denson D. Salomon	Office of Economic Affairs, Pohnpei State
Kenneth A. Gilimete	Pohnpei Utilities Corporation
Donna Scheuring	Environmental Protection Agency, Pohnpei State
Bradley Henry	Pohnpei Utilities Corporation
Jack Yakana	Lieutenant Governor, Pohnpei State
John Mooteb	Sustainable Development Unit, FSM Department of Economic Affairs
Ophelia Iriberri	Asian Development Bank
Edy Brotoisworo	Asian Development Bank
Alissa Takesy	Domestic Consultant, Asian Development Bank
John Hay	International Consultant, Asian Development Bank
Nick Andon	Secretary, FSM Department of Finance and Administration
Willy Kostka	Conservation Society of Pohnpei
Marion Henry	FSM Department of Economic Affairs
Resty Shotaro	FSM Department of Finance and Administration
Moses Pretrick	FSM Department of Health, Education and Social Affairs
Elden Hellan	Environmental Protection Agency, Pohnpei State
Phillip Joseph	FSM Department of Transport, Communications and Infrastructure
Lorrie Asher	Environmental Protection Agency, Pohnpei State
Lance Laack	FSM Congress Staff
Saimon Lihpai	Division of Forestry, Pohnpei State
Konrad Englberger	Secretariat for the Pacific Community
Caroline Adams	FSM Weather Service
Lisa Andon	Micronesia Conservation Trust
Jane Gallen	FSM Department of Health, Education and Social Affairs
Larry Adams	Private Sector Business Company
Ishmael Lebehn	Agriculture Unit, FSM Department of Economic Affairs
Henry Susaia	Environmental Protection Agency, Pohnpei State
James Movick	Private Sector Business Company
Sancherina Salle	FSM Department of Economic Affairs

Annex 3

OPENING REMARKS
BY
THE HONORABLE REDLEY KILLION
VICE PRESIDENT OF THE FEDERATED STATES OF MICRONESIA
AT THE NATIONAL DIALOGUE ON
MAINSTREAMING ENVIRONMENTAL CONSIDERATIONS
IN ECONOMIC AND DEVELOPMENT PLANNING PROCESSES IN THE FSM

AUGUST 11, 2005, 9.30 A.M.

[GREETINGS AND RECOGNITION OF EMINENT PERSONS]

Distinguished Participants, State Delegation, Ladies and Gentlemen:

Kaselehlia, and welcome to Pohnpei, particularly to Palikir, the seat of our national capitol.

The future of our country largely rests on two things – our people and our environment and natural resources. If we are not careful in the use of such resources, our country's future looks very bleak. On the other hand, if we protect our environment and our natural resources and, at the same time, make productive and effective use of them on a sustainable basis, this country is destined to continue as one of the jewels of the Pacific.

While the choice is ours, we are very fortunate to have the assistance of partners such as the Asian Development Bank and other international organizations who have provided technical and financial support to our country over the years. They have helped us deal with past challenges, and those currently facing us, including sustainable development and environmental management.

As Chairman of our Sustainable Development Council, I am well aware of the challenges, as well as the opportunities, the environment represents for our development. As I travel around the Pacific I can't help but observe that those countries with flourishing tourism industries have clean beaches, lagoons and rivers, as well as managed landfills, reliable power systems and good access to safe drinking water. It is not a case of one leading to the other. Rather, each is necessary for the other. If we want tourists to enjoy the wonders of our country we should not be focusing on encouraging airline companies to provide more flights, or international resort operators to invest in this country. Both will do so, and with enthusiasm, but only when they see the additional demand for flights and hotel rooms in our country.

Before that happens we have to ensure our beaches, lagoons and rivers are clean, that we have well managed landfills, reliable power systems and good access to safe drinking water. Of course, achieving these in one or two states is not enough. We want tourists to visit multiple destinations throughout the FSM, so the whole country can benefit. And at the same time we want the tourists to receive value for their long haul travel. Equally as important, it is worth mentioning that one poorly performing state can surely tarnish the reputation of the FSM as a whole, and jeopardize the marketing opportunities of the other states.

Importantly, more is required than just a clean environment and abundant biodiversity. As we all know, tourists need quality services, and consumables such as food. Our private sector must have the capacity to provide both, albeit on a smaller scale initially, and have the capacity to grow as the demand increases. Our farmers and fishermen must be able to provide a supply of high quality local food. At the same time they should also make it possible for local hotel operators to offer food with which visitors to our country are more familiar. The supply chain must be both reliable and cost competitive. These are big challenges, but the individual and collective benefits of success are enormous indeed.

I am pleased to see that today you will be discussing how the environment offers both opportunities and constraints for our country's development. In this regard, on behalf of our national and state governments, I want to thank the Asian Development Bank for providing the technical assistance to FSM to allow the preparation of the Country Environmental Analysis. We truly value the assistance provided by the ADB under this project, and we believe the on-going dialogue will result in important planning guidelines. It will be even more relevant to us if, as a result of the current technical assistance, environmental considerations are given greater recognition. Of course, we in the FSM are also making an effort to mainstream the environment in our own development plans. The recently approved Strategic Development Plan and Infrastructure Development Plan for our nation are a good start. Our challenge now is to implement such plans. Again, we will value continued financial and technical assistance from the ADB as a development partner.

I must also commend all of the four states for working cooperatively together on this project. I am confident that this unified cooperation between the four states and our national government, as well as amongst the states, will continue and contribute to the successful implementation of the actions and implementation plans you will review and finalize here at this meeting.

Ladies and Gentlemen, I wish you a productive and successful dialogue. I have great pleasure in now opening the National Dialogue on Mainstreaming Environmental Considerations in Economic and Development Planning Processes in the FSM.

Annex 4

Remarks Delivered by
Mr Edy Brotoisworo
Senior Environment Specialist
Pacific Department
Asian Development Bank

Hon. Vice President Killion
Ladies and Gentlemen:

On behalf of the Asian Development Bank, I would like to express my appreciation for the warm reception and hospitality extended by the Government of FSM to us, and also for support provided to us in undertaking this Country Environmental Analysis.

First of all I would like to re-emphasize what the Honorable Vice President Killion has highlighted in his opening remarks, namely that the future of the country depends on two things, i.e., the people and the environment. Indeed, the interlink between the two is very strong; what we are doing to the environment will change the environment quality, and eventually the changed environment will determine the fate of the people. When we are doing good to our environment we will be rewarded with better environmental quality, but if we unwisely alter our environment, we will receive the penalty from what we have done.

I would like to refer the Pulitzer Prize-winning author of *"Guns, Germs, and Steel"*. In his new book entitled *"Collapse"*, he examines the downfall of some of history's greatest civilizations. What caused some of the great civilizations of the past to collapse into ruin, and what can we learn from their fates? Apparently, rapid population growth, environmental damage, and unwise political choices were all factors in the demise of these societies, but other societies found solutions and persisted. Similar problems face us today and have already brought disaster to several countries. Even for societies with apparently inexhaustible wealth warning signs have begun to emerge.

The clear link between the environmental management and sustainable development is unquestionable. The book shows many examples which underline that environment should be taken into consideration by decision makers. There are several great communities, such as the Mayans, the Egyptian, the Mesopotamians, where their societies first rose and after a few centuries just collapsed. In the case of the Mesopotamians, the disaster started when they decided to build extensive irrigated agriculture on arid land. Initially, the economy grew to prosperity, but they were not aware that altering the environment has adverse consequences. The soil salinity slowly increased and finally could not sustain the agricultural development. Slowly but certainly the great Mesopotamian culture became extinct. We have a great civilization in FSM, the Nan Mahdol. Why did they become extinct? The final conclusion is still not available, but some studies say it was related to resource conflict.

The book gives examples why a fragile environment led to the population's eventual demise. Combinations of climate change, degradation of soils, and poor decision making suddenly saw the land unable to support the human population in a sustainable way. It highlights that if we make poor decisions and abuse the environment, we too risk collapse.

Not to be entirely bleak, the book also looks at successes – i.e., situations where a society has reversed its potential demise by making sensible decisions. For example, (i) The People's Republic of China is now launching an extensive reforestation program when they realized that many environmental disasters triggered by lack of forest cover; (ii) Haiti and the Dominican Republic, are located on two sides of the same island. The former is an

environmental and political disaster, while the latter has spent the last 50 years making wise environmental decisions that have made it a more sustainable society.

Indeed, the central theme is the trade-off between economics, and environmental sustainability. Societies face collapse when their population's consumption exceeds the local environment's ability to sustain it. A general rule shows that countries whose populations or consumption hit the limits of their land's environmental abilities to sustain it, inevitably see social, political and economic problems. Therefore, incorporating environmental management, or mainstreaming environment into development policy, will not only improve the environment, but also has wider implication in social, economic and political stability.

Now, let me briefly explain the background of this undertaking. In the recently published *Pacific Region Environmental Strategy* (PRES) 2005-2009, eight environmental challenges were identified as being of highest priority: (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 developing states in the Pacific, including FSM. Further, the recent ADB Pacific Strategy 2005-2009 highlights the increasing environmental challenges that may undermine sustainable development, particularly from these eight critical environmental issues. Overcoming these constraints will facilitate the sustainable use of natural resources and improve employment and cash-generating opportunities for the poor. Therefore, ADB sees the need to incorporate environmental considerations into national development policies and programs.

The purpose of the present activity is to prepare a CEA that will provide inputs to the CSPU and the countries' development strategy. The main objective is to mainstream key environmental considerations into economic and development planning processes and to help reduce hardship and poverty. The CEA will (i) identify priority areas in policy, institutional and legislative mechanisms as well as 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.

Let me now explain briefly the country strategy and program update (CSPU). This document is prepared together by ADB and the Government, describing ADB lending and non-lending programs for the country for the next 2 years. The CSP is reviewed and updated every year. It contains ADB's strategy and experience, and ADB assistance program being pursued through three ADB's underlying themes: (i) promoting participation of civil society in development; (ii) addressing poverty issues more explicitly; and (iii) providing assistance with a long-term perspective. These goals are also consistent with the country strategy and policy of: (i) good governance, (ii) inclusive social development, and (iii) pro-poor economic growth; where one of the components is environmentally sustainable development.

Since joining ADB in 1990, FSM has received six projects in the total amount of $56.6 million, of which four were active at the end of 2003. It has also received 39 technical assistance grants in the total amount of $21.8 million.

Lending program: For planning purposes, the lending level of $5 million every two to three years has been set. Two loan projects—Loan 1816-FSM (SF): Basic Social Services Project and Loans 1873/74 (SF): Private Sector Development Program and Project—are currently being implemented, and the Omnibus Infrastructure Development Project was approved in

2004 and expected to be effective in September 2005. A loan for solid waste management is planned for 2007.

