FEDERATED STATES OF MICRONESIA'S

The Next 20 Years:

ACHIEVING ECONOMIC GROWTH & SELF-RELIANCE

Vol III: Infrastructure Development

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Abbreviations

AC	Asphaltic Concrete
ADB	Asian Development Bank
ATSA	Air Transport Safety Authority
CFA	Compact of Free Association
COM	College of Micronesia
CPUC	Chuuk Public Utility Corporation
CSG	Core Stake Holder Group
DOE	Department of Education
DTC&I	Department of Transportation, Communications and Infrastructure
EPIC	Economic Policy Implementation Council
FAA	US Federal Aviation Administration
FMI	Fisheries and Maritime Institute
FPA	Fiscal Procedures Agreement
FSM	Federated States of Micronesia
IDP	Infrastructure Development Plan
IPIC	Infrastructure Planning Implementation Committees
KSC	Kyowa Shipping Company
KT&SC	Kosrae Terminal and Stevedoring Company
KUA	Kosrae Utilities Authority
NDE	National Division of Education
NGO	Non-Government Organization
NSC	National Steering Committee
OPS-PMU	Office of Planning & Statistics – Program Management Unit
PICS	Pohnpei Island Central School
PM&O	Philippines, Micronesia Orient Navigation Company
PMU	Program Management Unit
PPA	Pohnpei Ports Authority
PSIP	Public Sector Infrastructure Program
PTA	Parent Teachers Association
PTI	Pacific Tuna Industries
PUC	Pohnpei Utilities Corporation
PWMS	Pohnpei Waste Management Services
SDP	Strategic Development Plan
SEED	State Enterprising Education Department
SEPA	State Environmental Protection Agency
USAID	US Agency for International Development
USDA	US Department of Agriculture
US DOI	US Department of Interior
WRF	Waste Recycling Facility
YSPA	Yap State Ports Authority
YSPSC	Yap State Public Service Corporation

Executive Summary

Plan Preparation

This Infrastructure Development Plan (IDP) was prepared by the Department of Transportation, Communications and Infrastructure (DTC&I) in consultation with the States of Chuuk, Kosrae. Pohnpei and Yap and under the guidance of the FSM National IDP Steering Committee. The Plan assesses the current state of infrastructure in nine sectors: electrical power, water/wastewater, solid waste management, roads and pedestrian facilities, maritime transportation, air transportation, education, health and government buildings and develops a program and budget over the period FY2004-FY2023 to respond to the needs. Special consideration is given to the likely funding available from the Compact of Free Association and from other sources.

Based on an estimated average funding availability for infrastructure from all sources of $35 million, a total investment of $748 million has been envisaged over the 20-year IDP period in the nine infrastructure sectors. This is made up of the planned investments in Table E1.

The program takes into account each of the State Government five-year infrastructure proposals covering the period FY2004-FY2008. The cost for Program Management includes funding for the Program Management Unit (PMU), the planning studies required to conduct detailed project feasibility analysis, and support for some institutional strengthening requirements in the transportation, education and health sectors. The proposed source of funding for this investment is indicated in Table E2.

This represents an average allocation for infrastructure from Compact funds of $18.6 million per annum and $18.0 million from other sources. The charts on the next page illustrate the funding allocation by sector and by government.

Table E1 Planned Investments ($'millions)

Sector	Amount ($ millions)
Water Supply/Wastewater	141.9
Education	135.4
Roads/Pedestrian Facilities	120.9
Maritime Transportation	88.5
Electric Power	81.1
Air Transportation	68.4
Solid Waste Management	40.8
Health	32.5
Government Buildings	27.3
Program Management	10.7
Total:	747.5

Table E2 Proposed Source of Funding ($'millions)

Funding Source	2004	2005	2006	2007	2008	2009-13	2014-18	2019-23	Total
Compact	16	24	30	26	23	77	98	84	372
Other Sources	13	17	20	23	25	109	70	83	359
States	1	1	1	1	1	3	4	4	16
Total	30	42	46	50	49	189	172	170	748

Some of the priority projects identified taking into account national interest criteria such as impact on the economy, health and safety of the community, contribution towards development of the FSM workforce, potential for private sector development, viability, sustainability, potential social benefit and environmental impact and risk exposure of the project are:

- Weno Power Supply
- Pohnpei Airport Runway Rehabilitation
- Weno Sewerage
- Kosrae Water Supply Improvements
- Weno Water Supply Improvements
- Rehabilitation of Outer Island Airstrips in all States
- New Pohnpei High School
- New S. Namoneas High School
- Chuuk High School Improvements
- New Weno COM-FSM Campus
- Weno West Coast Road
- Kosrae Circumferential Road
- Dekehtik Port Dredging
- Chuuk Lagoon Ferry Terminals
- Elementary School Rehabilitation in all States
- Renovation of Dispensaries in all States

It is proposed that all of these projects would be commenced within the first five years of the IDP. Figures E1 through E3 provide a graphical illustration of Infrastructure at a glance.

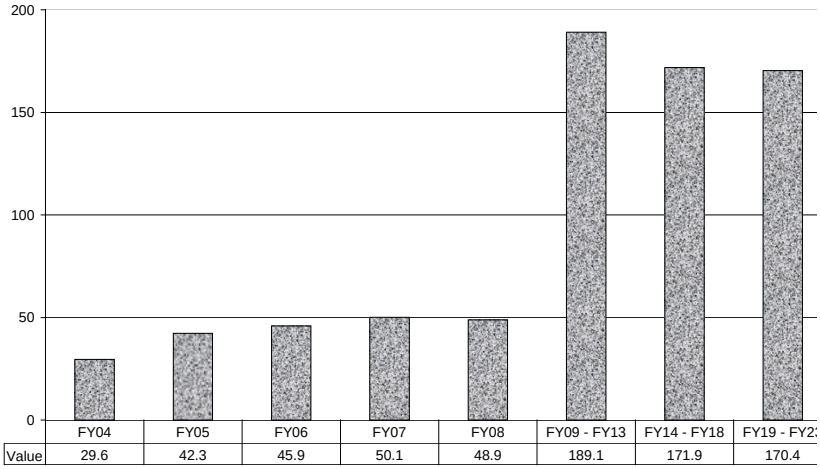

Figure E1 Investment by Fiscal Year ($, millions)

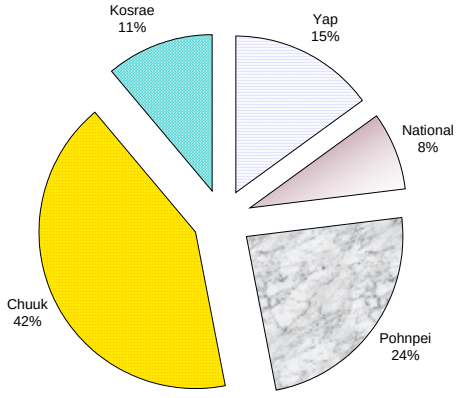

Figure E2 Allocation by Government

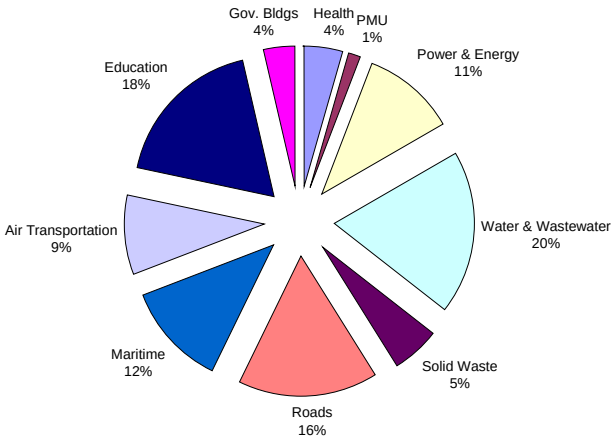

Figure E3 Investment by Sectors ($, millions)

Plan Implementation

In order establish accountability for the IDP implementation, it will be necessary to establish Infrastructure Plan Implementation Committees (IPICS) at the national and state levels. In accordance with the thrust in FSM in recent years to reduce the public sector, it is proposed, where appropriate, that existing committees and secretariats take on the role of the IPIC. At the national level, the Economic Policy Implementation Committee (EPIC) could take on the responsibility for infrastructure implementation, with the Department of Transportation, Communications and Infrastructure (DTC&I) assuming the role of national secretariat.

The size of the IDP investment program is such that if it is to be executed successfully and according to schedule, substantial improvement of the implementation capacity currently available in FSM will be required. Further the new Compact Fiscal Procedures Agreement requires stringent documentation related to project approvals and review, budgeting and monitoring prior to draw down of funds. In order to meet these requirements and adhere to the time schedule, a high level of program management, technical skills, financial and reporting skills for detailed planning, technical analysis, resource mobilization,

skills for detailed planning, technical analysis, resource mobilization, financial management and reporting systems will be required by the implementing agencies.

It is proposed that in order to provide the program management skills required to successfully implement the IDP, that a Program Management Unit (PMU) be established at the national level within the DTC&I. The national PMU would be responsible for the development of program management systems, training of national and state personnel in these systems, review of project documentation to ensure compliance with funding agency requirements, preparation of annual consolidated FSM program reviews as well as program management implementation assistance to the states as required. The national PMU would be staffed by personnel from within the DTC&I, but will, at least during the first 3-5 years of the IDP, require assistance from program management and technical specialists hired to strengthen the PMU. The cost of these specialists would need to be drawn from the total infrastructure budget and estimated to be in the order of $900,000 per annum. It is recommended that an amount of 1.2% of the total infrastructure costs funded by the Compact Infrastructure Sector grant be allocated to program management to cover the cost of the PMU. This represents about 5% of the annual infrastructure costs funded by the Compact during the five years of external assistance to the PMU.

The IDP implementation will commence in 2004. It is therefore urgent that the program management organizations are agreed upon and established as soon as possible and that the IDP is communicated to the key stakeholders in order to obtain general community support for the program. Early commencement of some of the key planning studies and database development programs is then required to provide the basis for the detailed planning and feasibility analysis of projects to meet the requirements of the funding agencies.

1 Introduction

1 The Federated States of Micronesia (FSM) has negotiated new provisions for economic assistance under the Compact of Free Association (CFA) with the United States. As part of the new 'sector grant' approach, the US will provide support for infrastructure development under new and rigorous fiscal procedures. The amended Compact and Fiscal Procedures Agreement (FPA) that will be in effect requires that the FSM have a Strategic Development Plan (SDP) in place by December 2003, and a nationwide Infrastructure Development Plan (IDP) in place in advance of awards under the infrastructure development sector. This report comprises the Infrastructure Development Plan.

2 The FSM Department of Transportation, Communications and Infrastructure (DTC&I) prepared an IDP during 2001/2002 to cover the period 2003-2017. This was prepared with the assistance of Nathan Associates Inc in association with Island State Development Consulting (ISDECO, LLC.) and Sustainable Engineering & Environmental Corporation (SEECO). The final IDP report was submitted in May 2002[1]. This report covered eight infrastructure sectors: electric power, water and wastewater systems, solid waste management, roads and pedestrian facilities, maritime transportation, air transportation, education and health. The report discussed the condition of existing infrastructure, infrastructure development priorities, maintenance, institutional issues, cost recovery, support for tourism development, scheduling of projects, plan implementation and sources of investment funding. The Plan is considered to be comprehensive and systematic.

3 The IDP included in this report is not an alternative version of the IDP prepared in May 2002. Rather, is a summary of that IDP and quotes liberally from the findings and conclusions of the May 2002 report. All projects included in the May 2002 report have been considered in the context of the funding believed likely to be available to the FSM for infrastructure during the period of the IDP which has now been amended to cover the period 2004-2023. In other words, the intention of this report is to produce a realistic IDP that reflects the FSM infrastructure priorities bound by the fiscal constraints of the nation. In this context the infrastructure investment costs for the period 2004-2023 are estimated to be $750 million, compared with the May 2002 report estimate of $1.9 billion. This results in many of the projects proposed in the May 2002 report being unable to be fully funded or even commenced.

4 The project costings estimated in the May 2002 report have been used in this IDP, since there has been insufficient time to fully evaluate costs for all

1 Federated States of Micronesia, Infrastructure Development Plan FY2003-FY2007, Final Report, May 2002

projects. However, it is considered that the May 2002 costings are high for several of the infrastructure sectors, in particular water supply, wastewater and solid waste management, and this may result in some additional projects being able to be included within the funding constraint than is indicated in this report.

2 Preparation of Infrastructure Development Plan

2.1 Historical Background

5 Following the 1999 FSM Second National Economic Summit, it was widely recognized that improvement of the nation's infrastructure is critical to the expansion of productive sector activities and the development of the private sector. Accordingly, the provision of efficient and cost-effective infrastructure was endorsed by the summit as one of the five guiding principles that should shape the FSM's strategy to promote private sector development.

6 In keeping with the guidelines for economic development and indications of procedural requirements from the US Department of Interior (DOI) for the new Compact, the OPS-PMU (Office of Planning & Statistics-Program Management Unit) initiated formulation of a long term IDP in early 2000 under the guidance of the FSM National Steering Committee (FSM NSC). The Committee was created and formed by the President and State Governors to oversee the overall coordination and completion of the IDP. Nathan and Associates, a US consulting firm, was contracted to complete the task within six months effective May 2001.

2.2 Preparation of Draft Final Report

7 Following four months thorough field investigation and consultation at the national, state and local government levels, the draft final IDP was submitted to the NSC for review and comments in October 2001. The NSC distributed the draft final report to those concerned at the national and state levels with an expectation of receiving comments by November 2001. However, it was not possible to finalize the comments until February 2002. The draft final report was distributed widely at the state level at the Executive and Legislative Branches as well as to all concerned departments, agencies and NGOs.

8 The National Steering Committee met to discuss the draft final IDP report during November 2001, with the following summary outcomes:

- The NSC agreed with the basic features of the draft IDP with respect to resource allocation/investment and priority selection of projects for the respective states and for different sectors, but had some reservations about the study phase proposed for technical assistance.
- The NSC agreed in principle to strengthen the existing Infrastructure Departments at the national and state levels in order to enable them to function as IPIC secretariats that will ultimately be responsible to provide policy guidance and direction required by the project implementation agencies.

- The NSC agreed that a Program Management Unit is required and should be established at the national level to facilitate successful implementation and monitoring of the IDP, but the costs should be kept under control by utilizing existing resources where appropriate.
- The NSC agreed that proposed unforeseen pre-conditions, if required, be dealt with and accepted by the IPICs at state and national levels
- The NSC accepted the proposals in the draft final IDP report on institutional issues that would assist in bringing the necessary socio-economic changes to the country.

9 Detailed comments were received from Chuuk, Pohnpei and Yap States by January 15, 2002 and, where, appropriate, these were addressed in the final draft of the IDP.

2.3 Final IDP Report

10 Following the comments from the NSC and the states, the final IDP report was prepared in eight volumes, four of which were specific to each of the states. Volumes 1-IV were submitted by August 2002 and the state volumes by April 2003. The final plan proposed a $1.9 billion investment at current rates on approximately750 individual projects during FY2003-FY2017, or 2.34 billion considering a presumed inflation rate of 3% per annum.

2.4 Formal Submission of the IDP

11 The President formally transmitted the IDP to the State Governments on April 4, 2003 for review and preparation of the Annual Budget submission according to individual state plans and priorities to comply with the FPA under Compact II.

12 The states were requested to modify and update as appropriate the projects identified in the IDP and ensure their linkage with the other sectoral projects under the FPA. Annual budget format proposals were requested for FY2004, Each of the states provided a list of priority projects for FY2004-FY2008, together with project scopes for FY2004 and these priority projects have been taken into account when developing this final version of the IDP. Details of the priority projects submitted by the states for the first five years of the IDP are indicated in Annex C

13 Formal submission of the IDP to the US and other donors is still awaiting formal approval by the FSM five governments. Once it has been approved it will be considered as an official long-term Master Plan to link to the preparation of drafting a Medium Term Priority Plan, an Annual Development Plan and Budget Submission in the case of US. To accord with the Compact Grant, ADB loan or other donors, the necessary economic and financial strategies will be

developed to fulfill the requirements of that particular agreement or covenant which will vary from donor to donor.

2.5 Preparation of Final IDP Document

14 As outlined in Section 1, this IDP document is essentially a summary of the May 2002 IDP Final Report, albeit adjusted to comply with the new Compact FPA and the likely available funding for the infrastructure sector during the period 2004-2023. As such it should be read in conjunction with the May 2002 IDP Final Report.

15 The basis for producing the report was developed by the Economic Policy Implementation Council (EPIC) during their meeting in November 2003. It was resolved during this meeting that the IDP NSC expedites the preparation and review of the draft IDP by December 15, 2003, so that the draft can be considered by the 3rd FSM Economic Summit.

3 Planning Context

3.1 FSM Planning Framework

16 The first National and State Economic Summits were held in 1995 and were a significant advance in providing the direction and resolve within the FSM to face changing economic circumstances. Specifically the results of the first Summits increased understanding of the declining fiscal position of the FSM and gave people the political will to embark on a course of public sector reforms and formulate general economic policy. A second Economic Summit was conducted in September 1999 and this resulted in an updated, extended and refined focus for economic development policies, and a renewal of the momentum from the first summit.

17 Largely, the strategic planning framework consists of sector strategic policy frameworks that provide an analysis and forward vision of the National and State economies and sectors, a policy statement and an implementation framework for the Nation and State. The framework was outlined in a series of eleven separate sector policy matrices that were ultimately endorsed by consensus at the 2nd Economic Summit. These matrices were roughly divided into Economic Sector Policy Matrices (fisheries, tourism, agriculture) and Social Sector Matrices (health, education, gender). Infrastructure was included as a cross sector issue, as were public sector management, private sector/commerce and industries and environment. The sector policy matrices are intended to elaborate in detail the directions the FSM needs to follow, where the resources should be allocated, the urgency of making progress and a plan for implementation.

18 Preparation is now in progress for the 3rd National Economic Summit, which is expected to be conducted in early 2004. The IDP and the infrastructure policy matrix included in this report will form an input to the future FSM National Strategic Plan that will be an outcome of the Summit.

19 The infrastructure sector strategic planning matrix, which forms the basis for the proposed IDP investments, is included as Annex A

3.2 Public Sector Investment Program

20 The Public Sector Investment Program (PSIP) was endorsed through a participatory process that started at the first of the economic summits in 1995 and 1996 and is, in effect, a preliminary list of the major capital development projects proposed. The intent of the PSIP was to describe the projects, estimate their costs, give priority for funding, indicate the steps required for planning and approval and prepare a schedule for implementation. This process was intended to identify major priorities for investment, link the projects of the state governments to the investment funds likely to be available and ensure consistency and compliance with FSM economic policies and strategies.

21 The PSIP process has been part of the shift in FSM from 5 year planning to strategic planning to overcome the lack of integration between the 5-year state plans and the on going operational and development budget allocations of each government as well as to create a more flexible, participatory and action-orientated process from planning to actual development.

22 The PSIP includes projects in four categories; public sector management, infrastructure, human resource development and priority economic sector development. The IDP is a logical extension of this process for the infrastructure sector.

23 Progress of the PSIP since its implementation has been reasonable, although in all states it has not been possible to fully complete or implement all of the projects due to funding constraints and lack of technical support. Processes in coordination and monitoring of the projects also require additional strengthening.

3.3 Public and Private Sector Management of Infrastructure

24 A major objective of the IDP is to move towards achieving technical, financial and commercial sustainability in each of the infrastructure sectors. This will require an acceleration of the growth and diversification in private sector economic activities in infrastructure. Investment, maintenance and operation will need to be done in the most cost-effective manner possible, entailing in many cases an expanded and diversified role for the private sector and a redefined and redeveloped role for government infrastructure agencies.

25 There are several constraints to growth of the private sector in the FSM economy, including the infrastructure sector, that need to be overcome if conditions are to be such that commercial sustainability in the infrastructure sectors is to be achieved through intervention of the private sector. These include the hitherto large public sector employment and the higher relative wages, lack of skilled labor available to the private sector, dependence on government financing for development over commercial finance, land tenure issues and the difficulty in obtaining land for infrastructure projects, variable transparency and deficiency in the business and investment environment, protective attitudes towards foreign investment and, of course, the general poor state of the infrastructure itself that inhibits foreign investors even within the sector. Many of these constraints have, and continue to be addressed by the FSM in order to improve the environment for private sector involvement in the economy.

26 In the infrastructure sector specifically, there has been some progress in attaining commercial sustainability, but much still remains to be done. In the power and water/wastewater sectors, public utility corporations have been created with the requirement that they make the power and water sectors fully self –

sustainable through the generation of sufficient revenue to cover all costs. For power, and to a lesser extent, water, charging for services is now widely accepted. Despite this, none of the utility corporations have yet achieved full cost recovery with the water and sewerage operations in all cases suffering severe losses due to insufficient tariffs for water and non-existent tariffs for sewerage services. Further, the spiraling fuel cost is putting great pressure on electricity tariffs and cost recovery. Another issue is that of provision of power and water facilities to remote areas such as the outer islands, which are a social, must, but not a financially viable operation.

27 In the solid waste sector, there is considerable scope for the private sector in collection, recycling and disposal of garbage, although service charges for collection will need to be introduced. There is already some limited private sector involvement in most states in aluminum can disposal, and in Pohnpei with the operation of the dumpsite.

28 Commercial sustainability of seaports and ferry system operations should be achievable through arrangements whereby the public sector port authorities enter long term arrangements with private sector investment/operators for operating port infrastructure and providing a variety of services, including ferry operations. However, it would probably be still necessary to provide subsidies for outer island services.

29 With the exception of emergency air services, it should be possible for air transport to be commercially sustainable. Further, recovery of recurrent costs at airports should also be possible; provided that airport management entities are created that have a commercial orientation. Expansion of passenger terminals at the airports will involve additional concession areas that will generate income for the airport.

30 In the education sector, the College of Micronesia currently covers more than 50% of its operating costs from revenue collected from student fees, and the proportion is likely to increase as the country realizes it potential for growth of the productive economic sectors. Where elementary and secondary school education is concerned, however, cost recovery objectives probably must be kept modest.

31 In the health sector recurrent costs for maintenance of hospitals, staff salaries and benefits, hospital materials and medicine replenishments should increasingly be generated by payments for curative services received, although this will only occur when the hospital infrastructure and medical services are of a standard to reduce the current level of overseas medical referrals.

3.4 National Government Infrastructure Priorities

32 In Section 5 of this IDP, priority projects have been ranked according to sector for inclusion in the IDP Capital Investment Program. These projects

could also be ranked across sectors and states in accordance with the national government priorities. The infrastructure strategic matrix in Annex A provides the underlying infrastructure goals that reflect the national interest. Criteria by which to rank projects nationally across sector and state include:

- Impact of the project on the national economy;
- Cost benefit of project, taking into account economic and social benefits;
- Contribution of the project towards health and safety of the community;
- Contribution of the project towards development of the workforce in FSM to meet the social and economic challenges;
- Contribution of the project to institutional strengthening and restructuring of government infrastructure agencies;
- Contribution of the project to promoting private sector development; and
- Viability, sustainability, potential social benefits and environmental impact, and risk exposure of the infrastructure development project.

33 Taking into account these criteria, the projects indicated in Table 3.1 are considered to be a priority from the perspective of the national government.

Table 3.1 Priority Projects from National Government Perspective

Project	Schedule	Total Cost (US$ millions)[2]	Justification
Weno Power Supply	2004-7	8.0	Economic development, Safety
Pohnpei Airport Runway Rehabilitation	2004	4.0	Safety
Weno Water Supply	2004-23	1.0	Health
Kosrae Water Supplies	2004-2007	9.8	Health
Weno Sewerage	2005-2008	3.3	Health
Rehabilitation of Outer Island Airstrips in all States	2007-2018	5.6	Safety, Economic development
New Pohnpei High School	2007-8	7.5	Development of workforce, economic
New S. Namoneas High School	2005-23	1.0	Development of workforce, economic
Chuuk High School Improvements	2005	1.3	Development of workforce, economic

2 Covers only the Phase 1 investment during the period 2004-8

Table 3.1 Priority Projects from National Government Perspective, Cont'

Project	Schedule	Total Cost (US$ millions)[3]	Justification
New Weno COM-FSM Campus	2006-7	3.0	Development of workforce, economic
Weno West Coast Road	2004-8	7.3	Economic development
Kosrae Circumferential Road	2004-6	1.8	Economic Development
Dekehtik Port Dredging	2008-23	1.0	Safety, Economic development
Chuuk Lagoon Ferry Terminals	2008-23	3.7	Economic development
Maritime Safety Operations Fund	2007-23	0.2	Safety
National Air Transportation Safety Fund	2007-23	0.2	Safety
Elementary Schools Rehabilitation in all States	2004-23	10.7	Development of workforce
Renovation of Dispensaries in all States	2004-13	5.4	Health

3 Covers only the Phase 1 investment during the period 2004-8

4 Financing for Infrastructure Development

4.1 Capital Funding Requirements

34 The May 2002 Final IDP report proposed a $1.91 billion investment on infrastructure in the FSM during the period 2003-17. This proposed level of capital expenditures far exceeds that allocated in recent years or likely to be available from all possible funding sources in the future. Section 5 of this report has reviewed the May 2002 IDP giving consideration to the most urgent national and state priorities related to the estimated available funding from the new Compact and other sources[4]. The summary of program costs is indicated in Table 4.1

4.2 Sources of Funds

4.2.1 FSM Government

35 The FSM Government shares 70% of the revenue raised from income tax, import tax and Gross Revenue tax with the four states. The FSM revenue collected from fishing rentals is not shared with the states. Twenty (20) percent of the FSM Government revenue share is required to be used for capital works in the health and education sectors, although when the new Compact is approved the state share of the national government revenue may decrease to 50% as the health and education infrastructure needs may be considered to be provided through the Compact funds. The revenue share was increased from 50% to 70% in 1999, before which time, the national government provided grants to state and local governments for local projects. These grants were reduced when the share was increased.

36 Increased FSM Government revenues resulting from policy reforms related to increasing existing taxes or the introduction of new taxes could in turn increase the revenue available to the states for infrastructure projects. This is considered to be an important initiative to be addressed in FSM, in order for the nation to become more self-reliant and enable adequate maintenance of infrastructure to prolong its effective lifetime. The FSM should give consideration to requesting donor agencies to provide technical assistance with tax reform processes.

4 For the sake of project prioritization, it has been assumed that an average of $35 million will be available on an annual basis, assuming $20 million from Compact funding and $15 million from other sources.

Table 4.1 Summary of Proposed IDP – by Sector (US$ '000)

Sector	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Electric Power	1,317	2,900	4,408	3,801	3,405	40,423	15,342	9,590	81,186
Water/Wastewater	3,483	8,340	9,175	8,325	7,260	27,085	40,132	38,063	141,863
Solid Waste Management	330	220		3,570	1,050	14,841	10,088	10,750	40,849
Roads and Pedestrian Facilities	9,355	8,460	8,348	5,232	9,858	22,358	29,325	27,982	120,918
Maritime Transportation	0	294	5,880	5,233	6,900	16,339	26,452	27,373	88,471
Air Transportation	6,060	9,485	1,400	10,203	6,525	11,090	11,907	11,724	68,394
Education	7,013	7,646	6,807	9,792	7,941	32,753	29,805	33,663	135,420
Health	660	1,025	1,410	1,800	5,190	12,404	4,000	6,000	32,489
Government Administrative Buildings	879	275	4,846	110	110	11,550	4,550	5,000	27,320
Program Management/Inst Dev/Studies	550	2,900	3,650	2,100	700	250	250	250	10,650
TOTAL	**29,647**	**41,545**	**45,924**	**50,166**	**48,939**	**189,093**	**171,851**	**170,395**	**747,560**

Table 4.2 Summary of IDP – by Government (US$ '000)

Government	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Pohnpei	12,167	12,799	10,630	13,323	15,261	42,905	34,423	35,520	177,028
Chuuk	10,285	13,138	16,767	17,996	18,924	83,439	82,691	73,550	316,790
Kosrae	4,599	5,650	5,991	5,522	5,700	15,137	16,050	23,535	82,184
Yap	1,681	6,493	6,387	8,500	7,130	30,112	27,812	26,914	115,029
National Government	915	3,465	6,150	4,825	1,925	17,500	10,875	10,875	56,530
TOTAL	**29,647**	**41,545**	**45,925**	**50,166**	**48,940**	**189,093**	**171,851**	**170,394**	**747,561**

Table 4.3 Summary of IDP Funding Sources – by Government (US$ '000)

Government	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Pohnpei									
Compact II	1,990	3,143	3,531	4,009	4,105	14,846	13,986	12,886	58,496
Other Sources	10,082	9,507	6,931	9,123	10,961	27,349	19,771	22,021	115,745
Chuuk									
Compact II	9,809	9,772	9,248	9,720	10,034	36,325	55,722	44,630	185,260
Other Sources	0	2,900	7,080	7,814	8,412	45,385	24,316	26,795	122,702
Kosrae									
Compact II	2,312	2,170	2,974	3,839	2,100	5,858	8,925	8,147	36,325
Other Sources	2,176	3,368	2,875	1,500	3,500	9,000	6,700	15,000	44,119
Yap									
Compact II	1,128	5,244	4,514	5,250	4,897	12,973	12,246	11,277	57,529
Other Sources	500	1,000	1,658	3,000	2,000	16,522	14,983	15,100	54,763
National									
Compact II	915	3,465	4,650	3,325	1,925	6,500	6,875	6,875	34,530
Other Sources	0	0	1,500	1,500	0	11,000	4,000	4,000	22,000
All Govs - IMF	735	976	964	1,086	1,007	3,335	4,328	3,663	16,094
Total:	29,647	41,545	45,925	50,166	48,941	189,093	171,852	170,394	747,563

4.2.2 State Governments

37 The level of revenue raising by the state governments comprising largely of State taxes and licenses is low and in the case of Kosrae, for example, contributes little more than 1% of all State revenue although it is higher in the other states. State governments should consider opportunities to raise revenues from a range of government services on the basis of user charges for the cost of services they consume as for example in the supply of water, collection of wastewater and solid waste, for medical services provided and for the use of transportation facilities by means of a road user fee, rentals for use of sea and airport infrastructure.

