



Federated States of Micronesia INFRASTRUCTURE DEVELOPMENT PLAN FY2016-FY2025

Outline:

Introduction, Volume 1 and Annexes

Introduction

This Federated States of Micronesia Infrastructure Development Plan FY2016-FY2025 comprises the following:

Introduction

Foreword by the President
Executive Summary
Acronyms & Abbreviations

Volume 1 Plan Outline

Part 1 Context
Part 2 Infrastructure Strategy
Part 3 Investment Strategy
Part 4 Management and Implementation
Part 5 Sector Overview
Part 6 Institutional Aspects
Part 7 Monitoring & Reporting

Annexes

*Annex A Infrastructure Development
Responsibility Matrix*
Annex B Performance Indicators
Annex C Bibliography

Volume 2 National Infrastructure Development Plan

Part 1 Introduction
Part 2 Plan Outline
Part 3 Infrastructure Development
Part 4 Priority Project Outlines

Volume 3 Chuuk State Infrastructure Development Plan

Part 1 Introduction
Part 2 Plan Outline
Part 3 Infrastructure Development
Part 4 Priority Project Outlines

Volume 4 Kosrae State Infrastructure Development Plan

Part 1 Introduction
Part 2 Plan Outline
Part 3 Infrastructure Development
Part 4 Priority Project Outlines

Volume 5 Pohnpei State Infrastructure Development Plan

Part 1 Introduction
Part 2 Plan Outline
Part 3 Infrastructure Development
Part 4 Priority Project Outlines

Volume 6 Yap State Infrastructure Development Plan

Part 1 Introduction
Part 2 Plan Outline
Part 3 Infrastructure Development
Part 4 Priority Project Outlines

The following Federated States of Micronesia Infrastructure Development Plan FY2016-FY2025 documents are available:

- Federated States of Micronesia Infrastructure Development Plan FY2016-FY2025** (all parts)
- FSM Infrastructure Development Plan FY2016-FY2025 Outline** (Introduction, Volume 1 & Annexes)
- National Infrastructure Development Plan FY2016-FY2025** (Volume 2)
- Chuuk State Infrastructure Development Plan FY2016-FY2025** (Volume 3)
- Kosrae State Infrastructure Development Plan FY2016-FY2025** (Volume 4)
- Pohnpei State Infrastructure Development Plan FY2016-FY2025** (Volume 5)
- Yap State Infrastructure Development Plan FY2016-FY2025** (Volume 6)
- FSM Infrastructure Development Plan FY2016-FY2025 Summary** (abbreviated outline and listings of projects)



The President
Palikir, Pohnpei
Federated States of Micronesia

Foreword

As the 8th President of the Federated States of Micronesia I am pleased to present to you an update of our Infrastructure Development Plan for the period FY2016 – FY2025. This ranks with the most important and significant plans of the last 10 years for FSM as a nation.

The key for me is that this Plan presents a truly collaborative approach to infrastructure development for our country. As well as setting out the case for developing infrastructure across the FSM, it documents the priority projects in stand-alone State Plans providing a direct connection to communities and their needs.



I particularly welcome the inclusion of projects directly linked to climate change adaptation – these are important first steps to a mainstream infrastructure adaptation program in future Plans. FSM citizens can also look forward to schools, hospitals, roads and other facilities that are kept in better condition as we improve the way we manage our infrastructure over its life.

A realistic level of funding is included in the Plan, representing 70 percent of FSM’s infrastructure needs over 10 years. This sets the challenge for the FSM governments and our development partners to work together to close the funding gap, beginning with the Development Partners Forum that we will convene in 2016.

Finally I recognize the considerable effort that has gone into the Plan from State Infrastructure Planning and Implementation Committees and the State Executives. The assistance of the Asian Development Bank is also acknowledged for providing the technical assistance team that supported the Plan development.

I commend this Infrastructure Development Plan to the people of FSM, at home and abroad, and look forward to the support of our development partners as we begin the challenge of delivering on our vision.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter M. Christian".

Peter M. Christian

President of the Federated States of Micronesia

Executive Summary

Plan Investments

This Infrastructure Development Plan for the Governments of the Federated States of Micronesia was prepared by the Department of Transportation, Communication and Infrastructure in consultation with the States of Chuuk, Kosrae, Pohnpei and Yap. The Plan covers the infrastructure in ten sectors: electric power, water/wastewater systems, solid waste management, road and pedestrian facilities, maritime transportation, air transportation, telecommunications, education, health and government administrative buildings.

The priority infrastructure development projects that make up the majority of the Plan have been identified and prioritized by each of the governments through a structured and transparent process to produce project listings that best meet their development needs over the next 10 years. This included assessing the priority development projects against nine strategic objectives to ensure that they make a strong contribution to one or more of the objectives associated with the FSM’s economic development, social development, environment and institutional capacity.

The priority infrastructure development projects in the ten sectors at National and State level plus project management costs, institutional projects and infrastructure maintenance represent a total investment of \$1,082 million over the 10-year Plan period. For the first time a project specifically targeted at cross-sector climate change adaptation is included. This project in Yap will be followed in the future by similar projects identified through the Joint National/State Action Plan processes that are now coming on-line across the FSM.

The Plan incorporates the following investments by sector and by government:

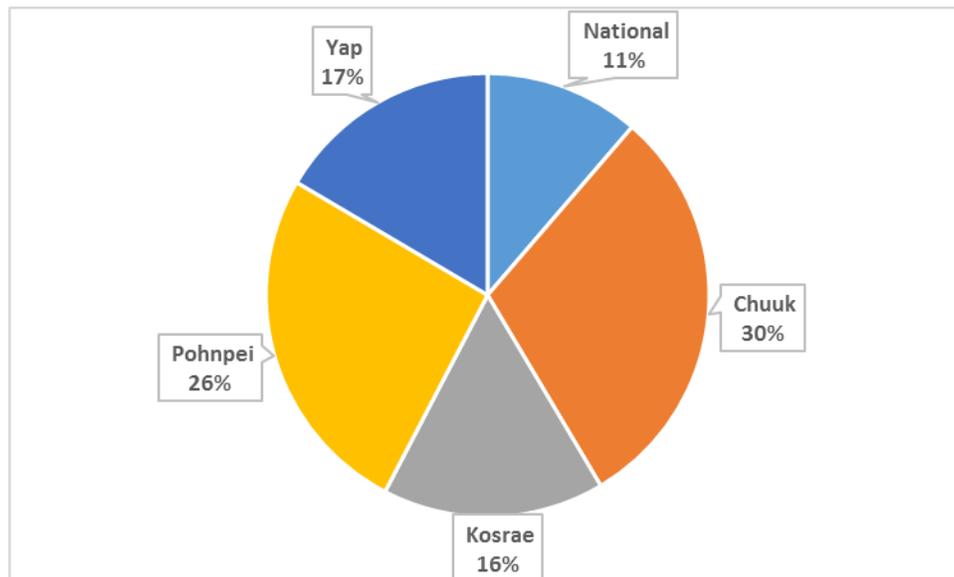
Infrastructure Sector	Planned Infrastructure Investment (\$ millions)					
	National	Chuuk	Kosrae	Pohnpei	Yap	All
Electric Power	-	7.8	17.6	62.6	7.1	95.1
Water/Wastewater Systems	-	7.0	14.6	35.7	16.8	74.1
Solid Waste Management	-	3.5	0.3	4.5	3.7	12.0
Road and Pedestrian Facilities	-	95.0	51.0	45.0	18.1	209.0
Maritime Transportation	-	8.5	21.6	6.7	41.9	78.7
Air Transportation	0.5	34.2	31.0	0.6	32.8	99.1
Telecommunications	13.4	-	-	-	-	13.4
Education	69.3	44.7	3.0	73.1	15.7	205.8
Health	-	73.0	18.5	15.3	1.7	108.5
Government Administrative Buildings	28.1	-	1.1	5.2	16.9	51.3
Climate Change Adaptation	-	-	-	-	4.0	4.0
Program Management	7.5	10.0	4.0	5.0	4.0	30.5
Development Subtotal:	118.7	283.7	162.7	253.8	162.4	981.4
Institutional	2.4	2.0	-	-	-	4.4
Infrastructure Maintenance	1.2	40.6	12.6	25.5	16.3	96.2
Total Infrastructure Investment:	122.3	326.3	175.3	279.3	178.7	1,082.0

Implementation has been planned over three periods; Period 1: FY2016 to FY2019, Period 2: FY2020 to FY2023, Period 3: FY2023 to FY2025. Appropriation of all Amended Compact funding arrears is included in Period 1. The proposed sources of funding for the FSM’s 10 year infrastructure investment program by implementation period are outlined in the following table:

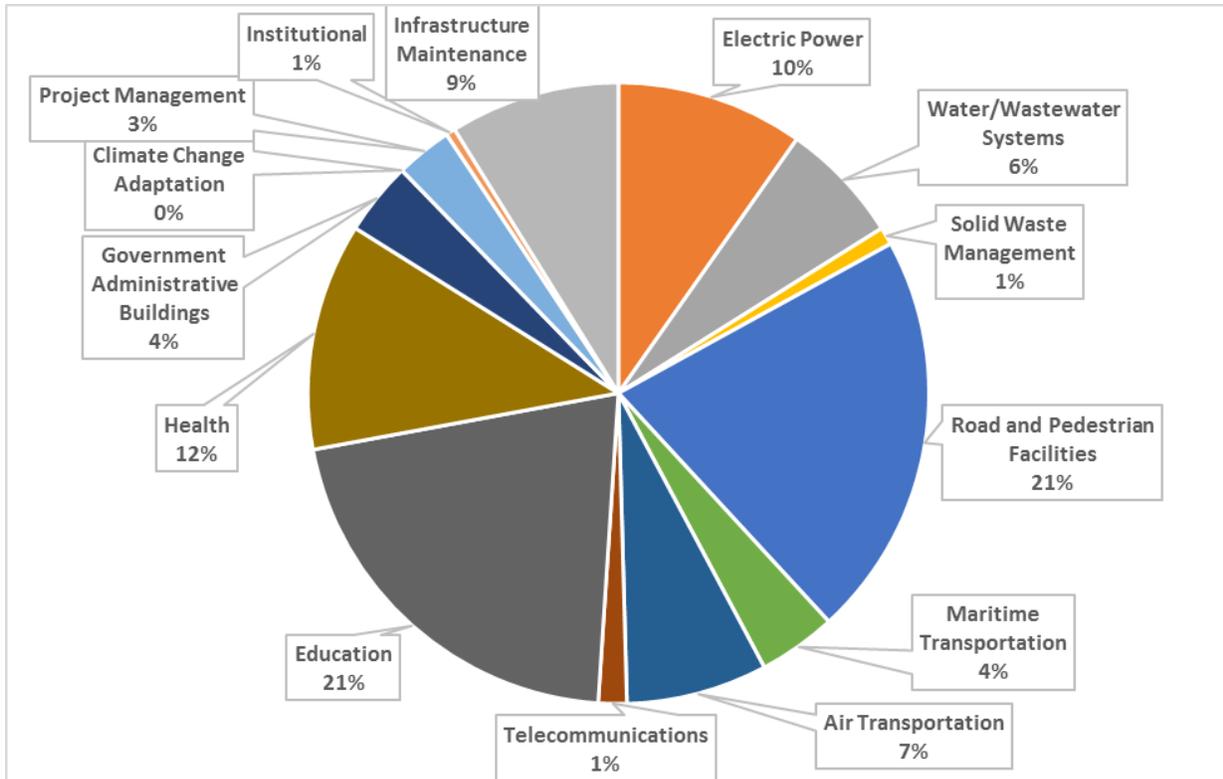
Infrastructure Investment Funding Source	Funding Amount (\$ millions)			
	FY2016 FY2019	FY2020 FY2022	FY2023 FY2025	FY2016 FY2025
FSM National Government	77.2	48.9	48.9	175.0
FSM State Governments (matching maintenance funds)	4.8	3.6	2.4	10.8
Bilateral Development Partners				
Amended Compact	207.4	71.7	23.8	302.9
Compact Trust Fund			24.5	24.5
US Federal Agencies	27.0			27.0
European Union	16.5	8.7	10.8	36.0
Japan	20.0	15.0	15.0	50.0
PR China	24.4	15.0	15.0	54.4
UN Climate Adaptation Funds	7.2	11.8	12.0	31.0
Multilateral Development Partners				0.0
Asian Development Bank	17.0	16.5	16.5	50.0
World Bank Group		10.5	10.5	21.0
Total:	401.5	201.7	179.4	782.6

The following charts illustrate the infrastructure investments by sector/activity and by government, as well as infrastructure funding by source.

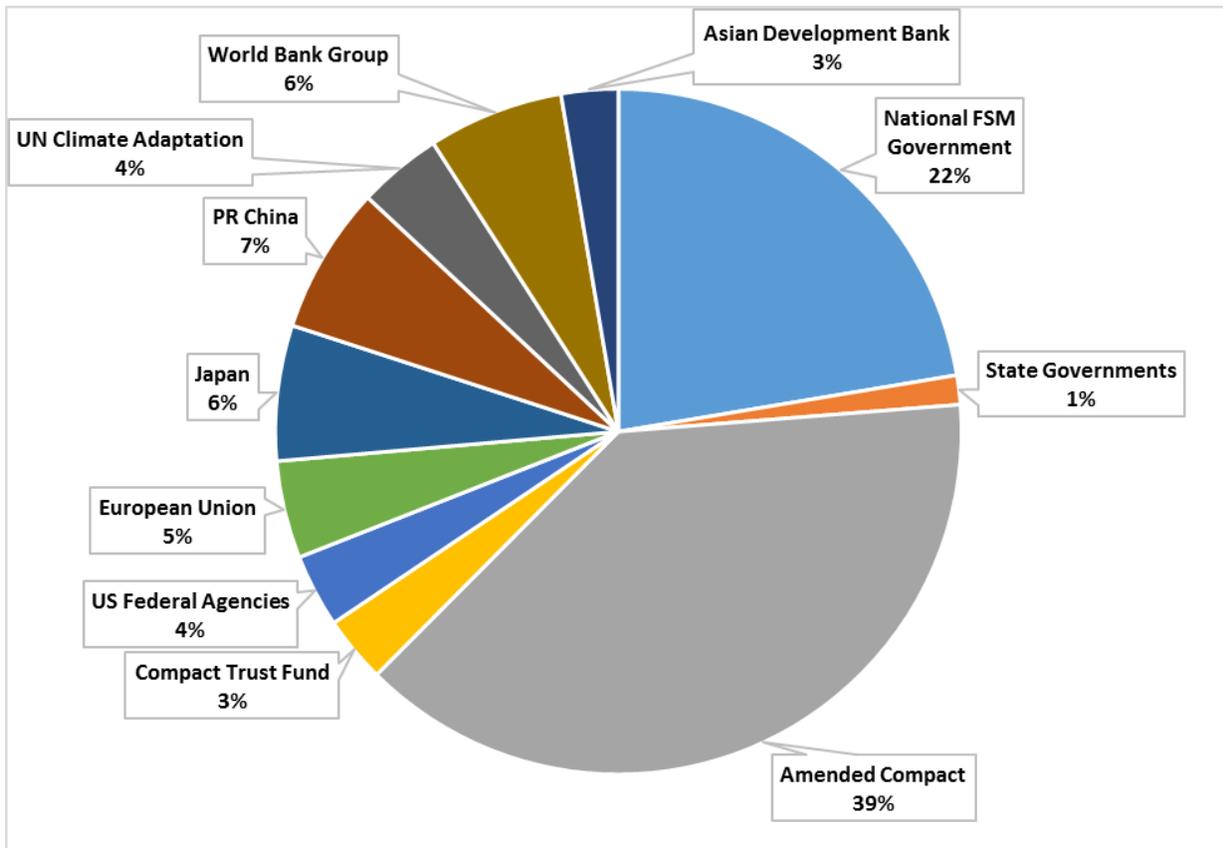
Infrastructure Investments by Government



Infrastructure Investment by Sector and Activity



Infrastructure Funding by Source



Plan Implementation

Accountability for implementing the Plan at State level will lie with the Infrastructure Planning and Implementation Committees that were established more than 10 years ago. An important improvement in this Plan is the establishment of a Project Management Office in each State, responsible to the Committee for the day-to-day planning and implementation of projects, initially on Amended Compact funded projects and progressively for the projects funded from other sources.

At National level the Department of Transportation, Communication and Infrastructure will assume the overall program coordination role, supported by the Program Management Unit, and will work closely with the Departments of Finance and Administration and Foreign Affairs as the interfaces with bilateral and multilateral development partners.

With a number of projects having already been designed under the initial 2004 Infrastructure Development Plan, implementation of this Plan will begin immediately.

Acronyms & Abbreviations

ADB	Asian Development Bank	JEMCO	Joint Economic Management Committee
ADF	ADB Asian Development Fund	JICA	Japanese International Cooperation Agency
AIP	FAA Airport Improvement Program	JNAP	Joint National Action Plan
Amended Compact	Amended Compact of Free Association	JSAP	Joint State Action Plan
CC	Climate Change	KIPIC	Kosrae Infrastructure Policy Implementation Committee
CMD	Compact Management Division	KSDP	Kosrae Strategic Development Plan
Compact	Compact of Free Association	KUA	Kosrae Utilities Authority
COM	College of Micronesia	OCR	Ordinary Capital Resources
CPUC	Chuuk Public Utility Corporation	ODA	Overseas Development Assistance
CTF	Compact Trust Fund	ODAD	Overseas Development Assistance Division
DFA	Department of Foreign Affairs	OEEM	Office of Environment and Emergency Management
DOI	US Department of Interior	OIA	Office of International Affairs
DRD	Department of Resources and Development	O&M	Operations and Maintenance Plan
DTCI	Department of Transportation, Communication and Infrastructure	PMO	Project Management Office
EDF	European Development Fund	PMU	Program Management Unit
EIA	Environmental Impact Assessment	PSDP	Pohnpei Strategic Development Plan
ENSO	El Niño-Southern Oscillation	PUC	Pohnpei Utilities Corporation
EU	European Union	RUS	USDA Rural Utilities Service
FAA	US Federal Aviation Administration	SDC	Sustainable Development Council
FSM	Federated States of Micronesia	SDP	Strategic Development Plan (2004 – 2023): Achieving Economic Growth and Self-Reliance
FSMTC	FSM Telecommunications Corporation	SPC	Secretariat of the Pacific Communities
FY	Financial Year (1 October to 30 September)	UNFCCC	United Nations Framework Convention on Climate Change
GDP	Gross Domestic Product	USDA	US Department of Agriculture
ICT	Information and Communication Technology	US	United States of America
IDP	Infrastructure Development Plan FY2016 – FY2025	YSPSC	Yap State Public Service Corporation
IDP 2004	Infrastructure Development Plan FY2004 – FY2023		
IMF	Infrastructure Maintenance Fund		
IPIC	Infrastructure Planning and Implementation Committee		

Volume 1 Plan Outline

Contents

<i>Part 1 Context</i>	1
1.1 Country Information	1
1.2 Economic and Strategic Planning	2
1.3 Infrastructure Planning	6
1.4 Environment and Climate	8
1.5 Plan Development Process	11
<i>Part 2 Infrastructure Strategy</i>	15
2.1 Role of Infrastructure	15
2.2 Strategy Objectives	15
2.3 Sector Objectives	16
<i>Part 3 Investment Strategy</i>	19
3.1 FSM Infrastructure Funding	19
3.2 Amended Compact and other US Grant Funding	20
3.3 Bilateral Development Partner Funding	23
3.4 Multilateral Bank Funding	24
3.5 Climate Change Funding	25
3.6 Summary of Available IDP Funding	25
3.7 Plan Funding Requirements	26
<i>Part 4 Management and Implementation</i>	32
4.1 Current Situation	32
4.2 Strategic Considerations and Guiding Principles	32
4.3 Initial Institutional Arrangements	33
4.4 Process Enhancements	36
4.5 Transitional Arrangements and Longer Term Developments	37
<i>Part 5 Sector Overview</i>	39
5.1 Institutional Arrangements	39
5.2 Sector Plans	42
<i>Part 6 Institutional Aspects</i>	44
6.1 Whole of Life Costs	44
6.2 Infrastructure Maintenance	45
6.3 Transition to Contemporary Asset Management	46
6.4 Institutional Projects	49
<i>Part 7 Monitoring & Reporting</i>	53
Annexes	55
<i>Annex A Infrastructure Development Responsibility Matrix</i>	57
<i>Annex B Performance Indicators</i>	59
B.1 Electric Power	59
B.2 Water/Wastewater Systems	59
B.3 Solid Waste Management	60
B.4 Roads and Pedestrian Facilities	61
B.5 Maritime Transportation	62
B.6 Air Transportation	62
B.7 Telecommunications Sector	63
B.8 Education	63
B.9 Health	63
<i>Annex C Bibliography</i>	65

Part 1 Context

1.1 Country Information

1.1.1 General and Demographic information

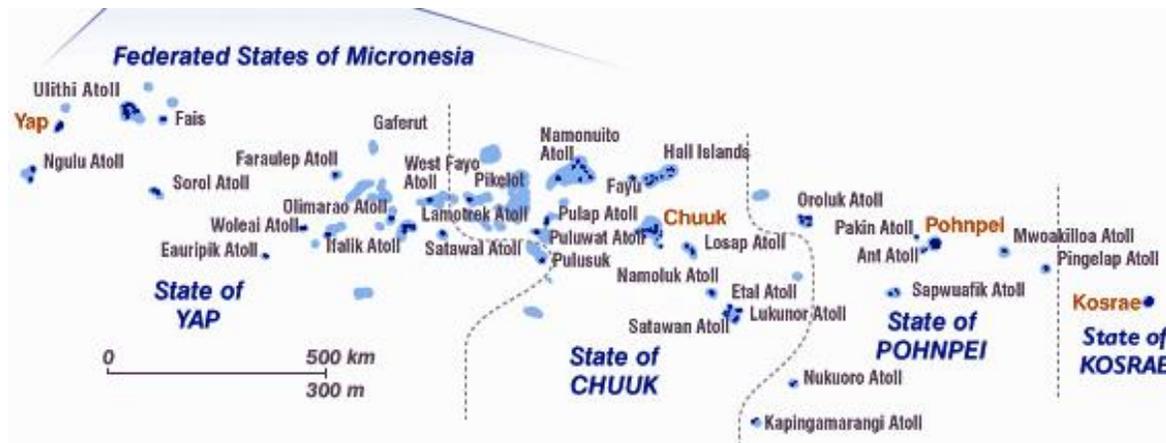
The Federated States of Micronesia (FSM) is a sovereign country comprised of 607 small islands spread over more than one million square miles of ocean in the Western Pacific. Only 67 of the islands are inhabited. Total land mass area is small, amounting to 270.8 square miles, with only 6 percent of the land arable. The other two Compact of Free Association nations are its closest neighbors, Marshall Islands to the northeast and Palau to the west. North of the FSM lie the United States territories of Guam and the Northern Mariana Islands.