Non-lending program: The non-lending assistance will include project preparatory as well as advisory capacity-building TAs. The Assistance Pipeline for Non-lending Products and Services, 2005–2006 includes: (i) Streamlining and Strengthening Public Sector Audit Function (2005), and four regional technical assistance projects where FSM participated, i.e., in the area of demographic and health, HIV/AIDS, pro-poor policy in the Pacific, and strengthening civil society participation in development.

ADB reviews the performance of the CSPU every year. The objectives of the CSPU review are to update the ongoing country program and agree on prioritized lending and non-lending program where some adjustments, when necessary, will be considered during the review and to be reflected in the following year's CSPU. The CEA process will identify priority action and provide recommendations to CSPU on mainstreaming environmental considerations into development planning process and in the national medium term development program.

Ladies and Gentlemen, this Stakeholders Workshop is an important event which is an integral part of the CSPU preparation process. I 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 Administration for their support in undertaking the CEA process, and to Professor John Hay and Ms. Alissa Takesy for having worked hard to facilitate this process. I wish you all fruitful and successful discussions.

Thank you.

Annex 5

An NGO Perspective

Presented by Willy Kostka
Executive Director
Conservation Society of Pohnpei

Solutions – finding solutions is going to be very difficult for several reasons: 1) the main islands in the FSM still seem pristine to the "untrained eye" and so people think environmentalists are overreacting when they say "we're in trouble"; 2) the general public only sees structures as real development so elected officials feel the need to build roads, which lead to dredging, clearing, erosion, etc., in order to have a chance of getting re-elected; and 3) mainstreaming environment into our development plans means extra time and planning, which could lead to the cancellation, postponement or redirection of projects. It will also mean spending the right amounts of money upfront, resulting in fewer projects. These challenges are not easy to overcome, but if we work together we can start making some changes.

Constraints – we live on islands, and island ecosystems are some of the most fragile. So we will always begin with a given level of disadvantage in trying to mainstream environment into our sustainable development plans.

- **Lack of a national vision and road map** – we are trying to squeeze the American Dream, a country of over 3 million square miles of land area, into a country with less than 400 square miles of land space. We must all agree on an end point. What do we want the FSM to look like in 20-50 years from today? What are those environmental and social values that we must keep and which wants are we willing to give up. We must think movement first and then decide on projects and programs when we have a solid understanding of where we are going.
- **Lack of coordination and poor prioritization** – every level of government seems to be working hard at something but nothing seems to be moving forward in unison. If we had a vision and road map, we will be able to select what programs and projects will lead us to that end point. Just doing a whole lot of work with a certain map is not going to work. (i.e., the FSM and states have identified eco-tourism in the summits, but almost all tourism development on the ground seems to be gearing up for regular mass tourism).
- **Lack of awareness** – people do not know what direction we are going in, so everyone has his/her own ideas of development. There are no guidelines and even the FSM Development Bank, as well as the private banks, seem not to be prioritizing projects that cater to those identified at the summit.
- **Word on the international conventions (climate change, biodiversity, etc…) we have signed off on is not reaching and/or getting implemented at the state and local levels**. We must improve communications and awareness on these issues and the national government needs to ensure the states and local governments mainstream those issues in their development projects.
- **Insufficient initial monetary output/piecemealing** – instead of doing one project right we want to do five bad ones. To do things right, we must be able to convince our leaders to put the right amounts of funds into our development projects from the very beginning.
- **Mainstreaming the Environmental Sector Grant** – the sector exists, but we are not feeling it at the local level. We need to make sure those funds are allocated to the conservation and environment agencies.
- **Opportunistic – funding or donor driven** – instead of filling in gaps and areas already prioritized by the nation, we seem to jump at any chance to get "free" money without a second thought. We must have a vision and a plan so we are able to educate and guide

donors to assisting us with funds for projects, which are going to help the nation move forward. Otherwise a few will run away from the rest of us.

- **Lack of technical capacity at national, state and municipal level –** even if we wanted to ensure environmental considerations in development, we do not have the capacity to do it right. We need to build our capacity – scholarships and other types of useful training must be prioritized.
- **Inability or unwillingness to base decisions on facts, data and science** - great findings/reports with good recommendations over the years could fill up a whole library, yet very few of them get implemented (i.e., SOPAC reports on dredging and recommendations for substitutes such as aggregate, the CSP rapid ecological assessment at @ $100,000 dollars not getting the attention of the state leadership, etc…). We must find ways to get our leaders to start basing decisions on facts and science and not from hearsay.
- **NGOs are used and not treated as true partners –** they are asked to help only when things seem to be going wrong and not from the early stages of planning and development. And even when they are involved in the planning, they are often left out when the big decisions are made (i.e., the Environment Sector Grant).
- **Adoption versus Adaptation –** we see something nice in Palau, Guam or Hawaii and we think it's going to be the right fit for the FSM. We must be more original and come up with our plans and initiatives. We can't just adopt, because what is right for Guam is not necessarily right for us.
- **Too much assistance has handicapped us and made us complacent –** we think that foreign aid is everlasting and so we are not pushed to think hard at making sure resources are used to their fullest potential. This type of attitude needs to change and we must treat every foreign aid has if it were the last one we will ever receive.
- **Over-trained and underutilized –** people get trained in so many different workshops, conferences; you name it, but without any professional development plans so that what they take is applied. Every single agency must have a professional development plan so that foresters don't end up in a fish-monitoring workshop.
- **Economic projections fall short of valuating true costs of natural resources.** How much really is a big bump head parrotfish word in tourists' dollars versus when it's killed and sold in the market? What are the non-use values? (Examples of non-use values: 1) existence value – the value of knowing that the resource exists in a certain condition; 2) option value – the value of being able to use the resource in the future; and 3) bequest value – the value of ensuring the resource will be available for future generations. There are also the social and cultural values of these areas and resources and when we extract them, we must pay for those true costs.

Appendix 5

Environmental and Sustainability Indicators

Progress toward the Millennium Development Goals and Targets

Goals and Targets	1990	1995	Latest Year
A. Goal 1. Eradicate Extreme Poverty and Hunger			
Target 1: Reduce incidence of extreme poverty by half from 1990 to 2015			
1. Proportion of population below US$1 per day (PPP-values) (%)	—	—	5.2 (1998)
2. Poverty gap ratio	—	—	0.51 (1998)
3. Share of poorest quintile in national consumption (%)	—	—	5.2 (1998)
Target 2: Reduce the proportion of people who suffer from hunger by half from 1990 to 2015			
4. Prevalence of child malnutrition (% of children under 5)	13.3 (1987-88)	—	15.0 (1997)
5. Proportion of population below minimum level of dietary energy consumption (%)	—	—	—
B. Goal 2. Achieve Universal Primary Education			
Target 3: Attain 100 percent primary school enrolment by 2015			
6. Net enrollment ratio in primary education (%)	85.0 (1984-94)	93.7 (1994)	92.3 (2000)
7. Proportion of pupils starting Grade 1 who reach Grade 5	—	—	66.9 (2000)
8. Literacy rate of 15-24 year olds (%)			
Total	92.4 (1980)	96.4 (1994)	95.0 (2000)
Male	92.5 (1980)	96.2 (1994)	94.2 (2000)
Female	92.3 (1980)	96.6 (1994)	96.0 (2000)
Goal 3. Promote Gender Equality and Empower Women			
Target 4: Eliminate gender disparities in primary and secondary education by 2005 and to all levels of education no later than 2015			
9. Ratio of girls to boys in: (%)			
Primary education	—	92.1 (1994)	93.5 (2000)
Secondary education	—	97.6 (1994)	104.0 (2000)
Tertiary education	—	78.8 (1994)	107.0 (2000)
10. Ratio of young literate females to males (% of age group 15-24)	99.8 (1980)	100.4 (1994)	101.9 (2000)
11. Share of women in wage employment in the non-agricultural sector	—	33.6 (1994)	33.6 (2000)
12. Proportion of seats held by women in national parliament	0.0	0.0	0.0 (2005)

C. Goal 4. Reduce Child Mortality					
Target 5: Reduce infant and child mortality by two-thirds from 1990 to 2015					
13. Under-5 mortality rate (per '000 live births)	16.0	12.0 (1996)	12.0 (2000)	23.0 (2003)	
14. Infant mortality rate (per '000 live births)	46.0	40.0 (1996)	40.0 (2000)	19.0 (2003)	
15. Proportion of 1 year old children immunized against measles	81.0	90.0	85.0 (2000)	91.0 (2003)	
D. Goal 5. Improve Maternal Health					
Target 6: Reduce maternal mortality ratio by three-quarters between 1990 and 2015					
16. Maternal mortality ratio (per 100,000 live births)	83.0 (1992)	274.0 (1999)	317.0	(2003)	
17. Births attended by skilled health staff (% of live births)	—	82.0 (1995-97)	87.7	(2001)	
Goal 6. Combat HIV/AIDS, Malaria and Other Diseases					
Target 7: Have halted by 2015, and begun to reverse, the spread of HIV/AIDS					
18. HIV prevalence rate among 15-24 year old pregnant women	—	0.0	0.0		
19. Contraceptive prevalence rate (% of women aged 15-49)	—	25.0 (1997-98)	70.0	(2000)	
20. Number of children orphaned by HIV/AIDS	—	0.0	0.0		
Target 8: Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases					
21. Malaria:					
Prevalence rate (per 100,000 people)	—	—	—		
Death rate (per 100,000 people)	—	—	10.0	(2000)	
22. Proportion of population in malaria risk areas using effective malaria prevention and treatment measures	—	—	—		
23. Tuberculosis (TB):					
Prevalence rate (per 100,000 people)	392.0	73.4 (1996)	92.0 (2000)	62.0 (2003)	
Death rate (per 100,000 people)	30.0	4.0 (1994)	10.0 (2000)	6.0 (2003)	
24. TB cases, DOTS:					
Detection rate (%)	—	16.0	43.0 (2000)	92.0 (2003)	
Treatment success rate (%)	—	80.0	95.0 (2000)	91.0 (2003)	
E. Goal 7. Ensure Environmental Sustainability					
Target 9: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources					
25. Forest area (% of total land area)	34.8	51.4 (1994)	21.7	(2000)	
26. Nationally protected areas (% of total land area)	—	10.3	7.3	(2003)	
27. GDP per unit of energy use (PPP$ per kg oil equivalent)	—	—	—		
28. Carbon dioxide emissions (per capita metric tons)	—	2.2 (1994)	1.3	(1996)	

Target 10: Halve, by 2015, the proportion of people without sustainable access to safe drinking water				
29. Access to an improved water source (% households)				
Total	87.0	79.1	87.0	59.0
Target 11: By 2010, to have achieved a significant improvement in the lives of at least 100 million slum dwellers				
30. Access to improved sanitation (% households)				
Total	30.0	34.4 (1994)	44.0 (2000)	48.0 (2003)
Urban	53.0	—		84.0 (2003)
Rural	21.0	—		12.0 (2003)
31. Access to secure tenure (slum population as % of urban population [secure tenure index])	2.0	—	2.0	(2001)