4.2.3 Compact of Free Association

38 The FSM Government's Compact of Free Association with the USA provides for financial assistance to the FSM. The initial funding period ran for 15 years from 1986 until 2001, and was extended for a further transition period until September 30, 2003.

39 A new Compact of Free Association (Compact II) is now in the final stages of negotiation and funding is expected to become available by 2004. Under Compact II, the Government of the United States will provide financial assistance on an annual sector Grant basis for a period of 20 years on the basis of $76 million for the first three years, then declining by $800,000 each year over the following 17 years. These grants will be used for assistance in education, health care, public infrastructure, the environment, public sector capacity building and private sector development, or for other areas as mutually agreed, with priorities in the education and health care sectors.

40 The proportion of Compact II funds to be allocated to public infrastructure or indeed the other sectors is not specified in the FPA, but it is expected that about 20% allocation will be achieved for infrastructure. Further, the FPA specifies that with respect to the public infrastructure sector grant, the highest priority shall be given to primary and secondary education capital projects and projects that directly affect health and safety, including water and wastewater projects, solid waste disposal projects, and health care facilities. Second priority shall be given to economic development-related projects, including airport and seaport improvements, sea walls, and energy development including renewable energy that cannot be funded through the tariff structure.

41 It has been estimated that a total of approximately $20 million per annum will be available from Compact II for public sector infrastructure.

4.2.4 Other Funding Sources

42 Other sources of external funds for public sector infrastructure are described below. It is estimated that, based on past experience, about $15 million per annum will be available from these sources.

a Bilateral Aid from US Government Agencies

43 Agencies such as USAID and USDA provide infrastructure grants and loans to the FSM under favorable terms. Projects currently in the pipeline with the USDA Rural Utilities Services include the Lelu Water Supply Project in Kosrae, a 75:25 grant loan with a total cost of $3.25 million, a possible second water supply project in Kosrae in Malem and a loan for extensions to the water supply system on Pohnpei Island.

44 The US Engineering Survey and Assistance Team have also recently confirmed to continue the US desire and readiness to utilize US military personnel and equipment to assist in possible humanitarian assistance projects in the four FSM states. While projects under this assistance program must be budgeted and the expenditure accounted for under the Compact II FPA, the labor cost of the military personnel will not be charged against the project budget. This opens the opportunity to use this assistance for project planning, scoping and technical studies required for the infrastructure projects to be funded under the Compact.

b Asian Development Bank

45 The Asian Development Bank has provided considerable technical assistance and concessional loan funds to FSM over the past decade. This includes the recently completed Water Supply Project that provided improved water supply facilities for the principal islands of Pohnpei, Chuuk and Yap. New loan projects in the pipeline include a $7.1 million loan for a Basic Social Services Project and the $8 million Omnibus Infrastructure Improvement Project. The Basic Social Services Project will cover the health and education sectors and will include a state-level institutional reform phase and an investment program for upgrading facilities and establishing systematic maintenance programs. The Omnibus Infrastructure Development Project will provide improvements to the power sector in Weno, water supply systems in Kosrae and Yap and sewerage and water supply on Pohnpei Island.

c Japanese Aid

46 Financial assistance from Japan to the FSM is significant and has averaged approximately $10 million per annum since 1988. Japanese aid supports the purchase of products and services to implement social and economic development projects. It is generally given to FSM states and the national government on a rotational basis. The current project to be implemented during 2004-5 will be the circumferential road for Pohnpei. In 2005, support will be provided to the national government, possibly in the form of a National General Hospital for referrals to be located in Chuuk, although this concept is still under discussion. In 2006, it is proposed to support Chuuk in the Weno waterfront development. In 2007, support will be provided to Kosrae, either in hospital redevelopment or construction of coastal protection facilities. Given the difficulty that FSM has had in the past maintaining public facilities such as schools and hospitals, the

Japanese Government has some reservations about providing grants for these types of projects, despite the obvious social benefit of doing so.

d European Economic Commission

47 The EC has not been a major donor to FSM in the past, but is understood to be proposing to provide funding for one of the IDP priority projects – the provision of hybrid diesel/solar units for schools and hospitals on the outer islands.

e Other multilateral/bilateral donors

48 These include Australia, New Zealand, Germany, the United Kingdom and the UNDP who tend to provide primarily technical assistance rather than grants or loans for infrastructure.

4.3 Proposed Allocation of Funding for IDP Projects

49 The infrastructure projects proposed to be implemented during the period 2004-23 under the IDP are discussed in Section 5. Based on the assumed funding availability discussed above, the priorities for Compact II funding outlined in the FPA and the ongoing or planned projects from the other funding agencies, projects have been allocated to either funding from the Compact or other sources. This is indicated in the sector project tables in Section 5 and is summarized by sector in Table 4.2 the proposed projects and programs to be implemented during the period of the IDP from 2004 until 2023 for each State and the National Government are indicated in Annex B.

50 The total funding from Compact and other sources for the entire IDP period is indicated in Table 4.3. A summary of the funding sources is shown below in Table 4.4.

Table 4.4 Summary of Funding Sources for IDP (US$ millions)

Funding Source	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	**Total**
Compact	16	24	30	26	23	77	98	88	**372**
Other Sources	13	168	20	23	25	109	70	83	**359**
States[5]	1	1	1	1	1	3	4	4	**16**
Total	**30**	**42**	**46**	**50**	**49**	**189**	**172**	**170**	**748**

51 This results in a total investment of $748 million during the 20 year IDP period or an average of $37.4 million per year. An average allocation of

5 The States contribution comprises their share of the Infrastructure Maintenance Fund

$18.6 million per annum will be required from the Compact funds and $18 million from other funding sources. The higher than average investments during the period 2005-2008 for the Compact funds reflects the immediate infrastructure needs resulting from under investment in the past and the proposed 5 year plans of the states. The higher than average expenditure from other sources during the period 2008-2013 reflects the power station development in Pohnpei and Chuuk lagoon during that period which is expected to be sources from outside the Compact funding.

4.4 Sector Linkages

52 As discussed above under 4.2.3, the FPA for Compact II specifies that for the infrastructure grant, first priority is given to education, health, water supply, wastewater and solid waste and second priority to economic development related projects such as roads, airport and seaport improvements and energy related projects.

53 These priorities have been reflected in the funding allocations for the IDP. Water supply/wastewater and education projects have the largest allocation of IDP funds at 19% and 18% respectively. All proposed health projects have been allocated funding during the IDP period. The allocation of Compact Funds to each of the sectors is shown in Table 4.5.

Table 4.5 IDP Investment by Sector

Sector	IDP Investment (US$ mill)	Share (%)
Water Supply/Wastewater	141.9	19
Education	135.4	18
Roads/Pedestrian Facilities	120.9	16
Maritime Transportation	88.5	12
Electric Power	81.1	11
Air Transportation	68.4	9
Solid Waste Management	40.8	6
Health	32.5	4
Government Buildings	27.3	4
Program Management/Institutional	10.7	1
Total	**747.6**	**100**

54 While maintenance and renovation projects for education and health facilities have been included for funding under the Compact, those in the power sector have largely been allocated to other loan funds on the assumption that these are income generating projects that will be able to service the loans. Similarly, large projects such as the new Dekehtik power station and the power stations on the Chuuk lagoon islands are considered to be of a scale that funding should be sought from the international funding agencies. On the other hand,

improved power supplies are essential for education and health facilities, to operate water supply and wastewater systems and for public safety and Compact funding has been allocated to extend distribution systems to areas where there is no current power supply or to improve the power supply in areas where it is currently inadequate.

55 Similarly, adequate road networks are essential for providing access to health and education facilities and market opportunities for the population living outside the main centers, especially the circumferential roads in Pohnpei, Weno and Kosrae and in the Chuuk lagoon islands, and Compact funds have also been allocated for this infrastructure.

56 Seaport and airport infrastructure has largely been allocated to other funding except for airport runway improvements in Pohnpei and Chuuk and seaport dredging activities, all of which have safety implications for the users of these transportation facilities. Compact funding has also been provided to improve the Chuuk lagoon and outer island ferry infrastructure systems which are essential to provide the population of those island access to facilities, including those in health and education, that are available to residents of the main centers in FSM.

5 Proposed Infrastructure Program and Funding

5.1 Electric Power

5.1.1 Sector Objectives and Outcomes

57 The principal objective of developing infrastructure in the electric power sector is to ensure that all areas of the country are provided with electric power in an efficient and effective manner in accordance with demand such that:

- Households are provided with power for basic livelihood purposes
- Local manpower can realize production opportunities and potential,
- Power is available for basic services such as schools, hospitals, water and wastewater systems

5.1.2 Existing Electric Power Systems

58 There are electric power systems on each of the principal islands of the four FSM States and also four small systems on other islands. These power generation systems are summarized in Table 5.1

Table 5.1 Existing Electric Power Generation Systems

State	System	System Details	Current Effective Capacity (MW)	Max Peak Demand (MW) (2001)	Owner/Operator
Chuuk	Weno Island Power System	Diesel Generators	5.0	4.0	CPUC
	Tonoas Power System	Diesel Generators	0.25	0.065 (few connections)	CPUC
Pohnpei	Pohnpei Island System[6]	Diesel Generators	14.9	6.69	PUC
		Hydropower	2.1		

6 Operation of the hydro plant is constrained by the supply of water from Nanpil River that is usually committed to the water supply system

Table 5.1 Existing Electric Power Generation Systems, continued

State	System	System Details	Current Effective Capacity (MW)	Max Peak Demand (MW) (2001)	Owner/Operator
Kosrae	Kosrae Island Power System[7]	Diesel Generators	5.4	1.2	KUA
Yap	Yap Proper Power System	Diesel Generators	7.6	3.0	YSPSC
Ulithi	Falalop Power System	Diesel Generators	0.475	0.085	YSPSC
Ulithi	Mogmog Power System	Diesel Generators	0.05	0.012	YSPSC
Woleai	Falalop Power System	Diesel Generators	0.26	0.08	YSPSC

59 The status and extent of the power distribution system for each of the existing systems is outlined in Table 5.2

Table 5.2 Details of Existing Power Distribution Systems

System	Coverage	Condition	Needs
Weno Island Power System	Most of Weno Island	Generally in poor condition	Replacement of poles, secondary cables
Tonoas Power System	Potentially most households on Tonoas, but few currently connected.	Generally in good condition	Maintenance
Pohnpei Island System	Most of Pohnpei Island	Generally in good condition	Ongoing program of pole and line replacement as needed

7 There is a micro-hydropower project on Malem River with a rated capacity of 30kW, but it is not yet in service

Table 5.2 Details of Existing Power Distribution Systems

System	Coverage	Condition	Needs
Kosrae Island Power System[8]	Essentially along circumferential road	Condition of old lines and poles very poor	Ongoing pole and line replacement by KUA
Yap Proper Power System	98% of Yap Proper	Wooden poles in poor condition	Replacement of wooden poles
Falalop Power System (Ulithi)	Potentially most households	Generally in good condition	Maintenance of overhead lines
Mogmog Power System (Ulithi)	Potentially most households	Generally in good condition	
Falalop Power System (Woleai)	Potentially most households	Generally in good condition	

5.1.3 Short Term Needs of Existing Systems

60 A key strategic objective of this IDP is to ensure that existing infrastructure is rehabilitated as a first priority before implementation of new infrastructure. The immediate needs for rehabilitation of the existing power systems are described below.

a Weno Island Power System

61 As indicated in Table 5.1, of the eight existing power systems on FSM, only the Weno system is having difficulty meeting demand. Further, the power generation plant and the distribution system are in an extremely poor and dangerous condition. As a result, it is estimated that up to 1.0-1.5 MW capacity of standby generation has been installed by public and private sector companies to overcome the frequent power shortages and outages. Continuation of this situation constrains the economy of Chuuk and is a public health risk both from the condition of the facilities and the risk to water and wastewater supplies that rely on the power system. Rectification of this situation should be one of the highest priorities of the State and National Governments.

b Pohnpei Island Power System

62 Table 5.1 indicates that the capacity of the Nanpohmal power plant in Pohnpei has ample capacity for the current needs of the island. The need for further expansion of this plant is really a function of economic growth in Pohnpei. In fact demand has been stagnant for several years and future growth in demand can only be predicated on the development of improved infrastruc-

8 Walung Village is not covered by the distribution system since it is beyond the end of the circumferential road. KUA has provided the village with a solar power system not connected to the main distribution system.

ture leading to the expansion of the marine recreation service industry and acceleration in tourism growth, or additional industrial investments as for example, by the beverage industry.

63 The Pohnpei Utilities Corporation proposes to phase out the Nanpohmal plant, primarily to end the necessity of trucking fuel to the plant, and construct a new plant at a cost of $10.5 million on Dekehtik Island. PUC is proposing this as a turnkey project and will arrange financing.

c Tonoas Power System

64 The current Tonoas plant is inadequate to meet the future needs of the island and is in poor condition with considerable environmental hazards. It needs to be rehabilitated or replaced, but in an integrated manner with the other Southern Namoneas Islands.

d Kosrae Power System

65 The ongoing replacement of old poles and lines needs to be continued.

e Yap Power Systems

66 The power system for Yap Proper is currently adequate, but will require some further investment for upgrading of the power plant and extension of the distribution system later in the IDP investment program. The power systems in Ulithi and Woleai are adequate for the foreseeable future.

f Short Term Development Needs

67 Aside from rehabilitation of the existing power systems described in 5.1.3, the most urgent priorities are:

- Development of power systems in the Chuuk Lagoon
- Provision of diesel/solar units for schools and dispensaries in the outer islands of Pohnpei, Chuuk and Yap.

68 The economy of the Chuuk lagoon is not an integrated one, and has stagnated for several years. The 2001 population of Southern Namoneas and the Faichuk is over 20,000 and development of the economy in these areas should therefore take some priority in the short term. To accelerate economic growth, and involve the entire population in the market economy, it is essential to provide electric power systems, roads and inter-island ferry services as well as public health facilities. When these are provided, all areas of the islands will be able to market their produce and realize their considerable tourist potential.

69 Integrated power systems for the Southern Namoneas group and the Faichuk group may be considered with new centralized power generation plants on Tonoas and Tol respectively. However, these power plants represent considerable investment (an estimated $9 million for each plant) and funding from

outside the Compact would need to be sought. Distribution systems in each of the islands may be funded incrementally through the Compact or as part of the same financing used for the power plants.

70 In addition to the two large power systems to be developed in the Southern Namoneas and Faichuk, three smaller power systems are needed to serve the inner Faichuk Islands of Fanapanges, Udot, Eot and Romanum.

71 Preparation of a Chuuk Electrification Master Plan[9] is proposed prior to committing any funds to evaluate development options and investments. This Plan would need to be prepared towards the end of the first five years of the IDP.

5.1.4 Long Term Development Needs

72 Long term needs in the power sector necessitated by a requirement for increased power generation capacity are dependent upon predictions of economic growth. Should implementation of the IDP be slow and private sector development in the country not accelerates as expected, it is likely that economic stagnation will continue. Under this scenario, the short term development needs outlined in 5.1.4 will probably be sufficient to met demand until the end of the IDP period.

73 If however, economic growth accelerates through implementation of the IDP and needed private sector investments in tourism facilities and services, fisheries, transportation services, solid waste management and manufacturing, the growth of demand for electricity would also increase and the power generation capacity would need to be expanded. Under this optimistic scenario, the implications of the power industry development would include:

- For Pohnpei, rehabilitation of the Nanpohmal plant or expansion of the new Dekehtik plant capacity.
- Replacement of two Weno power pant generators with larger generators.
- Enhancement of Yap Proper generation capacity.

74 However, these investments have not been included in the IDP at his stage.

5.1.5 Proposed IDP Investment Program

75 The IDP report proposed an investment of $137 million for electric power sector investment over the period 2003-2017[10.] While this will meet the sector needs as outlined above, it is probably unaffordable given the availability

9 See Annex B, Volume III, Nathan report for TOR for this study

10 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

of funding. A revised capital investment program shown in Table 5.3 has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008[11] In the case of Pohnpei, the State has not included investments in the power sector in the priority listings as these are considered to be the responsibility of the PUC. Nevertheless, these investments have been included in the IDP Program under funding outside the Compact.

76 Investments in new power generation for Pohnpei, Southern Namoneas and Faichuk are included in the program, but due to considerable cost, funding additional to that generally available to FSM would need to be sought on the basis of the economic return of these investments. Investment in the Weno Power Plant is also a large investment, but due to the critical nature of this project, it is proposed that it be funded through the Compact or other sources such as ADB.

77 The timing of the projects as shown in Table 5.3 reflects their priority as follows:

- Weno Power Plant and Distribution System
- Diesel/Solar Power for Outer Islands in Pohnpei, Chuuk and Yap
- Southern Namoneas Power Generation and Distribution
- Faichuk Power Generation and Distribution
- Faichuk Power Generation and Distribution
- Yap Power Plant Upgrade and Distribution Extension

78 This corresponds to a total sector investment of $81.1 million for the period 2004-2023. Some projects proposed in the May 2002 IDP report either cannot be fully funded during this period of are unable to be commenced. This status of these projects is indicated in Tables 5.4 and 5.5. Unfunded projects include further long term expansion of the Pohnpei, Weno and Yap power plants, upgrading of the Pohnpei distribution systems, investment in office improvements, computer systems and metering for all state systems, diesel/solar systems for households on outer islands in Pohnpei, Chuuk and Yap. Many of these investments could be provided by the utility corporations as they demonstrate improved financial performance.

11 See Annex C for listing of state priorities for 2004-2008

Table 5.3 Electrical Power – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Dekehtik Power Plant	Pohnpei						10,500			Other
Diesel/Solar Power for schools	Pohnpei/Outer Islands			700		300	253			Other
Diesel/Solar Power for dispensaries	Pohnpei/Outer Islands					100				Other
Weno Power Plant	Chuuk/Weno	500	2,500	2,500	2,500					Com/Other
Weno Power Distribution	Chuuk/Weno	500	400			1,033	885			Com/Other
Tonoas Power Plant	Chuuk/S. Namoneas						9,824			Other
Tonoas Distribution	Chuuk/S. Namoneas				500	400	800			Compact II
Eten Submarine Cable	Chuuk/S. Namoneas						294			Compact II
Eten Power Supply	Chuuk/S. Namoneas						168			Compact II
Fefen Submarine Cable	Chuuk/S. Namoneas						735			Compact II
Fefen Power Supply	Chuuk/S. Namoneas						1,062	1,280	797	Compact II
Unman Submarine Cable	Chuuk/S. Namoneas						490			Compact II
Unman Power Supply	Chuuk/S. Namoneas							1,756		Compact II
Tol Power Plant	Chuuk/Faichuk						9,767			Other
Tol Power Supply	Chuuk/Faichuk							1,138	1,137	Compact II

Table 5.3 Electrical Power – Proposed Project Implementation Schedule (US$ '000), Continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Paata Power Supply	Chuuk/Faichuk						1,062	519		Compact II
Polle Power Supply	Chuuk/Faichuk							1,062	867	Compact II
Wonei Power Supply	Chuuk/Faichuk							1,062	463	Compact II
Fanapanges Power Plant	Chuuk/Lagoon							1,450		Other
Fanapanges Distribution	Chuuk/Lagoon							297		Compact II
Romanum Power Plant	Chuuk/Lagoon							1,257		Other
Romanum Distribution	Chuuk/Lagoon							205		Compact II
Udot Power Plant	Chuuk/Lagoon							2,042		Other
Udot Distribution	Chuuk/Lagoon							694		Compact II
Eot Submarine Cable	Chuuk/Lagoon							147		Compact II
Eot Distribution	Chuuk/Lagoon							106		Compact II
Solar/diesel for schools	Chuuk/Outer Islands				634	1,000	2,000		2,400	Other
Solar/diesel for schools	Chuuk/Lagoon					332				Other
Solar/diesel for dispensaries	Chuuk/Outer Islands					100				Other
Solar/diesel for dispensaries	Chuuk/Lagoon					100				Other
Power Plant Rehabilitation	Kosrae				106		387			Compact II

Table 5.3 Electrical Power – Proposed Project Implementation Schedule (US$ '000), Continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Power Distribution	Kosrae	197		500			542			Compact II
Solar/diesel for schools	Yap Outer Islands			558					1,000	Other
Solar/diesel for dispensaries	Yap Outer Islands			100						Other
Yap Power Plant Upgrade	Yap Proper							1,500	1,500	Other
Yap Distribution Extension	Yap Proper						1,000		1,000	Compact II
Recurrent Costs										
Electric System Maintenance Fund	All	120	0	50	61	40	654	827	426	Compact II/State
Total:		1,317	2,900	4,408	3,801	3,405	40,423	15,342	9,590	

79 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states.

5.1.6 Institutional Restructuring and Strengthening

80 The major decisions on institutional strengthening have already been taken with the power sector now being managed by utility corporations in all four states. These corporations now need to continue to develop their capability in order to provide more efficient services thereby improving financial performance. The organizations need to outsource an increasing amount of their fieldwork, while concentrating on planning, monitoring, contract management and performance reporting functions.

81 The performance, in particular, of the Chuuk Power Utility Corporation has been disappointing and has resulted in the development of a critical situation in both the power and water/wastewater sectors in Chuuk. There may be a need for further intervention by the private sector in the CPUC activities such as in the form of a management contract to operate and maintain the utility systems on a fee for service basis.

Table 5.4 Electrical Power - Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Dekehtik Power Plant	Pohnpei	Kolonia	10,500	4,608	Other
Diesel/Solar Power for schools	Pohnpei	Outer Islands	1,253		Com/Other
Diesel/Solar Power for dispensaries	Pohnpei	Outer Islands	100		Com/Other
Weno Power Plant	Chuuk	Weno	8,000	9,055	Com/Other
Weno Power Distribution	Chuuk	Weno	2,818		Compact II
Tonoas Power Plant	Chuuk	S. Namoneas	9,824		Other
Tonoas Distribution	Chuuk	S. Namoneas	1,700		Compact II
Eten Submarine Cable	Chuuk	S. Namoneas	294		Compact II
Eten Power Supply	Chuuk	S. Namoneas	168		Compact II
Fefen Submarine Cable	Chuuk	S. Namoneas	735		Compact II

Table 5.4 Electrical Power - Funded or Partially Funded Projects (US$ '000), Continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Fefen Power Supply	Chuuk	S. Namoneas	3,139		Compact II
Unman Submarine Cable	Chuuk	S. Namoneas	490		Compact II
Unman Power Supply	Chuuk	S. Namoneas	1,756		Compact II
Tol Power Plant	Chuuk	Outer Faichuk	9,767		Other
Tol Power Supply	Chuuk	Outer Faichuk	2,275		Compact II
Paata Power Supply	Chuuk	Outer Faichuk	1,581		Compact II
Polle Power Supply	Chuuk	Outer Faichuk	1,929		Compact II
Wonei Power Supply	Chuuk	Outer Faichuk	1,525		Compact II
Fanapanges Power Plant	Chuuk	Lagoon	1,450		Other
Fanapanges Distribution	Chuuk	Lagoon	297		Compact II
Romanum Power Plant	Chuuk	Lagoon	1,257		Other
Romanum Distribution	Chuuk	Lagoon	205		Compact II
Udot Power Plant	Chuuk	Lagoon	2,042		Other
Udot Distribution	Chuuk	Lagoon	694		Compact II
Eot Submarine Cable	Chuuk	Lagoon	147		Compact II
Eot Distribution	Chuuk	Lagoon	106		Compact II
Solar/diesel for schools	Chuuk	Outer Islands	6,034		Other
Solar/diesel for schools	Chuuk	Lagoon	332		Other
Solar/diesel for dispensaries	Chuuk	Outer Islands	100		Other
Solar/diesel for dispensaries	Chuuk	Lagoon	100		Other
Power Plant Rehabilitation	Kosrae	Lelu	493		Compact II
Power Distribution	Kosrae	Kosrae	1,139		Compact II

Table 5.4 Continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Solar/diesel for schools	Yap	Outer Islands	1,558	670	Other
Solar/diesel for dispensaries	Yap	Outer Islands	100		Other
Yap Power Plant Upgrade	Yap	Yap Proper	3,000	1,649	Compact II
Yap Distribution Extension	Yap	Yap Proper	2,000	832	Compact II
Recurrent Costs					
Electric Power System Maint. Fund	All		2,167		Compact/State
Total:			81,075	16,814	

Table 5.5 Electric Power - Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Waste Oil Recycling Plant	Pohnpei	Pohnpei	2,360
Decommission ALCO Plant	Pohnpei	Pohnpei	47
Distribution System	Pohnpei	Pohnpei	1,139
Office/Computer Systems	Pohnpei	Pohnpei	2,006
Metering	Pohnpei	Pohnpei	1,121
Diesel/solar for Households	Pohnpei	Lagoon	776
Diesel/solar for Households	Pohnpei	Outer Islands	2,543
Diesel/Solar Power for Households	Chuuk	Lagoon	2,100
Solar/Diesel Power for Households	Chuuk	Outer Islands	13,983
Office/Systems/Metering - Weno	Chuuk	Weno	2,221
Office/Systems/Metering - S.Namoneas	Chuuk	S. Namoneas	1,852
Office/Systems/Metering - Faichuk	Chuuk	Faichuk	1,015
Office/Systems/Metering - Kosrae	Kosrae	Kosrae	3,127
Ulithi Transformer	Yap	Outer Islands	351
Woleai Generator	Yap	Outer Islands	35
Diesel/solar for households	Yap	Outer Islands	3,570
Office/Systems/Metering - Yap	Yap	Yap Proper	1,888
Total			40,134

5.2 Water/Wastewater Systems

5.2.1 Sector Objectives and Outcomes

82 The primary specific objectives of the provision of water and wastewater infrastructure are:

- Meet the demand for water supply and wastewater infrastructure in an effective and efficient manner
- Improve existing water abstraction, treatment and distribution systems
- Evaluate and institute technologically appropriate liquid waste management systems
- Improve and initiate wastewater facilities to increase coverage and contribute towards improvements in public health and environmental conditions
- Contribute towards the prevention of water borne diseases through the provision of potable water supplies

5.2.2 Existing Water Supply and Wastewater Systems

83 There are currently 15 major water supply systems in FSM that serve about 37,000 people, or slightly more than one-third of the FSM population. There are also five sewerage systems, serving the principal administrative and commercial areas of the four states. These systems are summarized in Tables 5.6 and 5.7.

Table 5.6 Existing Major Water Supply Systems

State	System	Coverage	Condition	Needs
Pohnpei[12]	PUC Pohnpei Island Water System	54% of Pohnpei Island population and 30% of island area	Sufficient capacity for existing service area. Condition generally good	Programs to provide for entire island coverage, including new water sources, treatment and distribution facilities.
Pohnpei	Palikir Water System	FSM National Government offices and COM national campus	Satisfactory	Could be incorporated in PUC expansion for Palikir vicinity
Chuuk	Weno Water Supply System	85% of residential areas of Weno	Was recently improved under ADB loan, but still not providing satisfactory water quality.	Rehabilitation of wells and distribution system
Chuuk	Tonoas Water Supply System	75% of the population of Tonoas	Reasonable, considering its age	Will need rehabilitation

12 In addition to the PUC system, there are 41 small rural systems serving communities beyond the PUC service area.

Table 5.6 Existing Major Water Supply Systems, Continued

State	System	Coverage	Condition	Needs
Kosrae	Tofol/Lelu Water Supply System	State administrative center at Tofol, main Lelu urban center and commercial/tourism developments	No treatment and does not provide potable water.	Improvement of intake and provision of treatment facilities.
Kosrae	Malem Water Supply System	Supplies main part of Malem	No treatment and does not provide potable water. Pipes in poor condition	Rehabilitation of distribution system and provision of treatment facilities.
Kosrae	Okat Water Supply System	Commercial port and airport.	Two wells out of five no longer functional	Construct additional wells to replace those now out of service
Kosrae	Tafuyat Water Supply System	Supplies part of Lelu Municipality	No treatment or storage. Distribution pipeline satisfactory	Supplies need to be treated.
Kosrae	Yekula Water Supply System	Supplies small area in Tafunsak Municipality	Source inadequate, no treatment, poor water quality, inadequate distribution system in poor condition.	Entire system needs rehabilitation/replacement
Kosrae	Walung Water Supply System	Walung village	No treatment, poor water quality	Treatment plant
Kosrae	Tafeut Water Supply System	Most of Utwe Municipality	No treatment, poor water quality	Treatment Plant, extension of distribution system
Kosrae	Mutunte Water Supply System	Supplies about 60% of Tafunsak Municipality	No treatment, poor water quality, distribution system inadequate and in poor condition	Treatment plant and augmentation of distribution system

Table 5.6 Existing Major Water Supply Systems. Continued

State	System	Coverage	Condition	Needs
Yap	Central Water Supply System	Municipalities in vicinity of Colonia.	Recently improved and in good condition.	
Yap	Gagil-Tomil Water Supply System	Municipalities of Tomil and Gagil (part)	Generally satisfactory for the short term	Distribution system will require augmentation in the longer term
Yap	Southern Yap Water Supply System	Municipalities of Rull (part, Gilman Kanifay and Dalipebinaw)	Water source needs improvement. Distribution system satisfactory in short term	Augmentation of water source. Distribution system will require augmentation in the longer term

84 Besides Weno and Tonoas, none of the other inhabited islands of Chuuk lagoon have pressurized water supply systems. Water supplies on these islands derive from rainwater catchments, hand-dug wells, springs and water seeps and individual household systems from surface water courses. These systems are grossly inadequate to maintain appropriate health standards, support an improved economy and realize the tourism potential of the islands.

85 In Yap, in addition to the three regional systems, there are 23 small scale village water supply systems using springs, streams or seeps as water sources. Some of these go dry during periods of low rainfall.

