State Government of Pohnpei

Pohnpei Port Authority

Federated States of Micronesia (FSM)

Pohnpei Port Scoping Study

October 2010




PRIF Pacific Region Infrastructure Facility

This Study was conducted by Adrian Sammons and Douglas Oldfield as individual consultants, under the guidance and support of the Pacific Infrastructure Advisory Centre (PIAC) in Sydney, Australia.

PIAC operates under the coordination of the Pacific Region Infrastructure Facility (PRIF), a partnership for improved infrastructure in the Pacific Region between the Asian Development Bank, the Australian Agency for International Development, the New Zealand Ministry for Foreign Affairs and Trade and the World Bank Group.

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CURRENCY EQUIVALENTS

(as of 17 June 2010)

Currency Unit	–	Australian dollar (A$)
A$1.00	=	US$ 0.863416
US$1.00	=	A$1.15819

ABBREVIATIONS

ADB	Asian Development Bank
CAGR	Compound Annual Growth Rate
CFA	Compact of Free Association
CFC	Caroline Fishing Corporation
CIF	Cost Insurance and Freight
CBU	Completely Built Up (motor vehicle)
DTC&I	Department of Transportation, Communications and Infrastructure
DWT	Dead weight tonnes
EDA	Economic Development Authority
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
FAA	Federal Aviation Authority (of the United States of America)
FAK	Freight All Kinds
FLT	Forklift Truck
FOB	Free On Board
FSCO	Federated Shipping Co Ltd.
FSM	Federated States of Micronesia
FSMPC	Federated States of Micronesia Petroleum Corporation
GAS	Giant African Snail
GDP	Gross Domestic Product
IALA	International Association of Lighthouse Authorities
IDP	Infrastructure Development Plan
IMO	International Maritime Organization
IPCC	Inter-Governmental Panel on Climate Change
km	kilometer
LOA	Length Overall
LTFV	Luen Thai Fishing Venture
m	meter
m^2	square meters
MCPC	Micronesia Longline Fishing Corporation
MGO	Marine gas oil (diesel)
MOU	memorandum of understanding
MSC	Micronesian Shipping Commission
MV	Motor Vessel
NFC	National Fisheries Corporation
NORMA	National Oceanic Resource Management Authority
ONPA	FSM Office of the National Public Auditor
PFC	Pohnpei Fisheries Corporation
PIAC	Pacific Infrastructure Advisory Centre
PIANC	International Navigation Association
PICs	Pacific Island Countries
PPA	Pohnpei Port Authority
PRIF	Pacific Region Infrastructure Facility

PUC	Pohnpei Utilities Corporation
RMI	Republic of Marshall Islands
SOE	State-Owned Enterprise
TZ	Transportation Zone (legislated for PPA administration)
TEU	Twenty foot equivalent unit (a standard 20' container)
ULP	Unleaded petrol
UPS	Uninterrupted Power Supply

NOTES

(i) The fiscal year (FY) of FSM States ends on 30 September.
(ii) In this report, "$" refers to US dollars, unless otherwise stated.

Executive Summary

Overview

The Pohnpei port scoping study is an extensive assessment of the current operations, management and need for infrastructure expansion at the sea port as conceptualised by the Pohnpei State Government and the Pohnpei Ports Authority (PPA). In researching and evaluating the demand and drivers behind the proposed port expansion, the study provides a set of specific recommendations for a short and medium term improvement strategy that is designed to accommodate current and projected trade volumes. The study outlines an initial assessment of alternative options available and their capacity for improving port operations and enhancing facilities at Pohnpei, with focus on the fisheries sector, general freight, containers, bulk liquid fuels and the potential for increasing cruise liner vessel arrivals.

The study also aims to deliver a considered perspective on organizational and institutional strengthening with an emphasis on accountability and performance improvement measures. These measures are targeted at providing port users with a more reliable and consistent product. Alongside this deliverable is the targeted objective of lifting financial performance based around optimizing operating activities, improving management of overhead expenditure, creditor and debtor controls and aligning tariffs on a competitive and commercial basis.

The scoping study's recommendations and strategies are delivered with the intent of increasing port productivity, improving efficiency and meeting current and future demands.

Methodology

The methodology used in this study can be considered as having three core areas of focus. These are:

- Technical matters, such as engineering, infrastructure design and environmental aspects;
- Organizational matters, such as operational processes, financial performance and management structures; and
- Institutional matters, such as governance, stakeholder interest and lease concessions.

Description of Operations

Current Port Operations. The Port of Pohnpei comprises a natural enclosed and protected harbour, with navigation currently restricted to daylight operations only. It has an anchorage area of approximately 5.6 sq km which currently provides safe anchorage for up to 18 frozen cargo carriers, but with the removal of approximately four coral heads, could provide capacity for up to 30 frozen reefer carriers. The Port includes a single overseas berth and a smaller separate berth alignment for fishing vessels.

A regular international transshipment service is operated by two shipping lines via Guam, with ship calls on average every week. Each voyage delivers on average about 50 containers which are unloaded by ship's gear. Export trade via the container facility comprises empty containers and frozen seafood. The container terminal is operated by a single stevedore with a lease arrangement by way of an operating concession with PPA.

Purse seine fishing vessels operate through the port, with fish catch typically transferred to reefer fish carriers inside the anchorage. The annual catch has recently amounted to about 240,000 tons per year with 355 purse seine vessel visits and 133 reefer fish carriers calling

in 2009. A Long line fishing fleet of approximately 30 boats is based at Pohnpei which transfers catch to a processing plant ashore. Export catch is then both airfreighted and seafreighted to markets in Asia.