The FSM's population is predominately Micronesian and comprised of eight major ethnolinguistic groups and numerous spoken dialects. Each state has its own languages, culture, local government, and traditional systems. With such diversity, English is the country's official language of government (although less so at the state or municipal levels), and for secondary and tertiary education. Communal values influence politics, daily business and personal transactions in both direct and indirect ways.

Twenty-two percent of all inhabitants live in "urban" town areas but may own property elsewhere in their respective states.

Land is part of family trusts that pass down land use rights, surface and subsurface, from generation to generation within the extended matrilineal family system. Clans hold many parcels, leading to fractional ownership and uncertain boundaries and titles. By Constitution, only citizens can own land. Domestic corporations that have non-citizen shareholders may not own land.

Figure 1 – Map of the Federated States of Micronesia



At the time of the 2010 census FSM had a population of 102,843 comprised of: Yap 11,377, Chuuk 48,654, Pohnpei 36,196 and Kosrae 6,616. This population count was a decline of 4,344 persons (-4.1 percent) relative to the 2000 census total. At the state level between 2000 and 2010, Chuuk and Kosrae had negative growth while in Pohnpei and Yap the rate of growth was positive but very low at 0.4 percent and 0.1 percent respectively. Out-migration to the United States and other parts of Micronesia is the primary cause of the overall decline in population with a reducing fertility rate also contributing.

Long-range population projections suggest a continuation of little or no population growth for the foreseeable future. Projections to 2030 suggest no population growth from 2010 and less than 10percent total growth up to 2050. The level of urbanization in FSM remains relatively low at 22

percent¹. Most people live a rural lifestyle largely dependent on their gardens and fishing for daily food requirements, although imported food is an increasing part of the diet. People are attracted to urban centers for incomes directly or indirectly derived from offshore transfers in the form of grants from the United States (US) and other donors.

Based on a 2008 poverty assessment², 11 percent of the population suffered from food poverty, while 29.9 percent of the population suffered from basic needs poverty. The opportunities for income generation are limited, especially in the rural parts of the country. With the stagnation of real incomes since 2005 accentuated by sharp decreases in gross domestic product (GDP) since 2012, poverty will have worsened.

1.1.2 Government Framework

The Constitution of the FSM provides for three separate branches of government at the national level similar to those of the U.S. The National Congress, however, is unicameral. It has four at-large senators, one from each state that serves four years, and ten senators who have two-year terms. The President and Vice President are senators at-large elected by Congress rather than by popular vote. The last Congressional election for four-year terms was in March 2015. The 19th FSM Congress elected Pohnpei's Peter M. Christian to be the eighth President of the Federated States of Micronesia.

The nation itself is a loose federation. State affiliation tends to overshadow national identity.

The FSM Constitution limits the FSM national government's (executive branch) power and confers "residual powers" to the states, necessitating a complex and lengthy consultative process before the implementation of new national policies, regulations and programs.

1.1.3 Compact of Free Association

In 1986 FSM entered into a Compact of Free Association (Compact) with the US. FSM has full control over all aspects of domestic and foreign policy, with the exception of defense and security issues for which the United States is responsible. The Compact also affords the US defense and operating rights in FSM and grants FSM citizens access to US federal programs and favorable provisions for travelling to and working in the US.

A second Compact agreement, the Amended Compact of Free Association (Amended Compact), came into effect in 2004 and provides \$1.8 billion of funding over twenty years, including contributions to a Compact Trust Fund (CTF) intended to replace the direct financial assistance that concludes in 2023.

1.2 Economic and Strategic Planning

1.2.1 The Economy

The FSM economy has languished over the last decade and real GDP growth has averaged -0.4 percent. This has resulted in declining living standards and contributed to net outward migration. An ongoing excess of imports over exports sees a continuing deficit in the trading account of the balance of payments. The economy is firmly tied to overseas aid which is significant relative to domestic revenues at the State level and is dominated by funding coming from the Amended Compact.

Most recently the March 2012 JEMCO resolution that no further Amended Compact infrastructure grants will be made until the IDP 2004 is updated has led to a decline in construction activity of 26 percent in FY2013 followed by 41 percent in FY2014. Along with a 15 percent decline in domestic fisheries in 2013 this has contributed to the worst period of economic performance since the start of Amended Compact

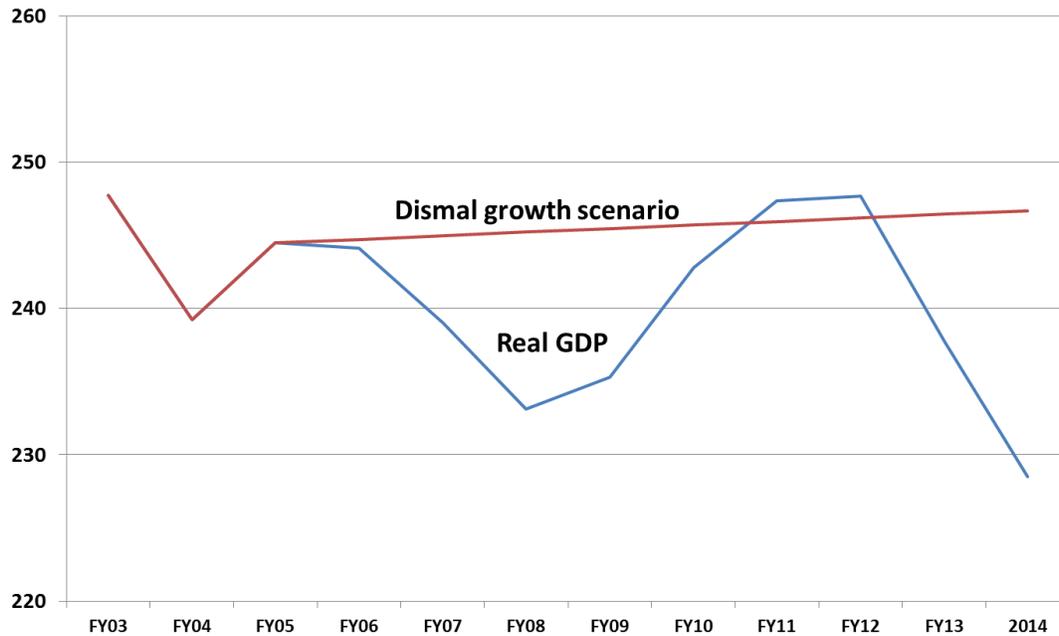
¹ (Jones, 2011) - The State of Pacific Towns and Cities

² (World Bank, 2014) - International Development Association and International Finance Corporation Country Partnership Strategy for the Federated States Of Micronesia for the period FY2014 – 2017

in FY2004 with sharp contractions in GDP of -3.6 percent in FY2013 followed by -3.4 percent in FY2014 as illustrated in Figure 2.

At the end of FY2015 there is \$111.3 million in unallocated Amended Compact infrastructure funds. Obtaining the release of these funds is critical to restoring construction activity and getting GDP out of negative growth. Infrastructure development will contribute to significant improvement in GDP with the availability of Amended Compact arrears and annual appropriations over the next four years.

Figure 2 – Real GDP Levels (\$ millions)



Source: CMD presentation to JEMCO, August 2015 – “Dismal growth scenario” was the lowest forecast growth scenario in the SDP

In view of past economic performance and the end of Amended Compact grants in 2023 the FSM governments developed an economic growth strategy, the **2023 Action Plan** (section 1.2.3), the aim of which is to ensure that the transition from Amended Compact grants to CTF revenue does not threaten service delivery. The thrust of the plan is to grow the economy by strengthening the private sector while lessening the dependence on the public sector. The overall target of 2 percent per annum economic growth is dependent on reforming structure, tax and public administration. The economic growth target also requires improved performance in six key areas: tourism, agriculture, fisheries, energy, information and communication, and infrastructure.

Expanding public infrastructure will add to the productive capacity of the economy in the longer term and in the short term create jobs. To facilitate this a key component of the 2023 Action Plan is to accelerate appropriation of the Amended Compact infrastructure arrears of \$111.3 million over four years (FY2016 to FY2019). Together with the renewed flow of annual Amended Compact infrastructure funds, this will provide a \$207.4 million boost to the construction sector in particular and the economy in general.

1.2.2 Previous Strategic and Infrastructure Planning

Strategic Development Plan 2004 – 2023

FSM’s Strategic Development Plan 2004 – 2023: The Next 20 Years, Achieving Economic Growth and Self-Reliance (the SDP) was prepared with broad participation of a wide range of stakeholders and

provides a road map for social and economic development in FSM for the period 2004 – 2023. The SDP states four main objectives:

1. Stability and security - to maintain economic assistance at levels that support macroeconomic stability; achievement of this objective requires levels of funding close to prevailing levels, to avoid the large periodic step downs in funding that were a characteristic of the first 14- year Compact funding package.
2. Improved enabling environment for economic growth - to be achieved through the FSM commitment to economic reform and the provision of an enabling environment to support open, outward - oriented and private sector led development.
3. Improved education and health status – use of the annual Compact grant to support the provision of basic services in education and health.
4. Assured self-reliance and sustainability - to be achieved through establishment of a Trust Fund that would, after a period of time, replace the annually appropriated transfers from the US.

The sustained growth strategy presented in the SDP has six key areas:

1. macroeconomic stability
2. good governance
3. developing an outward-oriented, private sector-led economy
4. investing in human resources (improved health and education services)
5. investing in infrastructure
6. long-term environmental sustainability

The SDP consists of three volumes. Volume 1 provides for the macro-economic framework and the policies for each sector, Volume 2 contains the sector planning matrices and Volume 3 is the Infrastructure Development Plan.

1.2.3 Recent Economic and Strategic Planning

Working with Development Partners

While the US through the Amended Compact and Federal grants is the dominant partner, other main bilateral partners include Australia, China, Japan, the European Union through regional bodies such as the Secretariat of the Pacific Communities, and the United Nations.

Historically, FSM’s dialogue and coordination with non-US bilateral development partners has been weak due to the dominance of the Compact, but with 2023 looming has recently been strengthened. An Overseas Development Assistance (ODA) policy was approved by Congress in January, 2014. The purpose of the policy is to establish approaches to managing ODA such that benefits are maximized for all stakeholders. The policy acknowledges, recognizes and respects the unique circumstances of each state but also seeks commonalities across FSM. Implementation of the policy began in 2014.

A Development Partners Meeting took place in November, 2012 with the purpose of accelerating implementation of the SDP and seeking development partner support across four broad areas:

1. growing the local economy through enhancing agriculture production and the production of value added agriculture products, maximizing benefits of FSM’s fisheries resources, promoting tourism, developing clean, renewable energy sources
2. developing economic infrastructure, including transport, communications, and power
3. improving health and education services
4. mainstreaming responses to climate change and mitigating threats to the environment

A second Development Partners meeting is scheduled for 2016 where development partners will be invited to commit to funding IDP priority projects.

2023 Action Plan

The FSM Governments prepared the **2023 Action Plan** in 2014 aimed at addressing the fiscal and economic challenges leading up to and post FY2023. It is based on the mutual principals of Amended Compact which are to “promote the economic advancement, budgetary self-reliance, and economic self-sufficiency of the FSM”. The 2023 Action Plan includes a long-term fiscal reform strategy and a long-term sustainable growth strategy with the emphasis on private sector led growth.

With infrastructure investments an important driver for economic growth, directly by generating employment and income and indirectly facilitating the development of other sectors of the economy, a key component of the plan is to eliminate the infrastructure funding backlog within four years.

1.2.4 State Strategies

Chuuk

Chuuk is currently developing a strategic development plan to guide the future development of the State.

Kosrae

In 2013 the **Kosrae Strategic Development Plan: 2014 – 2023** (KSDP) was finalized, recognizing the needs and aspirations of the Kosrae community and stakeholders in Kosrae. The KSDP takes a 10 year view of Kosrae and its place in Federated States of Micronesia and the North Pacific region and the opportunities and concerns that it faces.

Additional aspects of the KDSP are included in Volume 4.

Pohnpei

The **Pohnpei State Strategic Development Plan** (PSDP) is a strategic policy document intended to organize and integrate existing sector plans and programs, and the SDP to meet the unique needs of Pohnpeian citizens and residents and to present a unified vision of Pohnpei’s future.

Additional aspects of the PDSP are included in Volume 5.

Yap

Yap is currently without its own strategic development plan.

1.2.5 Sector Policies

Sector Policies

The goals and institutional reforms included in the IDP 2004 for each sector have largely been incorporated into the IDP. More recently policies have been released for the energy and telecommunications sectors, and more relevant objectives in the education sector have been identified in State school repair and construction master plans and in the College of Micronesia Master Plan.

Energy Sector Policy

The National Energy Policy³ has four primary components: Policy and Planning, Conventional Energy (fossil fuel), Energy Efficiency and Conservation, and Renewable Energy.

The policy has targets to increase the share of renewable energy to 30 percent of energy supply by 2020 and to increase energy efficiency by 50 percent, also by 2020. With the electric power sector being an important component of the larger energy sector these targets have been taken into consideration when identifying and prioritizing projects in the IDP.

³ (DRD, DoE, 2010) - Federated States of Micronesia Energy Policy, Volumes I and II

Telecommunications Sector Policy

The Information and Communications Technology (ICT) Policy⁴ aims at:

1. achieving accessible and affordable communications for all
2. strengthening ICT human resources and increasing human resource development opportunities through ICT
3. improving economic growth and sustainable development through ICT
4. utilizing ICT for good governance
5. creating an enabling ICT environment through policy reform and improved legal frameworks

The aims of the policy have been taken into consideration when identifying and prioritizing projects in the IDP.

1.3 Infrastructure Planning

1.3.1 Infrastructure Development Plan 2004-2023

The **Infrastructure Development Plan 2004-2023** (IDP 2004) (Volume 3 of the SDP) was prepared by the Department of Transportation, Communication and Infrastructure (DTCI) in consultation with the States and under the guidance of a national IDP Steering Committee. IDP 2004 assessed the state of infrastructure and the needs in nine sectors and incorporated a program and budget covering the period FY2004-FY2023. Special consideration was given to the likely funding available from the Amended Compact and from other sources.

The National Vision and Objective statements in IDP 2004 for Infrastructure are:

Vision: To improve the life and livelihood of all FSM citizens with affordable, reliable and environmentally sound infrastructure.

Objective: To promote the sustainable social and economic development of FSM through the provision and utilization of cost-effective, safe, reliable and sustainable infrastructure.

The IDP 2004 included \$748 million of indicative funding for infrastructure investments to be implemented over the 20-year period. The IDP 2004 also included a further \$878 million of “unfunded projects” for a total of \$1,626 million. Amounts by sector are shown in Table 1.

Actual funding in FY2004 to FY2015 amounted to \$600 million representing 80 percent of IDP 2004 indicative funding with eight years of the IDP 2004 to run. If the withheld Amended Compact funding FY2013 to FY2015 had been granted actual funding would be around 90 percent of the IDP 2004 indicative funding.

Compared with the average IDP 2004 funding of \$35 million per year, the actual average funding rate of around \$58 million per year with full Amended Compact funding demonstrates FSM’s ability to source additional infrastructure funds.

⁴ (DTCI, DoC, 2012) - Federated States of Micronesia National ICT and Telecommunications Policy

Table 1 – Planned IDP 2004 Sector Investments

Sector	IDP 2004 Project Totals 2004-2023 (\$ Millions)			Actual FY2004 to FY2015 ¹		
	Funded	Unfunded	Total	Total (\$ millions)	% of IDP Funded	% of IDP Total
Electric Power	81.1	56.9	138.0	48.0	59%	35%
Water/Wastewater Systems	141.9	266.2	408.1	41.0	29%	10%
Solid Waste Management	40.8	102.5	143.3	0.3	1%	0%
Roads and Pedestrian Facilities	120.9	155.6	276.5	56.8	47%	21%
Maritime Transportation	88.5	141.6	230.1	32.5	37%	14%
Air Transportation	68.4	17.1	85.5	237.8	348%	278%
Telecommunications ²				51.4		
Education	135.4	138.1	273.5	45.8	34%	17%
Health	32.5	0.0	32.5	11.2	34%	34%
Government Administrative Buildings	27.3	0.0	27.3	17.5	64%	64%
Infrastructure Maintenance ³				36.2		
Program Management (incl. PMU, designs)	10.7	0.0	10.7	21.1	197%	197%
TOTAL	747.5	878.0	1,625.5	599.6	80%	37%

Notes:

1. Estimate based on Amended Compact Grants, ODA Funding & National & State Government appropriations
2. Telecommunications Systems was included in IDP 2004 as a sector but did not have an investment plan
3. Maintenance funding included in IDP 2004 sector funding

1.3.2 Infrastructure Development Plan 2016 - 2025

This **Infrastructure Development Plan FY2016 – FY2025** (the IDP or Plan) outlines the governments of the FSM priorities and plans for major infrastructure initiatives over the next 10 fiscal years. This is the second infrastructure development plan and the prioritization of projects will be reviewed at regular intervals as part of the national and state planning and budgeting processes. The next review of project priorities will be undertaken in FY2019.

The IDP includes infrastructure development initiatives of national, state and local significance. It is the result of extensive consultation with infrastructure managers and stakeholders at national, state and local level and covers the following sectors:

- electric power
- water/wastewater systems
- solid waste management
- roads and pedestrian facilities
- maritime transportation
- air transportation
- telecommunications
- education
- health
- government administrative buildings

The IDP presents a systematic approach to infrastructure planning, coordination and implementation, setting out the governments' priorities for infrastructure investments, developed at the national level and across the states and sectors on a project by project basis. In particular the IDP provides:

- the foundation for medium and longer term infrastructure budget planning through its overview of the scale and sequencing of future investment and financing needs
- a strengthened institutional framework for infrastructure planning and implementation at program and project levels
- an approach for transitioning to whole-of-life asset management
- consolidated guidance for FSM's development partners on the priorities and scope of FSM's infrastructure needs over the next 10 years

1.3.3 Amended Compact Requirements

Article V of the Amended Compact sets out the Pre-Award Requirements for grant assistance including the submission of annual implementation plans developed by the Government of the FSM in conjunction with its budget process. It further goes on to describe additional requirements for infrastructure assistance, including:

(e) The Government of the Federated States of Micronesia shall develop and submit a nationwide infrastructure development plan (IDP) to the Government of the United States for review. Projects may be phased over two or more years. The annual implementation plan for the infrastructure sector referred to in (b) above, shall include a list of integrated state and national priorities for new and reconstructed capital infrastructure to be financed by Compact funds, cost requirements, and implementation schedule. This project list and any revision thereto shall be submitted to the Government of the United States. Insofar as Grant funds are involved, the IDP shall be subject to the concurrence of the Committee.