86 The outer islands of Pohnpei, Chuuk and Yap obtain fresh water from rainfall catchment systems and from, mostly dug, shallow wells and utilize storage systems. Although pollution of the freshwater 'lens' under each of these islands can be a problem, a number of islands obtain water of reasonably good quality from the wells. For the most part water supplies for these islands appear to be adequate, especially in Yap where outer island water supplies come under the YSPSC.

87 None of the inhabited islands in the Chuuk lagoon have a wastewater system, beyond channeling whatever wastewater is collected locally into the near-shore areas of the lagoon

88 Water supply and sewerage systems in Pohnpei, Chuuk and Yap are operated by the PUC, CPUC and YSPSC respectively. In Kosrae the systems are owned and managed by the municipalities with technical assistance being provided by the Department of Public Works.

Table 5.7 Existing Sewerage Systems

State	System	Coverage	Condition	Needs
Pohnpei	Kolonia Sewerage System	Approximately 25% of Pohnpei population	Treatment plant not operating optimally. High infiltration in collection system.	Treatment plant to be augmented or relocated. Extend system to increase coverage. Replacement of parts of existing system
			Generally satisfactory	
Chuuk	Weno Sewerage System	Main urban center of Weno	Poor condition. Treatment plant out of operation. Raw sewage being pumped into the lagoon	New treatment plant. Repair and extension of existing collection system.
Kosrae	Lelu Sewerage System	Urban center of Lelu	Generally satisfactory. No treatment, but sea outfall	Extend collection system to increase coverage
Kosrae	Tofol Sewerage System	Government Administration Buildings and Hospital	Operates satisfactorily. Utilizes oxidation ponds.	
Yap	Colonia Sewerage System	Main urban center of Colonia	No chlorination of primary treatment	Extend outfall. Possibly relocate treatment plant

5.2.3 Short Term Needs of Existing Systems

89 A key strategic objective of the IDP is to ensure that existing infrastructure is rehabilitated as a first priority before implementation of new infrastructure. The immediate needs for rehabilitation of existing water supply and wastewater systems are described below.

a Pohnpei PUC Water Supply System

90 The water supply system supplying the current service area in Pohnpei Island is operating satisfactorily and the primary need is to extend the system to other parts of the island. This will be a continuing process as outlined in the stra-

tegic plans of the PUC[13] and funding will need to be allocated during the period of the IDP for this purpose.

b Weno Water Supply System

91 Although supported by a recent ADB loan, the wells that constitute the primary source for water supplies continue to provide water of an unsatisfactory quality. There is an urgent need to rehabilitate these wells to ensure a safe, potable water supply for the consumers.

c Tonoas Water Supply System

92 This system is currently providing a satisfactory water supply, but will require rehabilitation during the course of the IDP as many of the system elements are reaching the end of their useful life.

d Kosrae Water Systems

93 Rehabilitation of the existing water supply systems on Kosrae is urgent as none have effective treatment and all are providing water of unsatisfactory quality to the consumers. Many of the existing water distribution pipelines are in poor condition and have inadequate capacity to supply water at an acceptable pressure.

e Yap Proper Water Systems

94 Although there is a need for some rehabilitation works for the Southern Yap water system, the three existing systems on Yap Proper are generally operating satisfactorily and require extensions and augmentations during the course of the IDP, rather than any current rehabilitation.

f Kolonia Sewerage System

95 The sewage treatment plant is nearing the end of its useful life, is under-capacity and will need to be rehabilitated, expanded or relocated at an early stage in the IDP. There is also potential to extend the collection system to some currently uncovered areas when funding is available

g Weno Sewerage System

96 The sewage treatment plant has not operated for the past two decades and raw sewage has been pumped through the outfall into the lagoon. The lagoon and its marine life constitute the principle resource for potential economic growth in the state, and continued pollution of lagoon waters could prevent the

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13 Emergency Water/Wastewater Infrastructure Expansion & Extension Plan for Financing, Engineering and Construction, Pohnpei Utilities Corporation, September 2000

state from realization of its economic potential. The collection system is also in poor condition and overflows occur during rainy periods.

h Colonia Sewerage System

97 The current system generally meets the needs of Colonia. There may be a need to extend the sea outfall to reduce pollution in the immediate vicinity of the shoreline or to relocate the treatment plant.

5.2.4 Development Needs during the IDP Period (2004-2023)

a System Extension on the Principal Islands

98 The need for water supply and sewerage system extension and upgrading on the principal islands of the four FSM states are discussed briefly below.

b Pohnpei

99 PUC has plans to provide Pohnpei Island with a single integrated water supply system that will efficiently deliver good quality water to all developed areas of the island. PUC also proposes to provide new sewerage systems in densely populated areas currently without such systems, and to extend the outfalls from sewage treatment plants to beyond the reef surrounding the lagoon. These projects will be constructed incrementally as funds become available during the period of the IDP.

c Chuuk

100 The short term improvements for Weno Island outlined under 5.2.3 will provide a satisfactory water supply service for 85% of residents on Weno Island and a sewage collection service for the main urban area. Subject to funds availability, it will be necessary to provide extensions to areas not currently served and this will also require the construction of a second sewage treatment plant.

d Kosrae

101 Completion of the short-term improvement program for the water supply facilities as described in 5.2.3 will be adequate to satisfactorily serve all communities on the island. Any further long term expansion of the systems will be dependent on the development of the tourism potential on the island that may necessitate some focused expansion during the IDP period

e Yap

102 The most urgent future water development need for Yap Proper is the provision of a piped water supply for the municipalities of Maap and Rumung. Long term sewerage development needs may include the more densely populated areas of Gagil-Tomil and the southern portion of Yap Proper.

f Chuuk Lagoon Water Supply/Wastewater Development Needs

103 Of the 17 inhabited islands of the Chuuk lagoon, only Weno and Tonoas have piped water supply systems. The current water supplies on the other islands are unreliable and unsafe and provision of water supplies to these communities should be a medium term priority of the IDP. Most of the islands are too small or sparsely populated to justify development of sewerage systems, but the islands of Tonoas, Fefen and Uman should be provided with sewerage in the medium to long term to assist with their tourist potential.

5.2.5 Proposed IDP Investment Program

104 The May 2002 IDP report proposed an investment of $392 million for water/wastewater sector investment over the period 2003-2017[14]. While this will meet the sector needs as outlined above, it is probably unaffordable given the availability of funding. A revised capital investment program shown in Table 5.8 has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008[15]. In the case of Pohnpei, the State has not included investments in the water and wastewater sector in the priority listings as these are considered to be the responsibility of the PUC. Nevertheless, these investments have been included in the IDP Program under funding outside the Compact.

105 Extension to the Pohnpei Island Water System is included in the program but it cannot be completed to cover the entire island within the IDP period unless the PUC is able to access additional funding than is considered to be normally available to FSM. A similar situation applies to the Kolonia Sewerage System extension and extensions to the water supply and sewerage system extensions on Weno. The immediate improvements required for the Kosrae water systems will be funded during the first five years of the IDP, but any further long-term extensions of these systems cannot be funded.

106 The IDP includes the provision of water supply systems to the Chuuk lagoon islands during the medium and long term of the IDP, but funds are unlikely to be sufficient to provide complete coverage in all the islands. Funding for the lagoon island water supply systems would need to be a mix of Compact and other funding sources. Sewerage facilities will only be provided in Tonoas and Fefen.

107 The timing of the projects as shown in Table 5.8 reflects their priority as follows:

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14 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

15 See Annex C for listing of state priorities for 2004-2008

- Rehabilitation of the Weno Water Supply System
- Provision of improved water supplies to the municipalities of Lelu, Malem, Tafunsak and Utwe in Kosrae
- Construction of new Weno Island Sewage Treatment Plant
- Rehabilitation of the existing Weno Sewerage System
- Provision of water supplies to the municipalities of Maap and Rumung in Yap
- Construction of new Kolonia Sewage Treatment Plant and Sea Outfall
- Extension of Pohnpei Water Supply System
- Improvements to the sewerage systems in Lelu/Tofo in Kosrae
- Rehabilitation of Tonoas Water Supply System
- Improvement of water supply systems in Chuuk Outer islands (Halls and Mortlock)
- Construction of water supply systems in Southern Namoneas Islands
- Construction of water supply systems in Outer and Inner Faichuk Islands
- Extension of the sea outfall in Colonia, Yap
- Extensions to the water supply systems in Gagil-Tomil and Southern Yap on Yap Proper

108 This corresponds to a total sector investment of $142 million for the period 2004-2023. Projects that were proposed in the May 2002 IDP that either cannot be fully funded during this period or are unable to be commenced are indicated in Tables 5.9 and 5.10.

109 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states.

Table 5.8 Water Supply/Wastewater – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Extension of PUC Water Supply System	Pohnpei			767	2,765	2,765	5,500	5,500	5,500	Other
Kolonia Wastewater Treatment Plant	Pohnpei/Kolonia	477	1,000	1,476						Other
Kolonia Sewerage System Extension	Pohnpei/Kolonia				1,250	1,250		2,500	2,500	Other
Ocean Outfall Extension	Pohnpei/Kolonia			1,151						Other
Household Water Supply Systems	Pohnpei/Lagoon						552			Compact II
Weno Water Supply	Chuuk/Weno	300	650						2,500	Compact II
Weno Sewage Treatment Plant	Chuuk/Weno		1,000	250					1,770	Com/Other
Weno Sewerage Extension	Chuuk/Weno		600	250	500	700	1,000	1,000	2,000	Com/Other
Tonoas Water Supply	Chuuk/Weno		150	1,000			1,200	1,200	1,418	Compact II
Fefen Water Supply	Chuuk/S. Namoneas				800	200	1,500	1,500	1,500	Compact II
Unman Water Supply	Chuuk/S. Namoneas					800	1,500	1,500	1,279	Compact II
Tonoas Sewerage	Chuuk/S. Namoneas							2,140	1,000	Compact II

Table 5.8 Water Supply/Wastewater – Proposed Project Implementation Schedule (US$ '000), Continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Fefen Sewerage	Chuuk/S. Namoneas							2,000	1,000	Compact II
Common Sewer outfall	Chuuk/S. Namoneas							2,000		Compact II
Tol Water Supply	Chuuk/Faichuk					750	2,500	1,000	1,250	Compact II
Paata Water Supply	Chuuk/Faichuk						1,500	1,500	1,104	Compact II
Polle Water Supply	Chuuk/Faichuk						1,500	1,000	1,000	Compact II
Wonei Water Supply	Chuuk/Faichuk							2,000	1,778	Compact II
Eot Water Supply	Chuuk/Lagoon							1,033		Compact II
Fanapanges Water Supply	Chuuk/Lagoon							1,033	593	Compact II
Romanum Water Supply	Chuuk/Lagoon						730	729		Compact II
Udot Water Supply	Chuuk/Lagoon						730	729	500	Compact II
Halls Island Water Supply	Chuuk/Outer Islands			100		250	1,000	825		Compact II
Mortlock Islands Water Supply	Chuuk/Outer Islands			150		250	1,250	1,250	1,250	Compact II
Lelu Water Supply	Kosrae	1,176	1,500	1,125					1,500	Other
Malem Water Supply	Kosrae			1,000	1,500				1,500	Other
Tafunsak Water Supply	Kosrae	500	1,000	500					1,500	Other
Utwe Water Supply	Kosrae	500	750	250					1,500	Other

Table 5.8 Water Supply/Wastewater – Proposed Project Implementation Schedule (US$ '000), Continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Lelu/Tofol Wastewater	Kosrae		409	437	800			4,500	568	Compact II
Maap-Rumung Water Supply	Yap Proper	500	1,000	500					904	Other
Gagil-Tomil Water Supply	Yap Proper						1,450	1,450	886	Compact II
Southern Yap Water Supply	Yap Proper						1,714	429		Compact II
Household Septic Tanks	Yap Proper						484	484		Compact II
Extension of Ocean Outfall	Yap Proper				500		1,214			Other
Recurrent Costs										
Water/Wastewater Maintenance Fund		30	281	219	210	295	1,761	2,830	1,763	Com/State
Total Projects with Funding		3,483	8,340	9,175	8,325	7,260	27,085	40,132	38,063	

Table 5.9 Water/Wastewater – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Available Amount	Source
Extension of PUP Water Supply System	Pohnpei	Pohnpei	22,797	12,994	Other
Kolonia Wastewater Treatment Plant	Pohnpei	Kolonia	2,953		Other
Kolonia Sewerage System Extension	Pohnpei	Kolonia	7,500	9,593	Com/Other
Ocean Outfall Extension	Pohnpei	Kolonia	1,151		Com/Other
Household Water Supply Systems	Pohnpei	Lagoon	552		Compact II
Weno Water Supply	Chuuk	Weno	3,450	8,483	Compact II
Weno Sewage Treatment Plant	Chuuk	Weno	3,020		Compact II
Weno Sewerage Rehab/Extension	Chuuk	Weno	6,050	7,071	Compact II
Tonoas Water Supply	Chuuk	Weno	4,968		Compact II
Fefen Water Supply	Chuuk	S. Namoneas	5,500	3,769	Compact II
Uman Water Supply	Chuuk	S. Namoneas	5,079		Compact II
Tonoas Sewerage	Chuuk	S. Namoneas	3,140	4,272	Compact II
Fefen Sewerage	Chuuk	S. Namoneas	3,000	4,607	Compact II
Common Sewer Outfall	Chuuk	S. Namoneas	2,000	1,963	Compact II
Tol Water Supply	Chuuk	Faichuk	5,500	9,856	Other
Paata Water Supply	Chuuk	Faichuk	4,104		Other
Polle Water Supply	Chuuk	Faichuk	3,500	1,799	Other
Wonei Water Supply	Chuuk	Faichuk	3,778		Other
Eot Water Supply	Chuuk	Lagoon	1,033		Compact II
Fanapanges Water Supply	Chuuk	Lagoon	1,626		Compact II
Romanum Water Supply	Chuuk	Lagoon	1,459		Compact II
Udot Water Supply	Chuuk	Lagoon	1,959	1,040	Compact II
Halls Island Water Supply	Chuuk	Outer Islands	2,175		Compact II
Mortlock Islands Water Supply	Chuuk	Outer Islands	4,150	2,682	Compact II

Table 5.9 Water/Wastewater – Funded or Partially Funded Projects (US$ '000), Continued

Project	State	Location	Available Funding	Available Amount	Source
Lelu Water Supply	Kosrae	Lelu	5,301	2,437	Other
Malem Water Supply	Kosrae	Malem	4,000	4,029	Other
Tafunsak Water Supply	Kosrae	Tafunsak	3,500	8,941	Other
Utwe Water Supply	Kosrae	Utwe	3,000	2,509	Other
Lelu/Tofol Wastewater	Kosrae	Lelu	6,714		Compact II
Maap-Rumung Water Supply	Yap	Yap Proper	2,904		Other
Gagil-Tomil Water Supply	Yap	Yap Proper	3,786		Compact II
Southern Yap Water Supply	Yap	Yap Proper	2,143		Compact II
Household Septic Tanks	Yap	Yap Proper	968		Compact II
Extension of Ocean Outfall	Yap	Yap Proper	1,714		Compact II
Recurrent Costs					
Water/Wastewater Maint. Fund	All		7,388	8,605	Com/State
Total:			141,862	94,650	

110 The 2002 IDP report recommended that a Water/wastewater Systems Master Plan and Cost Recovery Study to be conducted on commencement of the IDP period. This was to include final designs for the systems improvements. However, the utility corporations and the funding agencies are generally preparing feasibility studies on a project-by-project basis and detailed design would normally form part of the project cost. This planning activity has therefore been excluded from the IDP.

5.2.6 Institutional Restructuring and Strengthening

111 Currently in Pohnpei, Yap and Chuuk, public utility corporations have responsibility for both the power and the water sectors. The Kosrae Utilities Authority (KUA) in Kosrae, however, only has responsibility for the power sector. In order to approach commercial sustainability, a part of the institutional restructuring program is to shift overall responsibility for the development and maintenance of the Kosrae water supply and wastewater systems to the KUA. Public utility water divisions on the principal islands and lagoon islands should be commercially sustainable. Kosrae must introduce the concept of charging for water sector services and sector oversight and full maintenance responsibility of KUA.

112 There is also a need for institutional reform of the CPUC where operation and maintenance of both the power and water sectors has been unsatisfactory and neither sector, especially water and wastewater, has achieved anywhere near commercial sustainability. Institutional reform may include options such as providing the private sector with a management contract to operate and maintain the power, water supply and wastewater systems.

Table 5.10 Water/Wastewater – Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Kitti Sewerage System	Pohnpei	Kitti	16,308
Madolenihmw Sewerage System	Pohnpei	Madolenihmw	21,196
Household Sewage Disposal Systems	Pohnpei	Outer Islands	552
Outer Island water Supply Systems	Pohnpei	Outer Islands	4,844
Ocean Outfall Extension	Chuuk	Weno	3,427
Unman Wastewater System	Chuuk	S.Namoneas	4,888
Paata Sewerage	Chuuk	Outer Faichuks	2,992
Polle Sewerage	Chuuk	Outer Faichuks	4,206
Tol Sewerage	Chuuk	Outer Faichuks	7,113
Wonei Sewerage	Chuuk	Outer Faichuks	2,422
Septic Tanks/Pit latrines	Chuuk	Outer Faichuks	5,241

Table 5.10 Water/Wastewater – Unfunded Projects (US$ '000), Continued

Project	State	Location	Unfunded Amount
Other Islands Water Supply	Chuuk	Lagoon	2,620
Eot Wastewater	Chuuk	Lagoon	252
Fanapanges Wastewater	Chuuk	Lagoon	494
Romanum Wastewater	Chuuk	Lagoon	420
Udot Wastewater	Chuuk	Lagoon	1,108
Other Islands Wastewater	Chuuk	Lagoon	1,571
Namonuito Islands Water Supply	Chuuk	Outer Islands	1,269
Pattiw Water Supply	Chuuk	Outer Islands	2,531
Halls Island Sewerage	Chuuk	Outer Islands	1,232
Mortlock Islands Sewerage	Chuuk	Outer Islands	3,976
Namonuito Islands Sewerage	Chuuk	Outer Islands	771
Pattiw Sewerage	Chuuk	Outer Islands	1,571
Malem Wastewater	Kosrae	Malem	5,685
Utwe Wastewater	Kosrae	Utwe	5,509
Tafunsak Wastewater	Kosrae	Tafunsak	12,014
Central Water System	Yap	Yap Proper	12,825
Colonia STP Relocation	Yap	Colonia	5,900
Colonia Wastewater System	Yap	Colonia	10,122
Kanifaay Wastewater System	Yap	Yap Proper	10,352
Gagil-Tomil Wastewater System	Yap	Yap Proper	10,362
Ulithi Water Supply	Yap	Outer Islands	1,500
Woleai Water Supply	Yap	Outer Islands	1,625
Satawal Water Supply	Yap	Outer Islands	1,095
Ulithi Sewerage	Yap	Outer Islands	817
Woleai Sewerage	Yap	Outer Islands	1,633
Satawal Sewerage	Yap	Outer Islands	1,095
Total			171,538

5.3 Solid Waste Management

5.3.1 Sector Objectives and Outcomes

113 The primary specific objectives of the provision of solid waste management infrastructure are:

- Meet the demand for solid waste infrastructure in an effective and efficient manner
- Evaluate and institute technologically appropriate solid waste management systems
- Reduce volume of solid waste for disposal by maximizing recycling and separation opportunities and by extending the life of equipment and appliances that otherwise add to the solid waste quantities, thereby minimizing the land area required.

- Prevent solid waste having adverse effects on the terrestrial and marine environments

5.3.2 Existing Solid Waste Management Systems

114 There are limited solid waste collection facilities in each of the principal islands of each state and dumpsites are located in the main centers of Pohnpei, Yap and Chuuk and in each municipality of Kosrae. None of these facilities approaches an acceptable landfill. In each state the government has plans to develop a new landfill site, but has been constrained by land and funding availability. The situation is most critical in Chuuk where the current dumpsite is neither secure nor environmentally acceptable and where solid waste of all descriptions is visible in all parts of Weno. Details of the solid waste facilities in each state are described below.

a Pohnpei

115 The only solid waste facility on Pohnpei is the dumpsite on Dekethik Island on the east side of the causeway at its northern end. The facility has an operations shed, a battery recovery shed, and separated areas for aluminum can compaction and storage and fuel drum sludge product extraction and storage. The larger potion of the area is used for trash intended for disposal, without recovery efforts. A private company, Pohnpei Waste Management Services (PWMS) provides most trash collection services, although the Kolonia Municipal Government provides collection services for about half the residents and commercial establishments in the town. The State Department of Public Works has had overall responsibility for the sector.

116 There is no effective recycling operation, but PWMS is making an attempt to set up recovery operations for aluminum cans, car batteries and oil sludge.

b Chuuk

117 The existing solid waste facilities on Chuuk comprise the Fanipat dumpsite on Weno, a small site on Tonoas Island and the Weno Recycling Facility (WRF). The latter has responsibility for collection, compaction and shipment of aluminum cans although it is currently not operating effectively. Responsibility for solid waste management rests with the Department of Public Works.

118 The Fanipat dumpsite on Weno Island is on prime land along the island's southwest coast. The site has no fence, no buildings and no personnel. There are also several unofficial dumpsites along Weno roads and abundant uncollected trash, car bodies and derelict equipment all over the island. Trash collection is scheduled three times a week, but is reportedly not reliably operated.

119 The official dumpsite on Tonoas Island is near the village of Sampras. It serves a large part of the island and most Tonoas residents deliver their household wastes to the facility.

120 On other islands of the lagoon, the absence of roads means that each community generally has its own local dumpsite.

c Kosrae

121 The solid waste facilities in Kosrae comprise five dumpsites and aluminum can compaction and storage facility. The dumpsites are:

- Lelu Municipality dumpsite, which is the largest of the five and occupies a hillside opposite the KUA power plant. Cover material is available for this site, but it should ideally be moved to a bona fide landfill facility. This is the only site to have a public collection service. A dump truck is employed for roadside collection of trash along the circumferential road, two times per week.
- The Tafunsak Municipality dumpsite, a small area located east of the airport and commercial port
- The Malem Municipality dumpsite, a small area located south of the Lelu causeway along the circumferential road
- Very small dumpsites located at Utwe and Walung village.

122 In all cases the dumpsites are located near residential and/or administrative areas, none have fences or any evidence of an organized operation.

123 There are two more or less satisfactory operations to reduce trash, namely an aluminum can operation and the recovery of oil sludge.

124 No state government body is specifically charged with responsibility for solid waste management, but this role is taken on by default by the Department of Public Works. The Kosrae State Government prepared a Solid Waste Management Plan in 1997, but the plan has yet to be implemented. An effort has been made to decentralize responsibility for the sector, and municipal governments have now been empowered to deal with solid waste management at the municipal level.

d Yap

125 The only Yap solid waste management facility is the Fitkabeetinaem landfill adjacent to the YSPSC power plant west of Colonia. Waste is regularly collected once or twice a week from a wide area by Department of Public Works and Transportation for delivery to the landfill, where it is dumped and compacted. It is estimated that about 60% of the waste generated in Yap Proper being collected.

126 An aluminum can collection operation has been taken on by a local company, the WAAB Transportation Company.

5.3.3 Approach to Solid Waste Management

127 As a result of the limited land area in FSM, the primary strategy for solid waste management should be to minimize the area needed for landfill. The options are to prevent waste accumulation in the first place, or to divert waste to a process leading to its immediate or eventual reuse. Some limited efforts have already been made to divert wastes from landfills through incineration (hospital waste) or recycling (oil sludge and aluminum cans).

128 Some approaches to accomplish this are:

- Use policy also to achieve a shift from non-biodegradable trash that is difficult to divert from landfills to other types that are easier to divert.
- Set up an institutional arrangement for reaching agreement on solid waste sector policy, strategy for implementation of policy, and action plans for diversion of solid waste from landfills, and to monitor solid waste prevention and diversion.
- Carry out planning efforts to assist in trash avoidance, diversion, and disposal.
- Establish regulatory and oversight authority and arrangements in the sector, and carry out any necessary institutional development efforts that might be necessary to make responsible government bodies fully effective.
- Enter into appropriate regular trash collection, sorting, and disposal arrangements.
- Select optimal locations for landfills, and enter into satisfactory arrangements for landfill development, operation, monitoring, and eventually closure.

129 The FSM also needs to develop an inventory of all the solid waste that could usefully be collected in one-time-only collection efforts, such as partially submerged and barely submerged vessel hulks, derelict road vehicles, derelict containers, derelict construction and maintenance equipment, office equipment, and household appliances like refrigerators and washing machines

130 In order to develop these approaches further it is proposed that a Solid Waste Disposal Needs Minimization Study[16] will be prepared to outline policies for solid waste volume reduction and strategies for diverting waste where possible from landfills.

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16 See Annex B, Volume III, Nathan report for TOR for this study

5.3.4 Development Needs during the IDP Period (2004-2023)

a Development on the Principal Islands

131 New landfill developments are required on each of the main islands. These requirements have been projected for some time in each of the states but with the exception of Pohnpei, where a potential site does appear to be available; land acquisition has been a major constraint. Following completion of the Solid Waste Needs Minimization Study, it is proposed that a Solid Waste Management Landfills Planbe prepared at a time when prospects for reduction in volumes can be assessed and potential sites can be evaluated and confirmed. It is unlikely that due to the time taken for land acquisition that any construction of a new landfill could commence until towards the end of the first five years of the IDP. In the interim period, some rehabilitation of the existing dumpsites, especially in Weno, need to be addressed to contain immediate environmental damage.

b Chuuk Lagoon

132 Landfill options for the islands of Chuuk lagoon range from operating a landfill on every inhabited island, to having landfills on none, and moving trash to uninhabited islands. The recommended option that will need to be verified in the Solid Waste Management Landfills Plan is to construct three new landfills on Weno, Fefen and on one of the Outer Faichuk Islands together with trash loading/unloading facilities for small barge accommodation, with trash separation areas at appropriate locations on each island. Trash loading points for small barge accommodation would be provided on the coast of the other inhabited islands.

133 The landfill on Weno would also take the Fono and Piis-Paneu trash as well as Weno that on Fefen would serve Southern Namoneas, and that on Faichuk would serve those closely grouped four islands as well as the four inhabited Inner Faichuk Islands.

5.3.5 Proposed IDP Investment Program

134 The draft IDP completed in 2002 proposed an investment of $149 million for solid waste management investment over the period 2003-2017[17]. While this will meet the sector needs as outlined above, it is probably unaffordable given the availability of funding. It is also a high cost for the development required, but assumes the adoption of U.S. Environmental Protection Agency Guidelines for ensuring that landfills have no adverse effects on groundwater and the area surrounding a landfill.

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17 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

135 A revised capital investment program shown in Table 5.11 has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008[18]. This includes the development of new landfills on the principal islands, but not the full development cost as indicated in the 2002 IDP report. While sufficient land should be purchased to allow full development, the development costs can be incremental. The funding does not allow for development of landfills for the Chuuk lagoon islands (except Weno) and these will either need to be developed through funding in addition to that which can be normally expected or deferred until after the IDP period. Funding outside the Compact is largely envisaged for development of the landfills as these projects should be suitable for at least soft loans, or could be developed by the private sector.

136 The IDP also includes an allowance for a National Solid Waste Policy & Recycling Fund, which is a capital fund to assist in the implementation of a solid waste management policy for avoidance of waste and to increase diversion of unavoidable waste from landfills. The Fund will also be used to establish trash diversion activities, such as community composting areas, waste compaction and packing operations, crushing and grinding operations and small reprocessing operations.

137 The timing of the projects as shown in Table 5.11 reflects their priority as follows:

- Rehabilitation of the existing Weno dumpsite
- Closure of existing landfill sites in Pohnpei and Yap
- Construction of new landfill sites in each of the four principal islands

138 This corresponds to a total sector investment of $41 million for the period 2004-2023. Projects that were proposed in the May 2002 IDP that either cannot be fully funded during this period or are unable to be commenced are indicated in Tables 5.12 and 5.13.

139 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states.

5.3.6 Institutional Restructuring and Strengthening

140 Currently there is no effective solid waste management in FSM. The State Departments of Public Works have been assigned a waste collection function in each of the four states, and the public utility corporations have some legal

18 See Annex C for listing of state priorities for 2004-2008

responsibility for the sector (Yap) or are proposed to take on responsibility (Pohnpei).

141 The 2002 IDP report recommended that the State Environmental Protection Agencies (SEPA) be provided with the responsibility for making solid waste management fully effective throughout the State. It is not proposed to implement this recommendation at this point in time as the SEPA has environmental and regulatory functions that could constitute a conflict of interest. It is recommended that the thrust be to contract out solid waste management to the private sector under the oversight of either the municipalities or the State Public Works. While providing the utility corporations with responsibility may be a long-term solution, for the present it is considered that the corporations should concentrate on their current role of making the power and water/wastewater sectors commercially viable.

5.4 Roads and Pedestrian Facilities

5.4.1 Sector Objectives and Outcomes

142 The primary specific objectives of the provision of roads and pedestrian facilities infrastructure are:

- To provide the infrastructure to enable transportation facilities to be adequate in terms of condition, capacity, reliability and safety to enable market opportunities to be realized for all areas of the country, including labor market opportunities, and to enhance the level of integration of state economies and the national economy.
- To meet the demand for road and pedestrian infrastructure in an effective and efficient manner, including concrete/asphalt paving of all primary road systems.
- To incorporate pedestrian walkways in the design and construction of roads
- To complete cross-island road and inner roads to facilitate agricultural and other development.