— = not available; DOTS = directly observed treatment, short course; GDP = gross domestic product; kg = kilogram; HIES = household income and expenditure survey; HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome; PPP$ = purchasing power parity in United States dollar

Sources: Abbott, D., The Federated States of Micronesia (FSM) Hardship and Poverty Status Discussion paper (30-Jan-04); Department of Economic Affairs, Statistics Division, *FSM 2000 Population and Housing Census Report* (May 2002); Secretariat of the Pacific Community (SPC), Pacific Islands Regional Millennium Development Goals Report 2004, Statistical Annex, available online at http://www.spc.int/mdgs; SPC, Pacific Regional Information System (PRISM), available online at http://www.spc.int/PRISM; United Nations Development Programme (UNDP), *Pacific Human Development Report 1999*; United Nations Children's Fund (UNICEF), *The Progress of Nations* (1997, 1999, 2000); United Nations Statistics Division (UNSD), Millennium Indicators Database 2003, available online at http://unstats.un.org/unsd/mi; World Health Organization (WHO), Western Pacific Region Health Databank, various revisions (2001, 2002, 2004), available online at http://www.wpro.who.int

Country Economic Indicators

Item	Fiscal Year[a] 2000	2001	2002	2003	2004
A. Income and Growth					
1. GDP per Capita ($, current)	1,964.3	1,961.6	1,971.8	2,029.4	1,958.3
2. GDP Growth (%, in constant prices)	8.9	0.1	0.8	3.2	(3.3)
a. Agriculture	—	—	—	—	—
b. Industry	—	—	—	—	—
c. Services	—	—	—	—	—
B. Saving and Investment (current and market prices, % of GDP)					
1. Gross Domestic Investment	—	—	—	—	—
2. Gross National Saving	—	—	—	—	—
C. Money and Inflation (annual change)					
1. Consumer Price Index[b]	2.1	1.3	(0.1)	(0.3)	1.5
2. Total Liquidity (M2)	—	—	—	—	—
D. Government Finance (% of GDP)					
1. Revenue and Grants	68.1	63.6	71.8	70.5	52.4
2. Expenditure and Onlending	74.7	72.4	66.0	65.6	59.1
3. Overall Fiscal Surplus (deficit)	(6.6)	(8.8)	5.9	5.0	(6.7)
E. Balance of Payments					
1. Merchandise Trade Balance (% of GDP)	(37.9)	(39.6)	(34.5)	(43.9)	(50.6)
2. Current Account Balance (% of GDP)	0.3	(5.3)	7.2	0.8	(11.6)
3. Merchandise Export ($) Growth (annual % change)	22.6	17.9	6.3	(9.2)	(9.3)
4. Merchandise Import ($) Growth (annual % change)	10.4	8.7	(9.0)	21.6	9.1
F. External Payments Indicators					
1. Gross Official Reserves (including gold, $ million in weeks of current year's imports of goods)	—	—	—	—	—
2. External Debt Service (% of exports of goods and services)	20.7	18.9	5.1	5.2	5.6
3. Total External Debt (% of GDP)	23.3	20.3	17.9	17.0	17.3
G. Memorandum Items					
1. GDP (current prices, $ million)	219	222	223	230	225
2. Exchange Rate ($/$, average)	1.0	1.0	1.0	1.0	1.0
3. Population ('000)	107.0	107.3	107.5	107.8	108.0

— = not available; GDP = gross domestic product

[a] Fiscal year ends 30 September.
[b] period average

Sources: IMF, International Financial Statistics; FSM Department of Economic Affairs, Economic Management Policy Advisory Team website at (http://www.empat.fm/statistics/stats/htm).

Country Poverty and Social Indicators

Item	Period		
	1990	1994	Latest Year
A. Population Indicators			
1. Total Population ('000)	95.7(1989)	105.5	108.0 (2004)
2. Annual Population Growth Rate (% change)	3.0 (1980-89)	1.9 (1989-94)	0.3 (1994-2000)
B. Social Indicators			
1. Total Fertility Rate (births/woman)	7.4 (1980)	4.6	4.4 (2000)
2. Maternal Mortality Ratio (per 100,000 live births)	83.0 (1992)	274.0 (1999)	317.0 (2003)
3. Infant Mortality Ratio (below 1 year/1,000 live births)	46.0	40.0 (1996)	19.0 (2003)
4. Life Expectancy at Birth (years)	65.2	67.0 (1996)	66.5 (2002)
a. Female	66.8	67.6 (1996)	68.1 (2002)
b. Male	64.6	66.5 (1996)	64.9 (2002)
5. Adult Literacy (%)	88.9 (1980)	93.9	92.4 (2000)
a. Female	87.6 (1980)	93.0	91.9 (2000)
b. Male	90.3 (1980)	94.8	92.9 (2000)
6. Primary School Gross Enrollment (%)	—	93.7	142.2 (2000/01)
7. Secondary School Gross Enrollment (%)	—	81.4	132.2 (2000/01)
8. Child Malnutrition (% below age 5)	13.3 (1987-88)	—	15.0 (1997)
9. Population with Access to Safe Water (%)	87.0	79.1	59.0 (2003)
10. Population with Access to Sanitation (%)	30.0	34.4	48.0 (2003)
11. Public Health Expenditure (% of GDP)	—	6.1 (1997)	5.4 (2001/02)
12. Public Education Expenditure (% of GDP)	—	5.5 (1998/99)	9.6 (2001/02)
13. Human Development Index (Pacific)	—	0.604	0.569 (1999)
Pacific Rank / number of PDMCs	—	7/12	8/14
14. Gender-Related Development Index Rank	—	—	—
C. Poverty Indicators			
1. Poverty Line (US$ per household per year)			5693 (1998 HIES)
2. Poverty incidence (Households below Poverty Line (%)	—	—	27.9 (1998 HIES)
3. Poverty Gap	—	—	0.51 (1998 HIES)
4. Poverty Severity Index	—	—	
5. Inequality (Gini Coefficient)			
By income	—	—	0.51 (1998 HIES)
By expenditure	—	—	0.47 (1998 HIES)
6. Human Poverty Index (Pacific)	—	—	26.7 (1999)
Pacific Rank / number of PDMCs	—	—	10/14

— = not available, GDP = gross domestic product; HIES = household income and expenditure survey; PDMCs = Pacific developing member countries

Sources: Abbott, D., The Federated States of Micronesia Hardship and Poverty Status Discussion Paper (30-Jan-04); Abbott, D. and S. Pollard, *Hardship and Poverty in the Pacific*; Department of Economic Affairs, Statistics Division, *Federated States of Micronesia (FSM) 2000 Population and Housing Census Report* (May 2002) ; Secretariat of the Pacific Community (SPC), Pacific Islands Regional Millennium Development Goals Report 2004, Statistical Annex, available online at http://www.spc.int/mdgs; United Nations Development Programme (UNDP), *Pacific Human Development Report* (1994, 1999); United Nations Educational, Scientific and Cultural Organization (UNESCO), Institute for Statistics website at http://www.uis.unesco.org; United Nations Statistics Division (UNSD), Millennium Indicators Database 2003, available online at http://unstats.un.org/unsd/mi; World Health Organization (WHO), Western Pacific Region Health Databank, various revisions (2001, 2002, 2004), available online at http://www.wpro.who.int; WHO, *The World Health Report*, various years (2000-2004).

Country Environment Indicators

Indicator	1990	Latest Year	
A. Energy Efficiency of Emissions			
1. GDP/Unit of Energy Use (PPP$/kgoe)	—	—	
2. Traditional Fuel Use (% of total energy use)	—	—	
3. Carbon Dioxide Emissions			
a. Metric Tons ('000)	236.0 (1994)	141.4	(1996)
b. Metric Tons per Capita	2.2 (1994)	1.3	(1996)
B. Water Pollution: Water and Sanitation			
1. % Urban Population with Access to Safe Water	93.0	87.0	(2003)
2. % Rural Population with Access to Safe Water	85.0	31.0	(2003)
3. % Urban Population with Access to Sanitation	53.0	84.0	(2003)
C. Land Use and Deforestation			
1. Forest Area (km^2)	—	—	
2. Average Annual Deforestation			
a. Km^2	—	—	
b. % Change (natural forests only)	—	(38.0)	(1990-2000)
3. Rural Population Density (people/km^2 of arable land)	—	—	
4. Arable Land (% of total land)	—	5.7	(2001)
5. Permanent Cropland (% of total land)	—	45.7	(2001)
D. Biodiversity and Protected Areas			
1. Nationally Protected Area			
a. Km^2	72.0 (1994)	72.0	(2004)
b. % of Total Land	10.3 (1994)	10.3	(2004)
2. Mammals (number of threatened species)	6 (1996)	6	(2004)
3. Birds (number of threatened species)	6 (1996)	8	(2004)
4. Higher Plants (number of threatened species)	4 (1997)	4	(2003)
5. Reptiles (number of threatened species)	2 (1996)	2	(2004)
6. Amphibians (number of threatened species)	0 (1996)	0	(2004)
E. Urban Areas			
1. Urban Population			
a. '000	26.9 (1994)	23.9	(2000)
b. % of Total Population	25.5 (1994)	22.3	(2000)
2. Per Capita Water Use (liters/day)	—	—	
3. Wastewater Treated (%)	—	—	
4. Solid Waste Generated per Capita (kg/day)	—	—	

— = no data available; GDP = gross domestic product; kg = kilogram; kgoe = kilogram oil equivalent; km^2 = square kilometer; PPP = purchasing power parity

Sources: Central Intelligence Agency (CIA), *The World Factbook 2005* (http://cia.gov); International Union for Conservation of Nature and Natural Resources (IUCN), *The IUCN Red List of Threatened Species* (1996, 1997, 2003, 2004) (http://www.iucnredlist.org); Secretariat of the Pacific Community (SPC), Pacific Island Populations 2004 poster; SPC, Pacific Regional Information System (PRISM) (http://www.spc.int/PRISM); United Nations Statistics Division (UNSD), Millennium Indicator Database (2003) (http://millenniumindicators.un.org); World Bank, *The Little Green Data Book* (2000-2005); World Health Organization (WHO), Western Pacific Region Health Databank, various revisions (2001, 2002, 2004), available online at http://www.wpro.who.int; World Resources Institute (WRI), Earth Trends 2003 (http://earthtrends.wri.org).