1.4 Environment and Climate

The SDP incorporates an Environment Sector Strategic Plan with its own strategic goals, policies and outcomes, including:

Strategic Goal 1: Mainstream environmental considerations, including climate change, in national policy and planning as well as in all economic development activities

(SDP, section 7.2.1)

FSM's climate change profile and vulnerability and disaster risk reduction have been documented in a range of reports, including:

- Analysis of Integrating Disaster Risk Reduction and Climate Change Adaptation in the US Pacific Islands and Freely Associated States⁵
- Climate Change Profile, Federated States of Micronesia⁶
- Climate Variability, Extremes and Change in the Western Tropical Pacific⁷

⁵ (Anderson, 2012) - Analysis of Integrating Disaster Risk Reduction and Climate Change Adaptation in the US Pacific Islands and Freely Associated States, Technical Report 201105, Hazards, Climate, and Environment Program

⁶ (GCCA, July 2013) - Climate Change Profile, Federated States of Micronesia, Version 2

⁷ (ABM/CSIRO, 2014) - Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports, Pacific-Australia Climate Change Science and Adaptation Planning Program

1.4.1 Environmental Planning

The Environmental Sector Strategic Plan includes the following outcome measure for Strategic Goal 1:

Environmental Impact Assessments (EIA) carried out for 100% of all government and non-government development activities to minimize adverse impacts of development on the nation's environment from 2005 onwards

(SDP, section 7.2.1, para 57)

Environmental legislation does not necessarily require EIAs on all projects however in keeping with the intent of Strategic Goal 1 and the above outcome measure **all IDP projects will comply with relevant environmental planning provisions**, unless explicitly exempt.

1.4.2 Current Climate

Due to the geographical spread of the FSM, the climate varies on an east to west basis. There is little seasonal variation in temperature with less than 3°F (1.5°C) between the average hottest and coolest months. There are two distinct seasons; a wet season from November to April and a dry season from May to October. Droughts, tropic storms, storm waves, flooding and landslides all affect FSM.

FSM's climate can vary considerably from year to year due to the El Niño-Southern Oscillation (ENSO) that sees both El Niño and La Niña events on a cyclic basis. El Niño events are associated with drier conditions and occasional droughts when associated water and food shortages can occur. During La Niña, above-average numbers of tropical storms occur as well as more rainfall.

1.4.3 Expected Future Climate

Predictions of climate change in countries of the Western Pacific, including FSM, has been developed under Pacific-Australia Climate Change Science and Adaptation Planning Program⁷. All emissions scenarios show that temperatures will rise in FSM, as will sea level and ocean acidification. The intensity and frequency of days of extreme rainfall are projected to increase and tropical storm frequency is projected to decline.

The ENSO is expected to continue to influence variability in FSM's climate however as there is no consistency in projections of future ENSO activity it is not possible to determine whether inter-annual variability in rainfall will change in the future.

For the period to 2100, the latest global climate model projections and climate science findings indicate:

1. El Niño and La Niña events will continue to occur in the future (very high confidence), but there is little consensus on whether these events will change in intensity or frequency;
2. annual mean temperatures and extremely high daily temperatures will continue to rise (very high confidence)
3. average annual rainfall is projected to increase (medium confidence), with more extreme rain events (high confidence)
4. drought frequency is projected to decrease (medium confidence)
5. ocean acidification is expected to continue (very high confidence)
6. the risk of coral bleaching will increase in the future (very high confidence)
7. sea level will continue to rise (very high confidence)
8. wave height is projected to decrease in December–March (low confidence), and waves may be more directed from the south in the June–September (low confidence)

1.4.4 Response to Climate Change

National Level

The National Climate Change Policy of 2009⁸ includes the following key elements related to infrastructure:

1. Mitigation

.....

- c. To maintain and enhance FSM as a negative carbon country through effective management of our natural sinks, bio-sequestration, promotion of renewable energy and energy efficiency and other appropriate means.
- d. To prioritize actions that address both mitigation and adaptation such as water development using renewable energy (solar water desalination) and other relevant actions.

2. Adaptation

- a. To require all development activities in FSM to take into account projected climatic changes in the design and implementation as stipulated in the FSM Strategic Development Plan/Infrastructure Development Plan (SDP/IDP).
- b. To use eco-system based approaches where applicable.

3. Technology Transfer

- a. To optimize the use of local technologies where available.
- b. To identify technologies that are locally appropriate.
- c. To enhance easy access to, and sustainable use of new technologies.

4. Finance

- a. To maximize the use of local resources through establishment of sustainable financing mechanism to support adaptation, mitigation and resource management initiatives.

In 2012 FSM published an Action Plan⁹ and in 2013 passed a Climate Change Law¹⁰, a key requirement being that certain National Departments prepare plans and policies on climate change consistent with the provisions of the Climate Change Policy.

In June 2013 Government produced the Nation Wide Integrated Disaster Risk Management and Climate Change Policy¹¹ under which the DTCI will integrate the Policy into its infrastructure development policy and plans.

A Council on Environmental Management and Sustainable Development (or Sustainable Development Council) chaired by the Vice-President was established through Presidential Order No. 14. The functions and purposes of the Sustainable Development Council are to advise and make recommendations to the President on matters affecting the environmental management and sustainable development of the FSM.

Potential projects and the approach to climate proofing were previously addressed in a study in 2006¹². In 2014 DTCI prepared a Climate Adaptation Guide for Infrastructure¹³. This provides a first step in mainstreaming climate change in all infrastructure projects in FSM.

State Level

Climate Change Action Plans have been developed for Kosrae and Yap; preparation of an Action Plan for Pohnpei is ongoing and for Chuuk has yet to start.

⁸ (GoFSM, 2009) - Nationwide Climate Change Policy 2009.

⁹ (GoFSM, 2012) - National Climate Change and Health Action Plan, December 2012.

¹⁰ (GoFSM, 2013a) - Eighteenth Congress Of The Federated States Of Micronesia Second Regular Session, 2013 Congressional Bill No. 18-72, C.D.1, C.D.2, C.D.3 Pc No. 18-178 Public Law No. 18-34.

¹¹ (GoFSM, 2013b) - Nation Wide Integrated Disaster Risk Management and Climate Change Policy

¹² (ADB Pacific Studies Series, 2006) - Climate Proofing – A Risk-based Approach to Adaptation

¹³ (DTCI, DoI, 2014) - Climate Adaptation Guide for Infrastructure

The current State Action Plans identify requirements for infrastructure under three headings, and their relevance to the IDP are summarized as:

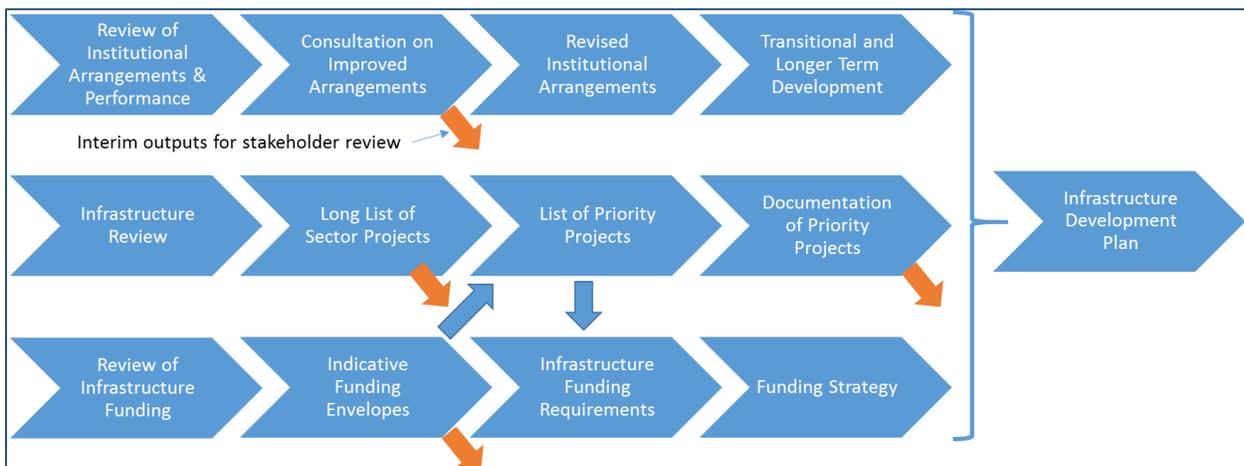
- Strengthen the integrity of the development consent process and environmental impact assessments: environmental concerns, including both impacts and geo-hazard issues should be identified:
- early in the scoping phase, so that the costs of mitigation can be allowed for when setting budget
- during design, so that appropriate mitigation measures are part of the design
- during construction to ensure the appropriate environmental management plan is followed and mitigations properly implemented
- Apply Land Use Planning: available flood, sea level change and landslide risk maps are used particularly in assessing sites for infrastructure development
- Actively Enforce Building Codes: in the absence of formal building codes, adopt and follow standards and practices that are appropriate to the infrastructure being developed, including aspects relevant to climate change adaptation

1.5 Plan Development Process

1.5.1 Components and Overall Approach

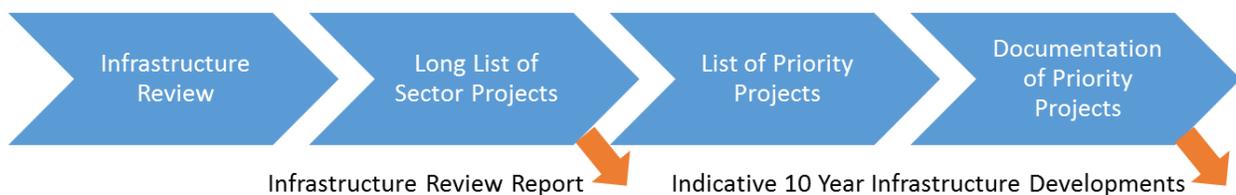
Development of the IDP involved three main components; **infrastructure**, **institutional** and **funding**, and the overall approach illustrated in Figure 3.

Figure 3 – IDP Development Approach



The three components are described below.

1.5.2 Infrastructure



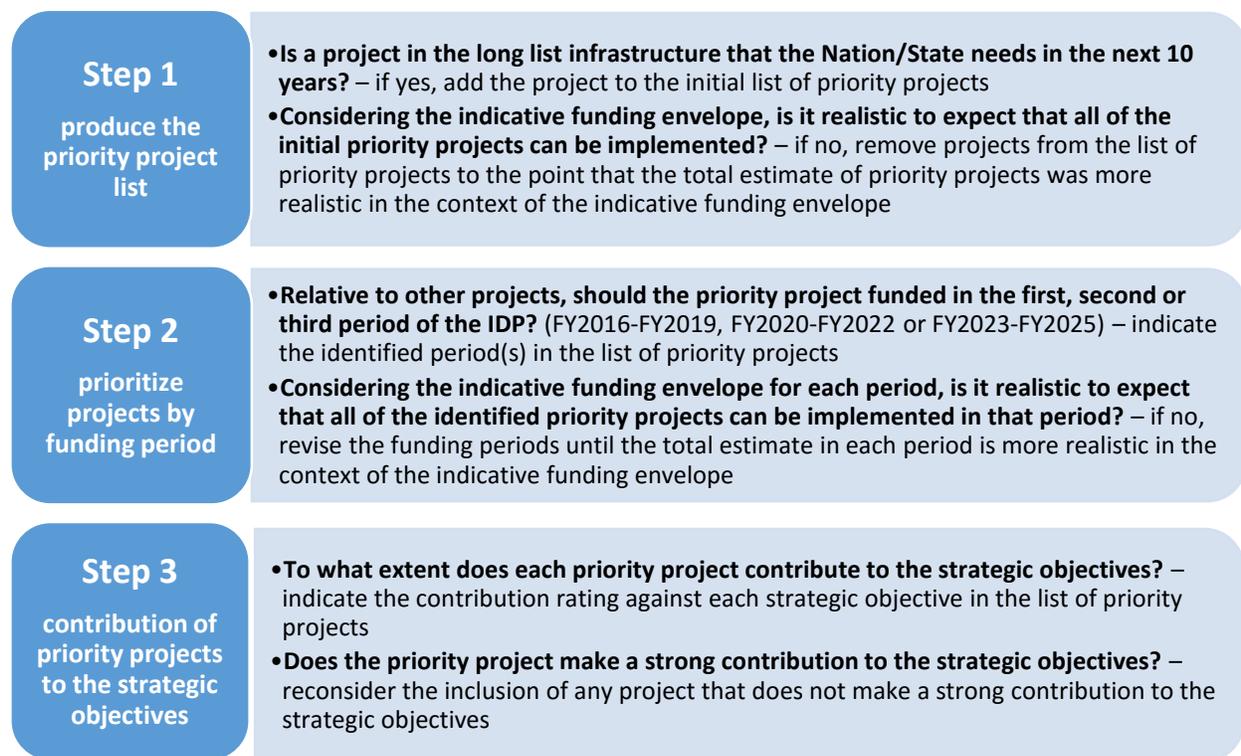
The **infrastructure review** determined the current status of infrastructure in the ten sectors across FSM, including the demand for infrastructure and current infrastructure performance. Background reports and data were reviewed and visits were made to the States to learn of the demands and needs from the

Executive and infrastructure managers. From these sources **long lists of sector projects** were produced and the results documented in the **Infrastructure Review Report**.

Subsequent to the infrastructure review and long lists of projects, additional interactions at national level and in each State produced a **list of priority projects** for each jurisdiction with the **indicative funding envelopes** providing guidance on the total funding available for the priority projects. The additional interactions also collected and/or confirmed all of the information for the **documentation of priority projects** in the form of the **priority project outlines** included in Part 4 of each of the following IDP volumes.

Project prioritization was undertaken with a group that included representatives of the Executive and Legislature, infrastructure managers and civil society representatives. Inputs to the process included current Infrastructure Planning and Implementation Committee (IPIC) listings and priorities and the long list of projects. The process set out in Figure 4 was followed by the group to identify, prioritize and rate the projects included in their IDP.

Figure 4 – Project Prioritization



The prioritization group also assessed the contribution that each priority project makes to the Strategic Objectives (section 2.2) to produce a **Strategic Rating** out of 10. Priority projects were rated for their contribution to each of the nine component objectives using the contribution ratings in Table 2. The Strategic Rating was determined using the following formula:

$$\text{Strategic Rating (out of 10)} = \sum \text{Rating of each strategic objective} / 4.5$$

The **indicative 10 year infrastructure developments** from each State project prioritization exercise were consolidated in a report to the Governor for review and endorsement. Any revisions to the information provided have been carried forward into the IDP.

Table 2 – Contribution ratings

Rating 1	The project will make little or no contribution to the strategic objective
Rating 2	The project will make a low contribution to the strategic objective
Rating 3	The project will make a medium contribution to the strategic objective
Rating 4	The project will make a high contribution to the strategic objective
Rating 5	The project will make a very high contribution to the strategic objective

1.5.3 Institutional Component

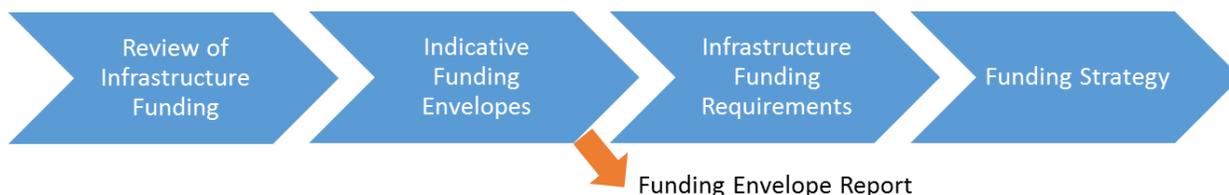


The **review of institutional arrangements & performance** determined the strengths and weaknesses of the institutional arrangements that have been in place in the period since 2004. Background reports and data were reviewed, discussions were held with the Program Management Unit (PMU) and visits were made to the States to learn of their IDP implementation issues and expectations.

A number of alternative models were developed for **consultation on improved arrangements** with national and state stakeholders, at the conclusion of which a **Report on Institutional Strengthening** was finalized.

The recommended institutional arrangements were strongly endorsed by all State Governors and supported by the President. **Revised institutional arrangements** were subsequently developed in more detail, including identification to changes in legislation and regulations. Actions for **transitional and longer term development of the institutional arrangements** have been identified and incorporated into the IDP.

1.5.4 Funding Component



The **review of infrastructure funding** identified \$608 million of indicative baseline funding for infrastructure development expected from traditional sources over the next 10 years, including from:

- National Government revenue
- Amended Compact
- multilateral development banks
- bilateral development assistance

The **indicative funding envelopes** set out the availability of infrastructure development funding by source by year for each state and the national program and provided guidance to the identification of priority projects. The indicative funding envelopes did not:

- factor in future one-off project funding that is additional to the baseline funding

- include any provision for UN-related climate change adaptation funding

A **Funding Envelope Report** provided full details of the review of infrastructure funding and the resultant indicative funding envelopes.

The **infrastructure funding requirements** derived from the **lists of priority projects** exceed the indicative baseline funding, recognizing the availability of additional funding for infrastructure development in addition to the baseline funding.

The **funding strategy** set out in Part 3 incorporates:

- an increase in the indicative baseline funding to \$751.9 million, including \$31 million of climate adaptation funding over 10 years
- the annual appropriation of funds by source and by sector over the duration of the IDP

Part 2 Infrastructure Strategy

2.1 Role of Infrastructure

Infrastructure is a critical component of the economic and social fabric of society. In the context of the IDP it is the fundamental facilities and systems providing the services and facilities necessary for the economy and society to function. It comprises the roads, bridges, schools, hospitals, ports, airports, water supply, waste water, solid waste, electrical grids and telecommunications; the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions.

One way to increase economic output quickly is to expand public infrastructure that would add to the productive capacity of the economy in the longer term and create jobs in the near term. A key component of the Action Plan is the accelerated spending of the infrastructure arrears of \$126 million over the next four years.

Development literature and field experience worldwide underscore the influence of market expanding infrastructure in fostering economic growth and productivity, particularly in emerging economies and there is ample evidence that market expanding infrastructure both raises growth and lowers income inequality.

(2023 Action Plan)

2.2 Strategy Objectives

2.2.1 Vision and Objective

The national **Vision** and **Objective** statements in IDP 2004 remain appropriate for the IDP:

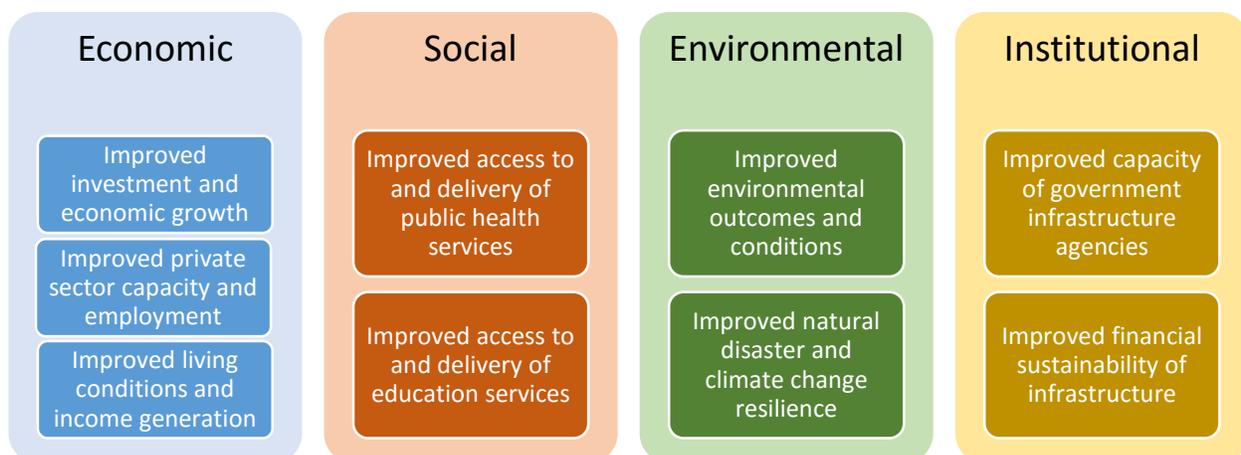
Vision: To improve the life and livelihood of all FSM citizens with affordable, reliable and environmentally sound infrastructure.

Objective: To promote the sustainable social and economic development of FSM through the provision and utilization of cost-effective, safe, reliable and sustainable infrastructure.

2.2.2 Component Objectives

Taking into account the strategic statements in the IDP 2004 and more recently the 2023 Action Plan and the challenges presented by climate change, the component objectives in Figure 5 have been adopted in the IDP. All priority infrastructure projects have been rated against these objectives to ensure the overall alignment of the IDP investments with its strategic objectives.

Figure 5 – Component Strategic Objectives



2.3 Sector Objectives

Within the overall infrastructure development objectives each sector has a number of identified goals consistent with those incorporated into the IDP 2004.