5.4.2 Existing Road Networks and Pedestrian Facilities

143 The combined road network length of the four FSM states is approximately 200 miles, of which about 60% is paved. The road networks in each of the four states are briefly described below in Table 5.14

Table 5.11 Solid Waste Management – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Closure of Existing Landfill in Dekehtik	Pohnpei	Dekehtik				1,018				
Development of New Pohnpei Landfill	Pohnpei	Pohnpei				2,182		2,500	2,500	2,500
Rehab of Existing Landfill	Chuuk	Weno	300	200						
Development of Weno Landfill	Chuuk	Weno					1,000	3,500	2,500	2,500
Development of Kosrae Landfill	Kosrae	Lelu						2,500	2,500	2,500
Closure of Existing Yap Landfill	Yap	Yap Proper						1,333		
Development of new Yap Landfill	Yap	Yap Proper						4,500	1,838	2,500
Recurrent Costs										
Infrastructure Maintenance Fund	All		30	20	0	320	0	133	0	0
Waste Recycling Support Fund	All					50	50	375	750	750
Total:			330	220	0	3,570	1,050	14,841	10,088	10,750

Table 5.12 Solid Waste Management – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Closure of Existing Landfill in Dekehtik	Pohnpei	Dekehtik	1,018		Compact II
Development of New Pohnpei Landfill	Pohnpei	Pohnpei	9,682	32,682	Compact/ADB
Rehab of Existing Landfill	Chuuk	Weno	500		Compact II
Development of Weno Landfill	Chuuk	Weno	9,500	13,417	Compact II
Development of Kosrae Landfill	Kosrae	Lelu	7,500	5,836	Compact II
Closure of Existing Yap Landfill	Yap	Yap Proper	1,333		Compact II
Development of new Yap Landfill	Yap	Yap Proper	8,838	4,500	Compact II
Infrastructure Maintenance Fund	All		503	5,644	Com/State
Waste Recycling Support Fund	All		1,975		Compact II
Total:			40,849	62,079	

Table 5.13 Solid Waste Management – Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Southern Nanomeas Landfill	Chuuk	S. Namoneas	15,567
Faichuk Landfill	Chuuk	Outer Faichuk	18,638
Chuuk Lagoon Collection System	Chuuk	Lagoon	11,217
Total			45,422

Table 5.14 Existing Road Network

State	Road Class.	Extent	Condition	Defects
Pohnpei	Primary	Circumferential Road Paved 33 miles Unpaved 15 miles Dekehtik Causeway	Paved – 20 year life span Unpaved – poor/very poor	Lack of roadside maintenance; Lack of drainage; Poor asphalt mix design; Unsafe/narrow bridges
Pohnpei	Secondary Roads	Paved 39 miles Unpaved 12 miles Coral roads	Variable - paved roads generally fair to good	Lack of roadside maintenance Lack of drainage Poor asphalt mix design
Pohnpei	Kolonia Urban Streets	Major streets AC Minor streets PCC	PCC surface streets need major repair Edge cracking of AC roads	Lack of drainage Lack of maintenance of culverts Edge cracking of AC roads Broken pavement on PCC roads
Chuuk	Weno Circumferential Road	Paved 7 miles Unpaved 4.5 miles No road 2 miles	Very poor with major cracking and large potholes	Lack of drainage leading to road failure No continuous road shoulders or sidewalk
Chuuk	Tonoas Circumferential Road	Unpaved with coal sub-base	Partly very good, partly very poor	No roadside drainage or maintenance; Seawall damaged by coastal erosion

Table 5.14 Existing Road Network, Continued

State	Road Class.	Extent	Condition	Defects
Kosrae	Primary Roads	Circumferential Road Paved 19 miles Unpaved 6 miles No road 6 miles Airport Access Road Paved 1.2 miles Lelu Causeway Paved	Good condition. Some longitudinal cracking on airport access road.	Lack of pedestrian facilities on Lelu Causeway
Kosrae	Secondary Roads	Paved 3 miles Unpaved 2 miles	Generally satisfactory	Undefined road shoulders on unpaved roads
Yap	Primary Roads	North-South Road Paved 14 miles Unpaved 5 miles Yap Central Loop Paved 9 miles Tomil Main Road Unpaved 3 miles Gagil Main Road Paved 0.3 miles Unpaved 3.6 miles	Paved roads generally in good condition with good road shoulders Unpaved sections of Tomil and Gagil roads have poor drainage and potholes.	Lack of drainage on unpaved roads Some cracking and raveling Colonia bridges severely corroded
Yap	Secondary Roads	Unpaved 15 miles	Variable, but generally fair to good.	Some lack shoulders and effective drainage.

144 Aside from the road networks indicated in the above table, the islands in Chuuk lagoon have footpaths connecting the coastal villages. Roads on Tol and Uman have now deteriorated to the state where they serve as footpaths rather than roads. Some outer islands have roads that are now in a seriously deteriorated condition. The outer islands of Woleai and Ulithi in Yap have motor vehicles. The road transport on Woleai is basically wheel tracks that encircle the island. On Ulithi, the road pavement consists of a sub-base layer of coral material.

145 Pedestrian facilities are very limited in the FSM, with the exception of unimproved trails on the principal islands.

5.4.3 Short Term Needs of Existing Road Networks

146 A key strategic objective of this IDP is to ensure that existing infrastructure is rehabilitated as a first priority before implementation of new infrastructure. The immediate needs for rehabilitation of existing road network are discussed below.

a Pohnpei Road Network

147 The Pohnpei Island circumferential road is in critical condition where it remains unpaved (14.5 miles) and is, for the most part, in unsatisfactory condition where it is paved. Lateral drainage is mostly absent, as are properly shaped road shoulders. The AC pavement, which theoretically should have a life measured in decades in FSM, because of the low volumes of heavy vehicle traffic, is deteriorating in many locations due to standing water on the road surface. No construction work should proceed on this road until the road is adequately designed to include super-elevation on curves, cross-fall, properly shaped shoulders that are not elevated above the pavement edge, and lateral drainage, preferably lined for permanence.

b Weno Road Network

148 The Weno Island circumferential road is in critical condition. The west coast segment of the road, however, probably should be shifted inland to allow for desirable development of the commercial port area, a fishing port, two separate ferry terminals for a lagoon ferry operation and for larger, outer island ferries, a small boats basin, and a recreational wharf, with related tourism facilities. A plan will need to be prepared for redevelopment of the entire waterfront area, which means that this segment of the Weno circumferential road might be designed and reconstructed in 2005 or 2006 after the completion of this plan. Work can get underway earlier on other portions of the road, including construction of the missing two-mile segment through a mangrove swamp area. Past inadequate attention to drainage is responsible for the current critical state of the road, and any new construction effort must ensure that drainage will be entirely adequate.

c Yap Road Network

149 The critical needs of the Yap Proper road network are limited to the replacement of two short, under-strength bridges in Colonia. Otherwise, upgrading of the surface of the trunk road to AC pavement standard is desirable. The desirability of this project, however, is not based on any identified inadequacy of the trunk road, which is kept in well-maintained condition. Rather, pavement upgrading is desirable to reduce road maintenance requirements, and particularly the need for large quantities of crushed coral to keep a low-standard surface in satisfactory operating condition.

d Kosrae Road Network

150 The Kosrae road sector has no critical needs, although it is desirable that the seven miles of circumferential road awaiting paving be paved before deterioration of the unpaved road sets in. The Kosrae State Government considers that extension of the road to Walung (requiring 3.2 miles of new construction) is critical, but the Walung residents themselves seem less concerned with

ending their isolation. Nevertheless, whenever the paving project is implemented, it would be logical to extend the road end from its current location to a Walung village access road.

5.4.4 Development Needs during the IDP Period (2004-2023)

a Principal Islands

i Pohnpei

151 Rehabilitation of the paved circumferential road and upgrading of the unpaved section will be commenced as an early priority project and will be continued incrementally during the course of the IDP depending on available funding. This program will include the provision of adequate drainage, road shoulders along the entire length of the road and replacement of the road's 62 old, narrow bridges. The Japanese Government will be providing assistance for this road upgrading starting 2004.

152 Improvement of urban street networks and traffic control infrastructure in Kolonia will also be required during the initial five years of the IDP and at later intervals during the IDP period.

ii Chuuk

153 Upgrading of the Weno circumferential road will be commenced as an early priority project and will be continued incrementally during the course of the IDP dependent on available funding. The road alignment of the middle portion of the west coast section will need to be changed as discussed above. This is an urgent project, but the construction of the middle portion of the west coast section will need to wait for completion of the Weno Island Waterfront Redevelopment Plan in order that its alignment can be established.

154 Improvement of urban street networks and traffic control infrastructure in the urban center will also be required during the initial five years of the IDP and at later intervals during the IDP period.

iii Kosrae

155 Completion and upgrading of the Kosrae circumferential road will be commenced as an early priority project and will be continued throughout the course of the IDP. Improvements to the Lelu causeway to provide adequate pedestrian access will also be completed during the initial five years of the IDP.

iv Yap

156 Aside from the reconstruction of the two bridges in Colonia that will be completed as an early priority project, upgrading of the North-South Trunk road to bring the road to good AC pavement standard will be completed during the IDP period.

b Pedestrian Facilities

157 Development of improved pedestrian facilities such as sidewalks, bicycle/pedestrian paths, trails and boardwalks are also required in each of the principal islands to improve pedestrian safety and enhance the tourism experience generally. However, it is difficult at this stage to identify funding to enable these works to be completed to the level envisaged in the 2002 IDP report. Sidewalks in urban areas should be funded as part of the road network.

c Chuuk Lagoon Road Network Requirements

158 Aside from Weno Island, there are other islands in the Chuuk lagoon that require road network development, although some of the islands are too small for motorized vehicles to be useful. The Chuuk State Government development plan[19] indicates that eleven islands, in addition to Weno and Tonoas, could be usefully provided with a road.

159 The Outer Faichuk Islands comprising Tol, Polle, Wonei and Paata are so closely grouped that a single continuous circumferential road with length of approximately 40 miles can be provided. The connection between Wonei and Paata will, however, require a causeway. This road, together with an electric power system, is essential for economic development of these islands.

160 The current rehabilitation of the Tonoas circumferential road should be upgraded to an AC paved road with appropriate drainage and road shoulders.

161 The existing circumferential road in Fefen is in very poor condition and is impassable in places due to erosion. This road should be upgraded to a two-lane AC paved road with appropriate drainage and road shoulders. Fefen has considerable tourism potential and has the potential to supply the tourism industry with fresh flowers, fruits and vegetables. The road is also needed for the Southern Namoneas landfill facility, proposed to be established on the island as discussed in Section 5.3

162 Uman Island has essentially a circumferential footpath and it is recommended to upgrade this to a two lane paved AC road with appropriate drainage and road shoulders.

163 Short unpaved roads of two or three miles in length are recommended for the lagoon islands of Fanapanges, Romanum, Parem and Etten, but it is unlikely that funding will be available for these works during the IDP period.

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19 Chuuk State Infrastructure Development Plan (2001-2020)

5.4.5 Proposed IDP Investment Program

164 The 2002 IDP report proposed an investment of $292 million for road network and pedestrian facility investment over the period 2003-2017[20]. While this will meet the sector needs as outlined above, it is probably unaffordable given the availability of funding. A revised capital investment program shown in Table 5.15. has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008[21]. The program includes the upgrading of circumferential roads in the principal island of all four states although completion of this upgrading may require additional funds than those, which have in the past been available to FSM.

165 Upgrading and construction of roads in Tonoas, Fefen, Tol, Paata, Polle and Wonei will also be undertaken although not all can be completed within the IDP period with the available funding.

166 It is proposed that a Primary Roads Master Plan[22] be prepared to develop feasibility studies for the proposed primary road networks that are proposed to be funded under the IDP including those in the Chuuk lagoon island. These feasibility studies will be required to obtain funding for many of these projects. Detailed design activities should, however be funded as part of the construction cost.

167 A *Weno Island Waterfront Redevelopment Plan* should also be prepared in coordination with the Primary Roads Master Plan. This will provide guidance on the alignment of the Weno west coast road by establishing the most appropriate location for marine facilities on the island. Further, the Japanese Government is proposing to support the improvement of the harbor facilities in Weno starting 2006, and completion of the redevelopment plan would be timely to focus this investment as part of an integrated port development.

168 The timing of the projects as shown in Table 5.15 reflects their priority as follows:

- Upgrading of Weno West Coast Road
- Reconstruction of bridges in Colonia, Yap
- Rehabilitation and upgrading of circumferential road in Pohnpei, including rehabilitation of bridges and drainage
- Construction of new circumferential road and damaged seawall in Kosrae

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20 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

21 See Annex C for listing of state priorities for 2004-2008

22 See Annex B, Volume 3, Nathan report for TOR for this study

- Upgrading of North-South Trunk Road in Yap
- Rehabilitation of Tonoas circumferential road
- Construction of cross-island road in Kosrae
- Street lighting and road appurtenance improvements in Kolonia, Pohnpei
- Upgrading of circumferential road in Kosrae
- Construction of Fefen circumferential road
- Construction of Faichuk circumferential road

169 This corresponds to a total sector investment of $124 million for the period 2004-2023. Projects that were proposed in the May 2002 IDP that either cannot be fully funded during this period or are unable to be commenced are indicated in Tables 5.16 and 5.17. These projects for which funding has not been identified include proposed primary road construction in the Inner Faichuk Islands, secondary road construction and improvements in all four states, the Dekehtik causeway improvements, and pedestrian facilities in all four states,

170 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states.

5.4.6 Institutional Restructuring and Strengthening

171 There are three types of institutional reform that are needed in the roads and pedestrian facility sector:

- The public body responsible for roads should become a sector manager, rather than a construction organization. Road design and construction should be outsourced to the private sector.
- Road and pedestrian facility maintenance should be funded through dedicated funds created for the purpose.
- A mechanism for shifting all road and pedestrian facility construction and maintenance work to the private sector must be created.

Table 5.15 Roads/Pedestrian Facilities – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Rehab Paved Circumferential Road	Pohnpei			500		1,000	3,175	3,175	3,500	Other
Upgrade Unpaved Circumf. Road	Pohnpei	6,000	4,500							Other
Primary Roads Drainage	Pohnpei/Kolonia					800		596	1,078	Other
Primary Roads Bridges	Pohnpei/Kolonia			500			295			Other
Provide street lighting, traffic lights etc	Pohnpei/Kolonia			300			415			Other
West Coast Road	Chuuk/Weno	2,000	1,500	1,000	1,556	1,256				Compact II
Upgrade/Complete Circumf. Road	Chuuk/Weno						1,500	1,500	1,500	Other
Bridges/Water Crossing Structures	Chuuk/Weno						1,180	1,180	1,142	Other
Weno Road Appurtenances	Chuuk/Weno			256			169			Compact II
Tonoas Circumferential Road	Chuuk/S. Namoneas			800	1,000	500	2,000	1,565		Compact II
Tonoas Water Crossings	Chuuk/S. Namoneas						750	750		Compact II
Fefen Circumferential Road	Chuuk/S. Namoneas					500	1,298	1,298	1,500	Compact II
Fefen Water Crossings	Chuuk/S. Namoneas						686	500		Compact II
Paata Primary Road	Chuuk/Faichuk							2,000	1,500	Compact II

Table 5.15 Roads/Pedestrian Facilities – Proposed Project Implementation Schedule (US$ '000), Continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Polle Primary Roads	Chuuk/Faichuk							2,000	1,500	Compact II
Tol Primary Roads	Chuuk/Faichuk						1,000	2,500	2,500	Compact II
Wonei Primary Roads	Chuuk/Faichuk						500	1,000	1,000	Compact II
Wonei/Paata Causeway	Chuuk/Faichuk							1,000	912	Compact II
Water Crossings	Chuuk/Faichuk						500	1,500	1,500	Compact II
Upgrade Circumferential Road	Kosrae					1,500	2,000	1,500	1,917	Compact II
New Circumferential Road Constr.	Kosrae	600	600	600			2,500	2,500	2,500	Com/Other
Lelu Causeway Widening	Kosrae	125							1,000	Compact II
Circumferential Road - Seawall	Kosrae	240			1,000					Com/Other
Upgrade Secondary Roads	Kosrae	85		795	1,200				1,000	Compact II
Water Crossings - New Roads	Kosrae					500	1,000	700		Other
Bridge Reconstruction	Yap/Colonia		1,500							Compact II
Trunk Road Upgrading	Yap			2,956		3,115	2,500	2,500	2,500	Com/Other
Recurrent Costs										
Road Maintenance Fund	All	305	360	641	476	687	890	1,561	1,433	Com/State
Total:		9,355	8,460	8,348	5,232	9,858	22,358	29,325	27,982	

Table 5.16 Roads/Pedestrian Facilities – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Rehab Paved Circumferential Road	Pohnpei	Pohnpei	11,350	1,588	Compact/Other
Upgrade Unpaved Circumf. Road	Pohnpei	Pohnpei	13,502	4,217	Other
Primary Roads Drainage	Pohnpei	Kolonia	2,474		Other
Primary Roads Bridges	Pohnpei	Kolonia	795		Compact II
Street lighting, traffic lights, etc.	Pohnpei	Kolonia	715		Compact II
West Coast Road	Chuuk	Weno	7,312	3,308	Compact II
Upgrade/Complete Circumf. Road	Chuuk	Weno	4,500	4,426	Other
Bridges/Water Crossing Structures	Chuuk	Weno	3,502		Other
Weno Road Appurtenances	Chuuk	Weno	425		Compact II
Tonoas Circumferential Road	Chuuk	S. Namoneas	5,865		Compact II
Tonoas Water Crossings	Chuuk	S. Namoneas	1,500	1,025	Compact II
Fefen Circumferential Road	Chuuk	S. Namoneas	4,596	5,178	Compact II
Fefen Water Crossings	Chuuk	S. Namoneas	1,186	1,419	Compact II
Paata Primary Road	Chuuk	Faichuk	3,500	1,377	Compact II
Polle Primary Roads	Chuuk	Faichuk	3,500	5,438	Compact II
Tol Primary Roads	Chuuk	Faichuk	6,000	9,960	Compact II
Wonei Primary Roads	Chuuk	Faichuk	2,500	1,953	Compact II
Wonei/Paata Causeway	Chuuk	Faichuk	1,912		Compact II
Water Crossings	Chuuk	Faichuk	3,500	7,120	Compact II

Table 5.16 Roads/Pedestrian Facilities – Funded or Partially Funded Projects (US$ '000), continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Upgrade Circumferential Road	Kosrae	Kosrae	6,917	417	Compact II
New Circumf. Road Construction	Kosrae	Kosrae	9,300	10,309	Compact/Other
Lelu Causeway Widening	Kosrae	Lelu	1,126	981	Compact II
Circumferential Road - Seawall	Kosrae	Kosrae	1,242	2,298	Compact II
Upgrade Secondary Roads	Kosrae	Kosrae	3,083	2,735	Compact II
Water Crossings - New Roads	Kosrae	Kosrae	2,200	2,213	Compact II
Bridge Reconstruction	Yap	Colonia	1,500		Compact/Other
Trunk Road Upgrading	Yap	Yap	13,571	4,515	Compact II
Recurrent Costs					
Road Maintenance Fund	All		6,504	7,048	Compact/State
Total:			124,077	77,525	

172 It is important that a high standard of design and construction is maintained for the road network, together with an effective and well-funded maintenance program. Under these circumstances, there will never be the need for a road sector development program of the magnitude of that included in the IDP. With the implementation of the IDP program, road capacity will be perpetually sufficient on most islands.

Table 5.17 Roads/Pedestrian Facilities – Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Pohnpei Secondary Roads	Pohnpei	Pohnpei	6,181
Secondary Road Drainage	Pohnpei	Pohnpei	739
Secondary Road Bridges	Pohnpei	Pohnpei	465
Dekehtik Causeway Upgrade	Pohnpei	Pohnpei	4,992
Lidakihka Road Upgrade	Pohnpei	Pohnpei	1,634
Off-road bicycle paths	Pohnpei	Pohnpei	2,230
Pedestrian trails	Pohnpei	Pohnpei	1,104
Sidewalks/boardwalks	Pohnpei	Pohnpei	1,363
Lagoon/Outer Island facilities	Pohnpei	Outer Islands	578
Pedestrian Trails	Chuuk	Weno	307
Tonoas Secondary Roads	Chuuk	S. Namomeas	2,370
Tonoas Pedestian Facilities	Chuuk	S. Namomeas	307
Fefen Pedestrian Facilities	Chuuk	S. Namomeas	839
Paata Secondary Roads	Chuuk	Faichuk	192
Polle Secondary Roads	Chuuk	Faichuk	878
Tol Secondary Roads	Chuuk	Faichuk	1,323
Wonei Secondary Roads	Chuuk	Faichuk	165
Pedestrian/Bicycle Facilities	Chuuk	Faichuk	1,569
Etten Primary Roads	Chuuk	Lagoon	931
Fanapanges Primary Roads	Chuuk	Lagoon	2,707
Romanum Primary Roads	Chuuk	Lagoon	1,608
Udot Primary Roads	Chuuk	Lagoon	7,107
Unman Primary Roads	Chuuk	Lagoon	4,230
Parem Primary Roads	Chuuk	Lagoon	2,369
Etten Secondary Roads	Chuuk	Lagoon	384
Udot Secondary Roads	Chuuk	Lagoon	658
Romanum Secondary Roads	Chuuk	Lagoon	110
Water Crossings/Road Appurtenances	Chuuk	Lagoon	6,756
Pedestrian Trails	Chuuk	Lagoon	4,028
Pedestrian/Bicycle Facilities	Chuuk	Outer Islands	1,982

Table 5.17 Roads/Pedestrian Facilities – Unfunded Projects (US$ '000), continued

Project	State	Location	Unfunded Amount
Upgrade Bridges and Culverts	Kosrae	Kosrae	1,773
Water Crossings	Kosrae	Kosrae	4,413
Bicycle Paths	Kosrae	Kosrae	1,569
Pedestrian Trails	Kosrae	Kosrae	736
Sidewalks and Boardwalks	Kosrae	Kosrae	682
Secondary Road Upgrading	Yap	Yap Proper	8,667
Coastal Road Protection Structures	Yap	Yap Proper	2,124
Bicycle Paths	Yap	Yap Proper	909
Hiking Trails	Yap	Yap Proper	623
Sidewalks and Boardwalks	Yap	Yap Proper	1,136
Outer Island Pedestrian Facilities	Yap	Outer Islands	1,487
Total			78,044

5.5 Maritime Transportation

5.5.1 Sector Objectives and Outcomes

173 The primary specific objectives of the provision maritime transportation infrastructure are:

- To provide the facilities necessary to enable market opportunities to be realized for all areas of the country, including labor market opportunities, and to enhance the level of integration of state economies and the national economy.
- To realize the fisheries potential of all four states of the FSM in a manner that ensures sustainability of that sector
- To provide improved dock facilities to meet both fisheries and commercial shipping needs
- To facilitate the provision of modern, safe and efficient inter-state and inter-island passenger and cargo vessels
- To continue to coordinate and facilitate the improvement of aids to navigation

5.5.2 Existing Maritime Transportation Systems

174 FSM is a maritime nation, with a long tradition of maritime transportation and exploitation of marine resources. Much of the country's tourism potential derives from the variety of marine recreational activities that can eventually be offered in each of the four states, especially in the lagoons and encompassing reefs of the principal islands. The FSM maritime sector must be developed to adequately serve international trade, inter-island trade and person movements,

the fishing industry, and recreational activities for both FSM residents and visiting tourists. Currently, most of these objectives are not being fully achieved by the maritime sector.

a Commercial Ports

175 The four major ports in the four states are more-or-less adequate in that they have adequate capacity to meet current demand, and the physical condition of their principal infrastructure is quite satisfactory. The situation at each of the principal ports is briefly discussed below.

b Dekehtik Port, Pohnpei

176 The port is owned and operated by the Pohnpei Ports Authority (PPA). The port has a 323-meter quay, part of which is leased by Caroline Fisheries. Commercial port operations are constrained therefore along the quay, but also behind it by an old, fairly large hotel, which is located where, open or covered storage areas ought to be. There is an area of 1.8 acres for container open storage however, and there are two transit sheds in reasonably good condition with a combined capacity of about 1700 square feet of floor space.

177 The port's critical problem is its entrance channel, which is narrow and shallow at places making it necessary for large vessels to weave entering into and leaving the harbor. If one of these vessels sinks or grounds, the port will be unusable to commercial shipping for a considerable period.

c Weno Port, Chuuk

178 Weno Port is located on the west coast of Weno Island. There is fairly deep water almost up to the shore, so there is no need for a marked entrance channel to the port. This openness to the sea, however, is also a disadvantage to port operations. Rough water in the port area occurs fairly frequently, making the rubber fenders along the quay face essential for prevention of damage to both the quay and vessels at berth. The quays are in good condition, with a portion of the quay being relatively new. The port has no perimeter fence and essentially no security whatever. An estimated 35 percent of the port area is unusable for operations because it is strewn with derelict vehicles, containers, other equipment, and scrap metal and uncollected cargo. The warehouses have not been maintained, and are in such bad shape that replacement, rather than rehabilitation, is warranted. Besides having at least one-third of its cargo handling and storage areas unavailable for operations, two of the port's vessel berths are occupied for prolonged, indefinite periods, by the two vessels assigned to Chuuk State for serving the outer islands.

d Okat Port, Kosrae

179 Okat Port is a natural harbor on the northwest coast of Kosrae. Kosrae Terminal & Stevedoring Company (KT&SC) has operated the port since it was

built in 1984. The port has a quay 168 meters in length with alongside water depth of approximately 9.1 meters. The quay apron is approximately 19 meters in width, and in very good condition. Behind a portion of this apron is a sizable building that belonged to Pacific Tuna Industries (PTI), until PTI ceased operation in January 2001. The exterior of this building is in quite good shape, but the interior is in poor condition, although its flash freezing system is still in working order. The port also has nearly two acres for container open storage, a warehouse of 1,050 square meters floor space, and eight refrigerated container (reefer) plugs. An Okat Port improvement project, financed by the Japanese Government, was completed in February 2001, so the port is generally in good condition. Philippines, Micronesia & Orient Navigation Company (PM&O) and Kyowa Shipping Company (KSC) have been serving the port, with PM&O calling every 21 days and KSC calling once a month. The quay is adequate for serving only one of these vessels at a time, but, considering the call frequency, that is sufficient. The port entrance channel is approximately 0.85 mile in length, and has good water depth along its centerline, but might desirably be widened somewhat, as the PM&O vessels approach the maximum size that can safely negotiate the channel.

e Yap Port

180 Yap Port is located on the Colonia Peninsula extending into Tamil Bay. Currently the port is administered by the Department of Public Works and Transportation, but legislation has been considered to establish a Yap State Port Authority (YSPA). The quay has an old, 140-meter section, at the northwest end, and a 112-meter section was added in the 1990s. The 112-meter section was constructed as the first phase of a port master plan, but then in contravention of that plan, a fisheries investor was permitted to construct a refrigerated warehouse of 2,730 square meters of floor area just 25 meters from the face of the new shipping berth. The existence of this facility, currently unused, has severely disrupted container handling and storage operations at the port. Waab Stevedoring Company leases the old section of the quay, and performs most cargo-handling services. PM&O, Kyowa, Kambara Lines, and Palau Shipping call at the port. The port entrance channel is about 2.25 miles in length, and sections of the channel pose navigation difficulties because of narrowness, a 40-degree turn, reef outcroppings posing navigational hazards, and a swift current, and the turning basin is fairly small (diameter of around 400 meters). To dock at the commercial pier, a vessel must make a 70-degree turn to starboard, and do this by pivoting off the anchor.

f Small Ports

181 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.

182 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.

g Domestic Shipping Services

183 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.

184 The four vessels being used by the state governments were all constructed in the 1977-1978 period. The vessels have lifeboat capacity for 125 persons but reportedly the total often exceeds that number. Because of its large population and several groups of outer islands, Chuuk State uses two vessels, the Micro Dawn and the Micro Trader. Yap State employs the Micro Spirit while Pohnpei State uses the Micro Glory.

185 Both of the vessels operated by the Chuuk State Government are sitting for indefinite periods at the Weno commercial port, awaiting engine repairs.

186 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.

h Fisheries Facilities

187 As discussed above, fisheries facilities in the new section of Yap Port and at Dekehtik Port are causing problems for the container-handling operations at those ports. At Okat Port in Kosrae, the quay is satisfactory for commercial shipping operations due to the reduced numbers of fishing vessels at the port. At Weno Port, a fisheries equipment maintenance operation contributes to commercial shipping space constraints at the port. In Yap, Pohnpei, and Chuuk States, the fisheries sector also has dedicated facilities, as briefly discussed below.

188 Yap State has the most extensive fisheries port in FSM and the port is operationally separate from the commercial port, which constitutes an advantage for both facilities. The fisheries port facilities are generally in good condition, and adequate in design and capacity.

189 Weno has a fisheries pier that is also separate from the commercial port. The quay is in satisfactory condition, but requires new fenders to prevent damage to the quay and fishing vessels. The pier and its related facilities are

adequate for current demand, although a more vibrant and varied fisheries industry in Chuuk State would require a more developed fisheries port.

190 The new 100-meter dedicated fisheries quay at Dekehtik Port will hopefully make possible removal of some or even all of the fisheries operations along what should be the commercial shipping quay. Whereas the new quay will probably be sufficient to serve off-loading fishing vessels, it is unclear that a good balance is being provided between off-loading capacity, and processing, packing, and storage capacity.

5.5.3 Short Term Needs of Existing Systems

191 A key strategic objective of this Infrastructure Development Plan is to ensure that existing infrastructure is rehabilitated as a first priority before implementation of new infrastructure. The immediate needs for improvement of the ports in each state discussed below.

a Dekehtik Port, Pohnpei

192 The most urgent need is the improvement of the Dekehtik port entrance channel. This should be preceded by a hydrographic survey of the entrance channel and turning basin in order to define a desirable dredging program for the area.

193 The Pohnpei Port also needs to reclaim the commercial key for cargo purposes, shifting all fisheries port operations to the new, dedicated quay for fisheries. The space behind the apron, partly occupied by a hotel needs to be secured by PPA to ensure that the two-berth commercial quay will have adequate open storage space for container handling operations.

b Weno Port, Chuuk.