Appendix 6

Opportunities and Benefits for Environmental Improvements

ENVIRONMENTAL IMPROVEMENTS	OPPORTUNITIES AND BENEFITS
Food Security	▪ Awareness and education ▪ Improve on transport of goods to market ▪ Revitalize traditional food security practices through sustainable agriculture and marine resources management ▪ Improve on/Encourage self-sufficient households in food security/surplus ▪ Upgrade/enhance small-scale piggeries to promote livestock production and marketing; and diversify protein consumption ▪ Off-shore fisheries development encouraged to reduce reef/in-shore fishery depletion ▪ Community-based marine resources ventures – e.g., aquaculture or mariculture
Water Security/Quality	▪ Awareness, education and training ▪ Reticulated water supply upgraded and community-based with improved and low costing self-testing and treatment programs ▪ Better control of land use in catchments ▪ Improved access to potable water in villages and outer islands
Public Health & Sanitation	▪ Awareness, education and training/Enhance health education efforts ▪ Community-based health centers/dispensaries to improve quality of health care ▪ Increased monitoring of fresh and marine water quality ▪ Improve basic quality of life for people – safe water, sanitation, and garbage disposal ▪ Identify and install appropriate toilet systems – e.g., water sealed toilets; composting toilets; Ensure septic tanks operated and maintained appropriately ▪ Upgrade/Improve sanitation system in villages and outer islands – e.g., Sewer system of Lelu Municipality, Kosrae

ENVIRONMENTAL IMPROVEMENTS	OPPORTUNITIES AND BENEFITS
Integrated Solid Waste Management	▪ Awareness, education and training ▪ Promote/Enhance waste-composting piggeries to reduce environmental impacts and promote integrated waste management ▪ Promote and execute integrated solid waste management and practices – composting, reduction, reuse, recycling, land-filling, and proper hazardous waste disposal ▪ Establish a waste collection system/Design, construct and operate a sanitary landfill
Enhance Management (Land and Marine)	▪ Revitalizing traditional agro-forestry practices – e.g., Yap taro patch revitalization ▪ Community-based marine resources management ▪ Institutionalize the State Resource Management Committees ▪ Build on the successes of the Pohnpei State Marine Conservation Officers Initiative ▪ Establish a "Micronesians in Sustainable Community Development" learning network with pilot projects
Energy	▪ Awareness, education and training ▪ Upgrade distribution system – e.g., KUA replace generating equipment and match transformers with load ▪ Bulk (multi-country) purchase agreement for fuel ▪ Alternative/Renewable energy (bio-fuels, hydro, solar, or wave energy) – e.g. PUC plans for a 10 megawatt hydro-solar hybrid power generation system to reduce dependency on imported fossil fuels ▪ Energy conservation – e.g., 76% of PUC customers on Cash Power meters ▪ Privatization – e.g., No state subsidy to PUC since 1995
Climate Change, Disasters, Coastal Erosion	▪ Awareness, education and training ▪ Mainstream climate risk reduction into policies/plans; Enhancing disaster preparedness; and Link disaster preparedness and adaptation ▪ Secure funding to allow "climate proofing" of infrastructure and community development projects - e.g., Causeway to Pohnpei Airport ▪ Strengthen regulations (e.g., EIA) to take into account natural disasters (e.g., tsunamis) and climate change ▪ Investigate and demonstrate alternatives to sea walls for coastal protection

ENVIRONMENTAL IMPROVEMENTS	OPPORTUNITIES AND BENEFITS
Tourism	▪ Awareness, education and training ▪ Enhance operating environment for private sector through start ups with longer terms to stimulate sustainability ▪ Improve transport, health and other services ▪ Give more attention to environmental quality ▪ Work with land owners to develop co-management plans for tourist attractions
Public Buildings	▪ Awareness, education and training ▪ Centralize maintenance and repair; Develop a rolling plan for maintenance and repair; Focus on repairs instead of alterations and additions; Use appropriate materials for maintenance; Need assistance from registered architect and/or highly skilled maintenance superintendent; ▪ Identify additional/alternative funding sources/Ensure adequate funding for maintenance and repair – e.g., Develop a trust fund in which interest generated will fund maintenance Undertake annual inspections and evaluations ▪ Lease out unused public facilities; and Sell abandoned government buildings for salvage
Land Use Planning and Zoning	▪ Institutionalize land-use/zoning plans
Building Code	▪ Institutionalize State Building Code – e.g., Yap State Building Code
Increased Production and Use of Coconut Products	▪ Increase production and utilization of coconut products ▪ Alternative livestock feed ▪ Alternative bio-fuel
Development of Community Based Pearl Fishery	▪ Develop community-based pearl fishery – e.g., Nukuoro, Pohnpei and Yap State COM-Land Grant proposed effort
Strengthen Fisheries Sector	▪ Fisheries development – e.g., Restore operational capacity of the Yap Fisheries Authority ▪ Reduce reef fishery effort; encourage offshore fishery ▪ Increase aquaculture; diversify in-shore fisheries development
Cooperation and Coordination in Government	▪ Awareness, education and training; Appropriate centralized training; Ensure appointed commissioners are fully trained and hence totally competent ▪ Undertake assessment of needs, as precursor to preparing development plans

ENVIRONMENTAL IMPROVEMENTS	OPPORTUNITIES AND BENEFITS
	and budgets; Institutional strengthening ▪ Prepare 5-yr development plans include projects ▪ Introduce state building code, with implementation by municipalities ▪ Assistance to AG's office to strengthen legislation and regulations ▪ Institutionalize the Resource Management Committees ▪ Build on the successes of the Marine Conservation Officers initiative ▪ Establish a "Micronesians in Sustainable Community Development" learning network, with pilot projects

Appendix 7

Constraints and Barriers to Improved Environmental Performance

ENVIRONMENTAL PERFORMANCE	CHUUK	KOSRAE	POHNPEI	YAP
Food Security	Increasing reliance on imported foods – Financial consequences – Health consequences – Increased vulnerability to natural disasters – Need to support local enterprises – Loss of traditional knowledge and practices			
Water Security/Quality		Water not treated – all systems show contamination Over 80% of households have water catchments Typically over half show contamination Some systems have asbestos pipes – health hazard Centralized system, with treatment, is expensive to run – ability to pay Security of supply during drought worsened by climate change Flush toilets require reliable water supply	4,546 houses on piped water; 1,766 not (2000) Survey in Mand (43 out of 75 households): 72% drink water from rain catchments (tests showed 0 FCF) 40% from the river (tests showed 220 to 450 FCF) 7% bottled water (tests show 0 FCF) 5% community piped water system (tests showed 17 to 100 FCF) Centralized system, with treatment, is expensive to run – ability to pay? Security of supply during drought worsened by climate change Flush toilets require reliable water supply	

Public Health & Sanitation	N/A	Majority of people have difficulty accessing health services à distance, cost etc Water quality tests show contamination High incidence of water borne diseases Sanitation below standard, especially in more remote areas Only wastewater from hospital and Tofol is treated; plus wastewater collected from septic tanks Need sanitation systems that are appropriate for households and communities	Health indicators are declining, despite efforts to improve health of the people Many people have difficulty accessing health services à distance cost, etc. Water quality tests show contamination High incidence of water borne diseases Sanitation below standard, especially in more remote areas (938 houses on sewer; 5,374 not) Need sanitation systems that are appropriate for households and communities	
Integrated Solid Waste Management		Non-compliance with littering regulations Dumps unsightly, polluting and a hazard (health and safety) Majority of solid waste is biodegradable – garden and food waste compostable Some waste can be recycled (e.g., Al cans) Hazardous waste not being managed appropriately	Non-compliance with littering regulations Over 100 illegal garbage dumps Dumps unsightly, polluting and a hazard (health and safety) Majority of solid waste is biodegradable – garden and food waste compostable Some waste can be recycled Aluminum cans no longer being recycled Scrap metal collection now taking place Hazardous waste not being managed appropriately	
Enhance Management (Land and Marine)	Indiscriminative resource extraction driving marine stocks down			Inadequate monitoring and enforcement of EIS conditions

Energy	High fuel costs and	Electricity cost is 28c per kWh Should be at least 34c per kWh if depreciation incl. Fuel costs increased by 28% Efficiency of engines 13 to 14%; high line losses (14 to 15%) Generation plant obsolete; high maintenance and repair costs; low reliability Most KUA employees do not have formal training; this and equipment shortfalls impacts on service Land access issues	Electricity charges are high due to rising fuel prices Major generation repairs undertaken on a continuous basis	
Climate Change, Disasters, Coastal Erosion	N/A	Kosrae already experiencing impacts consistent with climate change e.g., coastal erosion, increased flooding, droughts Projected changes in climate a major risk to Kosrae Coastal communities at great risk State committed to "climate proofing" infrastructure and community developments, but no resources Inadequate disaster preparedness Draft version of State Disaster Preparedness Plan No formal early warning system Need to identify alternative source for aggregate	Pohnpei already experiencing impacts consistent with climate change e.g., coastal erosion, increased flooding, droughts Projected changes in climate a major risk to Pohnpei Coastal communities at great risk State committed to "climate proofing" infrastructure and community developments, but no resources Inadequate disaster preparedness Draft version of State Disaster Preparedness Plan No formal early warning system	Accelerated coastal erosion

Tourism	N/A	Inadequate transport services Health services not to standards tourists require Poor quality of drinking water Too much litter Weak private sector Attractions in poor condition and need improved access Land tenure issues – most historic sites on private land	Inadequate transport services Health services not to standards tourist require Poor quality of drinking water in some areas Too much litter Difficult for private sector to access loans etc Land tenure issues – many historic sites on private land	
Transportation – Air and Sea, including Outer Islands	Inadequate transport services within the Nation and States			
Public Buildings	Land tenure issues – government lands are leased from private	Current situation affecting efficiency and effectiveness of government services No funding for building maintenance – Compact funds not yet released Responsibility for building and equipment maintenance devolved to Departments		Dispersed location and inadequate quality of government facilities
Dredging the Reef	Marine tenure issues		Dredging of reefs – major impacts; no enforcement	Dredging of sand and aggregate from the reef
Sediment Discharge on Reef and Lagoon				Sediment discharge to lagoons and reefs