2.3.1 Electric Power

The **Goal** is to develop electric power infrastructure 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:

1. households are provided with power for basic livelihood purposes
2. local manpower can realize production opportunities and potential
3. power is available for basic services such as schools, hospitals, water and wastewater systems
4. national targets for renewable energy are achieved

2.3.2 Water/Wastewater Systems

The **Goal** is to provide water and wastewater infrastructure that:

1. meets the demand for water supply and wastewater infrastructure in an effective and efficient manner
2. improves existing water abstraction, treatment and distribution systems
3. evaluates and institutes technologically appropriate liquid waste management systems
4. improves and initiates wastewater facilities to increase coverage and contribute towards improvements in public health and environmental conditions
5. contributes towards the prevention of water borne diseases through the provision of potable water supplies

2.3.3 Solid Waste Management

The **Goal** is to provide solid waste management infrastructure that:

1. meets the demand for solid waste infrastructure in an effective and efficient manner
2. evaluates and institutes technologically appropriate solid waste management systems
3. reduces volume of solid waste for disposal by maximizing recycling and separation opportunities thereby minimizing the land area required
4. prevents solid waste having adverse effects on the terrestrial and marine environments

2.3.4 Road and Pedestrian Facilities

The **Goal** is to provide road and pedestrian facilities infrastructure that:

1. enables 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
2. meets the demand for road and pedestrian infrastructure in an effective and efficient manner, including concrete/asphalt paving of all primary road systems
3. incorporates pedestrian walkways in the design and construction of roads
4. extends cross-island and inner roads to facilitate agricultural and other development
5. is resilient to the impacts of climate change

2.3.5 Maritime Transportation

The **Goal** is to provide maritime transportation infrastructure that:

1. enables 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
2. provides improved dock facilities to meet both fisheries and commercial shipping needs
3. facilitates modern, safe and efficient inter-state and inter-island passenger and cargo vessels
4. coordinates and facilitates the improvement of aids to navigation

2.3.6 Air Transportation

The **Goal** is to provide air transportation infrastructure that:

1. provides 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
2. enables air carrier airports to improve safety and eliminate payload restrictions
3. improves all domestic airports to the required standards of safety

2.3.7 Telecommunications Systems

The **Goal** is to provide telecommunications systems infrastructure to:

1. achieve accessible and affordable communications for all
2. strengthen information and communications technology (ICT) human resources and increase human resource development opportunities through ICT
3. improve economic growth and sustainable development through ICT
4. utilize ICT for good governance
5. create an enabling ICT environment through policy reform and improvements in legal frameworks

2.3.8 Education

The **Goal** is to provide education infrastructure that:

1. ensures that the learning experience is enhanced and diversified
2. improves student and faculty interest and morale, and thereby improves the effectiveness of education and significantly increases the student retention rates through graduation from elementary or secondary schools
3. removes 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
4. continues to assist and strengthen private educational institutions to the nation
5. is supported by facilities improvement programs that address the need for maintenance, renovation and construction of new facilities to support quality student instruction
6. is supported by equipment maintenance guidelines
7. is resilient to potential natural disasters and the impacts of climate change

2.3.9 Health

The five strategic goals of health care¹⁴ are to:

1. improve primary health care services

¹⁴ (DHSA, 2013) - Department of Health and Social Affairs Annual Report 2013

2. improve secondary health care services
3. prioritize health promotion services on major health problems
4. develop a sustainable health care financing mechanism
5. improve capacity and accountability systems

In support of those goals, the **Goal** of health infrastructure is to:

1. provide modern and efficient hospital facilities to meet the health needs of the nation
2. facilitate an upgraded the curative health system to minimize the needs for referrals to foreign medical facilities
3. provide health care facilities within reasonable access of all citizens
4. have facilities improvement programs that address the need for maintenance, renovation and construction of new facilities
5. have adequate funds for maintenance to prevent rapid deterioration of facilities
6. be resilient to potential natural disasters and the impacts of climate change

2.3.10 Government Administrative Buildings

The **Goal** is to provide government administrative building infrastructure that:

1. provides modern and efficient facilities required for government personnel to effectively undertake their functions
2. provides an environment that enables equipment used by government personnel to be adequately maintained
3. encourages a high morale and work ethic amongst government employees by providing a suitable work environment
4. provides elected officials with suitable office space and chambers in which to conduct their responsibilities

Part 3 Investment Strategy

3.1 FSM Infrastructure Funding

3.1.1 National Government

Fiscal position

The National Government has a relatively low level of debt providing latitude for judicious borrowing, including to leverage grant funds from other sources.

Infrastructure development

Prior to FY2014 national infrastructure projects were funded by donors including a 10 percent allocation from Amended Compact infrastructure grants. In FY2014 the government cut the Amended Compact infrastructure grant allocation to 5 percent and from FY2015 onwards the National Government receives no infrastructure funding from the Amended Compact.

As a response to the March 2012 Joint Economic Management Committee (JEMCO) resolution to withhold infrastructure grants pending the updating of the IDP 2004, the National Government is making a specific allocation from its own revenue amounting to \$10 million in both FY2015 and FY2016 for State priority infrastructure projects. In addition there have been separate National Government appropriations for outer island airstrip improvements and power generation. The indicative estimate for FY2017 onwards is \$11 million as shown in Table 3.

Infrastructure maintenance

National Government funding for maintenance of national and state assets is set out in Table 3.

The National Government provides a general appropriation for maintenance; \$3.36 million in FY2016 and FY2017. The indicative estimate for FY2018 onwards is \$3.5 million.

In addition the National Government appropriates funding for the maintenance of state secondary roads and water supply. The planned/indicative estimate for FY2016 onwards is \$2.8 million.

Up until FY2014 the National Government received an allocation under the Amended Compact for Infrastructure Maintenance Fund (IMF) funding. The estimated amount of the National Government's unspent IMF allocation is \$430,000, plus the National Government's matching funds.

3.1.2 State Governments

Fiscal position

The National Government's aggregate fiscal outcome in recent years masks the large difference between the performance of the four State Governments. Their performance varies but in FY2014 it was at an all-time low. For the first time all States recorded deficits and declines in their economies in the same year.

Infrastructure development

The States are dependent on development partner funding and National Government appropriations for virtually all infrastructure development.

Infrastructure maintenance

State governments struggle to match the 5 percent IMF Amended Compact infrastructure funding for maintenance. The Office of International Affairs' (OIA) process for releasing IMF grants requires physical evidence of the appropriation and deposit of matching funds by the States.

The amounts identified for maintenance in Table 3 include the funds required from the States to match the Amended Compact IMF grants. The funds required from FY2016 to FY2023 to match the Amended

Compact IMF grants and arrears for all States averages \$1.9 million per annum. From FY2024 the funds required to match the CTF IMF grants is estimated at \$0.6 million per year.

Table 3 – FSM Governments infrastructure development and maintenance funding

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
National Government General Maintenance										
National	150,000	150,000	-	-	-	-	-	-	-	-
Chuuk	460,000	460,000	1,477,700	1,477,700	1,477,700	1,477,700	1,477,700	1,477,700	1,477,700	1,477,700
Kosrae	300,000	300,000	423,500	423,500	423,500	423,500	423,500	423,500	423,500	423,500
Pohnpei	-	-	984,550	984,550	984,550	984,550	984,550	984,550	984,550	984,550
Yap	300,000	300,000	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250
Non-specific Indicative	2,150,000	2,150,000	-	-	-	-	-	-	-	-
Total	3,360,000	3,360,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000
National Government state secondary roads, water supply maintenance										
National	-	-	-	-	-	-	-	-	-	-
Chuuk	1,182,160	1,182,160	1,182,160	1,182,160	1,182,160	1,182,160	1,182,160	1,182,160	1,182,160	1,182,160
Kosrae	338,800	338,800	338,800	338,800	338,800	338,800	338,800	338,800	338,800	338,800
Pohnpei	787,640	787,640	787,640	787,640	787,640	787,640	787,640	787,640	787,640	787,640
Yap	491,400	491,400	491,400	491,400	491,400	491,400	491,400	491,400	491,400	491,400
Indicative	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000
Total	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000
National Government Development Funding										
National	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Chuuk	4,011,000	4,011,000	4,011,000	4,011,000	4,011,000	4,011,000	4,011,000	4,011,000	4,011,000	4,011,000
Kosrae	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000
Pohnpei	2,672,000	2,672,000	2,672,000	2,672,000	2,672,000	2,672,000	2,672,000	2,672,000	2,672,000	2,672,000
Yap	1,667,000	1,667,000	1,667,000	1,667,000	1,667,000	1,667,000	1,667,000	1,667,000	1,667,000	1,667,000
Total	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
All Governments Matching IMF Funding										
National	-	-	-	-	-	-	-	-	-	-
Chuuk	507,600	507,288	506,842	506,261	505,545	504,695	503,709	502,589	257,120	261,645
Kosrae	145,475	145,386	145,258	145,091	144,886	144,642	144,360	144,039	73,689	74,986
Pohnpei	338,200	337,992	337,695	337,308	336,831	336,264	335,607	334,861	171,312	174,327
Yap	210,999	210,870	210,684	210,442	210,145	209,791	209,382	208,916	106,880	108,761
IMF Arrears	1,531,268	1,531,268	1,531,268	1,531,268	-	-	-	-	-	-
Total	2,733,542	2,732,804	2,731,746	2,730,370	1,197,407	1,195,392	1,193,058	1,190,405	609,000	619,718
TOTAL DEVELOPMENT	10,000,000									
TOTAL MAINTENANCE	10,424,809	10,424,071	10,563,014	10,561,637	7,497,407	7,495,392	7,493,058	7,490,405	6,909,000	6,919,718

Source: CMD

3.2 Amended Compact and other US Grant Funding

The US government provides infrastructure development and maintenance assistance to FSM through Federal grants (and potentially loans) and the Amended Compact.

3.2.1 Amended Compact

Under the Amended Compact FSM is to receive payments of \$92.7 million per year (2004 dollars) with annual partial adjustments for inflation as sector grants, to finance an annual audit, and as contributions into the CTF. The Amended Compact provides a minimum 30 percent of sector grant funding for public infrastructure (\$24 million in FY2015) and sets out the funding priorities.

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, roads, sea walls, and energy development including renewable energy that cannot be funded through the rate structure.

(Amended Compact, Article II Economic Assistance Implementation)

Five percent of the sector grant for infrastructure is set aside for the IMF.

The FSM Congress legislates the distribution of the Amended Compact sector grants (Table 4). From FY2015 on, all the grants are distributed to the States.

Table 4 – Distribution of Amended Compact sector grants

	FY2012	FY2013	FY2014	FY2015 on
National	10.00 %	10.00 %	5.00 %	0.00 %
Chuuk	38.00 %	38.00 %	40.11 %	42.22 %
Kosrae	10.90 %	10.90 %	11.50 %	12.10 %
Pohnpei	25.31 %	25.31 %	26.72 %	28.13 %
Yap	15.79 %	15.79 %	16.67 %	17.55 %

Source: FSM Congress

The allocation of Amended Compact infrastructure grants is undertaken on an annual basis by the US and FSM through JEMCO which has three representatives from the US and two from the FSM. JEMCO decisions are intended to be reached on a consensus basis.

In August 2004 JEMCO delegated to the OIA the authority to approve individual projects that comply with the Fiscal Procedure Agreement requirements and conform to the consolidated list of projects that are consistent with the IDP. This resolution delegated the final approval of infrastructure grants to the OIA Grant Manager in Hawaii.

From FY2004 to FY2012, JEMCO allocated a total of \$204 million for infrastructure. In March 2012 JEMCO passed a resolution that no further Amended Compact infrastructure grants will be made until the IDP 2004 is updated. The combination of the FY2013 to FY2015 funds that have not been allocated by JEMCO and the allocated funds that have not been granted by OIA over FY2004 to FY2012 is equal to \$111.3 million (“the arrears”, \$105.2 million for development and \$6.1 million for IMF).

From FY2024 the Amended Compact funding shifts from direct grants to a drawdown from the CTF. The CTF is intended to accumulate sufficient funds by FY2023 to generate income equivalent to the Compact grants. At the current level of the fund and expected future contributions the amount in the CTF in FY2023 is unlikely to be enough for the revenue from the fund (after maintaining the real value of the capital) to match 2023 Compact grants.

The indicative infrastructure funding from the CTF from FY2024 is \$12.2 million, of which \$0.6 million is for the IMF, about half the Amended Compact infrastructure grant amounts in FY2023. This is based on opening capital in FY2024 of \$1,015 million, the fund value maintained in real terms and a 4 percent distribution.

The indicative Amended Compact/CTF infrastructure funding from FY2016 to FY2025 is shown in Table 5. Over the ten year IDP period the total funds are \$327.5 million (\$310.6 million for development and \$16.9 million for IMF).

Table 5 – Amended Compact assistance to FSM (including CTF)

	FY2016	FY2017	FY2018	FY2019	FY20FY20	FY2021	FY2022	FY2023	FY2024	FY2025	Total
Amended Compact											
Infrastructure Grants (30%)											
	24,045,480	24,030,720	24,009,576	23,982,048	23,948,136	23,907,840	23,861,160	23,808,096	12,180,000	12,394,368	216,167,424
FSM - IMF Grants											
	1,202,274	1,201,536	1,200,479	1,199,102	1,197,407	1,195,392	1,193,058	1,190,405	609,000	619,718	10,808,371
Infrastructure Development (excl IMF)											
	22,843,206	22,829,184	22,809,097	22,782,946	22,750,729	22,712,448	22,668,102	22,617,691	11,571,000	11,774,650	205,359,053
Arrears for Development											
	26,303,998	26,303,998	26,303,998	26,303,998							105,215,990
Arrears for IMF											
	1,531,268	1,531,268	1,531,268	1,531,268							6,125,070
Total Amended Compact/CTF Funding for Development (including arrears)											
National	2,786,387	2,786,387	2,786,387	2,786,387							11,145,547
Chuuk	20,084,441	20,078,520	20,070,040	20,058,999	9,605,358	9,589,196	9,570,473	9,549,189	4,885,276	4,971,257	128,462,748
Kosrae	5,636,369	5,634,672	5,632,242	5,629,077	2,752,838	2,748,206	2,742,840	2,736,741	1,400,091	1,424,733	36,337,808
Pohnpei	14,080,773	14,076,828	14,071,178	14,063,822	6,399,780	6,389,012	6,376,537	6,362,357	3,254,922	3,312,209	88,387,418
Yap	6,559,235	6,556,774	6,553,249	6,548,659	3,992,753	3,986,035	3,978,252	3,969,405	2,030,711	2,066,451	46,241,522
Total	49,147,204	49,133,182	49,113,095	49,086,943	22,750,729	22,712,448	22,668,102	22,617,691	11,571,000	11,774,650	310,575,043
Total Amended Compact/CTF for the IMF (including arrears)											
National	107,403	107,403	107,403	107,403							429,613
Chuuk	1,239,851	1,239,540	1,239,093	1,238,512	505,545	504,695	503,709	502,589	257,120	261,645	7,492,299
Kosrae	358,666	358,576	358,448	358,282	144,886	144,642	144,360	144,039	73,689	74,986	2,160,575
Pohnpei	658,430	658,223	657,925	657,538	336,831	336,264	335,607	334,861	171,312	174,327	4,321,318
Yap	369,191	369,061	368,876	368,634	210,145	209,791	209,382	208,916	106,880	108,761	2,529,636
Total	2,733,542	2,732,804	2,731,746	2,730,370	1,197,407	1,195,392	1,193,058	1,190,405	609,000	619,718	16,933,441

Source: CMD

3.2.2 US Federal Programs

Federal Aviation Administration

FSM’s air transportation sector has benefited greatly across all states from the Federal Aviation Administration’s (FAA) Airport Improvement Program¹⁵ (AIP).

Between FY2004 and FY2015 AIP grants and matching funds totaled \$192 million¹⁶. An additional \$30.5 million of AIP grants and matching funds have been identified for two projects included in the IDP. A number of other IDP priority projects are strong candidates for AIP funding.

Department of Agriculture

The Rural Utilities Service (RUS) of the US Department of Agriculture (USDA) administers programs that provide infrastructure to rural communities¹⁷.

FSM qualifies for RUS programs that cover infrastructure in the water/wastewater, solid waste, electric power and telecommunications sectors. FSM Telecommunications Corporation has a current RUS loan and a number of IDP priority projects are strong candidates for RUS program funding.

USAID

USAID has no regular development program in the FSM, however it responds to requests for disaster relief.

¹⁵ www.faa.gov/airports/aip/overview/

¹⁶ (DTCI, DCA, 2015) - Airport Improvement Program in FSM

¹⁷ www.rd.usda.gov/about-rd/agencies/rural-utilities-service

3.3 Bilateral Development Partner Funding

3.3.1 Australia

Australia's aid program focuses on reforms in support of budgetary and economic self-reliance, environmental management and development coordination. A major area of support has been through Australia's Pacific Patrol Boat Regional Program, which aims to protect and manage the region's vital fisheries resources. While maintenance of the three patrol boats is critical to fisheries management under the fixed asset definition of infrastructure these vessels are not a concern of the infrastructure plan.

There is currently no Australian participation in FSM's infrastructure development.

3.3.2 China

The Peoples Republic of China assistance to FSM includes infrastructure, agricultural technical assistance and scholarships. Recent infrastructure investments include the Okat Bridge in Kosrae (\$12.7 million in FY2014), the Chuuk State Government Complex (\$10 million in FY2015) and an untied grant of \$9.4 million scheduled for FY2016. Indicative funding for FY2017 to FY2025 is \$5 million per year. Future assistance will be better coordinated in line with the FSM ODA Policy and the IDP.

3.3.3 European Union

The European Union's (EU) assistance to FSM is currently focused on renewable energy and is managed by the local office of the Secretariat for the Pacific Communities' (SPC) Economic Development Division, North Pacific ACP Renewable Energy and Energy Efficiency Project (North-REP). Funding of \$10 million has been provided for the five years to FY2015 from the European Development Fund EDF 10 and has been used for solar power in Chuuk, Kosrae and Yap and to refurbish the hydropower station on Pohnpei.

EDF 11 which runs from FY2016 to FY2020 has a total funding of \$18 million. This has been programmed for village access to electricity/solar for Chuuk, solar and transmission line upgrading for Pohnpei, proper sizing transformers on Kosrae and improving the efficiency and reliability of electricity of the outer islands of Yap. Around 75 percent of expenditure is expected to be used for equipment in FY2016 and FY2017.

Funding beyond FY2020 is expected to be similar to EDF 11 levels at \$3.6 million per year although the EDF 12 focal sectors are yet to be determined.

3.3.4 Japan

Japan's assistance to FSM is administered by the Japan International Cooperation Agency (JICA) providing technical cooperation and grant aid.

Economic and social infrastructure forms the most significant component of grant aid with the most recent projects being the lengthening of the runway plus facility improvements at Pohnpei International Airport completed in 2012 at a cost of \$37 million. This was followed by provision of the inter-island passenger and cargo vessel *Four Winds* in 2015 at a cost of \$11.1 million.

With the Japanese Government's record of assistance to FSM over more than 30 years, indicative funding of \$4 million per year for infrastructure is included in the IDP.

3.3.5 Summary

Estimated bilateral funding over FY2016 to FY2025 amounts to \$140.4 million and is shown in Table 6.

Table 6 – Estimated Bilateral Funding

	FY2016	FY2017	FY2018	FY2019	FY20FY20	FY2021	FY2022	FY2023	FY2024	FY2025
China (PRC)										
Total	9,400,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
EU										
EDF 11 (\$18m, 2015-2020)	6,750,000	6,750,000	1,500,000	1,500,000	1,500,000	-	-	-	-	-
Indicative	-	-	-	-	-	3,600,000	3,600,000	3,600,000	3,600,000	3,600,000
Total	6,750,000	6,750,000	1,500,000	1,500,000	1,500,000	3,600,000	3,600,000	3,600,000	3,600,000	3,600,000
Japan										
Total	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Total Bilateral	21,150,000	16,750,000	11,500,000	11,500,000	11,500,000	13,600,000	13,600,000	13,600,000	13,600,000	13,600,000

Source: CMD / ODAD / MFA

3.4 Multilateral Bank Funding

3.4.1 Asian Development Bank

The ADB provides loans, guarantees, equity investments, grants, and technical assistance to FSM. Loans are financed from ordinary capital resources (OCR) and the Asian Development Fund (ADF). OCR loans are provided at a quasi-market rate. ADF is a donor fund replenished every four years that provides loans at concessional terms (long maturities, lower interest rates) as well as grants.

ADB’s indicative lending envelope for the FSM from FY2015 to FY2017 comprising \$7.35 million of OCR and \$8.73 million from the ADF¹⁸ is being utilized for Pohnpei Port.

Based on ADB’s country plans and average lending over recent years, an indicative \$5 million per year is included in the IDP from FY2018 with follow-on technical assistance grants in FY2016 and FY2017. The IDP’s institutional component includes priority projects that are strong candidates for ADB technical assistance funding.

3.4.2 World Bank Group

The World Bank’s program focuses on two themes that support FSM’s SDP:

1. strengthening the enabling environment for private sector development to help sustain growth; and
2. promoting a sustainable medium term fiscal situation to improve service delivery¹⁹

Up until FY2014 the World Bank has assisted FSM with a mix of investments, technical assistance and analytical activities.

The World Bank’s engagement with FSM over the Country Partnership Strategy period (2014 – 2016) in FSM includes the following infrastructure-related sectors:

1. improving electricity supply and efficiency including increased use of renewable energy
2. enhancing telecommunications access and affordability
3. improving the management of the impact of climate change and natural hazards

Most significantly the Palau-FSM Regional Connectivity Project will bring fiber-optic connectivity to Yap and Chuuk, improved satellite connectivity to Kosrae and establishment of the FSM Telecommunication Regulation Authority. The FSM component of the project is financed by a FSM IDA17 grant allocation (\$12.4 million) and FSM’s portion of the regional grant allocation (\$38.6 million).