194 Weno Port needs in the short term to: raze existing warehouses; clean up the entire port area; remove a fisheries equipment maintenance operation from the port; build a security fence and establish effective security in the port, including removal of squatters and a commercial food service establishment; provide new warehousing, probably requiring less area than at present; and end disabled government vessel occupation of two commercial berths.

c Okat Port, Kosrae

195 Okat Port needs to convert the large building, formerly owned by PTI, to cargo storage area usable for port operations. The PTI building is immediately behind the apron, and could be used for stuffing and emptying of containers, as well as for storage of commodities, including Kosrae citrus fruit

d Yap Port

196 Yap Port can be made more efficient by destroying the fisheries structure constructed behind the new portion of the commercial quay. This building

is not being used by the fisheries industry, in any case, and has serious disruptive efforts on container handling and storage operations at the port.

5.5.4 Development Needs during the IDP Period (2004-2023)

a Commercial Ports

197 In the long term, both fisheries operations and passenger service operations should be entirely removed from the commercial ports so that much of the long-term capacity requirements can be obtained simply by freeing up existing space. The short-term improvements discussed in the previous section will help make the four ports much more efficient than they presently are and accommodate a higher throughput without any significant further investment during the IDP period.

b Fisheries Port Development

i Pohnpei

198 The new quay dedicated to fisheries will not be sufficient in the long term and a second phase expansion will be required with sufficient room behind the quay face for all necessary fish processing and storage facilities, and for vessel and fishing equipment maintenance areas. This, however, may not be able to be funded during the IDP period under the current foreseeable funding constraints.

ii Chuuk

199 The Weno fishing port currently serves only longliners and needs to be redeveloped to serve the entire fisheries industry. Other islands in the lagoon also have needs for fishing ports, although development of ferry services in the lagoon will make it unnecessary for each island to have its own fishing port. Again funding constraints may result in this expansion not proceeding during the IDP period.

iii Kosrae

200 Kosrae is not expected to require any development of its fishing ports during the IDP period

iv Yap

201 The Yap State Government is implementing a long-term port master plan that includes fisheries port development. A new fisheries wharf, cold storage facility as well as major fish processing and packing facilities are proposed, but funding needs to be identified.

v Chuuk Lagoon Ferry Services

202 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 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 that will be envisaged in the Weno Island Waterfront Development Plan described in Section 5.4. The Japanese Government is also proposing to provide assistance to improvement of the Weno waterfront area commencing in 2006.

203 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.

204 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.

vi Outer Island Ferry Services

205 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
- After completion of hydrographic and dredging activities, a navigational aids program to improve the safety of the outer island ferry services.

5.5.5 Proposed IDP Investment Program

206 The 2002 IDP report proposed an investment of $235 million for maritime transportation system investment over the period 2003-2017[23]. While this will meet the sector needs as outlined above, it is probably unaffordable given the availability of funding. A revised capital investment program shown in Table 5.18. Has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008[24.] The program includes immediate investment requirements for commercial ports in Pohnpei, Weno, and Yap, commencement of dredging programs at Dekehtik Port, Yap Port and the Pohnpei outer islands and development of ferry systems for Chuuk lagoon and the outer islands of Pohnpei, Chuuk and Yap through the construction of ferry terminals and docks.

207 It is proposed that a Maritime Transportation Development Plan[25] be prepared to prepare feasibility studies for the projects proposed to be funded under the IDP. This would be preceded by a hydrographic surveying and mapping effort to define the required dredging programs. Detailed design activities should, however be funded as part of the construction cost.

- The timing of the projects as shown in Table 5.18 reflects their priority as follows:
- Construction of dock and ferry terminal at Colonia for outer island ferry services
- Construction of dock and ferry terminals on Weno, Southern Namoneas and Faichuk for Chuuk lagoon and outer island ferry system
- Short –term improvements for commercial ports in each of the four states
- Construction of dock and ferry terminal at Dekehtik Port for outer island ferry services
- Dredging programs for Dekehtik and Yap Ports and Pohnpei outer islands

208 This corresponds to a total sector investment of $89 million for the period 2004-2023. Projects that were proposed in the May 2002 IDP that either cannot be fully funded during this period or are unable to be commenced are indicated in Tables 5.19 and 5.20. These projects for which funding has not been identified include proposed completion of dredging programs in Pohnpei and Yap Ports, completion of the Chuuk lagoon ferry terminals and facilities for the outer island ferry services in Pohnpei, Chuuk and Yap as well as improvements

23 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002
24 See Annex C for listing of state priorities for 2004-2008
25 See Annex B, Volume 3, Nathan Report for TOR for this study.

to the fisheries facilities at ports in Pohnpei, Chuuk and Yap. For the latter, investment from the private sector may be sought given the likely shortfall in other sources of funding for these developments.

209 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states. An additional allocation has been included for a Small Ports Fund that will provide for outer island dock maintenance, which will require government subsidies, unlike the commercial ports that should be self-sustaining from income generated from operations.

5.5.6 Institutional Restructuring and Strengthening

210 The two areas in the maritime transportation sector requiring institutional reform are:

- Seaport development and management
- Maritime safety, including protection of the marine environment

211 With regard to port development and management, it is suggested that the creation of independent state port authorities to own and operate all port facilities is the most appropriate direction. The independent authority should retain all revenue generated from operations; have full responsibility for making investments and for its debt servicing and operating costs.

212 With regard to maritime safety, there is a need to create at the national level a Maritime Safety Authority to address needs related to navigational aids, coastal communication stations, inspection of vessels for seaworthiness and safety equipping, certification of training standards for vessel crews and search and rescue services.

213 The IDP has allocated funding for the establishment of a Maritime Safety Authority. It is proposed that a Maritime Safety Capital Fund be employed by the Maritime Safety Authority to carry out improvements required for maritime safety purposes. These improvements will include the provision of navigational aids, provision of coastal communication stations and the establishment of maritime safety emergency systems such as search and rescue in each of the four states.

Table 5.18 Maritime Transportation – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Dekehtik Port Dredging	Pohnpei					1,000	2,500	5,000	5,000	Com/Other
Dekehtik Commercial Port Improvements	Pohnpei			500	500			1,500	1,000	Other
Kolonia Outer Island Ferry Terminal	Pohnpei					1,500			943	Other
Outer Island Dredging	Pohnpei/Outer Islands						1,770			Compact II
Island Ferry Docks/Mooring Buoys	Pohnpei/Outer Islands						1,320	1,320		Compact II
Weno Commercial Port Improvements	Chuuk/Weno			2,080						Other
Weno Ferry Terminal Building	Chuuk/Weno				1,333					Other
Dock for Lagoon/Outer Island Ferry	Chuuk/Weno		160	2,500	2,000	2,000			2,734	Com/Other
Southern Namoneas Ferry Terminals	Chuuk/S. Namoneas					1,000	2,000	2,000	3,000	Other
Outer Faichuk Ferry Terminals	Chuuk/Faichuk					500	1,000	5,000	5,000	Other
Conversion of Tuna Industry Building	Kosrae		118							Other
Dredging Colonia Approach Channel	Yap						1,500	5,000	5,000	Compact II
Yap Commercial Port Improvements	Yap			500	500			1,500	1,000	Other

Table 5.18 Maritime Transportation – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Colonia Dock and Ferry Terminal	Yap				500	500		2,000	696	Other
Reconstruct Fisheries Refrig. W/house	Yap						3,540			Other
Recurrent Costs										
Infrastructure Maintenance Fund	All	0	16	0	0	0	709	1,132	1,000	Compact II
National Small Ports Fund	All			300	300	300	1,500	1,500	1,500	Compact II
Maritime Safety Operations Fund	All				100	100	500	500	500	Compact II
Total:		0	294	5,880	5,233	6,900	16,339	26,452	27,373	

Table 5.19 Maritime Transportation – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Port Dredging	Pohnpei	Dekehtik	13,500	29,721	Compact/Other
Commercial Port Improvement	Pohnpei	Dekehtik	3,500	1,478	Other
Outer Island Ferry Terminal	Pohnpei	Dekehtik	2,443		Compact II
Outer Island Dredging	Pohnpei	Outer Islands	1,770		Compact II
Island Ferry Docks/Mooring Buoys	Pohnpei	Outer Islands	2,640		Compact II
Commercial Port Improvements	Chuuk	Weno	2,080		Other
Ferry Terminal Building	Chuuk	Weno	1,333		Other
Dock for Lagoon/Outer Island Ferry Services	Chuuk	Weno	9,394		Compact II
S. Namoneas Ferry Terminals	Chuuk	S. Namoneas	8,000	1,312	Compact II
Faichuk Ferry Terminals	Chuuk	Faichuk	11,500	2,519	Compact II
Conversion of Tuna Industry Building	Kosrae	Kosrae	118		Other
Dredging Approach Channel	Yap	Colonia	11,500	12,070	Other
Yap Commercial Port Improvements	Yap	Colonia	3,500	3,449	Other
Colonia Dock and Ferry Terminal	Yap	Colonia	3,696		Other
Reconstruct Fisheries Refrig. W/house	Yap	Colonia	3,540		Other
Recurrent Costs					
Infrastructure Maintenance Fund	All		3,201		Compact/State
National Small Ports Fund	All		5,400		Compact II
Maritime Safety Operations Fund	All		1,700		Compact II
Total:			88,815	50,549	

Table 5.20 Maritime Transportation – Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Nukuoro Petroleum Fuel Dock/Station	Pohnpei	Outer Islands	1,225
Remove Existing Fisheries Structures	Pohnpei	Dekehtik	614
Extend quay west of Dekehtik Causeway	Pohnpei	Dekehtik	4,106
Fisheries Port perimeter fence	Pohnpei	Dekehtik	106
Inner Faichuks Ferry Termials	Chuuk	Faichuk	6,189
Small Lagoon Islands Ferry Terminals	Chuuk	Lagoon	4,126
Small Boat Basins	Chuuk	Lagoon	3,080
Outer Island Passageway Dredging	Chuuk	Outer Islands	5,310
Outer Island Ferry Docks/Mooring Buoys	Chuuk	Outer Islands	16,591
Outer Island Petroleum Facilities	Chuuk	Outer Islands	3,675
Weno Fishing Dock	Chuuk	Weno	6,485
Tonoas Fishing Dock	Chuuk	S. Namomeas	4,518
Fefen Fishing Dock	Chuuk	S. Namomeas	4,518
Faichuk Fishing Dock	Chuuk	Faichuk	4,518
Dredging Okat Port Channel	Kosrae	Kosrae	2,635
Outer Island Passageway Dredging	Yap	Outer Islands	3,540
Outer Island Ferry Docks/Mooring Buoys	Yap	Outer Islands	12,976
Ulithi/Woleai Petroleum Facilities	Yap	Outer Islands	2,450
Extend Fishing Wharf	Yap	Yap Proper	909
Backfill/Compact Reclaimed Area	Yap	Yap Proper	3,502
Total			91,073

5.6 Air Transportation

5.6.1 Sector Objectives and Outcomes

214 The primary specific objectives of the provision of air transportation infrastructure are:

- To provide adequate air transportation facilities and services in terms of condition, frequency, capacity, reliability and safety to enable market opportunities to be realized for all areas of the country.
- To enable the air carrier airports to improve safety and eliminate payload restrictions
- To improve all domestic airports to the required standards of safety

5.6.2 Existing Air Transportation Infrastructure

215 Each of the four FSM states has an international airport. These airports are small by international airport standards, with relatively short runways, aprons with capacity for two international service aircraft, and short taxiways connecting the runways and aprons. The airport terminals are roughly adequate for current levels of traffic, except that the Yap Airport has wholly inadequate space for passenger check-in. Facilities are inadequate for cargo accommodation, particularly the export of sashimi-quality tuna. Parking and interface with public transportation are not satisfactory.

216 Traffic at the international airports is very limited, and traffic control towers are therefore not required. The U.S. Federal Aviation Administration (FAA) has provided FSM continuous support in the installation, operation, and maintenance of navigational aids and telecommunications equipment at the four international airports.

217 There are no interstate air transport services in FSM, except as legs of international flights.

a Outer Island Airstrips

218 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.

219 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 have not been provided to these airstrips for several years and it is generally believed that they are not in operating condition.

220 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.

b Short Term Needs of Existing Air Transportation Infrastructure

221 A key strategic objective of this Infrastructure Development Plan is to ensure that existing infrastructure is rehabilitated as a first priority before implementation of new infrastructure. The immediate needs for improvement of the airports in each state discussed below.

c Pohnpei International Airport

222 The runway, taxiway and apron pavements at Pohnpei International Airport all urgently require pavement overlay, as serious pavement deterioration is occurring at many locations. This is especially dangerous because of the B737-800 aircraft being employed in FSM by Continental Airlines. These aircraft are appropriate for the short runways at FSM airports, and are fuel efficient, but they have low-slung engines. As pavement deteriorates to the point of creating loose gravel, there is a real danger that stones will be sucked up into the aircraft engines, causing engine damage and possibly an accident.

223 At about the 4200-foot mark measured from the west end of the runway, there is a construction defect. The pavement has inadequate support beneath it and gradually subsides, creating a depression in the runway. A permanent solution to this problem would not be costly or difficult, but would entail airport closure for a period of three or four weeks. Since the need for repair of this section coincides with the urgent need for pavement overlay, it would seem logical to combine the two projects into a single project. If done together, the pavement ought not again to require attention until after the IDP period

d Chuuk, Kosrae and Yap International Airports

224 The runways at each of these airports are in satisfactory condition. Passenger terminal needs are less urgent, but will in each case need to be expanded and modernized. Cargo terminals with cold storage facilities also need to be established at each of the airports. The runway in Chuuk has recently received a pavement overlay and is now in excellent condition. However, there is still some outstanding repayment to be made for these works as well as for the acquisition of the land where the runway is located. Improvements to the airport terminal are in progress, but this improvement program needs to be expanded and accelerated to bring the airport up to international standard. The initial five year capital improvement program has included these projects, including the land acquisition payment, since it is clearly in the interest of the Government to hold title for the land of an international airport.

e Outer Island Airstrips

225 Airstrips at Pingelap in Pohnpei, Woleai and Fais in Yap and Onuon, Ta and Houk in Chuuk are in poor condition and need improvements in the short term to make them operable. It is recommended that the Woleai airport be an upgrading project to convert the existing airport into a small airport capable of accommodating small to medium-sizes turboprop aircraft. This would enable a new domestic turboprop service between Chuuk and Yap to have Woleai as a regular or occasional immediate stop.

5.6.3 Development Needs during the IDP Period (2004-2023)

a International Airport Runways

226 All FSM state governments would like to extend their airport runways sufficiently to accommodate larger aircraft which could operate direct flights over distances of 2,000 miles or more without any load restrictions. An earlier pre-feasibility study conducted by Japanese consultants in 1997 concluded that a Pohnpei airport runway extension to 8,000 feet might be economically feasible provided that a development program to achieve successful tourism were also designed and implemented. While it is true that extension of the runways of one or more of the international airports would generate some amount of benefits for tourism, trade and international travel by FSM citizens, it is questionable whether these benefits would outweigh the costs of runway extension. The other issue is that of safety and whether the four international airport runways need to be extended for some minimum distance for reasons of safety.

227 The 2002 IDP report concluded that, in the cases of Pohnpei, Kosrae and Yap airports, where short extensions of the runway would not be prohibitively expensive, short extensions, at least, might be usefully implemented. Whether or not longer extensions might be justified will depend on estimates of incremental tourist traffic volumes that might result from the institution of direct flights, especially between FSM and Japan. Extension of the Chuuk runway would be expensive since it has fairly deep water at both ends of the runway.

5.6.4 Proposed IDP Investment Program

228 The draft IDP completed in 2002 proposed an investment of $77 million for air transportation infrastructure investment over the period 2003-2017[26]. While this will meet the sector needs as outlined above, it is probably unaffordable given the availability of funding. A revised capital investment program shown in Table 5.21. has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008.[27.] This program includes runway rehabilitation and extension for Pohnpei, Yap and Kosrae airports, loan repayment for work completed on Chuuk runway and land acquisition costs for Chuuk airport, airport terminal improvements in at all four international airports and improvement of airstrips in the outer islands of Pingelap, Woleai, Fais, Onuon, Murilo, Ta and Houk.

229 It is proposed that an Air Transportation Development Plan[28] be prepared to prepare feasibility studies for the projects proposed to be funded under

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26 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

27 See Annex C for listing of state priorities for 2004-2008

28 See Annex B, Volume 3,Nathan Report for TOR for this study

the IDP. Detailed design activities should, however be funded as part of the construction cost.

- The timing of the projects as shown in Table 5.21 reflects their priority as follows:
- Runway, Taxiway and Apron rehabilitation at Pohnpei International Airport
- Runway Extension at Pohnpei International Airport.
- Loan repayment for work completed on Chuuk runway and airport land acquisition costs
- Airport Terminal improvements/expansions at Pohnpei, Chuuk, Kosrae and Yap airports
- Improvement/upgrading of airstrips at the outer islands of Pingelap, Woleai, Fais Onuon, Ta and Houk

230 This corresponds to a total sector investment of $69 million for the period 2004-2023. Projects that were proposed in the May 2002 IDP that either cannot be fully funded during this period or are unable to be commenced are indicated in Tables 5.22 and 5.23. These projects include the improvement of outer island airstrips that are already serviceable. The IDP program does not include major long-term commercial airport terminal expansion. This may best be achieved through private sector investment under BOT arrangements or joint venture undertakings between the private sector and the airport entities, as these are potentially commercially sustainable activities.

231 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states. An additional allocation has been included for a Small Airports Fund, which will provide for maintenance of outer island airstrips that will require government subsidies, unlike the commercial airports that should be self-sustaining from income generated from operations.

5.6.5 Institutional Restructuring and Strengthening

232 The two areas in the air transportation sector requiring institutional reform are:

- Establishment of airport authorities or corporations
- Establishment of a Air Transportation Safety Authority (ATSA)

Table 5.21 Air Transportation – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Runway, Taxiway, Apron Rehabilitation	Pohnpei	Pohnpei/Kolonia	4,000							4,000
Runway Extension	Pohnpei	Pohnpei/Kolonia		7,000						
Air Terminal Expansion/Equipment	Pohnpei	Pohnpei/Kolonia					1,000	1,561		
Pingelap Airstrip Rehabilitation	Pohnpei	Pohnpei/Outer Islands				881				
Airport Runway Improvement	Chuuk	Chuuk/Weno	1,700	1,000	750	750	750			
Airport Terminal Expansion/Equipment	Chuuk	Chuuk/Weno		322	250	250	250	1,905		749
Onuon, Ta, Houk Airstrip Rehab	Chuuk	Chuuk/Outer Islands				1,347	1,347	2,694	5,387	
Runway Extension/Improvement	Kosrae	Kosrae		400						4,000
Terminal Expansion/Equipment	Kosrae	Kosrae		265						1,000
Runway Apron Extension	Yap	Yap Proper					1,548	374		
Airport Terminal/Equipment	Yap	Yap Proper				5,000				
Woleai/Fais Airstrip Rehab	Yap	Yap/Outer Islands				1,000	1,000	2,644	4,645	

Table 5.21 Air Transportation – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Recurrent Costs										
Infrastructure Maintenance Fund	All		360	498	100	600	255	37	0	100
National Small Airports Fund	All				300	300	300	1,500	1,500	1,500
National Air Transportation Safety Fund	All					75	75	375	375	375
Total:			6,060	9,485	1,400	10,203	6,525	11,090	11,907	11,724

Table 5.22 Air Transportation – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Runway, Taxiway, Apron Rehabilitation	Pohnpei	Kolonia	8,000	1,339	Compact II
Runway Extension	Pohnpei	Kolonia	7,000	2,641	Compact II
Airport Terminal Expansion/Equipment	Pohnpei	Kolonia	2,561		Other
Pingelap Airstrip Rehabilitation	Pohnpei	Outer Islands	881		Other
Airport Runway Improvement	Chuuk	Weno	4,950		Compact II
Airport Terminal Expansion/Equipment (incl cargo)	Chuuk	Weno	3,726		Compact/Other
Onuon, Ta, Houk Airstrip Rehabilitation	Chuuk	Outer Islands	10,775		Other
Runway Extension/Improvement	Kosrae		4,400	5,241	Compact/Other

Table 5.22 Air Transportation – Funded or Partially Funded Projects (US$ '000), continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Terminal Expansion/Equipment (incl cargo)	Kosrae		1,265	1,568	Compact II
Runway Apron Extension	Yap		1,922		Compact II
Airport Terminal/Equipment (incl. cargo)	Yap		5,000		Compact II
Woleai Airstrip Rehab	Yap	Outer Islands	9,289		Other
Recurrent Costs				1,919	
Infrastructure Maintenance Fund	All		2,561	1,079	Compact II
National Small Airports Fund	All		5,490	6,461	Compact II
National Air Transp. Safety Fund	All		1,275	11,983	Compact II
				2,476	
Total:			69,095	11,868	

233 The airport entities should be streamlined, specialized, commercially oriented and autonomous. All revenue generated by the airports should be retained by the airport entities to cover all costs of operation and maintenance, and the costs of eventual replacement of equipment.

234 The ASTA should be formed to assume the air transport responsibilities of the sector while continuing to rely on the FAA for assistance in the changeover to the new global air navigation and management systems. In addition to traffic control, the ASTA would be responsible for setting up and enforcing standards for commercial aircraft airworthiness, commercial and non-commercial pilot qualifications and airport safety and cleanliness standards.

Table 5.23 Air Transportation – Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Cargo Terminal Extension	Pohnpei	Kolonia	1,024
Mokil and Sapwuahfik Airstrips	Pohnpei	Outer Islands	382
New Nama Airstrip	Chuuk	Outer Islands	1,283
New Namoluk Airstrip	Chuuk	Outer Islands	1,086
Ulithi Airstrip Rehab	Chuuk	S. Namoneas	389
New Satawal Airstrip	Chuuk	Faichuk	1,086
Total:			5,250

5.7 Education

a Sector Objectives and Outcomes

235 The primary specific objectives of the provision of infrastructure for the education sector are:

- To ensure that the learning experience is enhanced and diversified. To improve student and faculty interest and morale, and thereby improve the effectiveness of education and significantly increase the student retention rates through graduation from elementary or secondary schools
- To remove constraints on the availability of high school education for all graduates of elementary school, and to provide an array of post-secondary education opportunities for all high school graduates who seek further education
- To continue to assist and strengthen private educational institutions to the nation
- To develop facilities improvement programs that address the need for maintenance, renovation and construction of new facilities to support quality student instruction
- To develop equipment maintenance guidelines

b Existing Education System Facilities

236 The principal issues related to the existing public school infrastructure are as follows:

- In general, public elementary and secondary schools are poorly maintained with failure of power and water supplies a common occurrence. A large number of schools, particularly in Chuuk State, are in a severely deteriorated condition.
- There are severe shortages of school furniture, blackboards or whiteboards, wall maps, equipment, tools, utensils and books. These shortages appear to derive from inadequate sector and individual facility management, in particular lack of proper recurrent budgeting.
- Few schools have diversified capacity, such as an auditorium, covered sports area, cafeteria, music rooms or adequate facilities for vocational training, home economics and arts and crafts

237 These issues, amongst other constraints such as inadequately qualified teachers, low retention rates of students, inappropriate school curricula and lack of vocational training mean that schools are far from meeting the qualified manpower needs of the FSM.

238 Details of the existing elementary and secondary school infrastructure in each of the states are described below.

c Pohnpei

239 Pohnpei State has 33 public schools, only one of which is a high school. The Pohnpei Central Island School (PICS) can accommodate only 1600 students, so there are many elementary school graduates that cannot be accommodated at the school. The southern portion of the circumferential road is unpaved and in very poor condition, and it is therefore difficult for students from that portion of the island to commute to PICS on a daily basis. There are also students from Pohnpei's outer islands that need accommodation, preferably in a PICS dormitory. The dormitories have capacity for only 120 students (60 male and 60 female); so several hundred students must seek off-campus accommodations. A planned second public high school in the southern portion of Pohnpei Island will considerably reduce current constraints on high school capacity, and particularly on dormitory capacity. Also, upgrading of the circumferential road will make travel between the southern and northern parts of Pohnpei Island much faster and easier, thereby making daily commutes to PICS a satisfactory option, and further limiting demand for on-campus dormitory living.

240 Each of the five outer island municipalities in Pohnpei has one elementary school. It is reported that all five schools have only a single school building, and none have electricity or water supplies. None of the structures are new, and

require at least a rehabilitation effort, but might preferably be rebuilt as more modern facilities.

241 The breakdown of public elementary and high schools in Pohnpei as of 2001 is indicated in Table 5.24.

Table 5.24 Elementary and High Schools in Pohnpei

Municipality	No. of Elementary Schools	No. of Elementary Students	Condition	No. of High Schools	No. of High Schoool Students
Pohnpei Island					
Kolonia Town	2	1,515	Fair/Poor	1	1,600
Sokehs	6	1,317	Fair/Poor	0	
Nett	2	955	Fair	0	
Uh	2	610	Fair	0	
Kitti	7	1,313	Poor	0	
Madolenihmw	8	1,155	Fair/Poor	0	
Outer Islands					
Kapingamarangi	1	104	Very Poor		
Nukuoro	1	36	Very Poor		
Mokil	1	116	Very Poor		
Pingelap	1	129	Very Poor		
Sapwuahfik	1	165	Very Poor		
Total	32	7,415		1	1,600

d Chuuk

242 Chuuk State has 94 public schools, including eight high schools. Although there are a few exceptions, in general the conditions of these schools are poor. Inadequate budgeting for maintenance is a principal cause of poor school condition, and, even when funded, maintenance schemes and procedures appear to be less than optimal.

243 However, the education sector in Chuuk State is placed in a disadvantageous position by the wholesale inadequacy of other infrastructure sectors. Many schools do not have an access road, or even an improved trail. On most islands, schools have no electric power or running water and available water is of poor quality. Even on Weno Island, where infrastructure is more developed, electricity is unreliable, drainage is virtually non-existent, road conditions are poor, and pressurized water supply is not potable.

244 The breakdown of public elementary and high schools in Chuuk as of 2001 is indicated in Table 5.25.

Table 5.25 Elementary and High Schools in Chuuk

Municipality	No. of Elementary Schools	No. of Elementary Students	Condition	No. of High Schools	No. of High School Students
N. Namoneas					
Weno	7	2,401	Poor	2	1,732
Piis-Paneu	6	130	Poor		
Fono	2	80	Very Poor		
S. Namoneas					
Tonoas/Etten	5	827	Fair/Poor		415
Fefen	7	1,144	Fair	1	New
Parem	1	90	Very Poor		
Siis	1	125	Fair		
Uman	3	731	Poor		
Faichuk Islands					
Paata	3	382	Fair		
Polle	5	462	Fair		
Tol	13	1,487	Fair/Poor	1	121
Wonei	3	289	Fair/Good		
Eot	1	92	Very Poor		
Fanapanges	1	50	Very Poor		
Romanum	1	400	Very Poor		
Udot	2	44	Poor		
Outer Islands					
Mortlocks	12	2,088	Poor/V.Poor	1	161
Halls	4	357	Fair/Poor	1	
Namonuito	5	200	Poor	1	107
Western Islands	4	567	Poor/V.Poor	1	90
Total	86	11,946		8	2,626

e Kosrae

245 Kosrae has seven public schools, one of which is the Kosrae High School. The Walung elementary school is a prime example of a community taking full responsibility for its local school, including its design, construction, maintenance, and management. The school is in excellent condition, and has adequate capacity to accommodate student body growth in the future. Most other Kosrae schools are kept in more-or-less satisfactory condition.

246 The breakdown of public elementary and high schools in Kosrae as of 2001 is indicated in Table 5.26.

Table 5.26 Elementary and High Schools in Kosrae

Municipality	No. of Elementary Schools	No. of Elementary Students	Condition	No. of High Schools	No. of High School Students
Lelu	1	493	Fair	1	522
Malem	1	400	Poor		
Tafunsak	2	660	Fair		
Utwe	1	280	Fair		
Total	6	1,836		1	522

f Yap

247 Yap State has 33 public schools of which 13 are on the four closely grouped islands of Yap Proper, and the remaining 20 are on the outer islands. Three of the schools are high schools. Yap High School serves all of Yap Proper, and there are high schools also on the Falalop Islands of both Ulithi and Woleai atolls. The Woleai high school is new, and has left the Ulithi Outer Islands High School with excess capacity, since the high school no longer needs to serve the eastern islands.

248 The breakdown of public elementary and high schools in Yap as of 2001 is indicated in Table 5.27.

Table 5.27 Elementary and High Schools in Yap

Municipality	No. of Elementary Schools	No. of Elementary Students	Condition	No. of High Schools	No. of High Schoool Students
Yap Proper					
Ruul	3	440	Fair	1	600
Dalipebinaw	1	90	Good		
Kanifay	2	114	Fair/Poor		
Fanif	2	107	Fair/Good		
Tomil	1	115	Poor		
Gagil	1	90	Fair		
Maap	1	122	Fair		
Rumung	1	38	Poor		

Table 5.27 Elementary and High Schools in Yap, continued

Municipality	No. of Elementary Schools	No. of Elementary Students	Condition	No. of High Schools	No. of High School Students
Outer Islands					
Ulithi	6	275	Fair/Poor	1	95
Woleai	9	491	Poor	1	125
Satawal	3	332	Fair/Poor		
Total	30	2,241		3	820

g College of Micronesia

249 The COM-FSM national campus at Palikir has 73 acres of land, which is not yet fully occupied, and the area allows for significant expansion of facilities. Existing buildings are well constructed and maintained. A large gymnasium has been recently constructed.

250 The Pohnpei campus is in Kolonia, and occupies the original site of the national campus. This site is no longer adequate, and the campus is suffering severe land area constraints. Most of the school's buildings, however, are single-story structures, fairly old, and in fair-to-poor condition, so that redevelopment is under consideration by the campus administration

251 The Kosrae COM-FSM campus has just a limited area adjacent to the Kosrae High School. Currently, the COM-FSM Kosrae campus has a multipurpose building, constructed in 1997, under an FSM Congress appropriation. The building houses the campus administration, a computer laboratory, a science laboratory, and a standard classroom. The school does not have its own library, but uses the fairly well developed library that serves the high school and the community.