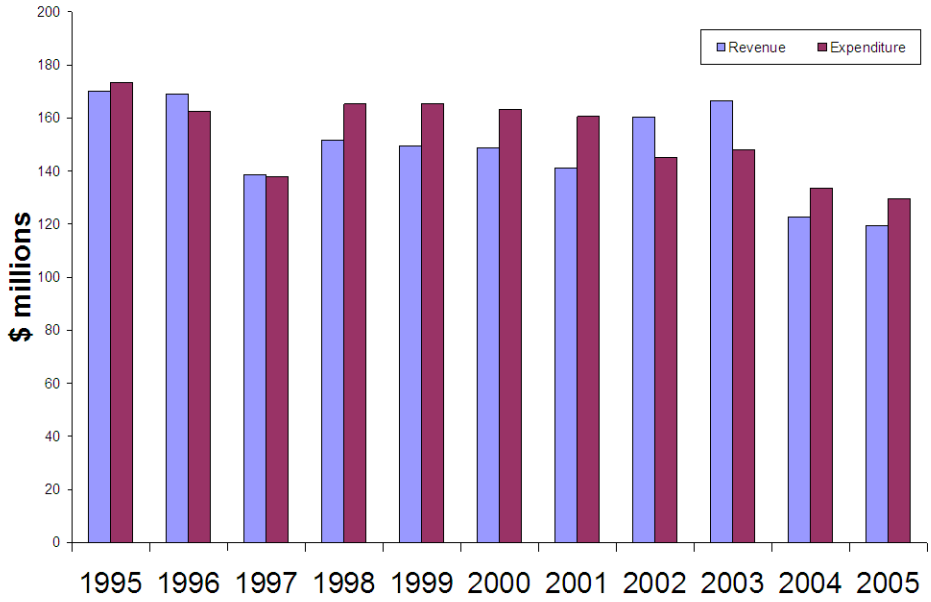
Cooperation and Coordination in Government		Municipal Govt. Key role in ensuring quality of life for community members Lack capacity to fulfill roles and responsibilities Lack of adequate, on-going funding Five year development plan mandatory – but not prepared, or outdated Currently use Universal Building Code – does not reflect local circumstances	Municipal Govt. Break down in communication between state and municipal levels of government Flow of funding from state to municipal government not consistent with Constitution Replace mayors, councils and legislatures with competent commissioners Self management and regulation most effective Approach - use “kiraka” not “tuhke” Lack of capacity to fulfill roles and responsibilities	Inadequate coordination and cooperation between government agencies

Appendix 8

Additional Information on the Budgetary Framework

The total revenue and grants received by the combined FSM Governments increased from $141.1 million in FY2001 to 166.6 million in FY2003, but are estimated to drop to $122.6 million in FY2004 and to $119.5 million in FY2005 (Figure 1). The short term rise in income reflected the increase in Compact funds that occurred in FY2002 due to the addition of 'compact bump up', a temporary increase for FY2002 and FY2003 only. Total grants increased from $95.6 million in FY2001 to $113.3 million in FY2002 but are expected to drop to $72.8 by FY2005. Grants from abroad are the dominant source of income (Figure 2). Tax revenue is consistently between $26 and $27 million, while recently non-tax revenue fluctuates around $20 million, with small changes in dividend and interest income tending to be offset by small variations in fishing access revenue. Total expenditure was down slightly from $160.6 million in FY2001 to $145.2 million in FY2002 and is expected to decline to $129.7 million by 2005 (Figure 6). Current expenditure decreased from $129.7 million to $121.9 million and is expected to remain close to that value out to FY2005, while capital expenditure dropped markedly from $30.9 million to $23.3 million between FY2001 and FY2002 and is expected to decline even further (to $7.9 million) by 2005. The overall balance improved substantially, from $19.6 million in FY2001 to $15.0 million in FY2002, the first positive balance since FY1997. But by 2004 the balance is expected to again be negative (Figure 1).

Figure 1. FSM revenue and expenditure, 1995 to 2005 (values for 2004 and 2005 are estimates).



Source: FSM Statistics Division, Department of Economic Affairs.

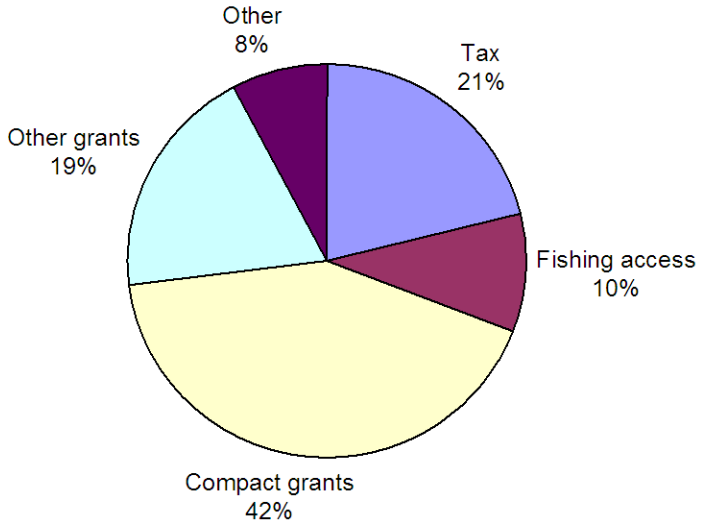


Figure 2. Sources of revenue for FSM, based on estimates for 2004

Source: FSM Statistics Division, Department of Economic Affairs.

The original Compact, which became effective in FY1987, provided for the transfer of resources in three essential areas: funds to support general government, which were largely unrestricted, special grants tied to specific sectors, and access to US special and federal programs. The structure of the original Compact placed no effective constraints to which sectors the resources were directed. However, the original Compact entailed the need for two large fiscal adjustments coinciding with two step-downs in FY1992 and FY1997, and the challenge to avoid excessive expenditure due to an increase in funding in FY2002-FY2003.

The agreement and adoption of the amended Compact by the FSM and U.S. governments, which became effective in FY04, initiates a wholly new fiscal framework on the FSM. The structure entailed a series of sector grants earmarked for education, health, environment, private sector development, capacity building and infrastructure. The innovative nature of the amended Compact was the introduction of an annual decrement paid into a Compact Trust Fund, which is designed to provide a yield sufficient to replace the annual grants after 20 years. Table 1 shows the agreed annual Compact grants and the contribution to the Compact Trust Fund. Each year over a 20-year period the U.S. will contribute to the FSM $92 million partially adjusted for inflation. In comparison with the original Compact, the new regime avoids the need for large fiscal adjustments every five years. The decrement, while avoiding large shocks to the system, will still require an annual compression of expenditures once the decrements start in FY2007. Coupled with the lack of full inflation adjustment, the annual reduction in real resources (estimated to be approximately 2% per annum) will require active fiscal policy adjustments unless a policy regime can be developed sufficiently attractive to encourage private sector investment and economic growth great enough to offset the decline. The sectoral structure of the Compact also presents special problems. In the FY04 budgets, the altered fiscal framework resulted in funding shortages for the operations of government not covered under the sector grants. In order to address the shortfall,

the US permitted the FSM to utilize the capacity building sector grant for this purpose provided the FSM agreed to transition out the use of the grant for "non-conforming" purposes over a five year period. Under duress the FSM had no alternative but to concede. While the operation of the FY04 budgets were not affected, the transition requirements will become binding in FY07, and require a painful adjustment of expenditure cuts or increased revenue effort.

Table 1

U.S. Annual Compact Grants and Contributions to the Trust Fund

	Annual Grants	Trust Fund Contribution	Total Contribution
FY04	76.0	16.0	92.0
FY05	76.0	16.0	92.0
FY06	76.0	16.0	92.0
FY07	75.2	16.8	92.0
FY08	74.4	17.6	92.0
FY09	73.6	18.4	92.0
FY10	72.8	19.2	92.0
FY11	72.0	20.0	92.0
FY12	71.2	20.8	92.0
FY13	70.4	21.6	92.0
FY14	69.6	22.4	92.0
FY15	68.8	23.2	92.0
FY16	68.0	24.0	92.0
FY17	67.2	24.8	92.0
FY18	66.4	25.6	92.0
FY19	65.6	26.4	92.0
FY20	64.8	27.2	92.0

By Constitutional mandate, at least 50% of the nationally imposed taxes (and 80% of the fuel import tax) must be shared with the state in which the taxes were collected. At the start of FY1999, the national government shared a further 20% with the states, although the use of these extra transfers, amounting to about $4.3 million annually, was restricted to health and education capital projects. In FY04, as the fiscal position tightened with the implementation of the amended Compact, the national government legislated the return of the 20%. Non-tax revenues continue to be dominated by fishing access fees, which recently have represented nearly one-quarter of all domestic revenues. The national government manages the tuna resources and keeps all of the revenues from the licensing fees. Revenue from penalties and fines is shared with specific states and, in some cases, local governments. The fishing access fee source of revenue grew rapidly from less than $4 million in FY87 to a peak of over $21 million in FY95, but has subsequently dropped back and averaged $11.4 million during the FY01-FY04 period. The declining trend in this revenue source is the leading cause of the deterioration in the national government's fiscal position.

During Compact I the national government acted as an agent in distributing to each government, according to mutually agreed formulas, the grant funding received from the US under the Compact. The national government received just less than 15 percent of current grants and 10% of capital grants. The remainder was distributed to the states based roughly on a formula that split 30% of funding evenly among the four states and 70% of the funds according to population. In 2003 the formula was revised, reducing the share of the national government to 8.65% and distributing the

remainder in a similar proportion to original distribution amongst the states. However, with mounting fiscal pressure on the national government, the Congress of the FSM legislated in 2005 that no less than 10% would be allocated to the national government effective from FY2007.

FY2004 marked the first year the FSM received and used sector grant funds under the amended Compact (Table 2). Infrastructure Sector grants were not allocated to the FSM in FY 2004, pending completion and approval of the Infrastructure Development Plan (IDP) in FY2005.

Table 2

Federated States of Micronesia Compact Grant Allocation, Fiscal Year 2004

Sector	Total	National	Chuuk	Kosrae	Pohnpei	Yap
Education	25,965,572	4,324,122	8,140,265	1,883,853	7,373,651	4,243,681
SEG	0	0	0	0	0	0
Health	15,443,116	553,613	4,691,707	1,326,663	5,989,461	2,881,672
Private	3,786,119	513,091	1,338,874	795,261	525,423	613,470
Environment	2,023,192	79,477	378,394	302,523	666,944	595,854
Capacity	11,662,846	4,287,697	2,853,813	1,013,866	1,676,163	1,831,307
Infrastructure	17,119,155	0	0	0	0	0
IMF	0	0	0	0	0	0
Total	**76,000,000**	**9,758,000**	**17,403056**	**5,322,169**	**16,231,642**	**10,165,984**

Source: Compact Sector Notification of Grant Awards for FY 2004.

Compact sector grant funds became available to the FSM during the later part of the second quarter in FY04. As shown in Table 3, not all Compact sector grant funds authorized in FY2004 were expended. In addition to the $17,119,155 in Infrastructure Development funds not allocated during the year, approximately $7,724,802 in authorized sector grant funds were not expended as follows

Education Sector	$3,034,205
Health Sector	2,285,306
Private Sector Development	594,693
Environment Sector	453,664
Capacity Building	1,356,934
Total	$7,724,802

Unexpended sector grant funds from FY2004 will be added to the subsequent year's Compact sector grant allocation for program reapportionment.