¹⁸ (ADB, 2014) - Country Operations Business Plan October 2014, Federated States of Micronesia 2015–2017

¹⁹ (World Bank, 2014) - International Development Association and International Finance Corporation Country Partnership Strategy for the Federated States Of Micronesia for the period FY2014 – 2017

The Energy Sector Development project (IDA 16 \$14.4 million) includes improvements to electric power generation and energy master planning.

The IDP includes indicative World Bank funding for infrastructure of \$3.5 million per year from FY2019.

3.4.3 Multilateral Bank Summary

Table 7 shows total multilateral bank grants of \$26 million over FY2016 to FY2025 and \$45 million of debt funding making a total of \$71 million available over the period of the IDP.

Table 7 – Estimated Multilateral Bank Funding

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
ADB										
Grants Total	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Loan Total	-	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Total ADB	500,000	5,500,000								
World Bank										
Indicative					3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000
Total World Bank	-	-	-	-	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000
ADB and WB Grants Total	500,000	500,000	500,000	500,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
ADB and WB Grants & Debt Total	500,000	5,500,000	5,500,000	5,500,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000

Source: CMD / ODAD

3.5 Climate Change Funding

A major source of Climate Change (CC) financing is through the United Nations Framework Convention on Climate Change (UNFCCC). FSM’s first proposal to the UNFCCC Adaptation Fund, “Enhancing the climate change resilience of vulnerable island communities in FSM”, seeks \$8.9 million for coastal management infrastructure over five years from FY2016 (total \$9 million available to FSM for FY2016 to FY2020). The IDP includes additional Adaptation Fund funding of \$2 million per year from FY2021.

Funding under the Green Climate Fund (GCF) will depend on international funding pledges being honored by 2020. FSM is receiving technical assistance to prepare proposals for this funding and the IDP includes indicative GCF funding of \$2 million per year from FY2020.

Total climate change funding projected over FY2016 to FY2025 from the Adaptation Fund and the Green Climate Fund amounts to \$31 million.

3.6 Summary of Available IDP Funding

Total available funding for the IDP over FY2016 to FY2025 is estimated at \$751.9 million of which \$655.7 million is for development and \$96.2 million for maintenance. The annual total annual amounts are shown in Table 8 and Figure 6.

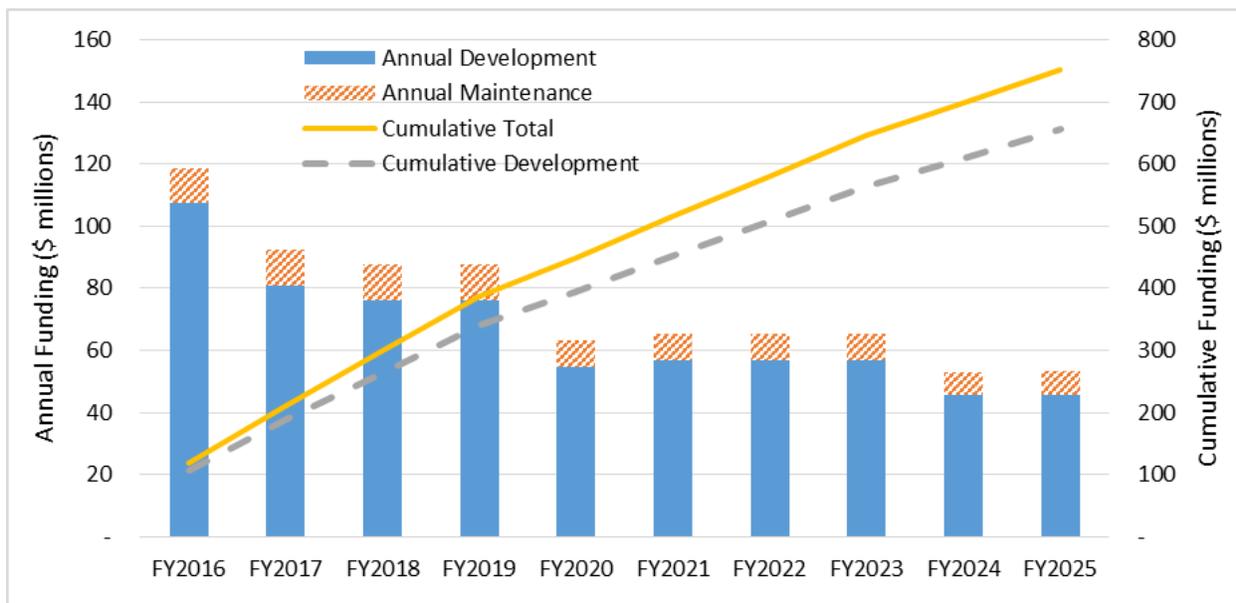
Each state receives a funding allocation under the IDP according to the source of funding. Amended Compact funds are split according to the formula set by the FSM Congress. Funds associated with bilateral donors, multilateral banks and climate change may be for specific projects, in which case there is a direct allocation to the appropriate state. The underpinning nature of infrastructure warrants a more even distribution of infrastructure funding than the Amended Compact funding formula. The IDP allocates these funds to a pool and then distributes 25 percent each to Chuuk and Pohnpei, 20 percent to Kosrae and Yap and the remaining 10 percent to the National Government.

On this basis Chuuk is allocated 40 percent of total available infrastructure funding, Pohnpei 27 percent, Yap 17 percent, Kosrae 14 percent and the National Government 2 percent.

Table 8 – Total Available IDP Funding

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Total IDP Funding										
Development	107,252,204	80,778,182	76,033,095	76,006,943	54,620,729	56,652,448	56,608,102	56,557,691	45,511,000	45,714,650
Maintenance	11,412,083	11,410,607	11,763,493	11,760,740	8,694,814	8,690,784	8,686,116	8,680,810	7,518,000	7,539,437
TOTAL	118,664,287	92,188,789	87,796,587	87,767,683	63,315,543	65,343,232	65,294,218	65,238,501	53,029,000	53,254,086
National										
Development	1,786,387	3,286,387	3,286,387	3,286,387	500,000	500,000	500,000	500,000	500,000	500,000
Maintenance	364,807	364,807	214,807	214,807	-	-	-	-	-	-
TOTAL	2,151,193	3,651,193	3,501,193	3,501,193	500,000	500,000	500,000	500,000	500,000	500,000
Chuuk										
Development	58,457,941	30,102,020	28,781,040	28,769,999	19,691,358	20,250,196	20,231,473	20,210,189	15,546,276	15,632,257
Maintenance	4,659,363	4,658,739	5,138,047	5,136,885	3,670,950	3,669,249	3,667,278	3,665,038	3,174,100	3,183,150
TOTAL	63,117,303	34,760,760	33,919,087	33,906,883	23,362,308	23,919,445	23,898,751	23,875,227	18,720,376	18,815,407
Kosrae										
Development	11,476,369	11,594,672	10,542,242	10,539,077	8,762,838	9,218,206	9,212,840	9,206,741	7,870,091	7,894,733
Maintenance	1,786,131	1,785,953	1,479,197	1,478,864	1,052,072	1,051,585	1,051,020	1,050,378	909,678	912,272
TOTAL	13,262,500	13,380,625	12,021,438	12,017,941	9,814,911	10,269,791	10,263,860	10,257,119	8,779,769	8,807,004
Pohnpei										
Development	22,615,273	22,761,328	21,443,178	21,435,822	15,146,780	15,711,012	15,698,537	15,684,357	12,576,922	12,634,209
Maintenance	2,642,001	2,641,586	3,088,041	3,087,267	2,445,851	2,444,718	2,443,404	2,441,912	2,114,813	2,120,844
TOTAL	25,257,274	25,402,914	24,531,219	24,523,088	17,592,631	18,155,729	18,141,942	18,126,268	14,691,736	14,755,053
Yap										
Development	12,916,235	13,033,774	11,980,249	11,975,659	10,519,753	10,973,035	10,965,252	10,956,405	9,017,711	9,053,451
Maintenance	1,959,782	1,959,523	1,843,402	1,842,918	1,525,940	1,525,233	1,524,413	1,523,482	1,319,409	1,323,171
TOTAL	14,876,016	14,993,296	13,823,650	13,818,577	12,045,693	12,498,267	12,489,665	12,479,887	10,337,120	10,376,622

Figure 6 – Total Available IDP Funding



3.7 Plan Funding Requirements

3.7.1 Overall Funding Requirements

Infrastructure development

The overall funding requirements for infrastructure development are shown in Table 9 (\$981 million) exceed available infrastructure development funding (\$656 million) by around 50 percent. The equivalent measure between total project costs and available funding in IDP 2004 is 117 percent.

The additional funding required to cover the indicated shortfall is reasonable:

1. in the context of section 1.3.2, infrastructure funding between FY2004 and FY2015 was more than 60 percent above the pro-rata IDP 2004 funding over 12 years (assuming full Amended Compact infrastructure development grants),
2. given that no funding has been included from significant US Federal programs,
3. with other development partners providing large one-off project funding in the past outside of their annual funding envelopes, and
4. with climate change funding is likely to increase.

Table 9 – IDP Development Funding Requirement

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Total IDP Development Funding Requirement	80,597,000	40,416,000	81,935,000	266,928,000	136,323,000	109,873,000	111,667,000	73,013,000	36,889,000	40,262,000
National	1,378,000	10,731,000	10,263,000	46,356,000	8,608,000	1,372,000	17,201,000	2,738,000	6,348,000	13,748,000
Chuuk	39,030,000	10,594,000	27,703,000	83,995,000	41,598,000	39,839,000	29,324,000	8,425,000	1,000,000	1,000,000
Kosrae	22,420,000	4,590,000	17,534,000	25,678,000	24,940,000	25,263,000	6,000,000	10,332,000	18,400,000	7,253,000
Pohnpei	16,720,000	7,779,000	12,598,000	65,835,000	29,130,000	21,324,000	46,564,000	33,821,000	2,852,000	15,673,000
Yap	1,049,000	6,722,000	13,837,000	45,064,000	32,047,000	22,075,000	12,578,000	17,697,000	8,289,000	2,588,000

Infrastructure maintenance

The overall funding requirement of \$96.2 million for infrastructure maintenance is shown in Table 10. This requirement matches with the available funding for infrastructure management.

Table 10 – Total IDP Maintenance Funding Requirement

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Total IDP Maintenance Funding Requirement	11,412,083	11,410,607	11,763,493	11,760,740	8,694,814	8,690,784	8,686,116	8,680,810	7,518,000	7,539,437
National	364,807	364,807	214,807	214,807	-	-	-	-	-	-
Chuuk	4,659,363	4,658,739	5,138,047	5,136,885	3,670,950	3,669,249	3,667,278	3,665,038	3,174,100	3,183,150
Kosrae	1,786,131	1,785,953	1,479,197	1,478,864	1,052,072	1,051,585	1,051,020	1,050,378	909,678	912,272
Pohnpei	2,642,001	2,641,586	3,088,041	3,087,267	2,445,851	2,444,718	2,443,404	2,441,912	2,114,813	2,120,844
Yap	1,959,782	1,959,523	1,843,402	1,842,918	1,525,940	1,525,233	1,524,413	1,523,482	1,319,409	1,323,171

3.7.2 Appropriation Profiles

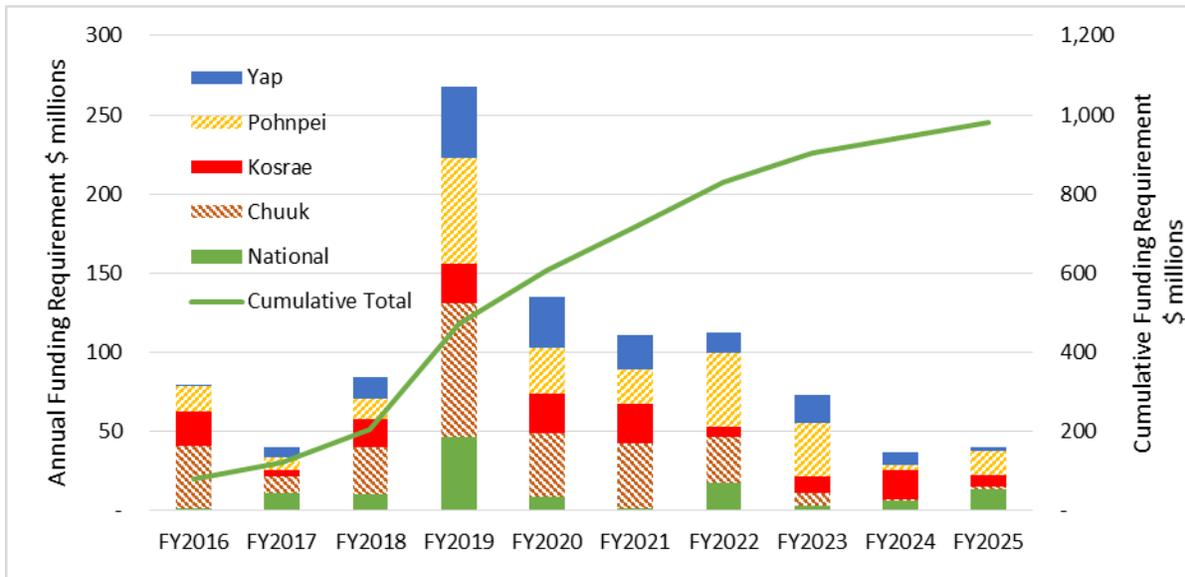
Infrastructure development

Each government identified and prioritized the projects included in the IDP. The estimated infrastructure development appropriations align with these priorities, taking into account a number of constraints and demands particularly for the first IDP period (FY2016 to FY2019).

Projects that are already designed and ready to move to construction are profiled for appropriation in FY2016. The remaining projects prioritized into the first IDP period are profiled taking account of the logistics, the need to develop the State PMOs and their short-term capacity, and considering their different support demands. These demands included projects where goods are to be purchased, that can be scheduled in an early year; projects where a limited amount of design is required, and construction procurement can follow on immediately, such as road rehabilitation; and projects where a full design is required, which will require procurement of a design consultant entity.

Projects in the other IDP periods (FY2020 to FY2022 and FY2023 to FY2025) are profiled more on the basis of smoothing overall resource demand on the State PMOs and consultant and contractors resources. The estimated annual and cumulative appropriation profiles are shown at Figure 7.

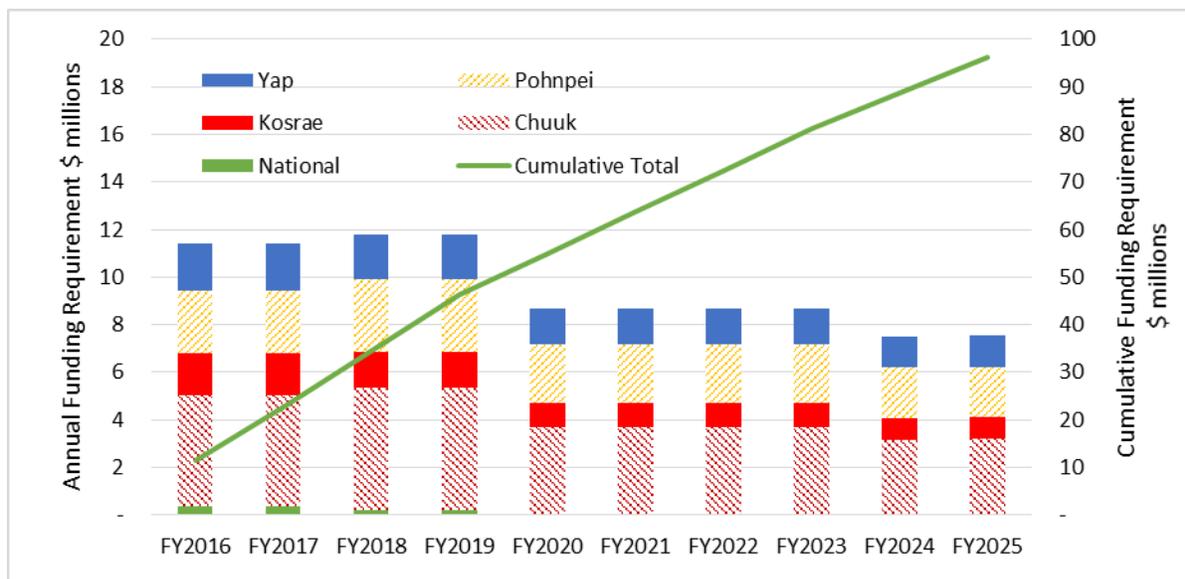
Figure 7 – Infrastructure Development Appropriations Profile



Infrastructure maintenance

The profiling of the infrastructure maintenance appropriations also matches the available funding profile with the estimated annual and cumulative appropriation profiles shown at Figure 8.

Figure 8 – Infrastructure Maintenance Appropriations Profile



3.7.3 Available Funding and Estimated Appropriations

Infrastructure development

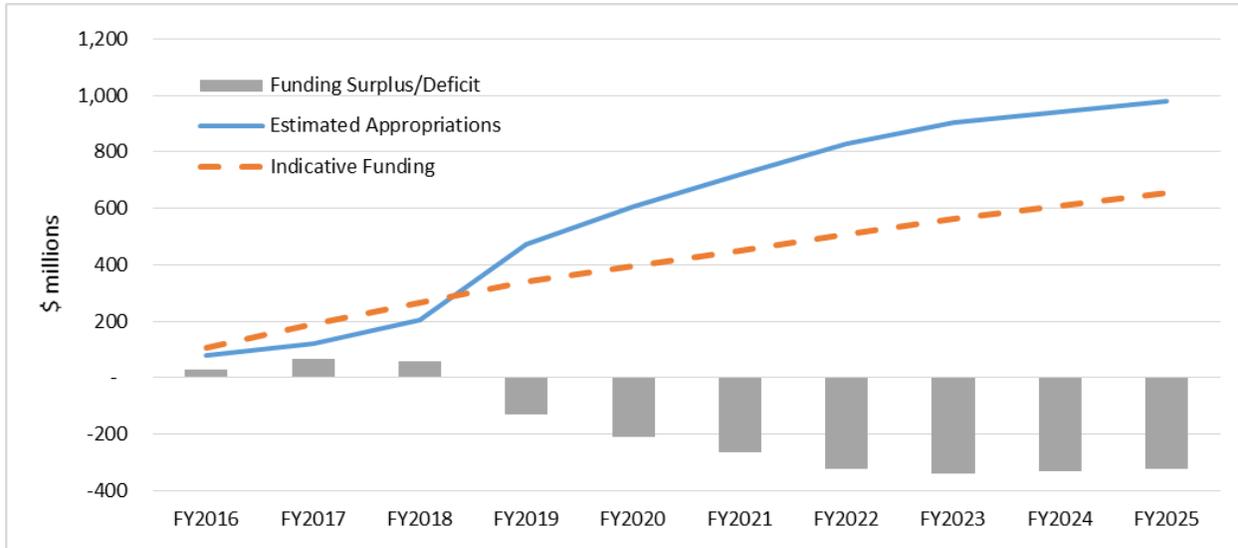
The IDP appropriation profile broadly balances with the available funding over the first four years as shown at Figure 9A. In the first three years available funding is greater than is required due to the

backlog of design and procurement required as a result of the March 2012 JEMCO resolution. From FY2019 onwards the requirement for funding exceeds the available funds. The different governments have significantly different funding versus appropriation profiles as is highlighted in Figure 9B to Figure 9F.

From FY2019 onwards estimated appropriations exceed available funding so additional funding needs to be identified and/or priorities reassessed to defer projects or remove them from the IDP. The planned review of the IDP in FY2019 will provide the opportunity to undertake this reassessment.