252 The existing Chuuk campus of COM-FSM is located on Weno Island and occupies several old buildings, at high rental cost. In spring 2001, 600 students were enrolled, and an estimated 200 applicants to enter had to be turned away because of capacity constraints. The campus administration acquired, a few years ago, a three-acre site for building a campus, and plans call for constructing a school that could accommodate 1,000 students, but without any dormitories.

253 There is a small COM-FSM campus in Yap. The campus accommodates fewer than 100 students, and offers courses for teaching elementary school and pre-school children. In addition to the COM-FSM campus in Yap State, COM-FSM has established and operates there the FSM Fisheries and Maritime Institute (FMI).

5.7.2 Short Term Needs of Education Infrastructure

254 There is a myriad of short-term facility rehabilitation, upgrading and new education needs in the FSM education sector, but the most important single project is a second high school for Pohnpei. Currently the student retention rate drops from more than 70% in eighth grade to only 44% in ninth, and the principal reason for this is the constraint on high school capacity. This will be provided through the construction of the Pohnlangas High school in Madolenihmw municipality.

255 A second priority project is the development of a new Weno Island campus of COM-FSM. There is also a lack of sports facilities for schools on Weno and it is proposed to provide a single sports facility to cover all schools on Weno Island.

256 Details of the many other needs of the elementary and secondary school infrastructure should be finalized subject to the completion of an Elementary and Secondary Schools design study proposed to be undertaken as part of the IDP. This study will address, amongst other things, the need to minimize land area when developing schools to address the land constraint issues that arise in FSM.

5.7.3 Development Needs during the IDP Period (2004-2023)

a Elementary Education

257 There are probably sufficient elementary schools for the student population, but the facilities at the schools are generally inadequate. Most of the elementary schools need to be provided with additional facilities such as appropriate sports facilities, arts and craft areas, a music room and a school cafeteria. Design of the schools should be improved through provision of adequate lighting and use of materials such as aluminum roofing and steel frames that are less subject to rapid deterioration than is the present case.

b Secondary Education

258 While the number of elementary schools is probably now adequate for the school population, this is not the case with secondary schools where capacity is the main constraint to students continuing beyond the end of elementary school and is a principal factor in the lack of qualified manpower in FSM. As can be seen from Tables 5.24 to 5.27 there is a current capacity for over 23,000 elementary school students, but only 5500 secondary school students. Construction of additional secondary schools or expansion of the existing schools is therefore an important priority in the education needs of the nation. In addition the secondary schools must have increased diversified classroom capacity such as additional science laboratories, shops for provision of vocational education and ‘hands on’ experience and home economics facilities.

c Post-secondary Education

259 The development of post-secondary education in FSM is a key need as severe shortages of qualified manpower threaten the sustainability of all the infrastructure sectors. There is a need to develop the engineers, architects and managers who will have the qualifications needed, and will reside and work in the FSM.

260 With this in mind, the COM-FSM needs to raise and broaden its goals in regard to meeting FSM qualified manpower needs. The five FSM governments, with support from the private sector, need to work with COM-FSM to set new, higher goals with an assurance that funding will be available to enable them to do so.

5.7.4 Proposed IDP Investment Program

261 The 2002 IDP report proposed an investment of $244 million for education facility investment over the period 2003-201729. While this will meet the sector needs as outlined above, it is probably unaffordable given the availability of funding. A revised capital investment program shown in Table 5,28 has been prepared based on an assumed annual funding from the Compact and other sources for all infrastructure sectors of $35 million per year. This program reflects the state government priorities for the period 2004 to 2008[30]. This program includes construction of new high schools in Pohnpei, Southern Namoneas, Chuuk and Walung, Kosrae, a continuous upgrading of elementary schools in all states, construction of a new COM Weno campus and development activities at the COM-FSM National campus and the state campuses in Pohnpei, Kosrae and Yap.

262 It is proposed that an Elementary & Secondary Schools Design Study be prepared. This study will survey all existing public elementary and secondary schools in FSM and, in consultation with the community will prepare school management and development plans. The study will develop design and construction standards for schools that will result in more sustainable infrastructure. Detailed design activities should, however be funded as part of the construction cost.

263 The timing of the projects as shown in Table 5.28 reflects their priority as follows:

- Improvements at Chuuk High School and Weno Junior High
- Improvements at Kosrae High School
- Improvements to high schools in Chuuk and Yap

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29 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

30 See Annex C for listing of state priorities for 2004-2008

- Construction of a sports facility for schools on Weno Island
- Commencement of program of improvements at elementary schools in all four states
- Construction of Pohnlangas High School in Pohnpei
- Construction of new high school in Walung, Kosrae
- Construction of new high school in Southern Namoneas, Chuuk
- Development of new COM-FSM campus in Weno
- Redevelopment of COM-FSM Pohnpei State Campus
- Development of enlarged COM-FSM campus in Kosrae.
- Improvements to COM-FSM campus in Yap

264 This corresponds to a total sector investment of $134 million for the period 2004-2023. Projects that were proposed in the May 2002 IDP that either cannot be fully funded during this period or are unable to be commenced are indicated in Tables 5.29 and 5.30. These projects for which funding has not been identified include completing the improvement projects for the elementary schools in all states, development of second state campuses for COM-FSM in Pohnpei and Chuuk, a proposed COM-FSM Nursing School campus in Kosrae and a proposed COM-FSM Fisheries and Maritime Institute in Yap

265 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states. An annual allocation has also been included for provision of essential equipment required in the elementary and secondary schools.

5.7.5 Institutional Restructuring and Strengthening

266 The public sector offices responsible for the education sector of the Federated States of Micronesia (FSM) are:

- At the National Government level, the National Division of Education (NDE) of the Department of Health, Education and Social Affairs.
- At the State Government level, in Chuuk, Kosrae and Pohnpei States, the Department of Education (DOE), and in Yap State, the State Enterprising Education Department (SEED).
- Boards of Education in Yap, Chuuk, and Pohnpei States.
- College of Micronesia-FSM (COM-FSM), with a national campus at Palikir, four state campuses, and the Fisheries & Maritime Institute (FMI) in Yap State.

267 At the local level, there are parent-teacher associations (PTAs) and school boards. In Yap State, progress appears to have been made in strengthening school boards and engendering community ownership of local schools. The other states do not seem to have made significant progress in this regard.

268 There are two principal recommendations for institutional reform and strengthening in the education sector:

- The establishment of community school boards in Pohnpei, Kosrae and Chuuk, similar to those already in place in Yap.
- Creation of a National Board of Education, an advisory body with a broad mandate of concern for public education, including post-secondary education.

269 The National Board of Education would oversee implementation of the IDP investment and recurrent cost programs, advise on education sector policies, and conduct inspections of education sector operations in the four states.

Table 5.28 Education – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Pohnlangas High School - Madolenihmw	Pohnpei				3,345	4,155				Com/Other
Kitti Elementary Schools	Pohnpei	250			200		1,000	1,000	1,000	Com/Other
Kolonia Elementary Schools	Pohnpei	250			150		750	750	750	Com/Other
Pohnpei Island Central School - Kolonia	Pohnpei						1,250	1,250	1,250	Compact II
Madolenihmw Elementary Schools	Pohnpei	250			268		1,500	1,500	1,500	Com/Other
Nett Elementary Schools	Pohnpei	250			132		500	500	500	Com/Other
Sokehs Elementary Schools	Pohnpei	250			100		1,000	1,000	1,000	Com/Other
Uh Elementary Schools	Pohnpei	250			150		1,000		872	Com/Other
Outer Island Elementary Schools	Pohnpei					500	1,000	1,000	400	Com/Other
COM -Redevelopment of Pohnpei State Campus	Pohnpei						3,000	1,500	500	Other
COM - National Campus	Pohnpei							1,500	1,500	Other
Northern Namoneas Elementary Schools	Chuuk		500	500	300	300	1,000	1,000	1,000	Compact II

Table 5.28 Education – Proposed Project Implementation Schedule (US$ '000), continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
School Sports Facilities	Chuuk	2,655								Compact II
Weno Junior High	Chuuk	150		250	500	250	1,171			Compact II
Chuuk High School	Chuuk	1,245							1,000	Compact II
Faichuk Elementary Schools	Chuuk		500	500	300	300	1,000	1,000	1,000	Compact II
Faichuk High School	Chuuk		125	250	400	250			1,000	Compact II
S. Namoneas Elementary Schools	Chuuk		450	400	350	300	1,000	1,000	1,000	Compact II
New Southern Namoneas High School	Chuuk		750	250			1,250	1,250	810	Compact II
Tonoas High School	Chuuk		300	250	200		1,000		1,000	Compact II
Halls Elementary Schools	Chuuk			200	300		500	500	756	Compact II
Mortlocks Elementary Schools	Chuuk			200	300	200	1,000	1,000	1,000	Compact II
Mortlocks Junior High	Chuuk		125		250	250	500	500	888	Compact II
Namonuioto Elementary Schools	Chuuk					300		1,000	949	Compact II
Weipat Junior High	Chuuk		125				500	500	1,000	Compact II
Western Islands Elementary Schools	Chuuk			200	200		750	750	655	Compact II

Table 5.28 Education – Proposed Project Implementation Schedule (US$ '000), continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Pattiw Junior High	Chuuk		100					750	599	Compact II
COM - New Weno Campus	Chuuk			1,500	1,500					Other
Kosrae High School (Tofol)	Kosrae	300			150	150	1,000	1,000	1,274	Compact II
Walung High School	Kosrae		150	150			150			Compact II
Kosrae Elementary Schools	Kosrae	480	150	150	100	150	1,000	1,000	1,000	Compact II
COM - Enlarged Kosrae Campus	Kosrae						1,000		1,000	Other
Yap High School	Yap		646				1,500		1,000	Compact II
Colonia Middle School	Yap		1,179							Compact II
Yap Proper Community Schools	Yap		1,669	1,343			1,500	1,500	1,000	Compact II
Ulithi Community Schools	Yap							900		Compact II
Ulithi High School	Yap						1,000			Compact II
Woleai Community Schools	Yap							1,000	1,000	Compact II
Woleai High School	Yap						500			Compact II

Table 5.28 Education – Proposed Project Implementation Schedule (US$ '000), continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Satawal Community Schools	Yap							900	854	Compact II
COM - Yap State Campus	Yap						1,000	1,000	1,000	Other
Recurrent Costs	All									
Educ. Facilities Maintenance Fund	All	483	677	464	397	636	2,432	2,255	2,606	Compact II
Educ. Facilities Equipment Fund	All	200	200	200	200	200	1,000	1,000	1,000	Compact II
Total:		7,013	7,646	6,807	9,792	7,941	32,753	29,805	33,663	

Table 5.29 Education – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Pohnlangas High School - Madolenihmw	Pohnpei	Madolenihmw	7,500		Compact II
Kitti Elementary Schools	Pohnpei	Kitti	3,250	2,851	Compact II
Kolonia Elementary Schools	Pohnpei	Kolonia	2,400	3,809	Compact II
Pohnpei Island Central School - Kolonia	Pohnpei	Kolonia	3,750	10,004	Compact II
Madolenihmw Elementary Schools	Pohnpei	Madolenihmw	4,800	3,220	Compact II
Nett Elementary Schools	Pohnpei	Nett	1,650	2,051	Compact II
Sokehs Elementary Schools	Pohnpei	Sokehs	3,200	3,281	Compact II
Uh Elementary Schools	Pohnpei	Uh	2,022		Compact II
Outer Island Elementary Schools	Pohnpei	Outer Islands	2,900		Compact II
COM -Redevelopment of Pohnpei State Campus	Pohnpei		5,000		Compact II
COM - National Campus	Pohnpei		3,000	6,000	Compact II
N. Namoneas Elementary Schools	Chuuk	S. Namoneas	4,600	8,728	Compact II
School Sports Facilities	Chuuk	Weno	2,655		Compact II
Weno Junior High	Chuuk	Weno	2,321		Compact II
Chuuk High School	Chuuk	Weno	2,245	3,280	Compact II
Faichuk Elementary Schools	Chuuk	Faichuk	4,600	15,943	Compact II
Faichuk High School	Chuuk	Faichuk	2,025	3,291	Compact II
Southern Namoneas Elementary Schools	Chuuk	S. Namoneas	4,500	13,195	Compact II
New S. Namoneas High School	Chuuk	S. Namoneas	4,310		Compact II
Tonoas High School	Chuuk	S. Namoneas	2,750	2,672	Compact II
Halls Elementary Schools	Chuuk	Outer Islands	2,256		Compact II
Mortlocks Elementary Schools	Chuuk	Outer Islands	3,700	6,624	Compact II
Mortlocks Junior High	Chuuk	Outer Islands	2,513		Compact II

Table 5.29 Education – Funded or Partially Funded Projects (US$ '000), continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Namonuioto Elementary Schools	Chuuk	Outer Islands	2,249		Compact II
Weipat Junior High	Chuuk	Outer Islands	2,125	1,369	Compact II
Western Islands Elementary Schools	Chuuk	Outer Islands	2,555		
Pattiw Junior High	Chuuk	Outer Islands	1,449		Compact II
COM - New Weno Campus	Chuuk	Weno	3,000		Compact II
Kosrae High School (Tofol)	Kosrae	Lelu	3,874		Compact II
Walung High School	Kosrae	Walung	450		Compact II
Kosrae Elementary Schools	Kosrae		3,832	3,821	Compact II
COM - Enlarged Kosrae Campus	Kosrae		2,000	2,000	Compact II
Yap High School	Yap	Colonia	3,146	2,571	Compact II
Colonia Middle School	Yap	Colonia	1,179		Compact II
Yap Proper Community Schools	Yap	Yap Proper	7,012		Compact II
Project, continued	State	Location	Available Funding	Unfunded Amount	Source
Ulithi Community Schools	Yap	Outer Islands	900	1,507	Compact II
Ulithi High School	Yap	Outer Islands	1,000	2,123	
Woleai Community Schools	Yap	Outer Islands	2,000	717	Compact II
Woleai High School	Yap	Outer Islands	500	854	
Satawal Community Schools	Yap	Outer Islands	1,754		Compact II
COM - Yap State Campus	Yap	Yap Proper	3,000	2,000	Compact II

Table 5.29 Education – Funded or Partially Funded Projects (US$ '000), continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Recurrent Costs					
Education Facilities Maint. Fund	All		10,397	10,191	Compact/State
Educational Facilities Equip. Fund	All		4,000		Compact II
Total			134,369	112,102	

Table 5.30 Education – Unfunded Projects (US$ '000)

Project	State	Location	Unfunded Amount
Pohnpei State Second Campus	Pohnpei	Pohnpei	4,000
Chuuk State Second Campus	Pohnpei	Outer Islands	13,000
Kosrae Nursing School Campus	Pohnpei	Outer Islands	5,000
Yap Fisheries & Maritime Institute	Pohnpei	Outer Islands	4,000
Total			26,000

5.8 Health

5.8.1 Sector Objectives and Outcomes

270 The primary specific objectives of the provision of infrastructure for the health sector are:

- To construct modern and efficient hospital facilities to meet the health needs of the nation
- To upgrade the curative health system to minimize the needs for referrals to foreign medical facilities.
- To develop the capability and provide for a national referral hospital
- To provide health care facilities within reasonable access of all citizens
- To develop facilities improvement programs that addresses the need for maintenance, renovation and construction of new facilities.
- To ensure adequate funds for maintenance are budgeted to prevent rapid deterioration of facilities.

5.8.2 Existing Health System Facilities

a Elementary and Secondary Education Facilities

271 The principal issues related to the existing health infrastructure are as follows:

- The state hospitals are in poor condition, primarily due to a lack of budget for maintenance (except in Yap state), although improvements are now in place through a $2 million US DOI grant with matching funds from each state
- Many items of equipment are out of order, primarily because of lack of capacity for maintenance of hospital equipment.
- Demand for hospital care is high, given the high incidence of water-borne diseases, the high incidence of road accidents and the many 'lifestyle' health problems.

272 Each FSM state has a state hospital. All hospital buildings are structurally sound and adequate in terms of in-patient capacity. Of the four hospitals, only the Kosrae State Hospital is poorly designed for its purpose. All the hospitals require some renovation and rehabilitation efforts. The efforts most urgently required at the four state hospitals are being addressed through $2 million grant support from the US DOI with a matching amount from the states. Further investment will, however, be required in the long term to bring these hospitals up to the required standards

273 The outer islands of Pohnpei, Chuuk and Yap states also benefit from a medical ship, the Sea Haven, owned and operated by Pacific Missionary Aviation staffed by medical volunteers.

274 Details of the existing health infrastructure in each of the states are described below.

b Pohnpei State Hospital

275 Pohnpei State hospital is a 104-bed facility constructed in 1978. At the present time the hospital is adequate for the population it serves and the functional/spatial layout of the hospital rooms is adequate. There are some structural problems with the building as well as problems with the plumbing and air conditioning systems. While the maintenance of the hospital is in general quite satisfactory, there are areas where the maintenance staff lacks expertise such as in air conditioning, electrical, carpentry and bio-medical equipment operation and repair. There is no expertise on-island to maintain and repair sophisticated medical equipment, and some cases spare parts for the equipment in use cannot be obtained as the equipment is now out of date

c Pohnpei Dispensaries

276 There are seven dispensaries on Pohnpei Island at Kolonia, Sokehs, Saladak, Madolenihmw, Pohnlangas, Wone and Lukopw. The dispensaries at Pohnlanagas, Wone and Lukopw have been fairly well maintained and only require minor repairs. The Madolenihmw and Sokehs dispensaries are also in fairly good repair but require some structural improvement. The Saladak and Kolonia dispensaries are in less good condition.

277 In general, the dispensaries have often lacked equipment, drugs and other supplies and are irregularly staffed with health assistants, nurses and/or medical officers. The municipalities are responsible for maintaining their dispensaries, but the Pohnpei DHS is now attempting to reform the system by arranging for the municipalities to enter into formal, signed agreements with the DHS to support, use and maintain the dispensaries within their respective borders in exchange for increased personnel support from DHS and adequate supplies of medicines.

278 The five outer island dispensaries are in poor condition and need to be replaced. Each of these dispensaries has only a health assistant as staff and there is no immediate prospect of this situation changing. The PMA Sea Haven also occasionally serves some of the Pohnpei outer islands, but much of the ship's time is spent among the more numerous outer islands in Chuuk and Yap

d Chuuk State Hospital

279 The Chuuk State Hospital is a 140-bed facility constructed in 1971. The size of the hospital appears adequate for the population it serves. The hospi-

tal suffered from many structural as well as mechanical and electrical equipment defects, which have to some extent been rectified under the recent hospital improvements program. However, there is no maintenance budget for the hospital and no on-island expertise to maintain and repair sophisticated medical equipment.

e Chuuk Dispensaries

280 There are 14 dispensaries in the Chuuk lagoon, although it is understood that three of these are no longer operated. The other lagoon dispensaries have also not been performing well, in part due to lack of supplies at these facilities, but also due in some cases to disputes with landowners.

281 Dispensaries tend to operate more effectively on the outer islands due to the absence of other health facilities and significant community support. although there are problems of inadequate supplies and limited qualified medical services. There are nominally 57 dispensaries in the outer islands, but most are nothing more than an arrangement with an individual paid to control and dispense small stocks of medicines.

282 Two prefabricated super dispensaries have been constructed in recent years, one of which serves the Faichuk Islands and the other, the outer islands. The Chuuk State

283 Government proposes to increase this network of super dispensaries.

f Kosrae State Hospital

284 The Kosrae State Hospital is a 40-bed facility, constructed in 1971. Due to the many ad-hoc additions that have been made over the years to the hospital, generally the functional-spatial layout is not satisfactory and results in inefficient and ineffective operations. However, the capacity of the hospital is adequate for the population that it serves.

285 The hospital requires many improvements in terms of the building structure, ventilation, lighting, plumbing, and air conditioning as well in repair of out of order equipment. Moreover, there is no systematic approach to preventative and routine maintenance and no on-island expertise to repair sophisticated medical equipment. In general the overall sanitary conditions in the hospital are unsatisfactory and there appears to be a serious need for improved management, supervision and training of custodial staff.

g Other Kosrae Health Facilities

286 The only dispensary in Kosrae State is a structure in the village of Walung that once belonged to the school, but is now being converted to use as a dispensary. This will, however, require renovation of the building to make it suitable.

287 Kosrae has health centers that are housed in municipal buildings, but do not have drugs on hand, as do dispensaries. These centers are primarily used for immunization programs and for pre-natal care, and doctors and other medical personnel visit on a regular basis, generally once a week.

h Yap State Hospital

288 Yap State Hospital is a 43-bed facility constructed in 1979 and is considered to be adequate and appropriate for the population that it serves. The building appears to be structurally sound and the functional/spatial layout efficient and effective. Maintenance is reasonable and the staff has expertise in air conditioning, electrical and diesel mechanics, although there appears to be no systematic approach to preventative and routine maintenance. As in the other states, there is no on-island expertise in sophisticated medical equipment and some of the equipment is now out-dated and no spare parts are available.

i Yap Dispensaries

289 The majority of the 30 dispensaries in Yap State are constructed of timber and corrugated iron and have been severely affected by termites and rust. They are in poor condition and require almost continuous maintenance and repair. Those on Yap

290 Proper have been closed for several years and will require extensive repair and renovation.

5.8.3 Short Term Needs of Health Infrastructure

291 The most urgent short-term need in the health infrastructure sector is the rehabilitation of the four state hospitals. This is currently being done through a $2 million US DOI grant with matching funds from the states. There is also a need to renovate and, in some cases, reconstruct the dispensaries in all states.

5.8.4 Development Needs during the IDP Period (2004-2023)

292 The objectives of the health sector during the IDP period are reducing the incidence of illness and reduce the demand upon the FSM health system and to upgrade the system to minimize the need for referrals to foreign medical facilities. The former can be achieved through improvements in other infrastructure sectors such as water/wastewater, education and roads. The second can be achieved through improving the standards of the medical facilities at the four State hospitals and in providing appropriate health care at the dispensaries to reduce the load on the State Hospitals.

293 In order to reduce referrals to foreign medical services, the merits of converting what are essentially four state health systems into a national system which is able to develop different specializations in medical services at the four state hospitals has also been discussed in FSM in recent years. In the longer term, it may be appropriate to construct a new National Referral Hospital. This

has been considered for funding by the Japanese Government, and is still under discussion.

5.8.5 Proposed IDP Investment Program

294 The draft IDP completed in 2002 proposed an investment of $35 million for health facility investment over the period 2003-2017[31]. Given the funding already available for the renovation of the state hospitals, and the funding likely to be available for the sector over the IDP period, it is believed that all of the proposed health facilities can be constructed during the 20-year period. Table 5.31 indicates the program for this investment over the period 2004-2023. This program reflects the state government priorities for the period 2004 to 2008[32]. The program includes construction of new hospital in Kosrae, some additional improvements in hospitals over and above those being implemented under the current US DOI grant and upgrading of all dispensaries where required and the construction of a National Referral Hospital.

295 It is proposed that some funding be allocated for activities related to a study to be prepared of the process of transforming the four state health systems into a national system, including a more detailed study of the health needs from a national perspective and the preparation of a more detailed health infrastructure investment program. In particular the study will investigate and recommend institutional working relationships between the State Health Service Divisions, the National Division of Health and a proposed National Public Health Board.

296 The timing of the projects as shown in Table 5.31 reflects their priority as follows:

- Renovations of dispensaries and construction of new dispensaries in all states.
- Construction of super dispensaries on Chuuk lagoon an outer islands.
- Construction of a new Kosrae State Hospital
- Upgrading of state hospitals in Pohnpei, Chuuk and Yap
- Construction of a National Referral Hospital

297 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states. An annual allocation has also been provided for the provision of essential equipment required by the hospitals and dispensaries.

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31 FSM Infrastructure Development Plan FY 2003-FY 2017, May 2002

32 See Annex C for listing of state priorities for 2004-2008

5.8.6 Institutional Restructuring and Strengthening

298 There are two principal recommendations for institutional reform and strengthening in the health sector:

- The establishment or strengthening of Hospital Boards with private sector membership to take on primary responsibility for ensuring that all facilities are being properly used and maintained.
- The establishment of a National Public Health Board, an advisory body that will take a holistic approach to the health sector through advising on health policy, coordination with other agencies on health problem prevention and have an oversight on health sector operations in the four states.

Table 5.31 Health – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Pohnpei State										
Pohnpei State Hospital	Kolonia					200		3,000		Other
Renovate Island Dispensaries	Pohnpei Island					150				Other
Replace Outer Island Dispensaries	Outer Islands					150	150			Other
Chuuk State										
Chuuk State Hospital	Weno		250						3,000	Com/Other
Renovation of Existing Dispensaries	Chuuk		500							Com/Other
Construction of New Dispensaries	Chuuk			500	400	400	860			Com/Other
Construction of Super Dispensaries	Chuuk			500	400	400	270			Com/Other
Kosrae State										
Kosrae New Hospital	Lelu					3,000	3,000			Other
Reconstruct Dispensaries	Kosrae			100	200	100				Compact II
Yap State										
Yap Proper Dispensaries	Yap Proper	100			500	500	1,124			Com/Other
Outer Island Dispensaries	Outer Islands	500								Com/Other
Yap State Hospital	Yap Proper								2,000	Other

Table 5.31 Health – Proposed Project Implementation Schedule (US$ '000), continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
National										
National Referral Hospital	Chuuk						6,000			Other
Recurrent Costs										
Health Facilities Maint. Fund		60	75	110	100	90	0	0	0	Com/State
Health Facilities Equipping Fund			200	200	200	200	1,000	1,000	1,000	Compact II
Total:		660	1,025	1,410	1,800	5,190	12,404	4,000	6,000	

Table 5.32 Health – Funded or Partially Funded Projects (US$ '000)

Project	State	Location	Available Funding	Unfunded Amount	Source
Pohnpei State					
Pohnpei State Hospital	Pohnpei	Kolonia	3,200		Compact/Other
Renovate Pohnpei Island Dispensaries	Pohnpei	Pohnpei Island	150		Compact/Other
Replace Outer Island Dispensaries	Pohnpei	Outer Island	300		Compact/Other
Chuuk State					
Chuuk State Hospital	Chuuk	Weno	3,250		Compact/Other
Renovation of Existing Dispensaries	Chuuk	Chuuk	500		Compact/Other
Construction of New Dispensaries	Chuuk	Chuuk	2,160		Compact/Other
Construction of Super Dispensaries	Chuuk	Chuuk	1,570		Compact/Other

Table 5.32 Health – Funded or Partially Funded Projects (US$ '000), continued

Project	State	Location	Available Funding	Unfunded Amount	Source
Kosrae State					
Kosrae New Hospital	Kosrae	Lelu	6,000		Other
Reconstruct Dispensaries	Kosrae	Kosrae	400		Other
Yap State					
Yap Proper Dispensaries	Yap	Yap Proper	2,224		Compact/Other
Outer Island Dispensaries	Yap	Outer Islands	500		Compact/Other
Yap State Hospital	Yap	Yap Proper	2,000		Other
Studies					
Health Sector Master Plan	All		400		Compact II
Recurrent Costs					
Health Facilities Maintenance Fund	All		2,646		Compact/Other
Health Facilities Equipping Fund	All		1,400		Compact II
Total:			26,700		

5.9 Government Administrative Buildings

5.9.1 Sector Objectives and Outcomes

299 Government buildings, such as schools and hospitals, are to a large extent covered under the other infrastructure sectors. However, there is also a need to improve existing and construct new government administrative buildings to serve the functions of the Executive and Legislative branches in administering the government's programs. This was not included in the May 2002 IDP report, but is considered to be an infrastructure cost that should come under the IDP.

300 The primary specific objectives of the provision of infrastructure for government administrative functions are:

- To construct modern and efficient facilities required for government personnel to effectively undertake their functions
- To provide an environment that enables equipment used by government personnel to be adequately maintained
- To encourage a high morale and work ethic amongst government employees by providing a suitable work environment
- To provide elected officials with suitable office space and chambers in which to conduct their responsibilities

5.9.2 Existing Government Administrative Buildings

301 These vary from state to state. In Pohnpei, most of the government administrative buildings are fairly old and are not in an appropriate condition in which to undertake government business. This applies both to the Executive and Legislative branches that are housed in one compound, as well as the various government buildings scattered around Kolonia. In Chuuk, the situation is even worse than Pohnpei. Most government administrative buildings are in a very poor condition and need either renovation or complete replacement. This applies to both the Executive and Legislative branches. In Kosrae, a new building for the Office of the Governor and related departments was commissioned in 2003 and will be suitable for the remainder of the IDP period. However, offices for the legislators still remain to be improved, together with various other government offices scattered around Tofol. In Yap, the government offices are in better condition than those in Chuuk and Pohnpei, but will require improvements during the period of the IDP. There is a more urgent need for an appropriate conference center to enable inter-government and international meetings and fora to be facilitated.

5.9.3 Short Term Needs for Government Administrative Buildings

302 The most urgent short-term for government administrative buildings is the development of a new complexes for the Executive branches in Pohnpei and Chuuk, rehabilitation of other existing government buildings in both states and construction of a state government conference center in Yap. The conference center in Yap could also be hired out to the public for conferences thereby earning revenue for the state government and promoting Yap as a location for inter-state meetings and conferences

5.9.4 Development Needs during the IDP Period (2004-2023)

303 With the exception of Kosrae, all states will need new Executive complexes during the IDP period. A rehabilitation program for other Government administrative buildings will also need to be developed for all states, including Kosrae. This program will be commenced in Pohnpei during 2004 and will continue in the other states during the period 2009 until 2023. New Legislative Branch complexes are also required in all states during the IDP period, but will not be implemented until later in the IDP period. With the exception of the short term needs in Pohnpei and Yap as outlined above, it is likely that the remainder of the infrastructure required will be funded outside of the Compact.