Table 3

Federated States of Micronesia Compact Grant Expenditure, Fiscal Year 2004

Sector	Total	National	Chuuk	Kosrae	Pohnpei	Yap
Education	22,931,367	4,314,996	7,384,266	1,883,853	7,140,221	2,208,031
SEG	0	0	0	0	0	0
Health	13,157,810	490,533	4,303,076	1,114,718	5,350,247	1,899,236
Private	3,191,426	445,667	1,242,929	557,444	514,779	430,607
Environment	1,569,528	62,986	278.048	291,534	561,839	376,121
Capacity	10,305,912	3,992,926	2,631,994	977,737	1,475,687	1,226,568
Infrastructure	0	0	0	0	0	0
IMF	0	0	0	0	0	0
Total	**51,156,043**	**9,308,108**	**15,840,313**	**4,825,286**	**15,042,773**	**6,139,563**

Source: FSM Department of Finance and Administration

Appendix 9

Project Concepts

Strengthening Communication, Coordination and Cooperation Between Levels of Government

Background

Central to this proposed project is the need to review and revise the division of roles and responsibilities between the national, state and municipal governments. This three-tier system, which was introduced (some would say imposed) during the US Trust Territory Administration (TTA), interfaces with traditional and church-based systems of leadership. The weaknesses of FSM, which is made up of four very different islands groups with their own cultures and languages, can be traced both to its federalism and to the large size, complexity and cost of government relative to the population it serves. Under the Constitution, the states have broad jurisdiction while the powers of the national government are essentially limited to international relations, taxation, immigration, and international trade and commerce.

In addition to the high financial and social costs of maintaining the three-tier system of governance, and the traditional systems with which it interfaces, the country economic, social, poverty and environmental indicators suggest that currently, and in the past, the people of FSM are not receiving the social and economic benefits they might expect. Stakeholders have highlighted a number of initiatives to right-size and re-focus government to improve environmental performance and hence the quality of the environment. Development in the States' urban centers (Lelu/Tofol, Kolonia, Weno, and Colonia) has been haphazard at best. The increasing pressures that arise as rural populations move to "town" for employment, education, and other opportunities represent a major threat to the natural environment and human health in these areas. Large percentages of urban populations are without access to sewer systems, sanitary latrines, and safe drinking water. Further, improper drainage, disposal of solid wastes in yards, streams, and shorelines, development of piggeries, stray dogs, and other environmental hazards combine to make urban living in the FSM unsafe.

Improved communication, coordination and cooperation are hampered by the fact that, even when there is nothing to hide, Micronesians seem reluctant to share information. This often confounds Westerners, for the same Micronesians who are so generous with food and other material things behave very differently when it comes to sharing information. Some of the reluctance to release what Westerners see as public information can be traced to traditional cultural attitudes. The Pacific stance toward passing on knowledge has always been guarded. Good governance requires an ongoing flow of reliable information from the government to the people, and from the people to the government. Without the former the people will never be able to make an informed judgment on the performance of their leaders; without the latter the political leaders will not be able to make informed decisions in the interests of the population at large.

The quality of government services is unacceptably low at present, in the judgment of most Micronesians. The level of mediocrity in health care and in the schools, to say nothing of other departments, is a barrier to human development. But the addition of new programs will accomplish nothing other than waste additional government

money if the management structures are not made more efficient. There is a need to bring government closer to the people and to the environment and resources on which they depend. This will help improve sustainability. In addition, the system of governance can become more consistent with local culture and custom.

The proposed assistance is consistent with Public Sector Reform Program and with needs identified in the CSPU, as well as with ADB's operational strategy and strategic priorities for FSM. The proposed initiative has widespread stakeholder support. It is also consistent with changes driven by amended Compact and complements the planned ADB TA: Implementation of Public Sector Capacity Building Roadmap.

Goal and purpose

To improve efficiency, effectiveness, and accountability in government. Public sector reform needs to be shifted to the state level and municipal levels, as reform efforts will achieve greatest benefits for economic development, social progress and environmental quality if focused at that level. Adequate capacity to sustain such efforts needs to be built. To ensure that environmental protection and sustainable resource management are priorities for state and municipal governments, there is a requirement for long-term planning and for long-term capacity building. Development funding should be tied to sustainable development priorities.

Components and outputs

In cooperation with national and state governments, assist each municipality to prepare a long-term sustainable development plan. An important early task would be to undertake an assessment of the needs at municipal government level, as a precursor to preparing municipal development plans and budgets.

Establish financial planning and management systems at state level to ensure ongoing funding for municipal government.

Provide centralized training for municipal government staff.

Assist relevant government agencies to prepare land use plans, zoning regulations, and building codes, and encourage compliance with these instruments through education and awareness raising programs, monitoring and, where necessary, enforcement.

Expected results and deliverables

Assessment of needs at municipal level with regard to preparing and implementing development plans.

Long term sustainable development plans for each municipality. There will be more efficient use of development funding as it will be tied to the development priorities identified in the plans.

Staff in municipal governments with the necessary knowledge, skills and motivation to promote economic development, support social progress and ensure environmental quality is improved.

Land use plans, zoning regulations, environmental impact assessment regulations and building codes prepared through participatory consultation, and implemented in ways that will ensure a high level of compliance.

Social or environmental issues or concerns

No major issue is envisaged.

Proposed executing/implementing agencies

To be determined through consultation with FSM government.

Financing Amount

Amount of the technical assistance to be determined

Timetable for assistance design, processing and implementation

Year 2006 for processing

Promote Environment and Resource-based Enterprises through the Small Business Development Centers

Background

The promotion of private sector activities continues to be a main focus of ADB's strategy for FSM. The Private Sector Development Program assists the Government in creating an enabling environment for private sector development through the establishment of secured transaction systems, land administration and management, improvement of the regulatory environment, and support for job creation.

The agriculture, fisheries, and tourism sectors are recognized as providing the long-term growth potential and competitive advantage for the FSM. However, currently the largest single sector in the FSM economy is government services. Current commercial and business activity is dominated by informal and formal small- and medium-sized enterprises (SMEs). Apart from the government and utilities corporations, few large businesses exist that can create major employment or single markets for other businesses. As such, most small businesses in the FSM can be characterized as having a small market share, and personalized owner operator or family management. Any meaningful and effective intervention for private sector development in the FSM will have to consider the important role SMEs play in the economic and social development of the country.

Environment and resource-based small business enterprise development should be based around a three-pronged approach: (i) to replace unhealthy and high cost imported foods with local foods that are both healthy and affordable to local consumers; (ii) further development of small-scale and low impact tourism enterprises, based in part on diving, eco-tourism and historic and cultural attractions; and (iii) private sector involvement in waste management, including waste collection, sorting, reuse, recycling and disposal. The benefit of this approach is that the necessary production and service systems involve low technology, low start up costs, low capital, no debt and offer high margins in some instances. Relative to producing for export, the markets will be readily accessed and with simple distribution chains. In the near term demand should be relatively constant and in line with available and consistent levels of supply.

Awareness of the fundamental differences between the subsistence and commercial economies of the FSM is very important and should form, at least in part, the basis of assistance provided for business development and training in management strategies. There is also a need to provide guidance as how best to take into account the competing demands of family and business. Such assistance might best be delivered through the newly renamed small business development centers (SBDCs) that are being strengthened as part of the PSDP. These centers will provide a comprehensive small business support service, improved delivery of skills training, and a labor market information system. They will expand their outreach business extension services to the informal sector, outer islands, women and youth, and targeted priority sectors. Delivery of business training and advisory services will closely consider factors such as the current level of commercialization, business development, and educational attainment of beneficiaries. For these reasons the SBDCs seem ideally suited to supporting environment and resource-based business enterprise development.

To date most of the business development assistance in Micronesia has been directed at those who are not in business, but would like to be. In comparison, little assistance has been provided to existing businesses to help them expand. There is

a need to assist successful small business operators to diversify into production of healthy and affordable local foods and/or into development of small-scale and low impact tourism enterprises. Increasing focus is also needed on enhancing the capacity of the subsistence and informal sectors to encourage "graduation" into the formal private sector, enabling the generation of employment opportunities. Experience shows that the informal sector is an important source of entrepreneurial talent, particularly of women.

The proposed project is consistent with ADB's operational strategy and strategic priorities for the FSM and builds on initiatives that form part of current ADB assistance via the Private Sector Development Program/Project. The scale of the proposed development is in line with FSM's capacities and strategic advantages, especially those related to the environment and its natural resources.

Goal and purpose

The goal is to promote the establishment and sustained operation and growth of environment and resource-based business enterprises. The transition of communities from a predominantly subsistence economy to one where income generation is not only desirable but a necessity, will be aided by the establishment and sustained operation and growth of environment and resource-based business enterprises. The challenge will be to ensure that these initiatives are harmonized with efforts to ensure the protection of the environment and the sustainable consumption of natural resources. Small scale commercial enterprises in communities will help build their resilience to natural and other disasters and to health and climate-related risks. Such enterprises will also provide meaningful employment to members of the community, with the income generated being instrumental in reducing hardship.

Components and outputs

Further strengthen the small business development centers (SBDCs) so they can provide targeted support to emerging and expanding environment and resource-based business enterprises. Assistance will include comprehensive small business support services, skills training, and labor and market information systems. Targets for outreach business extension services will include the informal sector, outer islands, women and youth. Delivery of business training and advisory services will closely consider factors such as the current level of commercialization, business development, and educational attainment of beneficiaries.

Expected results and deliverables

Through the initiatives of the SBDCs there will be an accelerated expansion and diversification of environment and resource-based business enterprises in each of the four states. Operators of such enterprises will be trained and have greater capabilities in small business operations. These results will in turn increase the availability of more affordable and healthy local foods, increase the number and sustainability of small-scale and low impact tourism enterprises and of private sector operations in waste management, including waste collection, sorting, reuse, recycling and disposal.

Social or environmental issues or concerns

No major issue is envisaged.

Proposed executing/implementing agencies

To be determined through consultation with FSM government.

Financing Amount

Amount of the technical assistance to be determined

Timetable for assistance design, processing and implementation

Year 2006 for processing

Micronesians
in Sustainable Community Development Learning Network and Pilot Projects

Background

At the National World Summit on Sustainable Development Workshop, held in 2002, the community was identified as the basic management unit for sustainable development within the FSM – communities have the right and responsibility to manage and sustainably develop their resources for their benefit as well as the benefit of future generations. The strengthening of community collective ownership was seen as a prerequisite to communities being able to fulfill their responsibilities to foster sustainable development.

The impact of pollution and the need for waste management programs in the past in the FSM were small as most waste products were biodegradable and populations were dispersed. However, recent increases over the past decade in population densities and the importation of non-biodegradable materials and chemicals have brought with them ever-increasing pollution problems and the urgent need for correct collection, disposals and management of wastes. Public solid waste collection and disposal systems are still limited. Consequently the disposal of household waste is poor, with large amounts of roadside litter and large numbers of informal garbage dumps common. The effect of pollution on the terrestrial, marine and freshwater environment is a major concern for the sustainable development of the FSM. The nation's small land size, isolation and subsistence dependence on the environment greatly increases vulnerability to contamination by solid, liquid and toxic wastes and chemicals. Identifying and implementing community-based sustainable and environmentally sound waste management practices is a high priority. These will of necessity include waste reduction, sorting, reuse and recycling initiatives as well as appropriate disposal of the remaining items in the waste stream.