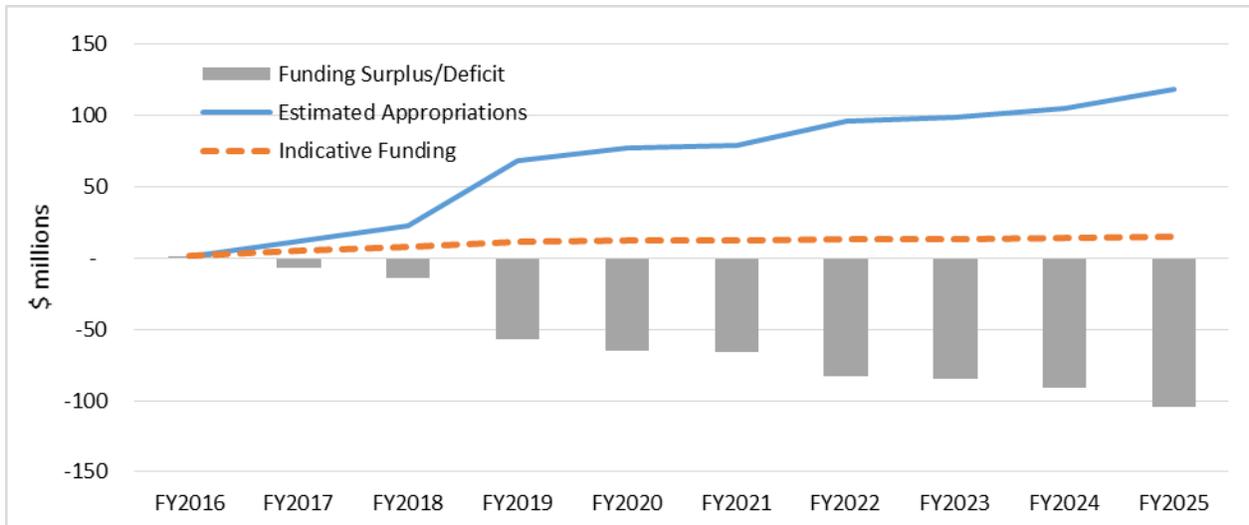
Figure 9 – Available Funding and Estimated Appropriations

A. IDP Cumulative Appropriations and Funding



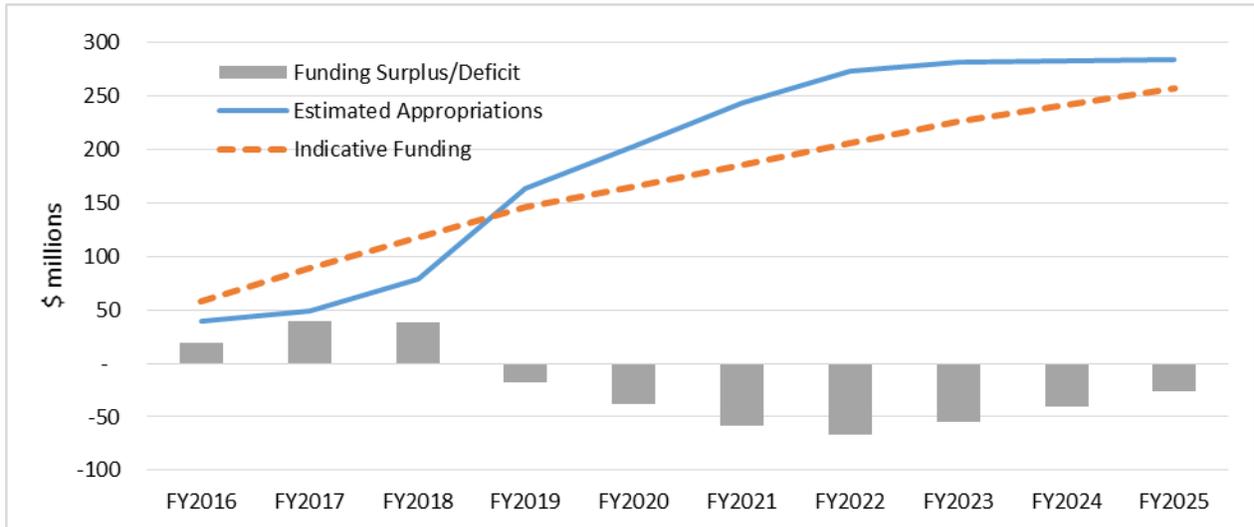
B. National Government Cumulative Appropriations and Funding

National Government funding is less than planned appropriations from FY2017, which becomes significant from FY2019 and the shortfall increases in subsequent years.



C. Chuuk State Cumulative Appropriations and Funding

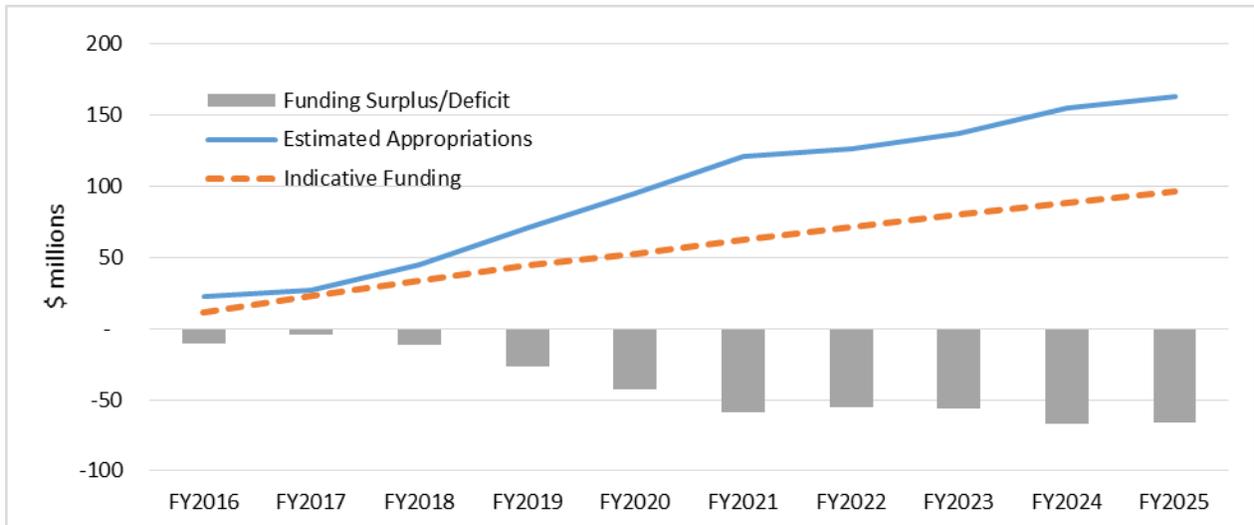
Chuuk planned appropriations do not exceed available funding until FY2020, reach a peak shortfall in FY2022 and then decline to almost balance by FY2025.



D. Kosrae State Cumulative Appropriations and Funding

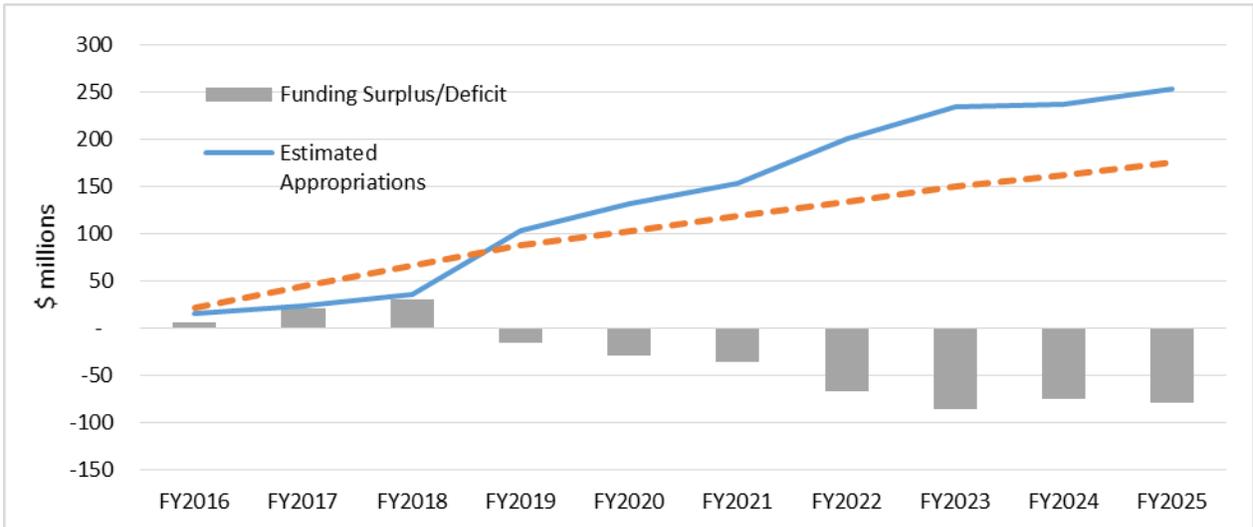
Kosrae planned appropriations are close to matching available funding until FY2019. From then on the funding gap increases to around \$50 million by FY2021 and remains at this level for the remainder of the planning period.

The funding required for the Kosrae State Hospital construction grant in FY2016 exceeds Kosrae’s Amended Compact arrears and FY2016 appropriation.



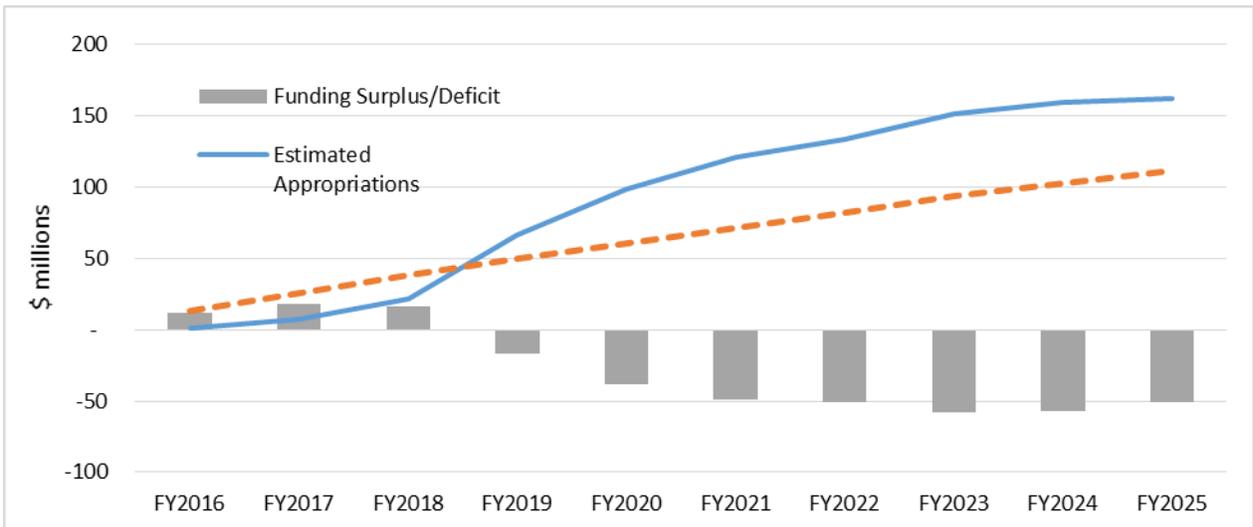
E. Pohnpei State Cumulative Appropriations and Funding

Pohnpei’s priority projects can be funded until FY2020. From then on a shortfall opens up to peak in FY2023 and remains significant until the end of the planning period.



F. Yap State Cumulative Appropriations and Funding

Without any projects ready for construction in Yap there is a significant surplus of available funding until FY2019. Subsequently the funding shortfall opens up and remains substantial until the end of the planning period.



Infrastructure maintenance

With infrastructure maintenance appropriations intended to match the availability of funding, there is no issue with the funding shortfalls. Rather, the challenge for infrastructure maintenance is for the States to provide the matching funds so that the Amended Compact IMF funding can be utilized as it becomes available.

Part 4 Management and Implementation

4.1 Current Situation

IPICs were established in each State and at National level to coordinate IDP 2004 infrastructure implementation. At National level the Economic Policy Implementation Committee fulfilled the IPIC role although this and the Pohnpei State IPIC are no longer active.

Within the National Government, DTCl has responsibility for the delivery of infrastructure, including Amended Compact projects, and similar departments deliver infrastructure at State level. Large development partner programs have their own implementation units. Overall there is no consistency of implementation processes.

Amended Compact situation

The PMU was established in 2005 by regulation to deliver Amended Compact funded infrastructure projects in IDP 2004 and is currently a section within DTCl with contracted staff. The PMU is responsible for both program management and project management for all Amended Compact development projects. This includes:

for **program management**: systems, procedures, compliance with Amended Compact requirements and FSM IDP regulations, preparation of consolidated annual FSM program reviews and program liaison with the States

for **project management**: all documentation and procurement for design, construction and contract supervision services, review of preliminary and final designs with some consultation with the States and direct contract supervision by PMU staff located in the States

Issues with the current PMU arrangements include:

1. there is no clear and uniform process for the progression of a project, from the initial listing in the IDP, through pre design, detailed design and construction
2. State IPIC are not involved in scope changes
3. PMU project managers and engineers located in the States are not accessible by the State stakeholders
4. the flow of information between all the stakeholders is poorly documented and inconsistent

4.2 Strategic Considerations and Guiding Principles

4.2.1 Strategic considerations

Future institutional arrangements will incorporate the following strategic considerations:

Strong and strategic oversight at the program level – strategic oversight is a government function that will not be outsourced, although it can be reinforced with contracted expertise

Involvement of the States – State involvement is critical to planning and implementing clearly defined projects that meet stakeholder requirements

Autonomy of the States – the autonomy of the States in planning and implementing their programs is recognized in the institutional arrangements, notwithstanding the need to work to a consistent set of processes

Local capability to be developed – there will be a clear path for “localizing” the institutional arrangements over time and ensuring that those arrangements endure beyond the end of the IDP

International best practice will be considered – best practice program delivery arrangements such as “Centers of Excellence” will be considered to efficiently utilize resources and maintain consistency across the program

4.2.2 Guiding principles

In addition to the strategic considerations, the institutional arrangements are designed to achieve the following principles:

1. program and project management processes ensure transparency of decision making
2. competitive bidding processes will be followed to ensure best value outcomes
3. there will be appropriate standards and sanction and segregation of roles and functions to maintain probity and integrity
4. capability building of local resources will be a primary responsibility of any external resource

4.3 Initial Institutional Arrangements

The initial institutional arrangements in this section takes into account the above strategic consideration and guiding principles and will apply to all Amended Compact funded infrastructure delivery.

4.3.1 Strategic oversight

A reformed PMU residing within DTCL will collate information for program level Amended Compact infrastructure delivery.

The National Government to US Government interface will be through the Department of Finance and Administration.

Jointly CMD and PMU will develop and implement coordinated processes for controlling both financial and delivery aspects of the Amended Compact infrastructure program.

In time it is intended that this oversight arrangement will apply to all infrastructure programs as a long term development initiative with the Government to Government/Development Partner interface being managed by CMD or the Aid Coordination Group depending on the funding source.

4.3.2 Governance

Effective State IPICs provide the basis for strong governance of infrastructure delivery at the State program and project level once the coordinated control processes have been established.

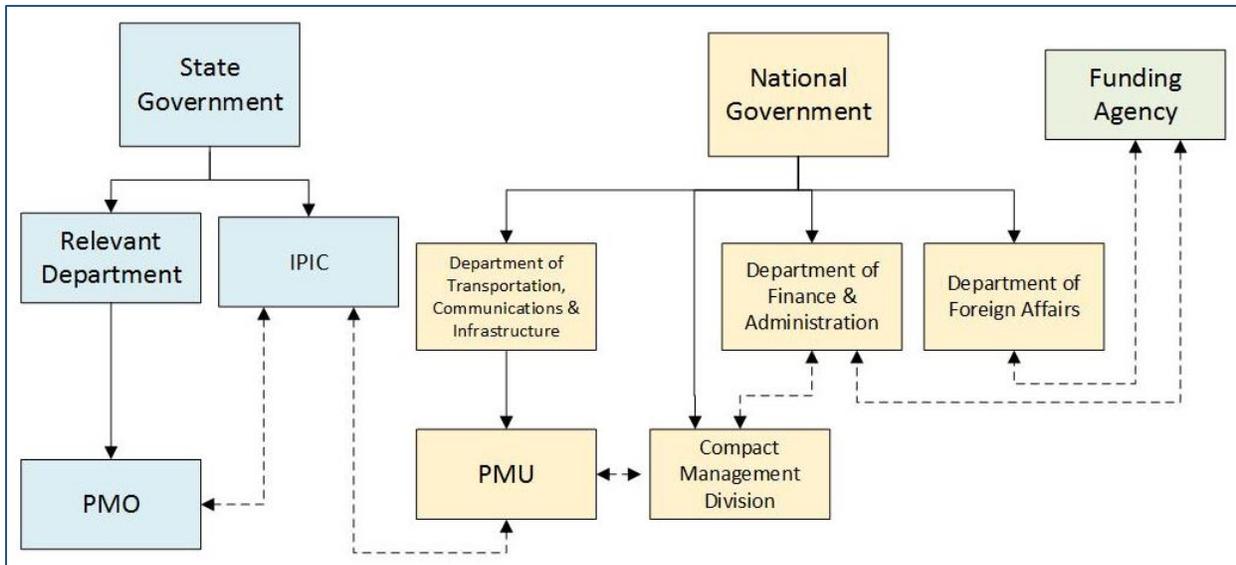
Most importantly the upgraded role of the IPICs and establishment of the implementation framework outlined below will allow the devolution of planning and implementation responsibilities to the States without compromising control, integrity and governance. The reinstatement of the Pohnpei State IPIC is a priority action for the incoming State Executive.

4.3.3 Implementation model

The implementation model retains the PMU within DTCL but restructures the unit to focus on **Program Management**. The PMU will provide ongoing support to each State to ensure standards are developed and shared, subsequent design and construction contracts are consistent with appropriate risk management and provide peer review expertise as required.

Project Management, from initial planning, through design to construction completion, is devolved to the States by the formation of four Project Management Offices (PMOs). The PMOs will undertake all the project management activities from initial design through to construction and completion.

The general structure of the implementation model is shown in Figure 10.

Figure 10 – Organization Chart of Infrastructure Delivery

A key part of the model is for a single external party to undertake the initial PMO role in each State. Each State will have its own contract with the external party establishing direct accountability to each State. This arrangement provides an optimum balance between State responsibility and consistency and efficiency across the four States.

The model addresses the key aspects of delivering an infrastructure program across FSM by:

- establishing an immediate increase in project management capacity by engaging the external party to operate in each State
- providing the States with direct involvement in the planning and implementation of their State program and projects
- retaining PMU to provide guidance on standards and contracts, risk management and conduct peer reviews and program management oversight
- retaining PMU as a National Government entity to ensure appropriate controls and segregation of duties
- having PMU provide central coordination of Amended Compact activities and institutional interfaces on program delivery matters, including tracking and reporting of program status, expenditure and funding availability
- using one external party to undertake all four PMO roles to provide consistency across all States in terms of project management approaches, processes and methodologies
- enabling performance comparison between States to facilitate continuous improvement and identification of particular weaknesses and solutions
- providing opportunities for State government employees to build skills and knowledge by working as part of or with the external PMO entity
- obligating the external PMO entity to developed capacity in each State
- sharing knowledge on technical and project management matters across all States via the PMU
- providing a foundation for the delivery of all infrastructure programs and projects over time
- providing greater opportunities for local companies to be involved in design and construction contracts

In the case of the Pohnpei State PMO, additional support will be provided to DTCl to assist in delivery of National Amended Compact infrastructure projects.

Proposed PMU Structure

The PMU’s current technical/engineering focus needs to change. In addition to a Program Manager and administration support, the following skills and expertise are required refocus the unit in its program management and coordination role:

Contracting/Procurement Expertise

- establish, maintain and support standard procurement and contract documentation
- provide ongoing guidance to the States on scope definition, contract duration, special conditions of contract and risk management
- conduct peer reviews
- manage the prequalification of design consultants and contractors

Program Management Skills

- manage the current and future program portfolio, including tracking each project on a time, cost and quality basis in support of the States
- preparing periodic reports
- working with the States to plan and adjust programs to offset delays
- liaising with the funding agency on technical and other matters

Engineering Expertise

- support the engineering staff in each State by advising/developing appropriate local standards
- conducting peer reviews of design consultant proposals and design submissions, where required
- establishing and managing a consolidated engineering library including designs, standards and cost information for use across FSM
- assisting with the prequalification of design consultants and contractors
- supporting and building project management capacity of DTCl staff engaged in project management of National infrastructure projects

Proposed State Project Management Offices

Each State PMO will initially have external party resources to establish its project management capability supplemented by State and other FSM resources. The following resources will be required in each PMO.

Project Management skills

A Project Manager/PMO Manager is required in each State with larger State programs potentially requiring additional project manager(s).

Contracting Officers

Each PMO requires staff with the ability to undertake procurement and contracting responsibilities. A Project Manager may be able to undertake this role in States with smaller programs.

Resident Engineers and Inspectors

Resident Engineers and Inspectors are required in each State PMO and these could be State employees or other local resources. Other local resources can be progressively brought in as part of the capacity building process to initially understudy experienced staff.

Technical Specialists

From time to time specialist technical advice may be required on complex or challenging projects and the contract with the external party will enable technical specialists to work within the PMO on a short term basis.

General Considerations

The cost of each PMO is estimated to be between 5 and 7 percent of the State program which is within international benchmarks and internationally recognized as a legitimate program cost.

The IDP includes provision for the required funds for the PMU and State PMOs; the PMU funds will continue to come from the National Government, and the PMO funds are part of the Amended Compact component of each State's infrastructure development program (noting that Amended Compact PMO funding is dedicated to the delivery of Amended Compact projects).

The external party engaged to manage the PMO will be excluded from participating in any further contract for the design, construction or supervision on an IDP project for which it has project management responsibilities to ensure probity is maintained.

The external party will be contractually bound to build local project management capacity in each State and will have its capacity building plans and performance regularly reviewed by IPIC.

The link between each State PMO and the PMU is very important. The PMU will provide strong process guidance, contracting expertise, engineering standards and OIA liaison, legitimizing its role and avoiding being isolated from the PMOs.

The roles and responsibilities for each party involved in planning, implementation and management of the IDP's Amended Compact component are documented in Annex A.