304 The program for rehabilitation of government buildings includes the post offices in each of the four states that are proposed to be funded under the National Government allocation of the Compact. A new post office will be constructed in Kosrae and the existing facilities rehabilitated in the other states.

305 The FSM national government complex in Palikir is adequate and is currently in good condition. No additional funding is required during the IDP period for this complex.

5.9.5 Proposed IDP Investment Program

306 The draft IDP completed in 2002 did not make an allowance for the construction of government administrative buildings, but is considered that an investment of approximately $27 million will be required to provide appropriate facilities for state government personnel during the IDP period. Details of the requirements, the costings and the schedule are shown in Table 5.32. This should be sufficient for all requirements for government administrative building investment over the period 2004-2023. This program also reflects the state government priorities for the period 2004 to 2008[33.] The program includes construction of new Executive Government complexes in Pohnpei, Chuuk and Yap, a government conference center in Yap, rehabilitation of government buildings in all states and new Legislative branch complexes in all states.

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33 See Annex C for listing of state priorities for 2004-2008

307 The timing of the projects as shown in Figure 5.32 reflects their priority as follows:

- Construction of a State Government Conference Center in Yap
- Construction of a new Executive Government Complex in Pohnpei
- Rehabilitation of Government buildings in Pohnpei
- Construction of a new Executive Government Complex in Chuuk Construct
- Rehabilitation of government buildings in all states
- Construction of new Legislative complexes in all states

308 The Investment Program includes an allowance of 10% of the infrastructure cost funded by the Compact for maintenance. This cost will be funded 50% through the Compact and 50% by the states.

Table 5.33 Government Administration Buildings – Proposed Project Implementation Schedule (US$ '000)

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Pohnpei State										
Executive Government Complex	Pohnpei			4,000						Com/Other
Rehabilitate Government Buildings	Pohnpei			400			1,000	1,000	1,000	Other
New Legislative Branch Complex	Pohnpei						2,000			Other
Chuuk State										
Executive Government Complex	Chuuk						4,000			Other
Rehabilitate Government Buildings	Chuuk						1,000	1,000	1,000	Other
New Legislative Branch Complex	Chuuk						2,000			Other
Kosrae State										
Rehabilitate Government Buildings	Kosrae	175	100	100	100	100	500	500		Compact II
New Legislative Branch Complex	Kosrae							1,000		Other
Yap State										
State Govt Conference Building	Yap	474								Compact II
Rehabilitate Government Buildings	Yap						1,000	1,000	1,000	Other
New Legisl. Branch Complex	Yap								2,000	Other

Table 5.33 Government Administration Buildings – Proposed Project Implementation Schedule (US$ '000), continued

Project	Location	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
National Government										
Pohnpei Post Office	Pohnpei	50								Compact II
Chuuk Post Office	Chuuk	50								Compact II
Kosrae Post Office	Kosrae		150							Compact II
Yap Post Office	Yap	50								Compact II
Recurrent Costs										
Admin Building Maint. Fund	All	80	25	346	10	10	50	50	0	Com/State
Total:		879	275	4,846	110	110	11,550	4,550	5,000	

5.10 Telecommunications Sector

309 The FSM Telecommunications Corporation (FSM Telecom) has rebuilt FSM's domestic network enabling thousands of families and businesses to receive improved and first time service. Yet this was only the first step as there are many communities living on outer islands currently without service or with limited radio communications capabilities. To reach these outer communities FSM Telecom is deploying a combination of fixed/mobile cellular, very small aperture satellite terminals and wireless local loop technologies.

310 The FSM is developing a National IT Plan for the use of communications and information technology to enhance the delivery and capabilities of a wide range of services including health, education, emergency and disaster relief, tourism, marketing, e-commerce, government services and law enforcement. A critical aspect of the National IT Plan must be connectivity of the FSM to the world via a fiber optic cable; a submarine cable will provide the much-needed broadband connectivity for hospitals, educational institutions, libraries, businesses etc.

311 The cost of developing these communications links is high. A submarine fiber optic cable will cost at least $30 million and probably much more to connect all four states. Connecting all four states to the cable is necessary to eliminate satellite delays and to provide the broadband connectivity necessary for all of the states to be able to take advantage of the many benefits this technology will bring.

312 The 2002 Draft IDP included an allocation of $30 million for the laying of a submarine cable to connect all four states. While this is an important project and will provide economic and social benefits to FSM, it has not been included in this IDP since it may cost well in excess of that amount and is probably too large a project to be funded from the annual sector grants or the funding generally available from other sources. Additional funding sources either from the private sector or in addition to those that have been generally available for FSM in the past will need to be identified for this infrastructure.

6 Plan Implementation

6.1 Commitment and Conditions Precedent

6.1.1 Public Information and Commitment

313 Section 5 of this IDP has outlined a series of infrastructure projects that it is proposed will be funded from a variety of funding sources during the 20-year time frame of the Plan. Some of these projects, that reflect immediate priorities, will be able to be commenced in 2004 or 2005 because necessary planning and design efforts have already been completed. Implementation of most of the 20-year investment program, however, will only proceed after inputs from some of the in-depth planning efforts described in Section 5. This will result in a continuing re-evaluation of the Plan as these planning efforts are completed and as priorities of the national and state governments necessarily are re-evaluated over time.

314 Further, in order for major investment projects to obtain funding, these proposals will need to be subjected to full feasibility study including financial and economic analysis before funding agencies are likely to approve the funding. This is already recognized for the Compact funding under the Fiscal Procedures Agreement.

315 In order for the IDP to proceed along the time frame indicated in this report, social and political activities need to be proceeding in parallel with the technical planning studies. These social and political activities need to address the following issues:

- Land tenure problems which tend to seriously impede implementation of many infrastructure projects and which are especially critical in Chuuk State.
- Involvement of the private sector in infrastructure planning, design, construction and O&M
- Awareness by the community of the importance of environmental preservation of the natural assets of the nation.
- A public commitment to the importance of education with the removal of constraints on entrance to high schools, improvement of student retention rates, and on the expansion of post-secondary educational opportunities.

316 In this context, there is a need for the national and state governments and society in general, to agree on the basic, economic, social, environmental and political goals and commit themselves to the achievement of these goals. This should be a significant outcome of the National Economic Summit due to

be conducted early in 2004 and should be reflected in the National Strategic Plan.

6.1.2 Conditions Precedent

317 Conditions precedent to IDP implementation are intended to motivate governments to take actions to preclude possible impediments to effective and efficient implementation. The conditions precedent for the IDP have not yet been agreed, but it is suggested that the following activities are required prior to IDP implementation.

- Creation of a State Infrastructure Plan Implementation Committees (IPIC), or assignment of IPIC responsibilities to an existing committee or other suitable entity.
- Dissemination of the IDP to a wide spectrum of public and private sector stakeholders.
- Conduct of a stakeholder meeting for the purpose of discussing the IDP and the social and political issues that need to be addressed
- Statement by the State IPICS to the effect that the proposed arrangements for the Program Management Unit (PMU) have been reviewed and mechanisms for the working arrangements between the states and the PMU have been agreed.

318 Following the conduct of these actions, the national and state IPICs would meet to discuss IDP implementation procedures and reporting responsibilities, and to assess possible needs for further conditions precedent to IDP implementation.

6.2 Infrastructure Plan Implementation Committees

6.2.1 Plan Implementation Responsibilities

319 The national government and the five state governments need to establish accountability for the IDP implementation process. It is proposed that five Infrastructure Plan Implementation Committees (IPIC) be established, one at the national level and one at each state level. Members of these committees that will be responsible for driving IDP processes should have a diversified membership that represents the several infrastructure and beneficiary sectors. In accordance with the thrust in FSM in recent years to reduce the public sector, it is proposed, where appropriate, that existing committees and secretariats take on the role of the IPIC. The National Steering Committee for the IDP has indicated that the national Economic Policy Implementation Committee (EPIC) will be assigned to take on the responsibility for IDP implementation and the Department of Transportation, Communications and Infrastructure (DTC&I) will take on the duties of the national secretariat.

6.2.2 IPIC Functions and Schedule

320 The proposed Terms of Reference for the IPICS can be found in Volume III of the draft 2002 IDP report. It is critical that the IPICs be established or become functional as soon as possible after approval of the IDP since an early function will be in 'selling' the IDP throughout FSM through a process of wide consultation.

321 As soon as possible after the commencement of the IDP period, a launch meeting or workshop should be conducted in order to communicate the Plan's fundamental social, economic and environmental objectives and obtain public and institutional commitment to implementation of the Plan.

322 Following the launch meeting, it is proposed that a second workshop be conducted to agree on IPIC implementation procedures, and especially to develop effective working relationships between the state and national levels. An IPIC Functions and Procedures Document should be prepared prior to this meeting for discussion purposes and finalized after the meeting, by no later than March 2004. The IPIC should also ensure early implementation of the critical IDP projects scheduled to commence in 2004 for which significant planning and design activities are not required or have been completed. Agreement by the IPICs on the form of program management (see section 6.3) will be required at the commencement of implementation of the IDP by January 2004, and the scale of the planning, institutional and database activities to be conducted under the IDP will need to be agreed during 2004 to allow these programs to proceed.

323 The national IPIC, with the assistance of the four state IPICs and the PMU, will need to produce and distribute its first annual report on IDP implementation as soon as possible after December 2004.

324 The estimated cost for maintaining the IPICs is indicated in Table 6.1.

6.3 Infrastructure Plan Implementation Committees

6.3.1 Need for Program Management Units

325 The size of the IDP investment program is such that if it is to be executed successfully and according to schedule, substantial improvement of the implementation capacity currently available in FSM will be required. Further, the Terms and Conditions of Infrastructure Assistance of the Fiscal Procedures Agreement for the Compact (which represents over 50% of the IDP budget) requires, amongst others, the following documentation prior to draw down of funds.

- Evidence of title leasehold agreement, or other legal authority for use of the land upon which the capital improvement project is to be constructed.

- A detailed project budget of costs for planning, engineering and design, real estate costs, supervision and administration, construction, construction management and inspection
- A scope of work that describes the work to be performed and the schedule for planning through to completion of construction. A certified professional engineer or architect shall sign both the scope of work and budget for each construction project.

326 Prior to the draw down of funds for actual project construction, the Government of the United States may request to review a set of the construction plans and specifications; a revised detailed cost estimate and a detailed construction schedule.

327 Reporting requirements in accordance with the FPA will require quarterly reports submitted within 30 days after the end of the quarter to which it applies. The report shall include accounting information and a status of progress for each project funded by the Compact grant. A Federal Cash Transactions Report also needs to be submitted on a quarterly basis. This report will need to provide actual dates, project identification and amounts of draw down for the quarter.

328 The FPA also outlines the required Procurement procedures for all Compact grants which require documentation on tender evaluation, methods of procurement permissible for different contract amounts and the required program monitoring, performance reporting and records retention.

329 It is clear that the IDP will require a high level of program management, technical skills, and financial and reporting skills to undertake the detailed planning, technical analysis, resource mobilization, financial management, and reporting systems to meet the requirements of the funding agencies and to successfully implement the IDP. During the initial year, there will need to be a period of developing systems for program management and providing the capacity building necessary to implement these systems. This capacity needs to be built within the national level secretariat of the IPIC to provide support to the states as necessary and to ensure that project documentation is in order to meet the requirements of the FPA and the other funding agencies.

330 The required program management activities are outlined in more detail in Volume III of the draft 2002 IDP

6.3.2 Structure of Program Management Organization

331 It is proposed that Program Management Units (PMU) be established both within the national level secretariat (that is, within the DTC&I), and within the state secretariats. The state PMUs would be responsible for program management at the state level including annual state program reviews, bidding and

award of contracts, contract supervision and reporting to the national PMU on project performance. The national PMU would be responsible for development of program management systems, training of national and state personnel in these systems, review of project documentation to ensure compliance with funding agency requirements, preparation of annual consolidated FSM program reviews and consolidated FSM performance reports as well as program management implementation assistance to the states as required.

332 The national PMU may be staffed by existing personnel from the DTC&I but will, at least during the first 3-5 years of the IDP, require assistance from either a Program Management consultant or recruitment of several key staff on an individual basis. The latter is probably the less expensive option if appropriate personnel can be recruited. The PMU needs to include at least one registered engineer or architect to sign the scope of work and budget for each project funded through the Compact in accordance with the FPA. The minimum requirement would be two senior expatriate personnel; a Team Leader with a background in Program Management/Contracts and a Civil Engineer with the required administrative assistance. Given the extent of the program in Chuuk, it may be also appropriate to include an additional Project Engineer to be located in Chuuk to assist the Chuuk State PMU implement the program. The cost for this assistance would be in the order of $600,000 per annum, as indicated in Table 6.1. This represents less than 2% of the average infrastructure budget under the IDP and is low by standards of the program management costs of other programs such as the recent ADB funded Water Supply and Sanitation Loan, where the PMU costs were in excess of 10% of the loan amount.

6.3.3 Mechanisms of Funding the National PMU

333 There are several options for funding the assistance package required by the national PMU.

- It could be provided as an aid package either through the US Government in addition to the Compact Infrastructure Fund or another aid agency. This could include concessional loan funding from ADB.
- It could be provided through an allocation of in the order of 3% of the Compact Infrastructure funds for Program Management through the same mechanism as the 5% allocation for maintenance. This would deduct from the amount used for the implementation of each project.
- It could be provided through the Compact Infrastructure funds, on the basis that the states would contribute, say 3% of their allocation of the Infrastructure fund, but then be billed against this based on the actual amount of assistance provided by the national PMU to the states. This billing would then be drawn down against the initial contribution.
- Another variation on the second option is that there would be no fixed contribution from the states, but that they would be billed based on the actual

amount of assistance provide by the national PMU and would be expected to pay from their infrastructure fund based on the billing.

334 Since no funds have been allocated to the PMU for the 2004 budget, it will be necessary to obtain grant support outside the Compact infrastructure funding for at least the first year while the systems are being established and the value of the PMU assistance is being evaluated by the States. Following an initial one or two years of grant assistance, it is recommended that future PMU assistance funds are drawn from the Compact infrastructure funds on the basis of the second option described above. Since the IDP is expected to commence in early 2004, and there are significant program management needs during the first year of implementation, it is essential that funding agencies be approached as a matter of urgency regarding funding for the national PMU assistance.

6.4 Public Sector Institutional Reform, Restructuring and Strengthening

335 The need for public sector reform, restructuring and strengthening in each of the infrastructure sectors has been discussed to some extent in Section 5 and is further summarized in the following section. The 2002 IDP report allocated funding for a range of institutional strengthening studies to be conducted in the first few years of the IDP. It is considered that several of these programs can be funded internally as part of the overall government restructuring program so these studies have been reduced accordingly. Details of the studies still requiring funding is indicated in Table 6.1.

6.4.1 Public Sector Utilities

336 The electric power and water/wastewater sectors are the two IDP sectors where public sector institutional reform, restructuring and strengthening has already been accomplished to a considerable extent. The four FSM States created public utilities corporations or authorities, during the 1990s, to upgrade public sector capability for meeting its responsibilities in the power and water sectors. In Pohnpei, Chuuk, and Yap States, the public utilities corporations have responsibility for both the power and the water sectors, whereas the Kosrae Utilities Authority (KUA) has responsibility for the power sector only. The YSPSC also has legal responsibility for solid waste management. However, YSPSC authority over the solid waste management sector had not actually become effective, as of December 2003.

337 Management of all of these public utility corporations recognizes there are further needs for institutional strengthening. Before institutional strengthening programs can be determined, however, it is advisable to consider the possibilities for further reform and restructuring. Specifically:

- There needs to be established a regulatory authority for the power and water sectors. This role could possibly be taken by a branch of the state environmental protection agencies
- The water sector in Kosrae needs to be transferred to the KUA to enable cost recovery to be achieved through user pay systems
- The public utility corporations need to outsource development and maintenance programs currently undertaken in-house to reduce costs and increase efficiency.

338 Once agreement is reached on the ultimate goals of public utility corporation reform and restructuring, needs for strengthening can better be identified. There are at least two areas where institutional strengthening will be important in the early years of the IDP period:

- Strengthening boards of directors through additional training and extending the selection of members beyond FSM to foreign utilities that are more advanced technologically and in terms of financial sustainability, thereby increasing the level of know-how on the boards.
- Strengthening oversight capability, especially for entrance into well designed contracts, and effective management of contracts.

6.4.2 Solid Waste Management

339 Although the states of Kosrae, Yap, and Pohnpei made progress in setting up solid waste management systems during the 1990s, none of these states yet has an adequate institutional approach to the sector, and the state of Chuuk has yet to effectively begin to meet solid waste management needs.

340 In order even start to develop an acceptable solid waste management program in any of the states, institutional change must be effected urgently. The recommended approach is:

- Legislate to place overall authority for solid waste management to an appropriate government agency that could be either the municipalities of the state public works departments. Assigning responsibility for solid waste management at this stage to the public corporations is not considered appropriate given the need for the corporations to first achieve financial sustainability for the power and water sectors.
- Encourage outsourcing of most of the solid waste management activities leaving the role of the responsible government agency as one of essentially contract management and performance reporting
- Provide the state environmental agencies with the authority to enforce legislation to relating to effective solid waste management.

- Establish Solid Waste Minimization Councils in each state to arrive at a strategy for diverting large proportions of prospective future solid waste away from landfills.

6.4.3 Roads and Pedestrian Facilities

341 The principal recommendation for institutional reform in the roads sector is to reduce the size of the road agencies that have not been effective in providing adequate road maintenance and increasing the degree of outsourcing for construction and maintenance. The role of the road agencies could be limited to planning, inspection and contract management.

6.4.4 Maritime Transportation

342 There are two areas of institutional concern in the maritime transportation sector – port development and management, and maritime safety.

343 It is recommended that the other states follow the lead of Yap and create an independent port authority that will retain all revenue generated from operations, and will have full responsibility for making investments and for its debt service and operating costs. It is not recommended that seaports and airports be combined in a single organization such, as is the current situation in Pohnpei.

344 With regard to maritime safety, there is a need to create at the national government level a Maritime Safety Authority. This Authority would be responsible for ensuring navigational aids are provided, coordination of the hydrographic survey and mapping activities, provision of coastal communication stations, inspection and certification of vessels for seaworthiness, certification of crew training standards, control of loading of vessels and search and rescue needs.

6.4.5 Air Transportation

345 The air transportation sector requires institutional changes comparable to those just discussed for the maritime transportation sector.

- State airport authorities are needed for administration of the international airports and to assist their respective state governments in the development, maintenance and operation of small airports and airstrips, with work on small airports proceeding through contracts with private contractors.
- A national Air Transportation Safety Authority (ATSA) is needed to make it possible for FSM to meet its air traffic safety obligations and to regulate domestic air transportation services.

346 ATSA will have oversight duties, including inspection of air traffic safety facilities and equipment, airport runway inspection, domestic airline maintenance operations inspection, domestic commercial aircraft inspection, and

pilot testing, certification, and licensing. Private contractors will carry out other air traffic safety functions, including air traffic control, aircraft guidance system installation and maintenance, and meeting flight information region (FIR) responsibilities.

347 The airport authorities will be mainly concerned with development, maintenance and operation of their respective airports, and will enter into a variety of agreements and contracts for this purpose.

6.4.6 Education

348 There are four main institutional initiatives recommended for the education sector.

- Increased coordination between the College of Micronesia and other post-secondary and training programs in order that COM-FSM can design programs appropriate for the workforce needs of FSM;
- Increased coordination between secondary education and post-secondary education in order that the post-secondary institutes can design programs that address the anticipated knowledge of students on completion of secondary school;
- Establishment of a national Board of Education that would provide the necessary guidance to ensure the education programs address the future workforce needs of FSM, together with strengthening of the State Boards of Education to provide inputs into this function; and
- Establishment of School Community Boards in each state, as has occurred in Yap in order to obtain community involvement to ensure that the schools are well maintained and in all respects adequate to the task of educating their students

349 With regard to the latter, an effective school board will include among its members leaders of the community and school officials. It is useful, also, to have at least one member on each board that is knowledgeable about the ultimate objectives of elementary and secondary education, again to ensure that a measure of coordination is developed and maintained.

6.4.7 Health

350 As the health sector is currently developed and operated, it comprises four state systems, and does not effectively constitute a national system. Currently each of the four state governments has a Department of Health Services responsible for running the state hospital, dispensaries, and for carrying out public health campaigns. However, the condition of the health infrastructure tends to be sub-standard. Transformation of the health sector into a national system could significantly raise health standards in the country. In order to do this, there must be a national institution that is capable of identifying the potentials

for specialization and coordination, developing an action plan for realization of the identified potentials, and driving the implementation effort.

351 In order to achieve this, it is recommended to create a National Public Health Board (NPHB) with responsibilities for advising on health policies, advising and handling coordination with other economic sectors on health problem prevention programs and public information campaigns and conducting regular inspections of health sector operations in the four states, and advising the NDH on any needs for penalties or other actions to improve standards of performance and/or cost control.

6.5 Databases and Planning Studies

352 As it currently exists, the IDP represents the product of a broad-brush planning effort, amended to take into account the comments of the four FSM State Governments and of the IDP National Steering Committee (NSC) on the draft IDP report. For the most part, investments included in the IDP are urgently required by FSM, and this is especially true for investments scheduled for the first quinquennium of the IDP period. Nevertheless, there are design options for most of these projects, and they should therefore be subjected to more in-depth evaluation, including feasibility analysis. Once assessed as feasible, preparation of final designs, construction specifications and cost estimates can proceed, but these activities would be considered as part of the construction cost of the project.

353 However, even before most planning efforts get underway, there are needs to prepare for effective planning, by providing some basic databases and maps. Much of the database development required is ongoing, and there is only a need in such a case to supplement funding, and thereby make possible accelerated completion of the database development and mapping efforts.

354 Only when the various planning efforts have been completed, with results finalized on the basis of comments received on the draft reports and designs, will it become possible to "finalize" the IDP. Even after finalization, there will be continuing needs for monitoring implementation progress, and amending the implementation schedule to keep it as realistic as possible.

355 Details of the proposed planning studies and database development are indicated in Table 6.1

6.5.1 Database Development

356 There is a need for an up-to-date GIS on the FSM and each of its islands and surrounding seas. Much of this information should become available by the time that the first of the recommended planning studies get underway in 2004, when all of the geographic information should also be available.

357 Hydrographic surveying and mapping is also needed, for planning in the maritime transportation sector.

6.5.2 Planning Studies and Schedule

358 The planning studies that need to be carried out during 2004 to 2008 are identified and briefly discussed below. The Terms of Reference for the planning studies are included in Annex B of Volume III of the 2002 IDP report. The scope of some of these studies has been reduced, since the preparation of detailed designs and specifications for the infrastructure projects should be included in the construction cost.

359 **Chuuk Lagoon Electrification Master Plan**. The Plan will produce outline designs for the electrification of inhabited islands of the Chuuk lagoon. For the smaller islands, hybrid diesel/solar energy systems will be considered. The Plan will identify all system maintenance and operational needs, and will identify appropriate rate structures and levels for full cost recovery.

360 **Solid Waste Disposal Needs Minimization Study.** The study will recommend a strategy for reduction of the total amount of solid waste that needs to be disposed of at landfills. Strategies will include policy introduction to limit some types of solid waste, waste material recycling within FSM or shipment to external recycling locations, and other approaches for minimizing needs to dispose of solid waste.

361 **Solid Waste Management Landfills Plan.** The Landfills Plan will be conducted several months after the Disposal Needs Minimization Study, in order to ascertain how effectively waste quantities are being reduced or diverted from requiring disposal at landfills. The Landfills Plan will recommend an effective and efficient system of disposal for each of the principal islands, and other islands of the Chuuk lagoon, and will examine in a more general manner needs for waste disposal on the outer islands.

362 **Primary Roads Master Plan.** The Plan will provide final outlines for completion and upgrading of existing circumferential and other primary roads, and for recommended new roads on islands of the Chuuk lagoon. During conduct of the PRMP, it is intended that road agency staff will be fully involved, in part for technology transfer purposes.

363 **Weno Island Waterfront Redevelopment Plan.** There is a need to redesign the Weno Island western waterfront for purposes of serving adequately the sea transport services industry, the fishing industry, and the tourism industry. The construction of a passenger ferry terminal is critical for establishing regular public ferry services within the lagoon, and also for improving the longer distance ferry services to the Chuuk State outer islands. The Weno Island Waterfront Redevelopment Plan will also give attention to the plan implementation process and in particular to dealing effectively with land tenure considerations.

364 **Air Transportation Development Plan.** This planning study will provide outline designs for airport improvement projects, including passenger terminal expansion projects, runway extensions that the study finds feasible, apron area expansion, and any other recommended improvement projects. In addition to the four international airports, the study will give consideration to upgrading the Woleai airstrip to airport status, enabling turboprop aircraft to stop there when operating between the Chuuk and Yap airports. The planning effort will also consider the needs for new airstrips on the outer islands.

365 **Maritime Transportation Development Plan.** This planning study will provide outline designs for recommended port development projects, including entrance channel improvement projects, the rehabilitation or upgrading of existing wharves and quays, expansion of storage and holding areas, and other improvements, and will provide specifications for appropriate vessels to provide new or improved maritime transport services. Passenger ship and ferry terminal areas, outside of the commercial ports, will be identified, with recommendations for their capacity, design, shore-based equipment and facilities, and operations. For all ports and terminals, recommendations will be made for attaining financial sustainability.

366 **Elementary & Secondary Schools Design Study.** The study will survey all existing public elementary and secondary schools in FSM, and will hold community meetings to discuss each school. The study will then identify design implications of these objectives relative to existing school facilities and areas, and will reach agreement with leaders of the community on preliminary designs. The study will also consider and make recommendations regarding national and state Board of Education membership, responsibilities, and procedures.

367 **College of Micronesia-FSM Master Plan Study.** The study will provide final plans for expanding the national and state campuses of COM-FSM to meet the needs of the nation in terms of the numbers and qualifications of manpower required for economic sustainability.

368 **Health Sector Master Plan Study.** The study will recommend an approach for transforming four state health systems into a national system. The study will give consideration to health problem prevention, as well as curative services, and will recommend an array of desirable prevention initiatives. The study will recommend institutional working relationships between state Health Service Divisions, a National Health Service Division, and a National Public Health Board (NPHB).

369 **Risk Assessment Related to Natural Hazards.** These studies should be conducted at the state level and focus on existing risks to infrastructure (e.g. typhoon, landslides, drought) as well as determining how those risks will be increased as a result of changes in the future, including the consequences of global climate change. The study will develop guidelines and identify and rec-

ommend other measures to ensure the exposure of infrastructure to current and future risks are reduced to acceptable levels

6.6 IDP Implementation Schedule

6.6.1 IDP Finalization

370 It is now anticipated that with the submission of this report, that the IDP will be approved by the state and national governments at the National Economic Summit in early 2004. The recommended planning efforts are needed, however, for in-depth analysis of the IDP investment program, and there will undoubtedly be many changes deriving from those study efforts.

371 Each of the planning studies will need to have its own National Steering Committee, which will provide comments and guidance during the course of study. When the draft report for a planning study becomes available, however, review should be extended beyond the NSC, to all of the state governments involved and to the national and state IPICs and the core stakeholder groups that are appropriate to the sector in question. Ideally, a national stakeholder workshop should be held after completion of the draft report for each planning study, and IDP funds for IPICs reflect the costs of holding such national workshops.

372 The national IPIC, through the national PMU, is charged with making recommendations on how the IDP is to be changed to take into account finalized planning study findings and recommendations. If the planning schedule can be maintained, as currently set forth in the IDP, all planning efforts will have been finished by early in 2007. Thus, at that point in time, the IDP can be finalized, in the sense that it will then incorporate all of the results of in-depth planning studies. Should there be delays in project implementation, however, the IDP will require further adjustment after 2007, in order that it is kept realistic in regard to implementation schedule.

6.6.2 Proposed Schedule

373 The schedule for implementation of the IDP is very ambitious. The implementation period can essentially be divided into four stages as follows:

- Preparations, including establishment of IDP management.
- Conduct of planning studies.
- Project implementation.
- Setting up mechanisms to provide assurance of adequate funding to meet maintenance needs and other critical recurrent costs.

374 The preparation stage must be completed by mid-2004 or it will prove impossible to keep to schedule during the first IDP year. Planning studies are scheduled for 2003-2007, and the importance of coordination among these stud-

ies makes it critical that none of them be delayed. The implementation of some projects for which detailed planning has been completed or is in progress can proceed during the 2004-2007 planning period. There are some critical projects in this group, including Pohnpei Airport pavement overlay and rehabilitation of Weno Power plant generators and other facilities. Most project implementation, however, can only get underway after 2006, as final designs and construction specifications become available.

375 Recurrent funds would not normally be included in an investment program. However, the past record of maintenance of infrastructure, or rather the lack of attention to maintenance, argues for giving special attention to this funding need and this is required for the Compact funding under the Fiscal Procedures Agreement. Moreover, schools and hospitals require replenishment of equipment, furniture and materials, since there are chronic, serious shortages that must be addressed.

6.6.3 Schedule Adherence Concerns

376 The size of the IDP far exceeds any investment program implemented in the FSM to date, and in the past the record of implementation capacity of the five FSM governments has not been good. This emphasizes the importance of developing an effective PMU at the national level, with adequate resources to manage a program of this magnitude, provide the required documentation to the funding agencies to maintain the program funds flow and provide assurance on the standard of construction of all projects implemented under the program

377 Now that the IDP report has been finalized, there is also a need for a major effort on the part of all five FSM governments to ensure that the FSM private sector is fully involved with IDP implementation from mid-2004 onward. This report is recommending that the IPICs hold meetings at the state and national levels with stakeholders to discuss the IDP and its implementation in detail, and to obtain general stakeholder support and commitment. Core stakeholder groups (CSGs) should be formed for each sector in each state to give good assurance that the private sector will remain fully involved with IDP implementation throughout the IDP period.