Water and sanitation are foundations of economic growth, social development and in some cases basic survival. The protection and conservation of the supply and quality of water is becoming an increasingly important issue in the more remote communities of FSM. High population growth rates and densities, replacement of traditional land and resource management systems by introduced agricultural systems leading to poor catchment management, over exploitation of natural resources, mining reefs, and other practices continue to place serious stress on land and coastal resources and the communities that depend on them.

For water, sanitation as well as energy there are issues of high costs for installing, operating and maintaining centralized systems when much of the population is dispersed in remote areas. The widely distributed and isolated islands and communities of the FSM has made the challenge of providing safe, reliable and cheap energy to all communities a very difficult and expensive task.

Within FSM there are many, but as yet isolated, examples of initiatives and plans related to sustainable community development. The diverse agroforests and related traditional agricultural systems of the FSM are possible models for sustainable agricultural development. The land use plans currently being developed through community/government consultations in each state will have a direct and positive impact on the implementation of ecosystem management programs and assist in the preservation, conservation, and sustainable development of land resources.

The proposed project is consistent with ADB's operational strategy and strategic priorities for FSM and with the FSM SDP and NBSAP. It will increase the self reliance

of communities, and is consistent with the need to right-size government and reduce financial assistance.

Goal and purpose

The goal is to establish a learning network that is based on the highly successful Micronesians in Conservation learning network. However, in the present case the advocates and experienced practitioners will focus on encouraging and supporting volunteer communities in each state to demonstrate how they are enhancing their sustainability while at the same time providing improved quality of life for those living in the community. The network will also be used to encourage replication by other communities.

At least one pilot project will be on an outer island of each state. The aim will be to show how improvements in the transport services have allowed the volunteer communities to reduce their reliance on imported foods and other commodities, derive increased incomes from sustainable farming, fisheries and tourism, and benefit from improved practices in solid waste management, including waste minimization, reuse and recycling.

Components and outputs

Initial activities will include identification of participating communities, with at least one in each state, and engagement of advocates and experienced practitioners in sustainable community development. The latter will constitute the key members of the Sustainable Community Development Learning Network, along with community leaders and other key individuals. All will be trained in participatory approaches to sustainable community development. Network members in each community will be mentored on an on-going basis by the members of the Network who are experienced practitioners.

Pilot sustainable community development projects will be implemented in each participating community, with an emphasis on water, sanitation, renewable energy and integrated solid waste management.

Relevant individuals from municipal and state governments will also participate in the learning network, including training and helping to ensure that local government is supportive of the efforts being undertaken at community level.

Expected results and deliverables

Improved health and environmental outcomes will result from such community-based initiatives, and natural resources use is more likely to be sustainable. Traditional knowledge and practices will be revitalized. The project will improve the ability of communities to make the transition from subsistence to cash economies, without adding to hardship and with less reliance on external assistance. A community that is living sustainably will likely also have increased resilience to natural and other disasters and to health and climate-related risks. However, it is likely that additional assistance will be required to ensure that disaster preparedness plans are prepared and implemented, that there is increased community participation in public health care, and that coping and adaptation strategies are in place to reduce climate-related risks.

Social or environmental issues or concerns

No major issue is envisaged.

Proposed executing/implementing agencies

To be determined through consultation with FSM government.

Financing Amount

Amount of the technical assistance to be determined

Timetable for assistance design, processing and implementation

Year 2006 for processing

Demonstration Project on Reducing Risks and Alleviating Hardship

Background

Communities in the FSM have experienced, and are vulnerable to, disasters arising from typhoons, storm surges, heavy rainfall, excessively high ocean temperatures and sea-level, and strong winds. Vulnerabilities will be exacerbated by climate change. Consequences include food and water shortages, including contamination of supplies, disease and personal injury, property and infrastructure damage, failures of electricity and communication systems, and impaired health, education, transport and other services. The consequences are greatest for the poor and other vulnerable groups.

Inappropriately targeted or designed disaster relief encourages a cycle of dependency and leads to increased vulnerability to hazards. Limited recovery assistance has been provided in response to past disasters, including water, food supplies, medication and construction materials, but such efforts have seldom restored well-being and hardship to pre-disaster levels. Such communities therefore become cumulatively more vulnerable with each disaster. Less attention should be given to disaster recovery and more to enhancing the capacity to manage extreme weather events. This will reduce the magnitude of economic, social and human damage and, eventually, the need for grant aid and loans.

The poor have already developed strategies for dealing with disasters (e.g., folklore methods for predicting droughts). Thus enhancing the capacity of communities needs to take account of local knowledge. Indigenous methods need to be understood if they are to be supported and to avoid duplicating existing strategies that the poor and others are already using.

Both the findings (guidelines, success factors, lessons learned) and the practical demonstrations of community-based methods for reducing vulnerability to natural disasters, will have application to all small island developing member countries (DMCs), as well as to larger DMCs.

Upscaling and replication could be facilitated through a further project with the objective of trailing the community-based, disaster vulnerability initiatives used in the initial project and identifying and demonstrating new initiatives more appropriate for high and atoll islands and larger continental countries. The proposed project could also serve as a launch point for initiatives to be included in FSM's National Hardship Reduction Strategy. As noted in the CSPU: 2005-2006, the FSM Government has requested ADB to prepare the Strategy, as part of the agreed Poverty Partnership between FSM and ADB.

As noted in the FSM Country Strategy and Program Update (2005-2006), with a human poverty index of 26.7, FSM ranks ninth among the 13 Pacific developing member countries in terms of poverty. This largely reflects the poor social services in the rural and outer islands, caused by factors including insufficient institutional capacity, an inefficient public sector that captures a disproportionate share of resources, and dispersed geographical locations. ADB continues to support FSM with its three-pillar country strategy of promoting good governance, inclusive social development, and pro-poor economic growth. ADB's country strategy for 2005-2006 emphasizes: (i) promoting participation of civil society in development; (ii) addressing poverty issues more explicitly; and (iii) providing assistance with a long-term perspective.

The 1998 Household Income and Expenditure Survey for FSM indicates that about 30% of households in the country had incomes below the estimated basic needs poverty line of US$768 per person per year. The highest level of hardship and income poverty was recorded in Chuuk at 32.9%, and Pohnpei at 29.5%. These households were likely to experience some degree of financial hardship on a daily or weekly basis. A Participatory Assessment of Hardship (PAH) undertaken from late 2003 to early 2004 (*Priorities of the People: Hardship in the Federated States of Micronesia, 2004)* reports that the population of the outer islands is about 18,000 persons (17% of FSM total). These people tend to be amongst the most disadvantaged with poor access to both education and health services. It highlights the disadvantages suffered by communities in the outer islands, with less access to cash agriculture, somewhat poorer schooling and health services and lack of economic opportunities. Communities in these islands are more dependent on their own production and less on formal wage employment. Social service delivery is poor in the outer islands and is likely failing rural women and children in particular. In the FSM context poverty is seen more in terms of hardship, poor transport services to some states and to remote outer island communities, lack of access to essential services, especially regular, good quality water and primary health services or poor education. It can mean not having a job or any source of steady income from which to meet the costs of school fees or other important family commitments. Poverty and hardship are therefore issues of sustainable human development as well as income. In the outer islands the extended family and community support system is weakening due to the increasing pressures exerted on limited resources by growing numbers of family dependents, mostly those who did not finish primary or secondary school. The assessment identified lack of income to meet individual and family needs (and wants) such as food, clothing, shelter, education, and cash as the most critical.

Goal and purpose

The overall goal of the proposed project is to demonstrate successful implementation, at (outer atoll) island scale, of an integrated set of interventions that provide sustained reductions in: (i) vulnerability to disasters; (ii) poverty and hardship; and (iii) adverse impacts on the environment.

Components and outputs

The project components are:

i. Complement the recent ADB assessments of climate and related risks through community-based characterizations of the sources and nature of their own vulnerabilities, including use of traditional knowledge;
ii. Determine levels of risk acceptable to the community (especially women and other key actors), and their priorities for reducing unacceptable risks;
iii. Identify, and implement on a pilot basis, the priority risk and poverty reduction interventions able to be undertaken by the island communities, including monitoring their effectiveness;
iv. Strengthen the enabling environment for risk and poverty reduction initiatives undertaken at community level by documenting and disseminating information on specific and practical interventions; and
v. Based on the subproject experience and findings, disseminate best practice guidelines as well as success factors and lessons learned.

Expected results and deliverables

Through pilot interventions the project will encourage and support implementation of those initiatives deemed appropriate by the community. Potential measures of likely relevance given the economic, social and environmental conditions include rejuvenation of traditional risk-sharing mechanisms and safety nets for the poor, such as asset pooling and kinship networks. The limited financial assets of the poor and other island inhabitants can be protected and mobilized, and financial risk reduced, through initiatives such as improving post-harvest facilities and storage methods, soil fertility improvement, seed banks, seed dispersal, plant propagation, diversifying crops, promotion and production of disaster resistant and other indigenous crops, employment support through public works schemes, statutory provisions (e.g., social insurance), non-contributory social assistance such as some form of food subsidy, and revolving credit mechanisms. More sustainable management of the island's natural resources will be a priority for increasing the natural resilience of ecosystems, with positive livelihood effects for the poor people. Early warning and notification systems for the community will be assessed and implemented. Long-term investments, will also be encouraged, including planting of trees around dwellings, establishment of a community medical facility, training of village health workers, and education or functional literacy. Support mechanisms that facilitate better decision-making and managing community wide activities for evacuation and emergency response will also be investigated, including counter disaster planning, disaster response committee formation, leadership training, functional literacy, and day care services. Health and sanitation services available at the community level will be assessed for their effectiveness in reducing distater related risks of disease and epidemics.

Social or environmental issues or concerns

No major issue is envisaged.

Proposed executing/implementing agencies

To be determined through consultation with FSM government.

Financing Amount

Amount of the technical assistance to be determined

Timetable for assistance design, processing and implementation

Year 2006 for processing

Enhancing Sustainability of Infrastructure Development Projects in FSM

Background

The Climate Risk Profile for FSM notes that, under current climate conditions, FSM has high vulnerability to extreme events, particularly those leading to either droughts or coastal flooding. Such events have adverse effects on socio-economic development, as resources are diverted to support emergency response and disaster rehabilitation. FSM's vulnerabilities tend to compound because of a tendency for reactive decision-making instead of forward planning. This is due to a number of constraints. Foremost is the lack of resources which makes FSM's capability very limited to deal with climate-related hazards and natural disasters. The capacity to deal with disasters is also constrained by geography - the islands are far apart and communications and transport difficult. Recovery from disasters is slow - the more frequent and/or the more intense individual extreme events are, the greater the difficulty to absorb and recover from these events would be. Future changes in climate may hasten environmental degradation and may affect social and economic growth, particularly in climate sensitive sectors such as water and sanitation, infrastructure, and inshore marine resources.