4.4 Process Enhancements

All infrastructure projects require defined project management processes from pre-design through funds release, design and construction to successful completion. Best practice processes incorporate key steps, hold points, client reviews and concise and complete documentation to support such processes.

It is also good practice to release funds at two stages; initially to release funds to enable the full project design to be undertaken and then, prior to the construction procurement process commencing, the funding required for construction. This approach facilitates the orderly progress of the project while ensuring that after design there is a review of the project scope, time and cost and any changes are formally signed off before committing funds for construction.

Pre-Design and initial funds release

The PMO will fully document the project scope and formally agree this information with its IPIC, including:

- project outline, scope and justification
- other options considered if relevant
- reference to IDP, sector and prioritization
- whole of life cost estimate broken down to estimates for project management, design, construction and maintenance
- delivery strategy, including number and type of contracts, project phasing and timing, links to other projects and arrangements for construction supervision
- risks and issues that need to be resolved, for instance site access or geotechnical data
- outline program broken down to include key review points at say 30 percent design, end of design and construction completion

The project will be submitted for the release of initial (generally design) funds once endorsed by the IPIC. Once the initial funds have been appropriated, the PMO will conduct (if required) a competitive procurement process in accordance with the prevailing procurement process and regulations to identify and contract the design consultant.

Design and construction funds release

The PMO will formally review each project with the IPIC twice during design. The PMO will also hold regular client meetings with sector representatives.

The IPIC reviews will be held when the design is 30 percent complete and when it is 100 percent complete (but still subject to review). The 30 percent design review will ensure that designs remain on an agreed path before significant design costs are incurred.

Following a design being accepted as complete a second submission will be made to the funding agency for the appropriation of construction funds.

Construction procurement

Once construction funds have been appropriated, the PMO will conduct a competitive procurement process in accordance with the prevailing procurement process and regulations to identify and contract the construction contractor and any required supervision consultant.

Variations

The PMO will process variations generally as follows:

- variations in scope require IPIC approval to ensure project outcomes remain fully agreed
- variations in scope or cost that require additional funding will be endorsed by IPIC before submission to Government and/or OIA (as required) for approval
- change orders to a contract will be processed in accordance with the PMU's contract management manual

Completion

The PMO will prepare a Project Completion Report for endorsement by the IPIC. This report will include analysis of the project on a time, cost and quality basis and the PMO will ensure that all contract completion activities are finalized, including provision of as-built drawings and operations and maintenance (O&M) manuals.

4.5 Transitional Arrangements and Longer Term Developments

4.5.1 Transitional arrangements

The target for the implementation model to be in place is Q3 FY2016.

Transition to the implementation model

The transition from the existing arrangements to the State-focused implementation model is complex and needs to be completed quickly to minimize any further delays in infrastructure delivery. DTCl will establish the overall transition program and responsibilities and manage its implementation.

The role of PMU during the transition period will be three-fold:

1. to refocus itself on the evolved program management role identified in the implementation model, including the recruitment of staff to fill any gaps in required skills and expertise
2. support DTCl in implementing the transition program
3. continue to manage on-going projects until the PMOs are in place and ready to take responsibility for their infrastructure delivery

The overall transition program will involve DTCl working closely with State representatives to:

1. define the scope of services required to meet the PMU and State requirements for project management services and capacity building
2. undertake a procurement process to identify the preferred external party that is best suited and able to fulfill the role and functions identified for the PMO in each State, including the ability to build the capacity of local resources
3. develop a draft contract agreement for each State to negotiate with the preferred external party – the draft contract agreements will have common general terms, conditions and schedules and any requirements that may be particular to any State

Each State will then enter into its own contract with the external party.

Other transition activities

In parallel with the transition to the implementation model:

The Attorney General will prepare legislation required to facilitate and support the institutional arrangements and work with State counterparts to make complementary changes to State legislation.

The Secretaries of Finance and Administration and TCI will prepare replacement Procurement Regulations for IDP Projects to establish a single set of regulations for procurement of Amended Compact funded contracts and work with State counterparts on any complementary changes to State regulations.

4.5.2 Longer term developments

The institutional arrangements, including the implementation model, provide enhanced delivery for Amended Compact funded infrastructure with strong governance at State level and coordination of the program at a National level. When fully established and optimized, discussions will be held with development partners to deliver their infrastructure projects under the same arrangements. This has a number of advantages including:

- ensuring that the expertise, both private sector and that developed through capacity building, is employed to deliver all infrastructure
- providing development partners with clearly identified National and State-based entities to interface with on infrastructure projects
- ensuring FSM maximizes the infrastructure development funding opportunities available
- ensuring high standards of consistent governance and process are applied to all infrastructure projects

The funding of the PMO under such a revised arrangement will need to be agreed with the development partners.

Part 5 Sector Overview

5.1 Institutional Arrangements

5.1.1 Power and Water Sector Utilities

The public utilities corporations/authorities created during the 1990s continue to improve their management, financial, technical and service delivery capacities and performance, assisted by ongoing infrastructure investment from external funding sources. Broadly the utilities are now at the point that their management and administration and O&M activities are covered by tariff revenue. However service extension and rehabilitation will require external funding for the foreseeable future.

All power utilities are actively planning and implementing renewable energy projects and are moving steadily towards the Energy Policy targets.

Water and wastewater services in Kosrae remain the responsibility of the Department of Transportation and Infrastructure. However a framework exists for future infrastructure projects to include transfer of responsibilities to the Kosrae Utilities Authority (KUA).

Chuuk Public Utilities Corporation (CPUC) receives Amended Compact funding support for four managerial positions. This support is due to finish no later than FY2018.

The Pacific Power Utilities Benchmarking Report Fiscal Year 2012²⁰ rates the performance of the FSM electric power utilities with their overall financial performance shown in Table 11.

Table 11 – Electric Power Utilities Performance

Electric Power Utility	Operating Ratio ¹
Chuuk Public Utilities Corporation	108.2 percent
Kosrae Utilities Authority	111.4 percent
Pohnpei Utilities Corporation	109.1 percent
Yap State Public Services Corporation	106.8 percent
Pacific Average	98 percent

Note:

1. "OR" = $[(\text{total operating costs} + \text{depreciation}) / (\text{total revenue})] \times 100$
OR below 100 indicates profitability

The Pacific Water and Wastewater Utilities Benchmarking Report 2013²¹ rates the performance of the FSM water utilities with their overall performance shown in Table 12.

Table 12 – Water Utilities Performance

Water Utility	Overall Efficiency Indicator	Operating Cost Recovery Ratio
Chuuk Public Utilities Corporation	18 percent	30 percent
Pohnpei Utilities Corporation	66 percent	169 percent
Yap State Public Services Corporation (2012)	47 percent	127 percent
Southern Yap Water Authority (2011)	89 percent	92 percent

²⁰ (PPA, 2012) - Pacific Power Utilities Benchmarking Report Fiscal Year 2012

²¹ (PWWA, 2013) - Pacific Water and Wastewater Utilities Benchmarking Report 2013

Gagil-Tomil Water Authority	96 percent	103 percent
Pacific Benchmark	70 percent	120 percent

Note:

2013 indicators unless noted

Operating Cost Recovery Ratio:

operating revenues (excluding subsidies)
operating costs (excluding depreciation and debt servicing)

CPUC only started water billing in July 2012 with on-going new meter installation – further gains in operating cost recovery ratio were made in 2014²²

5.1.2 Solid Waste Management

There are effective, regulated solid waste management systems in place for the primary state population/activity centers and there is developing private sector involvement in solid waste management services. All primary landfill sites utilize the Fukuoka method and there is increasing separation of recyclable and hazardous wastes from general refuse.

Operational costs are funded from general revenues and there are currently no environmental levies on industry or consumers.

The solid waste management regulators and operators have identified the need for additional investment to improve existing facilities, develop new facilities and extend the scope and coverage of solid waste management, albeit still limited to the main population activity centers.

5.1.3 Roads and Pedestrian Facilities

Road and pedestrian facilities are largely the responsibility of state departments for infrastructure/public works. Although improvements to the condition of roads and bridges are required, the road networks in the primary population/activity centers are largely in place with the exception of the Southern Namoneas and Faichuk groups in Chuuk lagoon.

The key institutional challenge is to introduce an approach to road and bridge asset management that delivers safe and serviceable road conditions at optimum whole-of-life costs. Extensive development of both public sector road management capacity (including planning, inspection and contract management capacity), and private sector maintenance and construction capacity is required.

5.1.4 Maritime Transportation

Port development and management is the responsibility of independent authorities in Kosrae, Pohnpei and Yap that retain revenue generated from operations and have responsibility for operating costs and making investments. In Chuuk the port is the responsibility of the Department of Transportation and Public Works. These agencies have broader responsibilities for navigational aids throughout their respective States although this is limited in practice.

The private sector provides stevedoring services at the major ports.

Regulation of maritime safety and security is a national responsibility within DTCI and is a key component of planned revisions to transportation legislation. The capacity of DTCI’s Marine Division in this area is currently limited and will be developed as part of implementing revised legislation. There are opportunities to leverage regional capabilities in this area through the Micronesia Shipping Commission.

²² (CPUC, 2014) - CPUC – Annual Report FY 2014

5.1.5 Air Transportation

In the IDP “**airport**” refers to the international airports, one in each State, and “**airstrip**” refers to the aircraft landing facilities on the outer islands.

Airport development and management is the responsibility of independent authorities in Kosrae and Pohnpei that retain revenue generated from operations and have responsibility for operating costs and making investments. In Chuuk and Yap the airport is the responsibility of the Department of Transportation and Public Works.

The Civil Aviation Division within DTCI provides an oversight function of all airports and outer island airstrips and works closely with the US Federal Aviation Agency on aviation safety and security. DTCI’s Civil Aviation and Infrastructure Divisions liaise with the State departments responsible for outer island airstrip infrastructure and maintenance.

Regulation of aviation safety and security is also a key component of planned revisions to transportation legislation. The capacity of Civil Aviation Division will need to be developed as part of the introduction of the revised legislation. Again there are opportunities to leverage regional capabilities in the area of aviation safety and security.

5.1.6 Telecommunications

The FSM Telecommunications Act of 2014 established the FSM Telecommunication Regulation Authority and opened the door to market competition. Establishing and building the Authority’s capacity is part of the current regional telecommunications connectivity project.

FSM Telecommunications Corporation (FSMTC) currently remains the sole telecommunications provider and continues to improve management, financial, technical and service delivery capacities and performance. FSMTC is proactive in leveraging external investments, particularly connections to the international fiber optic network, to bring contemporary telecommunications services and pricing to consumers.

FSMTC’s financial position has reached the point that it is able to enter into at least concessional loans to invest in new infrastructure and facilities.

5.1.7 Education

There are Boards of Education in each State and the College of Micronesia (COM) has a Board to manage its affairs.

Sector coordination is undertaken through the FSM Association of Chief State School Officers comprised of the Secretary of Education, State Directors of Education and the COM President.

5.1.8 Health

Within the health sector there are a number of regulatory responsibilities that include licensing medical professionals and setting food safety standards.

There is also a Healthcare Coalition established under a memorandum of understanding comprised of the Secretary of Health, State Directors of Health and the head of private health provider Genesis. The role of the Coalition is to coordinate on operational and emergency response matters, ensuring that medical resources across the whole of FSM can be mobilized as and when required. The Coalition also acts as FSM’s oversight group on projects and grants in the health sector.

5.1.9 Government Administrative Buildings

The national or state infrastructure/public works agency is responsible for government administrative buildings.

5.2 Sector Plans

5.2.1 Current Sector Plans

Table 13 – Sector Plans and Studies

Sector	Title	Status
Air Transportation	Airport Master Plan (all States)	Completed 2012
Maritime Transportation	Regional Study on Maritime Transport Systems in the North Pacific Countries	Draft May 2015
	Pohnpei Port Scoping Study	Completed in 2011
Electric Power	Regional Energy Plan	In Progress
Solid Waste Management	FSM draft National Solid Waste Management Strategy 2010-2014	Unknown
Education	School Facility Repair and Construction Master Plan (Chuuk, Pohnpei & Yap)	Completed 2012/13
	College of Micronesia - FSM Space Utilization and Facilities Master Plan (all campuses)	Completed 2013
Climate Change	Kosrae Joint State Action Plan	Completed 2015
	Kosrae Shoreline Management Plan	Completed 2014
	Yap Joint State Action Plan	Completed 2015
Tourism	National Tourism Policy and State Investment Plans	Draft 2015

5.2.2 Proposed Sector Plans

Maritime Transportation

The domestic maritime transportation sector requires plans for each State. An early and appropriate maritime project in each State will be selected to prepare the first stage of the maritime sector plan by identifying and documenting all existing maritime assets, including jetties, landing places, nature of access from land and sea. This information will also form part of the asset register as described in section 6.3.

Most sector planning can be done in isolation from the other sectors however an integrated approach to air and maritime transportation planning for the outer islands is important so that the two modes complement rather than compete with each other, avoiding the risk of separately planned services failing.

Air Transportation

The intended development of Airport Safety and Security Plans under the AIP is an important step towards having IDP air transportation projects considered for implementation funding under this program.

Education

An Education Sector Infrastructure Code will be developed at State level, with coordination at National level, to set minimum spatial planning standards for education buildings, additional to Building Codes.

This will be generated out of the early design stages of initial projects and compiled as standard documents by the PMU.

Health

A Health Sector Infrastructure Code will be developed at State level, with coordination at National level, to set minimum spatial planning standards for health buildings, additional to Building Codes. This will be generated out of the early design stages of initial projects and compiled as standard documents by the PMU.

Part 6 Institutional Aspects

6.1 Whole of Life Costs

The costs associated with new infrastructure do not end with purchase or construction. It is one step in the life cycle of an asset that begins with the initial identification of needs through to the disposal of the asset at the end of its useful life. The stages of the asset life cycle include: concept and planning, detailed design specification, construction/supply, contract supervision, operation and maintenance and disposal/decommissioning. Each stage requires planning and coordination and involves costs and time.

When all these costs are combined, the total may be more than double the cost of the initial purchase/construction price²³. Neglecting to consider and budget for whole of life costs results in preventative maintenance not being undertaken and a generally shorter life than expected. With the cost-effectiveness of preventative maintenance well established²³, this represents a waste of scarce resources and imposes an unnecessary burden of infrastructure renewal on future budgets where money could be better utilized elsewhere.

The provision of adequate funding for preventative maintenance as part of a whole of life approach to asset management is a key institutional issue for FSM, like other Pacific Island countries.

The IDP distinguishes between the costs of keeping an asset in a usable condition (**maintenance costs**) and the costs of using the asset to deliver services (**operating costs**). Maintenance costs are generally related to standardized activities of a routine or periodic nature that can be reasonably estimated. Operating costs on the other hand are related to service delivery that can be highly variable over the life of an asset and between similar assets used in similar situations.

Each of the priority projects included in the National and State IDP volumes incorporate an estimate of the maintenance costs over the life of resulting asset, providing an estimate of the whole of life cost of owning the asset and keeping it in a usable condition (but not operating it and delivering services). Unlike maintenance costs, FSM sector managers have a reasonable understanding of, and make reasonable budgetary provision for, the cost of operating their assets.

Standardized maintenance cost factors for the IDP sectors are shown in Table 14.

Table 14 – Maintenance Cost Factors

Sectors & Components	Life (Years)	Maintenance Costs per annum (percent Construction Cost ¹)	Maintenance Costs over Asset Life (percent of Construction Cost)
	(A)	(B)	(A x B)
Electric Power			
Poles & wires	20	2.5 percent	50 percent
Solar Power (feed-in)	20	3.0 percent	60 percent
Diesel Generators	15	15.0 percent	225 percent
Water/Wastewater Systems			
Pipes, Tanks	50	2.0 percent	125 percent
Plants	30	4.0 percent	120 percent
Solid Waste Management	20	2.0 percent	40 percent

²³ (PIAC, 2013) - Infrastructure Management in the Pacific

Sectors & Components	Life (Years)	Maintenance Costs per annum (percent Construction Cost ¹)	Maintenance Costs over Asset Life (percent of Construction Cost)
	(A)	(B)	(A x B)
Roads and Pedestrian Facilities			
Paved Roads	20	3.5 percent	70 percent
Bridges	50	3.0 percent	150 percent
Maritime Transportation			
Docks	50	3.0 percent	150 percent
Other Facilities	20	3.0 percent	60 percent
Air Transportation			
Runways & Aprons	20	12.0 percent	240 percent
Other Facilities	20	3.0 percent	60 percent
Telecommunication Systems	50	8.0 percent	400 percent
Health	50	4.0 percent	200 percent
Education	50	2.5 percent	125 percent
Government Administrative Buildings	50	3.0 percent	150 percent
Vehicles, Plant and Equipment	10	20.0 percent	200 percent
Vessels	20	20.0 percent	400 percent

Notes:

Based on 8 percent discount rate applied to whole of life maintenance costs
 In addition to the quoted reference²³, total maintenance costs per annum are based on broad assessments internationally of similar types and standards of infrastructure

6.2 Infrastructure Maintenance

Like other Pacific Island countries FSM has difficulty in achieving key infrastructure maintenance objectives: cost effective asset preservation, and acceptable levels of infrastructure safety and amenity.

Virtually all sectors in all jurisdictions consider that funding for infrastructure maintenance is inadequate. The exception is in the utility sectors where tariff revenue now provides a reasonable amount for preventative maintenance of water, wastewater and electric power assets (and the delivery of services).

Effectively 10 percent of Amended Compact infrastructure funds are set aside for maintenance (5 percent Amended Compact and 5 percent matching funds) and the National Government allocates maintenance funds from local revenue. Despite funding being available for infrastructure maintenance, there is little in the way of formal infrastructure maintenance programs other than in the utility sectors. The capacity of the States to match the available Amended Compact IMF funding is a major constraint that is compounded by the OIA’s requirements for releasing those funds. The unspent Amended Compact IMF funds through to FY2015 are \$6.1 million (around \$12.2 million in total with the matching funds).

Although the annual funding for maintenance from IMF and National Government sources is in the order of \$6 million, this is still a relatively small proportion of the total maintenance needs across FSM.

Adopting an average maintenance funding rate of 3 percent from Table 14, the IDP infrastructure development program by itself will generate a maintenance funding requirement between 4 and 5 times the current level of maintenance funding without even considering the maintenance funding requirement for existing infrastructure assets.

Improving the maintenance of FSM’s infrastructure is a major institutional challenge that needs to be addressed through the IDP, not just with the infrastructure sector agencies, but with the governments and their policies, strategies and management of financial resources. The following section 6.3 sets out the FSM’s planned transition to contemporary asset management, supported by technical assistance projects that are part of the IDP institutional component.

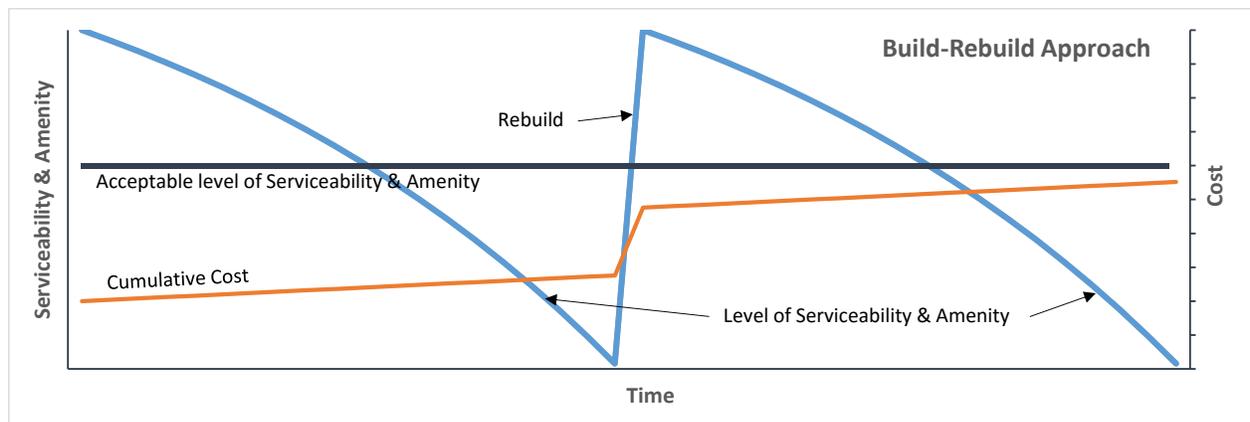
6.3 Transition to Contemporary Asset Management

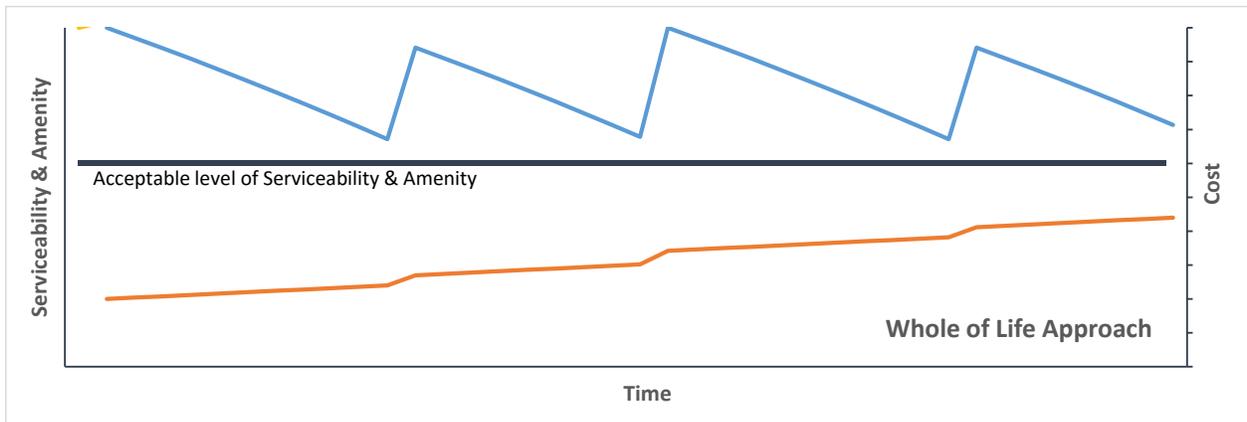
6.3.1 Introduction

Good quality and sustainable infrastructure is vital to the national economy. It delivers essential services, drives economic growth and is a significant contributor to the quality of life of the population. With the buildup of infrastructure assets over the years and questions over the level of investment beyond 2023, it is essential that the FSM takes steps towards an approach to asset management that minimizes costs on a whole-of-life basis.