378 Provided that the five governments and their respective IPICs can ensure early 2004 mobilization for the PMU, this will help considerably to maintain implementation momentum through the end of the planning study period. A good beginning will help the IPICs to keep to IDP implementation schedule through the end of the period.

6.6.4 Schedule Adjustment

379 PMU will be responsible for recommending annual adjustment of the IDP implementation schedule. Initially the adjustments required will include those made on the basis of recommendations of planning studies, as these rec-

ommendations shall be confirmed or amended by stakeholder meetings held for that purpose. Schedule adjustment will also be necessary for any delays in conduct of planning studies and/or in implementation of capital investment projects.

380 Whenever the nature and scope of projects require adjustment, the concerned state governments will need to be involved in the adjustment decisions. When adjustment is being made only to reflect implementation delays, however, the national IPIC would appear to be the appropriate body to make adjustment decisions.

381 Depending on how well IDP implementation proceeds, the repeated need to adjust implementation schedules for one or more infrastructure sector and/or for one or more FSM state could become embarrassing. Even so, it is important that adjustments continue to be made. If current schedules for implementation become unrealistic, the IDP could become irrelevant. If, on the other hand, necessary adjustments are made throughout the implementation period, the IDP can be kept relevant for each of nine infrastructure sectors in each of four FSM states.

Table 6.1 Program Preparation and Management (US$ '000)

Project	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
Program Management									
Infrastructure Plan Implementation Committees	100	100	100	100	100	250	250	250	Compact II
Program Management		600	600	600	600				Compact II
Database & Institutional Development									
Hydrographic Survey and Mapping		200	200						Compact II
Aerial Photography and Mapping		250							Compact II
Cadastral Database Dev. and Mapping		50	50	50					Compact II
Institutional Restructuring Programs		250	400	250					Compact II
Maritime Safety Authority			300	300					Compact II
Air Transport Safety Authority			200	200					Compact II
Studies and Plans									
FSM Solid Waste Disposal Needs Minimization Study	300	150							Compact II
FSM Solid Waste Landfills Plan			200	200					Compact II
Kosrae Dock Master Plan	75								Compact II
FSM Maritime Transportation Dev. Plan		200	100						Compact II
Kosrae Airport Master Plan	75								Compact II

Table 6.1 Program Preparation and Management (US$ '000), continued

Project	FY04	FY05	FY06	FY07	FY08	FY09-13	FY14-18	FY19-23	Total
FSM Air Transportation Development Plan		150	150						Compact II
FSM-COM Master Plan Study			150	200					Compact II
FSM Elem. and Sec. Schools Design Study		150	150						Compact II
Chuuk Lagoon Electrification Master Plan		300	150						Compact II
Primary Roads Master Plan		250	200						Compact II
Weno Waterfront Redevelopment Plan		250	200						Compact II
Health Sector Master Plan			200	200					Compact II
Risk Assessment Related to Natural Hazards			300						
TOTAL	550	2,900	3,650	2,100	700	250	250	250	

Annex A Infrastructure Sector Strategic Planning Matrix

Annex B Proposed Projects to be Undertaken Under IDP by State (US$ '000)

Table B.1 Chuuk State

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Electrical Power										
Weno Power Plant	Weno	2,700	2,500	1,500	1,300					Com/Other
Weno Power Distribution	Weno	1,000	400			533	885			Com/Other
Tonoas Power Plant	S. Na-moneas						9,824			Other
Tonoas Distribution	S. Na-moneas				500	400	800			Compact II
Eten Submarine Cable	S. Na-moneas						294			Compact II
Eten Power Supply	S. Na-moneas						168			Compact II
Fefen Submarine Cable	S. Na-moneas						735			Compact II
Fefen Power Supply	S. Na-moneas						1,062	1,280	797	Compact II
Unman Submarine Cable	S. Na-moneas						490			Compact II
Unman Power Supply	S. Na-moneas							1,756		Compact II
Tol Power Plant	Faichuk						9,767			Other
Tol Power Supply	Faichuk							1,138	1,137	Compact II
Paata Power Supply	Faichuk						1,062	519		Compact II
Polle Power Supply	Faichuk							1,062	867	Compact II

Table B.1 Chuuk State, Continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Wonei Power Supply	Faichuk							1,062	463	Compact II
Fanapanges Power Plant	Lagoon							1,450		Other
Fanapanges Distribution	Lagoon							297		Compact II
Romanum Power Plant	Lagoon							1,257		Other
Romanum Distribution	Lagoon							205		Compact II
Udot Power Plant	Lagoon							2,042		Other
Udot Distribution	Lagoon							694		Compact II
Eot Submarine Cable	Lagoon							147		Compact II
Eot Distribution	Lagoon							106		Compact II
Solar/diesel for schools	Outer Islands				634	1,000	2,000		2,400	Other
Solar/diesel for schools	Lagoon					332				Other
Solar/diesel for dispensaries	Outer Islands					100				Other
Solar/diesel for dispensaries	Lagoon					100				Other
Water/Wastewater										
Weno Water Supply	Weno	300	650						2,500	Compact II
Weno Sewage Treatment Plant	Weno		1,000	250					1,770	Com/Other
Weno Sewerage Extension	Weno		600	250	500	700	1,000	1,000	2,000	Com/Other
Tonoas Water Supply	Weno		150	1,000			1,200	1,200	1,418	Compact II
Fefen Water Supply	S. Namoneas				800	200	1,500	1,500	1,500	Compact II

Table B.1 Chuuk State, Continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Unman Water Supply	S. Na-moneas					800	1,500	1,500	1,279	Compact II
Tonoas Sewerage	S. Na-moneas							2,140	1,000	Compact II
Fefen Sewerage	S. Na-moneas							2,000	1,000	Compact II
Common Sewer outfall	S. Na-moneas							2,000		Compact II
Tol Water Supply	Faichuk					750	2,500	1,000	1,250	Compact II
Paata Water Supply	Faichuk						1,500	1,500	1,104	Compact II
Polle Water Supply	Faichuk						1,500	1,000	1,000	Compact II
Wonei Water Supply	Faichuk							2,000	1,778	Compact II
Eot Water Supply	Lagoon							1,033		Compact II
Fanapanges Water Supply	Lagoon							1,033	593	Compact II
Romanum Water Supply	Lagoon						730	729		Compact II
Udot Water Supply	Lagoon						730	729	500	Compact II
Halls Island Water Supply	Outer Is-lands			100		250	1,000	825		Compact II
Mortlock Islands Water Supply	Outer Is-lands			150		250	1,250	1,250	1,250	Compact II
Solid Waste Management										
Rehab of Existing Landfill	Weno	300	200							Compact II

Table B.1 Chuuk State, Continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Development of Weno Landfill	Weno					1,000	3,500	2,500	2,500	Other
Roads/Pedestrian Facilities										
West Coast Road	Weno	2,000	1,500	1,000	1,556	1,256				Compact II
Upgrade/Complete Circumf. Road	Weno						1,500	1,500	1,500	Other
Bridges/Water Crossing Structures	Weno						1,180	1,180	1,142	Other
Weno Road Appurtenances	Weno			256			169			Compact II
Tonoas Circumferential Road	S. Namoneas			800	1,000	500	2,000	1,565		Compact II
Tonoas Water Crossings	S. Namoneas						750	750		Compact II
Fefen Circumferential Road	S. Namoneas					500	1,298	1,298	1,500	Compact II
Fefen Water Crossings	S. Namoneas						686	500		Compact II
Paata Primary Road	Faichuk							2,000	1,500	Compact II
Polle Primary Roads	Faichuk							2,000	1,500	Compact II
Tol Primary Roads	Faichuk						1,000	2,500	2,500	Compact II
Wonei Primary Roads	Faichuk						500	1,000	1,000	Compact II
Wonei/Paata Causeway	Faichuk							1,000	912	Compact II
Water Crossings	Faichuk						500	1,500	1,500	Compact II

Table B.1 Chuuk State, Continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Maritime Transportation										
Weno Commercial Port Improvements	Weno			2,080						Other
Weno Ferry Terminal Building	Weno				1,333					Other
Dock for Lagoon/Outer Island Ferry	Weno		160	2,500	2,000	2,000			2,734	Com/Other
Southern Namoneas Ferry Terminals	S. Namoneas					1,000	2,000	2,000	3,000	Other
Faichuk Ferry Terminals	Faichuk					500	1,000	5,000	5,000	Other
Air Transportation										
Airport Runway Improvement	Weno		1,000	750	750	750	1,700			Compact II
Airport Terminal Expansion/Equipment	Weno		322	250	250	250	1,905		749	Com/Other
Onuon, Murilo, Ta, Houk Airstrip Rehab.	Outer Islands				1,347	1,347	2,694	5,387		Other
Education										
N. Namoneas Elementary Schools	S. Namoneas		500	500	300	300	1,000	1,000	1,000	Compact II
School Sports Facilities	Weno	1,655					1,000			Compact II
Weno Junior High	Weno	150		250	500	250	1,171			Compact II
Chuuk High School	Weno	1,245							1,000	Compact II
Faichuk Elementary Schools	Faichuk		500	500	300	300	1,000	1,000	1,000	Compact II

Table B.1 Chuuk State, Continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Faichuk High School	Faichuk		125	250	400	250			1,000	Compact II
S. Namoneas Elementary Schools	S. Namoneas		450	400	350	300	1,000	1,000	1,000	Compact II
New Southern Namoneas High School	S. Namoneas		750	250			1,250	1,250	810	Compact II
Tonoas High School	S. Namoneas		300	250	200		1,000		1,000	Compact II
Halls Elementary Schools	Outer Islands			200	300		500	500	756	Compact II
Mortlocks Elementary Schools	Outer Islands			200	300	200	1,000	1,000	1,000	Compact II
Mortlocks Junior High	Outer Islands		125		250	250	500	500	888	Compact II
Namonuioto Elementary Schools	Outer Islands					300		1,000	949	Compact II
Weipat Junior High	Outer Islands		125				500	500	1,000	Compact II
Western Islands Elementary Schools	Outer Islands			200	200		750	750	655	Compact II
Pattiw Junior High	Outer Islands		100					750	599	Compact II
COM – New Weno Campus	Weno			1,500	1,500					Other

Table B.1 Chuuk State, Continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Health										
Chuuk State Hospital	Weno		250						3,000	Com/Other
Renovation of Existing Dispensaries	Chuuk		500							Com/Other
Construction of New Dispensaries	Chuuk			500	400	400	860			Com/Other
Construction of Super Dispensaries	Chuuk			500	400	400	270			Com/Other
Government Admin. Buildings										
Executive Government Complex	Chuuk						4,000			Other
Rehabilitate Government Buildings	Chuuk						1,000	1,000	1,000	Other
New Legislative Branch Complex	Chuuk						2,000			Other
Infrastructure Maintenance Fund		935	931	1,106	1,126	1,156	3,460	5,307	4,524	
Total:		10,285	13,138	17,492	18,496	18,624	86,410	82,691	73,824	

Table B.2 Kosrae State

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Electrical Power										
Power Plant Rehabilitation	Lelu				106		387			Compact II
Power Distribution	Kosrae	197		500			542			Compact II
Water/Wastewater										
Lelu Water Supply	Lelu	1,176	1,500	1,125					1,500	Other
Malem Water Supply	Malem			1,000	1,500				1,500	Other
Tafunsak Water Supply	Tafunsak	500	1,000	500					1,500	Other
Utwe Water Supply	Utwe	500	750	250					1,500	Other
Lelu/Tofol Wastewater	Lelu		409	437	800			4,500	568	Compact II
Solid Waste Management										
Development of Kosrae Landfill	Lelu						2,500	2,500	2,500	Other
Roads and Pedestrian Facilities										
Upgrade Circumferential Road	Kosrae					1,500	2,000	1,500	1,917	Compact II
New Circumferential Road Constr.	Kosrae	600	600	600			2,500	2,500	2,500	Com/Other
Lelu Causeway Widening	Lelu	125							1,000	Compact II
Circumferential Road - Seawall	Kosrae	240					1,000			Com/Other
Upgrade Secondary Roads	Kosrae	85		795	1,200				1,000	Compact II

Table B.2 Kosrae State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Water Crossings - New Roads	Kosrae					500	1,000	700		Other
Maritime Transportation										
Conversion of Tuna Industry Building	Kosrae		118							Other
Air Transportation										
Runway Extension/Improvement			400						4,000	Com/Other
Terminal Expansion/Equipment			265						1,000	Compact II
Education										
Kosrae High School (Tofol)	Lelu	300			150	150	1,000	1,000	1,274	Compact II
Walung High School	Walung		150	150			150			Compact II
Kosrae Elementary Schools	Kosrae	480	150	150	100	150	1,000	1,000	1,000	Compact II
COM - Enlarged Kosrae Campus	Kosrae						1,000		1,000	Other
Health										
Kosrae New Hospital	Lelu					3,000	3,000			Other
Reconstruct Dispensaries	Kosrae			100	200	100				Compact II

Table B.2 Kosrae State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Government Administrative Buildings										
Rehabilitate Government Buildings	Lelu	175	100	100	100	100	500	500		Compact II
New Legislative Branch Complex	Lelu							1,000		Other
Infrastructure Maintenance Fund		220	207	283	266	200	558	850	776	
Total:		4,598	5,649	5,990	4,422	5,700	17,137	16,050	24,535	

Table B.3 Pohnpei State

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Electrical Power										
Dekehtik Power Plant	Kolonia						10,500			Other
Diesel/Solar Power for schools	Outer Islands			700		300	253			Other
Diesel/Solar Power for dispensaries	Outer Islands					100				Other
Water/Wastewater										
Extension of PUC Water Supply System	Pohnpei			767	2,765	2,765	5,500	5,500	5,500	Other
Kolonia Wastewater Treatment Plant	Kolonia	477	1,000	1,476						Other
Kolonia Sewerage System Extension	Kolonia				1,250	1,250		2,500	2,500	Other
Ocean Outfall Extension	Kolonia			1,151						Other
Household Water Supply Systems	Lagoon						552			Compact II
Solid Waste Management										
Closure of Existing Landfill in Dekehtik	Dekehtik				1,018					Compact II
Development of New Pohnpei Landfill	Pohnpei				2,182		2,500	2,500	2,500	Com/Other

Table B.3 Pohnpei State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Roads and Pedestrian Facilities										
Rehab Paved Circumferential Road	Pohnpei			500		1,000	3,175	3,175	3,500	Other
Upgrade Unpaved Circumferential Road	Pohnpei	6,000	4,500							Other
Primary Roads Drainage	Kolonia					800		596	1,078	Other
Primary Roads Bridges	Kolonia			500			295			Other
Provide street lighting, traffic lights etc	Kolonia			300			415			Other
Maritime Transportation										
Dekehtik Port Dredging	Dekehtik					1,000	2,500	5,000	5,000	Other
Dekehtik Commercial Port Improvements	Dekehtik			500	500			1,500	1,000	Other
Kolonia Outer Island Ferry Terminal	Kolonia					1,500			943	Other
Outer Island Dredging	Outer Islands						1,770			Compact II
Island Ferry Docks/Mooring Buoys	Outer Islands						1,320	1,320		Compact II

Table B.3 Pohnpei State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Air Transportation										
Runway, Taxiway, Apron Rehabilitation	Kolonia	4,000							4,000	Com/Other
Runway Extension	Kolonia		7,000							Com/Other
Airport Terminal Expansion/Equipment	Kolonia					1,000	1,561			Other
Pingelap Airstrip Rehabilitation	Outer Islands				881					Other
Education										
Pohnlangas High School - Madolenihmw	Madolenihmw				3,345	4,155				Com/Other
Kitti Elementary Schools	Kitti	250			200		1,000	1,000	1,000	Com/Other
Kolonia Elementary Schools	Kolonia	250			150		750	750	750	Com/Other
Pohnpei Island Central School - Kolonia	Kolonia						1,250	1,250	1,250	Compact II
Madolenihmw Elementary Schools	Madolenihmw	250			300		1,500	1,500	1,500	Com/Other
Nett Elementary Schools	Nett	250			100		500	500	500	Com/Other
Sokehs Elementary Schools	Sokehs	250			100		1,000	1,000	1,000	Com/Other
Uh Elementary Schools	Uh	250			150		1,000		872	Com/Other
Outer Island Elementary Schools	Outer Islands					500	1,000	1,000	400	Compact II

Table B.3 Pohnpei State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
COM -Redevelopment of Pohnpei State Campus							3,000	1,500	500	Other
COM - National Campus								1,500	1,500	Other
Health										
Pohnpei State Hospital	Kolonia					200		3,000		Other
Renovate Pohnpei Island Dispensaries	Pohnpei					150				Other
Replace Outer Island Dispensaries	Outer Islands					150	150			Other
Government Administrative Buildings										
Executive Government Complex	Kolonia			4,000						Com/Other
Rehabilitate Government Buildings	Kolonia			400			1,000	1,000	1,000	Other
New Legislative Branch Complex	Kolonia						2,000			Other
Infrastructure Maintenance Fund		189	299	336	382	390	1,485	1,332	1,322	
Total:		12,166	12,799	10,630	13,323	15,260	45,976	37,423	37,615	

Table B.4 Yap State

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Electrical Power										
Solar/diesel for schools	Outer Islands			558					1,000	Other
Solar/diesel for dispensaries	Outer Islands			100						Other
Yap Power Plant Upgrade	Yap Proper							1,500	1,500	Other
Yap Distribution Extension	Yap Proper						1,000		1,000	Compact II
Water/Wastewater										
Maap-Rumung Water Supply	Yap Proper	500	1,000	500					904	Other
Gagil-Tomil Water Supply	Yap Proper						1,450	1,450	886	Compact II
Southern Yap Water Supply	Yap Proper						1,714	429		Compact II
Household Septic Tanks	Yap Proper						484	484		Compact II
Extension of Ocean Outfall	Yap Proper				500		1,214			Other
Solid Waste Management										
Closure of Existing Yap Landfill	Yap Proper						1,333			Compact II
Development of new Yap Landfill	Yap Proper						4,500	1,838	2,500	Other

Table B.4 Yap State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Roads and Pedestrian Facilities										
Bridge Reconstruction	Colonia		1,500							Compact II
Trunk Road Upgrading	Yap			2,956		3,115	2,500	2,500	2,500	Com/Other
Maritime Transportation										
Dredging Approach Channel	Colonia						1,500	5,000	5,000	Compact II
Yap Commercial Port Improvements	Colonia			500	500			1,500	1,000	Other
Colonia Dock and Ferry Terminal	Colonia				500	500		2,000	696	Other
Reconstruct Fisheries Refrig. W/house	Colonia						3,540			Other
Air Transportation										
Runway, Apron Extension						1,548	374			Compact II
Airport Terminal/Equipment					5,000					Compact II
Woleai/Fais Airstrip Rehab	Outer Islands				1,000	1,000	2,644	4,645		Other

Table B.4 Yap State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Education										
Yap High School	Colonia		646				1,500		1,000	Compact II
Colonia Middle School	Colonia		1,179							Compact II
Yap Proper Community Schools	Yap Proper		1,669	1,343			1,500	1,500	1,000	Compact II
Ulithi Community Schools	Outer Islands							900		Compact II
Ulithi High School	Outer Islands						1,000			Compact II
Woleai Community Schools	Outer Islands							1,000	1,000	Compact II
Woleai High School	Outer Islands						500			Compact II
Satawal Community Schools	Outer Islands							900	854	Compact II
COM - Yap State Campus	Yap Proper						1,000	1,000	1,000	Other

Table B.4 Yap State, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Health										
Yap Proper Dispensaries	Yap Proper	100			500	500	1,124			Compact/Other
Outer Island Dispensaries	Outer Islands	500								Compact/Other
Yap State Hospital	Yap Proper								2,000	Other
Government Admin. Buildings										
State Govt Conference Building	Colonia	474								Compact II
Rehabilitate Government Buildings	Colonia						1,000	1,000	1,000	Other
New Legislative Branch Complex	Colonia								2,000	Other
Infrastructure Maintenance Fund		107	499	430	500	466	1,236	1,166	1,074	
Total:		1,681	6,493	6,387	8,500	7,129	31,113	28,812	27,914	

Table B.5 National Government

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Program Management										
Infrastructure Plan Implementation Committees					100	100	250	250	250	Compact II
Program Management			500	500	600	600				Compact II
Maritime Transportation										
National Small Ports Fund				300	300	300	1,500	1,500	1,500	Compact II
Maritime Safety Operations Fund					100	100	500	500	500	Compact II
Air Transportation										
National Small Airports Fund				300	300	300	1,500	1,500	1,500	Compact II
National Air Transportation Safety Fund					75	75	375	375	375	Compact II

Table B.5 National Government, continued

Project	Location	FY04	FY05	FY 06	FY 07	FY 08	FY09-13	FY14-18	FY19-23	Source
Education										
COM –Redev. of Pohnpei State Campus							3,000	1,500	500	Other
COM - National Campus								1,500	1,500	Other
COM - New Weno Campus		350		1,500	1,500					Other
COM - Enlarged Kosrae Campus							1,000		1,000	Other
COM - Yap State Campus			350				1,000	1,000	1,000	Other
Government Administrative Buildings										
Pohnpei Post Office					50					Compact II
Chuuk Post Office					50					Compact II
Kosrae Post Office					150					Compact II
Yap Post Office					50					Compact II
Infrastructure Maintenance Fund				0	0	0	0	0	0	
Total:		350	850	1,600	3,275	1,475	9,125	8,125	8,125	

Annex C Proposed Projects to be Funded Under Amended Compact Infrastructure Grant (FY2004-2008) by State

Table C.1 Chuuk State

FY2004 Projects	US $ Costs
Weno Road & Drainage Development (Phase I)	2,000,000
Weno Power Generation & Distribution System	3,700,000
Outdoor Stadium	1,655,994
Chuuk High School Dorm. Building with Water Catchment	700,000
Chuuk High School Vocational Building	150,000
Chuuk High School Library Building	150,000
Chuuk High School Sc. Lab, other classrooms & High tech.	150,000
Weno High School Classroom Building	150,000
Weno Solid Waste Disposal (Phase I)	300,000
Weno Water System Improvement (Phase I)	300,000
IMF	487,159
FY2004 Total	9,743,153

FY2005 Projects	
Nomosofo Junior High School Dormitory	150,000
Nomosofo Junior High School Cafeteria	100,000
PPO Junior High School Dormitory	150,000
PPO Junior High School Cafeteria	100,000
Weno High School classroom & office	300,000
Faichuk Junior High School classroom Renovation	125,000
Weipat Junior High School classroom Renovation	125,000
Mortlock Junior High School classroom Renovation	125,000
Pattiw Junior High School classroom Renovation	100,000
Southern Namoneas High School Library	150,000
Elementary & Sec. School Building Renovation & Construction & other related Cost	1,499,000
Weno Sewer Treatment Plant Rehabilitation	1,000,000
Completion of Sewer Lift Station (Pou Bay, Tunnuk, Sapuk, Neauo Beach Road)	250,000
Sewer line extension of Xavier High School	250,000
Weno Water System Improvement (Phase II)	650,000
Tonoas Water System Improvement (Phase I)	150,000
Weno Sewer System (Phase I)	100,000
Weno Solid Waste Disposal	200,000
Chuuk Hospital & Public Health Interior Renovation	250,000
Dispensary Repair Rehabilitation	500,000

Table C.1 Chuuk State, continued

FY2005 Projects, continued	
Weno Road and Drainage Development (Phase II)	1,500,000
Weno Dock Structural Repair	160,000
Chuuk Int. Airport Development Projects (Phase II, Land Acquisition)	1,000,000
Chuuk Int. Airport Development Projects (Phase II, Terminal)	322,024
IMF	488,000
FY2005 Total	9,744,024

FY2006 Projects	US $ Costs
Elementary School Facility Renovation	2,000,000
Secondary School Facility Renovation	1,000,000
Const. & Renovations Health Facilities (new & Existing)	1,000,000
Chuuk Lagoon Islands Water Imp. Projects	1,000,000
Health Hazard Mitigation Projects	200,000
Sewer Line (Phase II: extension to inner Nepukos)	250,000
`Outer island Water Improvement	250,000
Weno road and drainage (Phase III)	1,000,000
Upgrade safety equipment & lighting system	256,024
Tonoas road and drainage (Phase I)	800,000
Chuuk Int. Airport Development (Phase III, Land Acquisition)	1,000,000
IMF	488,000
FY2006 Total	9,244,024

FY2007 Projects	
Elementary School Facilities Renovation	1,500,000
Secondary School facilities renovation	1,000,000
Recreation & Library (Junior High School)	500,000
Const. & Renov. New & existing Dispensaries	800,000
Chuuk lagoon islands water improvement projects (Phase I)	800,000
Weno sewer line expansion (Phase II)	500,000
Health Hazard Mitigation	100,000
Weno road & drainage development (Phase IV)	1,556,024
Tonoas road and drainage (Phase II)	1,000,000
Tonoas power Gen & Dist System (Phase II)	500,000
Chuuk Int. Airport Dev Project (Phase IV, Land Acquisition)	1,000,000
IMF	487,159
FY2007 Total	9,743,183

Table C.1 Chuuk State, continued

FY2008 Projects	
Elementary school facilities renovation	1,500,000
Secondary school facilities renovation	1,000,000
Const & Renov. New & existing Dispensaries	800,000
Chuuk lagoon islands water improvement (Phase II)	1,000,000
Outer islands water improvement projects (Phase I)	500,000
Weno sewer line expansion (Phase III)	700,000
Health hazard mitigation	100,000
Weno road and drainage (Phase V)	1,256,024
Tonoas road and drainage (Phase III)	500,000
Fefan road and drainage (Phase I)	500,000
Tonoas power Gen & Dist System (Phase III)	400,000
Chuuk Int. Airport Dev Project (Phase V, Land Acquisition)	1,000,000
IMF	488,000
FY2008 Total	9,744,024

Table C.2 Kosrae State

FY2004 Projects	US $ Costs
Causeway/Road Paving/RS-4	725,000
River Bank & Shoreline Reventment for road protection	240,000
Inner Roads Construction	85,000
Power Distribution/Overhaul	197,000
Water System	176,000
Dock Masterplan	75,000
Airport Masterplan	75,000
School Facilities Construction	780,000
Government Administrative Buildings	175,000
IMF	127,000
FY2004 Total	2,655,000

FY2005 Projects	US $ Costs
Circumferential Road	600,000
Tofol Oxidation Ponds	350,000
Lelu Wastewater (Air Relief)	59,000
Airport Terminal/Runway Improvement	665,000
School Facilities Construction	300,000
Government Administrative Buildings	100,000
IMF	104,000
FY2005 Total	2,178,000

FY2006 Projects	US $ Costs
Cross Island Road	795,000
Circumferential Road	600,000
Power Distribution Line to Walung Village	500,000
Lelu/Tofol Wastewater Outfall	437,000
School Facilities Construction	300,000
Health Centers (Dispensaries)	100,000
Government Administrative Buildings	100,000
IMF	142,000
FY2006 Total	2,974,000

Table C.2 Kosrae State, continued

FY2007 Projects	US $ Costs
Inner Roads Construction	1,200,000
Power Generator Overhaul	106,000
Extension of Lelu/Tofol Wastewater Collection System	800,000
School Facilities Construction	200,000
Health Centers (Dispensaries)	200,000
Government Administrative Buildings	100,000
IMF	131,000
FY2007 Total	2,737,000

FY2008 Projects	US $ Costs
Roads: RS1, RS2a&b AC Pavement	1,500,000
Okat Water System	300,000
School Facilities Construction	300,000
Health Centers (Dispensaries)	100,000
Government Administrative Buildings	100,000
IMF	115,000
FY2008 Total	2,415,000

Table C.3 Pohnpei State

FY2004 Projects	US $ Costs
Airport Runway Rehabilitation	1,984,000
IMF	100,000
FY2004 Total	2,084,000

FY2005 Projects	US $ Costs
Airport Extension	3,136,000
IMF	157,000
FY2005 Total	3,293,000

FY2006 Projects	US $ Costs
Executive Government Buildings	3,523,000
	177,000
FY2006 Total	3,700,000

FY2007 Projects	US $ Costs
Closure/Transfer New Dumping Site	3,200,000
Elementary School Buildings	800,000
IMF	200,000
FY2007 Total	4,200,000

FY2008 Projects	US $ Costs
Elementary School Buildings	200,000
State Secondary School Buildings	4,110,000
IMF	215,000
FY2008 Total	4,525,000

Table C.4 Yap State

FY2004 Projects	US $ Costs
Fathray Island Dispensary	50,000
Seliap Island Dispensary	50,000
Elato Island Dispensary	50,000
Falalus Island Dispensary	50,000
Wattagai Island Dispensary	50,000
Asor Island Dispensary	50,000
Piig Island Dispensary	50,000
Fachalap Island Dispensary	50,000
Ifilik Island Dispensary	50,000
Tagaillap Island Dispensary	50,000
Gagil Municipal Dispensary	50,000
Maap Municipal Dispensary	50,000
Extension Emergency Power System	45,000
State Gov. Conference Building	474,000
FY2004 Total	1,119,000

FY2005 Projects	US $ Costs
Yap High School	646,000
Colonia Middle School	1,179,000
Falalop Ulithi Community School	471,000
Bael Community School	529,000
Reconstruction of Colonia Bridges, 3ea	1,500,000
Gagil Community School	669,000
FY2005 Total	4,994,000

FY2006 Projects	US $ Costs
Gaanelay Community School	1,343,000
Gaagil-Tomil Phase V&VII, 3.7 miles	2,956,000
FY2006 Total	4,299,000

FY2007 Projects	US $ Costs
Air-terminal expansion	5,000,000
FY2007 Total	5,000,000

FY2008 Projects	US $ Costs
Road Improvement (Phase I-VI, 7.8 miles)	3,115,000
Runway Extension	1,548,000
FY2008 Total	4,663,000