The recent Indian Ocean tsunami is an extreme example of not only the economic and social costs of a disaster event, but also of the environmental infrastructure damage that can occur. In FSM past disasters have included damage to infrastructure reef ecosystems, salt contamination of soil and freshwater, destruction of coconut and other vegetation. Post disaster there is often unsustainable demands on the remaining but degraded environmental resources and services. Efforts to reduce community vulnerability will result in reduction of such demands.

Recently FSM's National Adaptation Mainstreaming Guidelines were endorsed by the government. Together, the Guidelines and the FSM Strategic Development Plan and the Infrastructure Development Plan provide road maps for reducing vulnerability to key natural hazards. They advocate an integrated approach involving enhanced coping strategies, strengthening resilience, adaptation responses and disaster prevention.

The next step is to ensure effective implementation of these Guidelines and Plans at project and institutional levels. The proposed project will facilitate this by identifying situations where the sustainability of infrastructure development projects is at risk due to climate and related hazards. Special attention will be paid to those projects which have the capacity to bring benefits to the poor and to those projects which would place additional burdens on the poor should their sustainability be reduced due to climate and related risks.

The proposed project will demonstrate pilot interventions that contribute to the Millennium Development Goals (MDGs) of poverty reduction and environmental sustainability and regeneration and to ADB's RCSP 2004-2006, one focus of which is adaptation to climate change and variability. The FSM has a Poverty Partnership Agreement with ADB. Through this partnership ADB will assist to improve progress toward specific MDGs. ADB's country strategy for FSM 2005-2006 includes: (i) promoting participation of civil society in development; (ii) addressing poverty issues more explicitly; and (iii) providing assistance with a long-term perspective.

Goal and purpose

The overall goal of the proposed project is to develop, trial and demonstrate

innovative institutional arrangements and participatory approaches that result in the mainstreaming of vulnerability reduction and disaster prevention in infrastructure development projects, with special emphasis on maximizing benefits and reducing risks to the poor.

Components and outputs

The specific components and outputs are:

(i) Identify, develop, trial and demonstrate innovative institutional arrangements that will ensure the sustainability of infrastructure development projects is not jeopardized by climate and related hazards;

(ii) Identify, develop, trial and demonstrate appropriate participatory approaches that will help ensure potential benefits to the poor and other vulnerable groups are maximized and the risks to these groups as a consequence of reduced project sustainability are minimized;

(iii) Ensure sustainability of the outcomes by recognizing and acting on opportunities for strengthening of institutions, legislation, regulations, planning and EIA procedures, building codes and other instruments;

(iv) Prepare best practice guidelines on mainstreaming of vulnerability reduction and disaster prevention in infrastructure development projects, with special emphasis on maximizing benefits and reducing risks to the poor; and

(v) Prepare success stories and lessons learned, and disseminate these and the best practice guidelines in ways that support ADB's new Pacific Strategy, 2005 to 2009.

Expected results and deliverables

At least two projects in the development pipeline will be selected by project stakeholders, including representatives of governments (national and sub-national), the private sector and relevant NGOs and CBOs. While specific selection criteria will be developed as part of the consultative processes, general criteria will include the need to select projects that are: (i) at risk from climate and related hazards; (ii) at an advanced stage in the project pipeline and certain of implementation; (iii) have the potential to bring significant benefits to the poor and other vulnerable groups; and (iv) able to deliver outcomes that meet the project objectives.

Innovative and appropriate institutional arrangements that facilitate the following outputs and outcomes will be identified: (i) preparation of information on risks to project sustainability as a consequence of climate and related hazards; (ii) identification and costing of design and other project modifications that will ensure project sustainability in face of climate and related hazards; and (iii) actions required to maximize benefits of the project to poor and other vulnerable groups and minimize the risks to such groups if there are shortfalls in project sustainability. The last initiative will require facilitated and informed participatory approaches that ensure the rights and needs of the poor and other vulnerable groups are reflected appropriately and sufficiently in any modifications to the project. Relevant NGOs and CBOs will be involved in order to ensure that the specific interests and concerns of the poor and other vulnerable groups are acted upon. The outputs for this phase of the project will be detailed descriptions of information requirements, methods and tools, along with eight specific case studies demonstrating their application.

Opportunities for strengthening of institutions, legislation, regulations, planning and EIA procedures, building codes and other instruments will be identified. Appropriate opportunities will be explored in detail, including highlighting and ensuring appropriate actions to address the rights and needs of the poor and other vulnerable groups. This latter work will require major rethinking at the institutional level, including development and application of more effective participatory processes to determine the needs of the poor and other vulnerable groups and to identify the most effective and efficient ways to address those needs through planning, regulatory and other mechanisms.

Best practice guidelines on mainstreaming of vulnerability reduction and disaster prevention in infrastructure development projects will be prepared. Special emphasis will be placed on maximizing benefits and reducing risks to the poor. The intention of the guidelines will be to ensure that vulnerability reduction and disaster prevention in community and infrastructure development projects is an integral part of project design and implementation, rather than a separate add on. The above guidelines will be combined with success stories and lessons learned and disseminated in ways that support ADB's new Pacific Strategy, 2005 to 2009. The Vulnerability Reduction and Disaster Prevention Mainstreaming Specialist, working with local counterparts, will also be responsible for this work.

Social or environmental issues or concerns

No major issue is envisaged.

Proposed executing/implementing agencies

To be determined through consultation with FSM government.

Financing Amount

Amount of the technical assistance to be determined

Timetable for assistance design, processing and implementation

Year 2006 for processing

Improving Inter-island Sea and Air Transport Services

Background

The population of the outer islands of the FSM is about 18,000 persons (17%). These people tend to be amongst the most disadvantaged in the FSM, with poor access to both education and health services. Transport services serve as the lifeline to the outer islands. Shipping brings in essential goods and services and takes out island produce from which the people earn a substantial portion of their incomes. Shipping also brings in government services and supplies, particularly to the schools and health clinics. Shipping provides an essential service to families by transporting children to and from secondary schools and colleges elsewhere in the FSM, and in providing links for everyone to the urban centers and the outside world. Air services, where available, provide passenger and high-value/perishable freight transport as well emergency evacuation services for sick and vulnerable people.

The outer islands of the FSM are isolated by distance and by infrequent and unreliable sea transport. Where air transport is available, it is at high cost and of limited capacity, particularly for air cargo. This isolation discourages cash production and engagement in the wider national economy. It is difficult to maintain social contacts with other islands, and the delivery of government social and economic development services is costly and constrained. As a result, communities in the outer islands suffer from physical isolation leading to low incomes, lack of basic services, and poverty of opportunity. The people who live in these outer islands have significantly lower incomes than the national average.

The lack of refrigeration on the outer islands, and problems with shipping and transport, often mean that clinics run out of pharmacy medicines and even primary health care is not available or is unsatisfactory. At present, transport difficulties result in only the most serious cases being taken to hospitals in the state capitals for emergency treatment. This means that the treatment is often too late, causing additional suffering and, sometimes, the unnecessary deaths of outer island patients. Transport requirements of dispensaries include airfreight of pharmaceuticals and fragile medical equipment, and sea freight of bulky, lower-value and more robust supplies and building materials. More regular and reliable transport will improve lifeline services for the outer islands and will reduce the risk of unnecessary deaths in cases where urgent treatment is required.

Domestic shipping services are largely limited to services being provided to the outer islands by the Pohnpei, Chuuk and Yap State Governments, National Government interstate services, primarily cargo services, and what might be characterized as “emergency services” being provided to the Chuuk State outer islands by a variety of privately-owned and operated vessels. Transport operations are at present hampered by shortcomings in equipment as well as infrastructure and facilities in the outer islands. Services are unreliable and costly, due in the main to the age and poor maintenance of the vessels, and the consequent high running costs and frequent breakdowns. The physical constraints of sea approaches and berthing at outer island points of call, combine with the difficulties of sustaining a reliable shipping service where distances are long and transport volumes are low.

Domestic air services are affected by the absence of proper maintenance facilities. This, compounded by the poor condition of many of the outer island airstrips, has translated into frequent breakdowns. The resulting disruption to schedules severely hampers the fledgling tourist industry as well as adding to the hardship of outer islands. Short runway lengths often limit take-off weight and hence aircraft carrying

capacity. Runway extensions and surface improvements could increase transport capacity and reduce aircraft damage, lowering costs. In case of emergency, air transport is usually the only practical option. For this reason, adequate, well-maintained airstrips are a strategic and lifeline necessity. Air transport is confined mainly to official or government passengers and higher-income residents or visitors. Economically, only mail and small high-value and light goods can be transported, due to limited cargo space. While complementing rather than competing with the main seaborne services, the airstrips nevertheless play an important part in the transport system.

The institutional capacity for administering inter-island service franchises and for operating government-owned vessels and aircraft is limited, and the need to subsidize the services has been a long-term drain on government budgets. The required assistance is consistent with the ADB strategic priorities and operational strategy and with FSM's SDP. Long-term sustainable solutions will require effective public-private partnerships. Improvements in service will result in major reductions in the high levels of hardship experienced by people in the outer islands.

Goal and purpose

The goal of the proposed project is to strengthen institutional capacity to manage inter-island sea and air transport services. This will include relevant government agencies as well as the private sector. The project will also explore ways to reduce the high level of subsidies currently being provided for inter-island sea and air transport services. Reductions in subsidies will assist the private sector to play a great role in providing such services.

Transport services serve as the lifeline to the outer islands. Shipping brings in essential goods and services and takes out island produce which is a major income earner. Shipping also brings in government services and supplies, particularly to the schools and health clinics. Shipping provides an essential service to families by transporting children to and from secondary schools and colleges elsewhere in the FSM. Air services, where available, provide passenger and high-value/perishable freight transport.

Components and outputs

The project will identify the aspects of institutional capacity, both governmental and private sector, that are limiting the current effectiveness of inter-island sea and air transport services. It will then prepare and implement a plan to address the institutional barriers, including ways to reduce the subsidies currently being provided for inter-island sea and air transport services, thereby assisting the private sector to play a great role in providing such services.

Expected results and deliverables

The project will result in the economies of communities in the more remote parts of FSM becoming increasingly integrated with the cash economies of the state capitals and other urban centers. Such integration will reduce hardship related to a dependency on a subsistence economy. Inter-island sea and air transport services are critical elements in disaster reduction strategies, in part through the ability to mobilize disaster assessment and recovery teams, as well as their equipment. Service improvements will also enhance food security, thereby reducing both risks and hardship. Boats and planes provide emergency evacuation services for sick and vulnerable people.

Social or environmental issues or concerns

No major issue is envisaged.

Proposed executing/implementing agencies

To be determined through consultation with FSM government.

Financing Amount

Amount of the technical assistance to be determined

Timetable for assistance design, processing and implementation

Year 2006 for processing