The broad objective is to minimize the life-cycle cost of infrastructure assets whilst maintaining acceptable levels of amenity and serviceability. This contrasts with the “build then rebuild” approach that is characterized by the asset being replaced before the intended design life being reached and low levels of serviceability and amenity over much of the asset life. These two approaches are illustrated in Figure 11.

Figure 11 – Asset Lifecycle Approaches





The whole of life costs can be heavily influenced by the design of infrastructure assets so it is critical that designs are sympathetic to the prevailing climatic conditions and skills and equipment available in the FSM.

In summary, the whole of life approach is founded on the principles of:

1. maintaining the serviceability and amenity of assets at acceptable levels in the most cost effective manner, and
2. infrastructure design and construction that is appropriate to the FSM

The core benefits that will accrue to the FSM from this approach are:

1. the total capital and recurrent investment in infrastructure assets is minimized over the whole of life, and
2. assets generally meet the users' needs for serviceability and amenity and avoid the cost and other impacts that arise from sub-standard assets

6.3.2 Implementing Whole-of-Life Asset Management

DTCI is the National Government's lead agency for planning and implementing a whole-of-life approach to asset management and will work in close coordination and cooperation with its counterpart agencies in the States.

Policy

The FSM Governments will establish an **infrastructure asset management policy** that includes an overall policy statement, elements of policy specific to infrastructure sub-sectors and responsibilities for policy application and implementation.

A core principle will be "**keeping good assets good**", that is resources should be prioritized to ensure that assets of good standard do not deteriorate unnecessarily and incur higher whole of life costs and/or fail to meet the required standards for serviceability and amenity.

Strategies

The infrastructure asset management policy will be supported by an **overall strategy** and **separate sector strategies**. These strategies will describe the approaches and methodologies that the FSM Governments will follow in implementing the policy, including:

1. strategy objectives and performance measures (e.g. condition and safety of roads, quality and availability of water)
2. classification of assets
3. broad allocation of available resources between and within sub-sectors

4. addressing the backlog of sub-standard infrastructure to bring it to a standard that makes ongoing maintenance cost effective
5. action plans for implementing the asset management policy and strategies at sub-sector level

Information

Implementation of the policy and strategies is highly dependent on the **availability and quality of asset information**, particularly the following components:

asset registers – records of ownership, location, physical, administrative and cost information for individual assets that provide base information for asset management planning, programming and evaluation

collection tools – systems, procedures, equipment and resources that ensure that asset register information is collected and is complete, timely and of suitable quality

analysis and modelling tools – systems, procedures, equipment and resources that facilitate analysis of asset register information to prepare programs and evaluate the effectiveness of asset management – this can vary from integrated spreadsheets to specialist modelling software

Programs

With the above policy, strategies and information in place, it will be possible to develop **asset management programs** for each sector in each State, separated out for each asset category and program component (see below).

Asset management programs will be integrated into Government budget planning processes and have a single set of guidelines to provide a national basis for budget targets, criteria and prioritization.

Programs will be prepared on an annual basis with a three year outlook – an “approved” program and budget for Year 1 and “indicative” programs and budgets in Years 2 and 3. This will permit the infrastructure agencies to plan and implement asset management programs more efficiently, particularly through multi-year maintenance contract arrangements.

Accountability for and management of the programs will be integrated into the Government processes that include ongoing performance reporting and annual program evaluation.

Program Components

Each sector program will include the following asset management program components:

routine maintenance – maintenance undertaken on a continuous basis to address minor defects before they contribute to further damage or deterioration to the asset, such as potholes in roads, leaks in water supply systems or broken windows in Government buildings

periodic maintenance – maintenance undertaken on a cyclic basis to restore at least some of the serviceability and amenity of assets that are lost over time and to protect against further unnecessary deterioration such as resurfacing of roads, painting of Government buildings or intensive cleaning of water treatment facilities

rehabilitation – work that is undertaken to “renew” the asset when routine and/or periodic maintenance is no longer cost-effective, for example replacing failed hard-stand dock areas, replacing cladding of timber buildings or replacing lengths of water supply lines that are continually leaking

Capital Investment Projects

A capital investment project will generally be required when:

1. asset management program components are no longer cost-effective in maintaining the serviceability and amenity of the asset, for example to maintain a bridge to carry its design load or to maintain a building in a safe condition
2. the capacity or function of the asset no longer meets the needs of users, for example a road needs to carry more traffic, a water supply main needs to supply more water or a dispensary needs additional space to treat more patients

6.4 Institutional Projects

Asset Management

The IDP includes an institutional project to support the implementation of whole of life asset management in the FSM through technical assistance and capacity building, including:

Policy and Strategies – establish the overall asset management policy and strategy and sector strategies with the participation and commitment of all governments and stakeholders, including a basis for adequate and sustainable funding over and above capital investment

Asset Identification, Ownership and Registration – develop registers of infrastructure assets and progressively add details of ownership/responsibility, category, condition and maintenance need

Capacity – plan then develop and implement asset management capacity in terms of:

People – dedicated and sufficient resources with responsibility and skills for collecting and analyzing asset information and planning, managing and implementing asset management programs

Processes – procedures, guidelines and tools for evaluating and prioritizing asset management needs and monitoring and reporting the effectiveness of programs

Technology – appropriate systems to support the collection, recording, analysis, monitoring and reporting of asset management information

Budgets – adequate budget for a sustainable asset management capacity and optimized asset management programs

Private sector service providers – a sustainable and competitive pool of service providers to undertake asset management activities

Transportation Regulation

The IDP includes a technical assistance project to support DTCl's implementation of revised maritime and air transportation safety and security regulations, including any regional integration or cooperation.

FSM Building Code

At present projects are generally designed in accordance with international codes, standards and guidelines, but with only limited account taken of the specific circumstances of FSM. Some guidelines have been developed for specific aspects including seismic and wind loading and are summarized in Climate Adaptation Guide for Infrastructure²⁴.

It is therefore intended that a National Building Code will be developed, with State specific requirements where appropriate. The Code will be based on the International Building Code and other US based codes and standards, but take account of the requirements of FSM and incorporate existing state and national guidelines.

²⁴ (DTCl, DoI, 2014) – Climate Adaptation Guide for Infrastructure

Chuuk Land Registry

The IDP includes a project to support the efforts of Chuuk State to reestablish its land title records. This will involve the recovery of records kept in Guam and Hawaii, identification of land title boundaries through consultation with stakeholders and survey, and recording legally sufficient title information.

Successful implementation of the Chuuk IDP education and health sector programs depends on establishing public ownership over school and dispensary land through this and the targeted land definition and acquisition projects included in Volume 3. However the benefits of the project will be more far-reaching than just the implementation of the IDP projects.

List of Institutional Projects

The IDP institutional projects are listed in Table 15 and outlined in the following project proformas.

Table 15 – Institutional Projects

ID	Project Title	Required Funding (\$)	Target Period
IN/1	Asset Management Technical Assistance	2,000,000	All
IN/2	National Building Code	200,000	1
IN/3	Strengthen Transportation Regulation	200,000	1
IN/4	Re-establish Chuuk Land Title Records	2,000,000	2
Total Funding Required		4,400,000	

Project 1 – Asset Management Technical Assistance (IN/1)

Project Title:	Asset Management Technical Assistance	Sector:	Institutional
		Estimated Cost:	2,000,000
Project Description/Scope:	Plan, develop and implement a contemporary approach to asset management for infrastructure across FSM, including: <ul style="list-style-type: none"> • Policy and Strategies • Asset Registers • Capacity Development involving: <ul style="list-style-type: none"> • People • Processes • Systems and Equipment • Budgets • Private sector service providers 		
Agencies Responsible:	DTCI in conjunction with sector managers at national and state level		
Project Objectives/Outcomes:	Implement a whole of life approach to asset management such that costs are minimized and asset are maintained to acceptable levels of safety and amenity		
Project Justification:	Whole of life infrastructure costs are not minimized, asset management is not adequately funded and adequate levels of safety and amenity are not maintained		
Project Status:	Concept		
Inclusions:	To be defined as part of TA scoping		
Exclusions:	To be defined as part of TA scoping		
Risks & Dependencies:	To be identified as part of TA scoping		

Project I 2 – National Building Code (IN/3)

Project Title:	National Building Code	Sector:	Institutional
		Estimated Cost:	200,000
Project Description/Scope:	Develop and implement a National Building Code appropriate to the FSM based on the International Building Code and other relevant codes and standards and incorporating specific aspects on a state-by-state basis including seismic and wind loading.		
Agencies Responsible:	DTCI		
Project Objectives/Outcomes:	FSM infrastructure is designed and constructed according to relevant and appropriate codes and standards		
Project Justification:	At present projects are generally designed in accordance with international codes, standards and guidelines, but with only limited account taken of the specific circumstances of FSM		
Project Status:	Concept		
Inclusions:	State-specific provisions and implementation at national and state levels		
Exclusions:	To be defined as part of TA scoping		
Risks & Dependencies:	Available codes and standards do not adequately cover FSM’s needs		

Project I 3 – Strengthen Transportation Regulation (IN/3)

Project Title:	Strengthen Transportation Regulation	Sector:	Institutional
		Estimated Cost:	200,000
Project Description/Scope:	Provide assistance to establish the regulatory arrangements included in the revised transportation legislation, including the development of management, process and resource capacity		
Agencies Responsible:	DTCI – Divisions of Civil Aviation and Marine		
Project Objectives/Outcomes:	Undertake transportation regulation in accordance with revised legislation		
Project Justification:	FSM has identified gaps in its regulation of transportation and revised legislation is being developed – establishing the regulatory agencies and developing management, process and resource capacity is critical to fulfilling the objectives of the revised legislation		
Project Status:	Legislation is being prepared		
Inclusions:	To be defined as part of TA scoping		
Exclusions:	To be defined as part of TA scoping		
Risks & Dependencies:	To be identified as part of TA scoping		

Project I 4 – Reestablish Chuuk Land Title Records (IN/4)

Project Title:	Re-establish Chuuk Land Title Records	Sector:	Institutional
		Estimated Cost:	2,000,000
Project Description/Scope:	Reestablish Chuuk’s land title records from: <ul style="list-style-type: none"> • Information held by institutions in Guam and Hawaii • Collecting and registering of additional land tenure and title information • Consulting and negotiating with stakeholders 		
Agencies Responsible:	Division of Commerce and Industry		
Project Objectives/Outcomes:	Reestablish definitive land title records for Chuuk		
Project Justification:	Most matters dealing with land title in Chuuk are impacted by the absence of definitive land title records		
Project Status:	Planning		
Inclusions:	Establishment of land title records from existing and reconstructed information		
Exclusions:	Supporting/enabling legislation		
Risks & Dependencies:	Lack of legislative support for reestablishment of land title records		

Part 7 Monitoring & Reporting

Performance Indicators

A range of performance indicators that are influenced by the infrastructure in each sector (other than government administrative buildings) are included in Annex B. The indicators cover aspects including accessibility, quality, efficiency, safety and affordability/financial sustainability.

Monitoring and Evaluation

Infrastructure managers and IPICs will monitor ongoing infrastructure performance to identify and plan improvements to infrastructure performance and service delivery and changes in the IDP priority projects and priorities.

Reporting

The performance indicators will be measured on an annual (fiscal year) basis and reported by the National Government within 3 months of the end of the fiscal year.

Annexes

<i>Annex A Infrastructure Development Responsibility Matrix</i>	57
<i>Annex B Performance Indicators</i>	59
B.1 Electric Power	59
B.2 Water/Wastewater Systems	59
B.3 Solid Waste Management	60
B.4 Roads and Pedestrian Facilities	61
B.5 Maritime Transportation	62
B.6 Air Transportation	62
B.7 Telecommunications Sector	63
B.8 Education	63
B.9 Health	63
<i>Annex C Bibliography</i>	65

Annex A Infrastructure Development Responsibility Matrix

FSM Agency	Aid Coordination Group	Compact Management Division	DTCI	State IPICs	PMU ¹	State PMOs ¹
Activity						
Preparing the Annual Implementation Plan		Accountable			Responsible	Consulted
Collating submissions to JEMCO and OIA		Accountable			Responsible	Consulted
Collating other aid submissions (EU, JICA, etc.)	Accountable				Responsible	Consulted
Program coordination and performance analysis	Accountable				Responsible	Informed
Manage transition to the PMU/PMO model			Accountable		Responsible	Consulted
Project completion analysis and lessons learnt				Accountable	Responsible	Consulted
Knowledge management (design criteria, standards, terms, conditions)			Accountable		Responsible	Informed
Design consultant pre-qualification			Accountable		Responsible	Informed
Design consultant selection				Accountable		Responsible
Contractor pre-qualification				Accountable	Responsible	Informed
Contractor selection						Responsible
Peer reviews			Accountable		Responsible	Consulted
Project management				Accountable		Responsible
Forward project programs and cash flows - Compact		Accountable				Responsible
Forward project programs and cash flows –EU, JICA...	Accountable					Responsible
Planning and design				Accountable		Responsible

FSM Agency	Aid Coordination Group	Compact Management Division	DTCI	State IPICs	PMU ¹	State PMOs ¹
Activity						
Construction supervision				Accountable		Responsible
Scope and design verification				Accountable		Responsible
Capacity Building				Accountable	Informed	Responsible
Variation control				Accountable		Responsible

Notes:

1. PMU and PMO involvement in non-Compact infrastructure development projects is a longer term development and subject to agreement of the relevant funding agencies

Annex B Performance Indicators

B.1 Electric Power

Operational performance indicators for FSM electric power utilities are available from the annual **Pacific Power Utilities Benchmarking Report** prepared by the **Pacific Power Association** (www.ppa.org.fj)

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicators					
1. Households with access to grid connected electrification (percent)	2012	80	77	96	57
2. Electricity production (000 kWh)	2012	13,866	5,463	32,351	12,255
3. Electricity load factor (percent)	2012	59.2	54.8	62.4	67.0
Quality Indicators					
4. System Average Interruption Frequency (SAIFI) events per customer	2012	(a)	(a)	(a)	16.7
5. System Average Interruption Duration (SAIDI) mins per customer	2012	78,120	845	(a)	17,704
Efficiency Indicators					
6. Specific fuel oil consumption (kWh per liter)	2012	3.68	3.58	3.23	3.81
7. Distribution losses (percent of output)	2012	28.1	1.8	19.0	25.1
8. Renewable energy share (percent)	2012	0.0	0.0	0.0	0.2
Affordability Indicators					
9. Average residential end-user electricity tariff (cents/kWh)	2012	0.56	0.40	0.49	0.44
10. Average commercial end-user electricity tariff (cents/kWh)	2012	0.59	0.42	0.49	0.46

Notes:

- (a) Information not included in the PPA Benchmarking Report

B.2 Water/Wastewater Systems

Operational performance indicators for FSM water and wastewater utilities are available from the annual **Pacific Water and Wastewater Utilities Benchmarking Report** produced by the **Pacific Water and Wastes Association** (www.pwwa.ws)

Indicator	Baseline Year	Chuuk CPUC	Kosrae DTI	Pohnpei PUC	Yap		
					YSPSC	GTWA	SYWA
Accessibility Indicators							
1. Access to improved urban water source (percent total population)	2012	90	82	(a)	93	92	100
2. Access to improved urban sanitation (percent total population)	2012	63	40	(a)	70	n/a	n/a
3. Availability of water supply in piped water supply systems (average hours per day)	2012	24	20	(a)	24	24	24
Efficiency Indicators							
4. Employees (per 1000 connections)	2013	14.6	9.6	7.2	14.9 (2012)	8.0	(a)
5. Non –revenue water (percent of water produced)	2013	72	100	16	47 (2012)	4	(a)
Affordability and Financial Sustainability Indicators							
6. Cost recovery (tariff revenue/operating cost (percent))	2013	30	n/a	169	127 (2012)	103	92 (2011)
7. Average tariff for water services (\$ per 1,000 gal)	2013	1.55	n/a	2.08	1.51	2.27	1.70
Safety Indicators							
8. No. of drinking water safety plans in place	2013	1	2	3	1	1	0
9. Drinking water quality compliance (%) – residual chlorine/microbiological	2013	100 / 85	0 / 50	83 / 96	90 / 90	100 / 71	0 / 70

Notes:

(a) Information not included in the PWWA Benchmarking Report

B.3 Solid Waste Management

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicators					
1. Access to regular solid waste collection service in urban areas (percent of urban population)	20__				
2. Frequency of solid waste collection service in urban areas (number per week)	20__				
Quality Indicator					
3. Facilities with up-to-date environmental monitoring reports readily available (number)	20__				
Efficiency Indicator					
4. Cost of waste disposed (\$ per capita)	20__				
Sustainability Indicators					
5. Systems for sorting solid/recyclable/hazardous wastes (number)	20__				
6. Exported recyclable commodities or waste (number of shipping containers)	20__				

B.4 Roads and Pedestrian Facilities

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicators					
1. Total road network (miles)	20__				
2. Paved roads (miles)	20__				
3. Unpaved roads (miles)	20__				
4. Registered motor vehicles (number)	2013	362	801	5,275	2,564
Quality Indicator					
5. Condition of roads (percent of road network in poor condition)	20__				
Efficiency Indicator					
6. Road network receiving regular routine maintenance (percent of road network)	20__				

B.5 Maritime Transportation

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicators					
1. International container services (annual number of container ships)	2014	72	30	53	48
2. Container throughput (annual number of containers (TEU) imported & exported)	2014	1,155	421		714
Quality Indicator					
3. Vessel turnaround time (average time in days)	2014		<1.0	1.0	
Efficiency Indicator					
4. Delay waiting to enter port (average time in days)	20__				
Affordability Indicator					
5. Port charges (\$/Twenty-foot Equivalent Unit)	20__				
Safety Indicator					
6. Maritime incidents (Number)	20__				

B.6 Air Transportation

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicators					
1. Operational airports/airstrips (number)	2015	1/3	1/-	1/3	1/2
2. Scheduled international airport in-bound passenger flights (average flights per week)	2015	7	6	8	3
3. Scheduled airstrip in-bound flights (average flights per week)	20__		n/a		
4. Cost of international airfreight (\$/ton-mile)	20__				
Quality Indicator					
5. IATA Level of Service for international airports	20__				
Safety Indicators					
6. Aviation incidents (number)	20__				
7. ICAO safety audit indicator for international airports	20__				

B.7 Telecommunications Sector

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicators					
1. Mobile-cellular network coverage (percent of population)	20__				
2. Fixed broadband internet subscriptions (percent of population)	20__				
3. 3G (minimum) mobile-cellular network coverage (percent of population)	20__				
4. 4G (minimum) mobile-cellular network coverage (percent of population)	20__				
Quality Indicator					
5. Internet bandwidth (Mbit/s per capita)	20__				
Affordability Indicators					
6. Cost of mobile-cellular prepaid (\$ per minute local call)	2015	0.50	0.50	0.50	0.50
7. Cost of international mobile-cellular (\$ per minute call to Hawaii)	2015	0.75	0.75	0.75	0.75
8. Cost of 3G data (\$ per MB for pre-paid)	2015	0.08	0.08	0.08	0.08
9. Cost of fixed internet (\$/month for 512 kbps service)	2015	65	65	65	65

B.8 Education

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Quality Indicator					
1. Schools meeting the FSM School Accreditation Standards (percent)	2014	6	100	82	15

B.9 Health

Indicator	Baseline Year	Chuuk	Kosrae	Pohnpei	Yap
Accessibility Indicator					
1. Patient encounters provided in homes and dispensaries (number)	2014	77,156	8,738	135,604	18,281
Efficiency Indicator					
2. Average length of stay in State hospitals (days)	2014	4.9	5.3	4.6	4.8

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