Fuel tankers (21 tanker visits per year) off-load approximately 40,000 tons of fuel per year. Other minor operations include miscellaneous vessels such as training ships, yachts, pole and line fishing boats, cruise ships, research vessels, tug boats, visiting US Coast Guard and military vessels. These vessels do not draw on port resources to any significant extent.

Port Infrastructure. The Port has an approach channel wide enough for two-way vessel traffic. It also has an anchorage located to the north-west of the port and inside the main reef directly west of the entrance, with a usable area of approximately 3 sq km and a general depth of 24-70 m. The anchorage is a very significant natural asset for the Port, adding considerable value for attracting commercial fishing operations to Pohnpei. The port also has a swing basin and berth box.

The main wharf comprises a vertical wall 338 m (1105 ft) in length and a declared depth at the berth of 10.5 m below MSL. The new fishing wharf is located to the south of the main wharf and is intended to provide a facility for berthing long line fishing vessels and other shallow-draft vessels (depth is less than 4 m). Other berth structures include a small boat ramp, suitable for launching and retrieving trailored boats, and an unusable area of land between the inner end of the main quay's southern return and the boat ramp, available for possible development.

The Study assessed the Master Plan for PPA prepared by EM Chen and Associates, Inc in 1994 and found that current freight and vessel throughput is lower than predicted in the Master Plan. In addition, other aspects of the EM Chen report need to be confirmed, and it is recommended that thorough planning and hydrographic, bathymetric and geotechnical surveys, be conducted for any planned wharf construction at the proposed site before taking action.

There have been several infrastructure developments in the last 10 years at Pohnpei seaport that present constraints to both the current and future operations and planned developments of the seaport, e.g., construction of a 3-storey, 28-room hotel, restaurant and car park immediately behind the wharf area, a 100m fishing wharf with limited draft of <4 m, an ice making plant that feeds a pipeline running over the shoreline and across a section of the seaward side of harbor, a leased area which intrudes directly upon the wharf apron that is gated and locks off a 60m section at the northern end, a 1.6 hectare water frontage area of land owned by PPA that is currently in default or otherwise in dispute with lease holders and a fish catch transshipment facility constructed directly upon the wharf apron frontage at the southern end.

Management and Corporate Governance. The PPA Board plays a key and pivotal role in the execution, monitoring, and evaluation of the business activities of the PPA airport and seaport. The Board also takes an active role in directing core activities within the domain of management, including direction over day-to-day operations and decisions affecting the trading profitability of PPA. A business assessment of the organizational and institutional capability of port management efficiency has found:

- The management of vessel movements within harbor limits is reactive of immediate requirements especially at times of harbor congestion;
- A condition of weak controls over aging debtors has given rise to a large and rising outstanding debt condition which continues to attract write off accruals and is adversely affecting cash flow; and

- The amount of work to be done is significant and would be best achieved by following a stepped business improvement strategy.

There is absence of an agreed policy on corporate governance and a number of deficiencies in respect to normally accepted standards in this area. The standard of governance should ideally be as per appropriate guidelines set by the US-based National Association of Corporate Directors (NACD) or its equivalent in Australia, the Institute of Company Directors. A comprehensive list of the requirements in respect to financial control and other management issues are detailed in the report.

Financial Performance. Revenue items for the Port are: berthage and line handling; anchorage; wharfage; navigational fees; pilotage; security; environment and levies associated with safe and secure workings of the port; lease and concession income from land and service agreements; and penalties associated with non-compliance and violation of port rules and regulations. Current tariff charges of the Port are significantly lower compared to other central Pacific ports with similar trading tonnages and vessel movements.

The primary constraint on financial performance resides with the non-recovery of monies for seaport services, shortfalls in commercial rates for land rentals and continued operating with a non-adjusted seaport tariff. Adherence to tighter fiscal policies and procedures would deliver an improved financial performance.

Forecast of Demand for Growth

It is estimated that the main berth in the port is currently used at 50% of its potential capacity. A detailed analysis of all contributing factors has shown that forecast trade growth for the Port of Pohnpei will be flat or possibly negative for the foreseeable future. This strongly indicates that cargo volumes and the number of ships visiting Pohnpei will not significantly increase by natural growth of trade activity. Any demand to support decisions for expanding the port's facilities will not eventuate unless the PPA and Pohnpei Government Agencies take proactive steps to engage in trade and market development.

Any new port infrastructure can only be justified in terms of improved efficiency of the port's operations and improvements in safety, ease of operation, and general management of the port. Implementation of any port improvements (as discussed in more detail below) are not expected to result in any tangible benefits by way of trade growth.

Options to Improve Port Facilities

The initial revenue generation of the Port is insufficient to support the impost of significant capital investment on normal commercial terms. Based on the detailed input assumptions used in the Financial Model in Section 6 and related appendices, the following conclusions are assumed:

- Trade growth at Pohnpei is limited to the existing fisheries sector with no potential in the short to medium term from other commercial developments including tourism;
- The forecast free cash flow appears to be insufficient to support the entirety of the proposed infrastructure upgrades, but could be self funded in stages;
- A short Term Improvement Strategy, described in Section 12 of this report provides a staged approach to developments which are designed to protect current revenues;
- A review and increase of seaport tariffs is urgently needed to return to market levels for port service fees; and
- Financial risks are present with the quantum and period of aging debtors and the forecast decline in revenues from land rentals at the port.

Since trade forecasts show limited or no growth in trade in the foreseeable future, and the infrastructure in place is considered to be essentially adequate to serve the present trade and shipping, the need for significant development within the Port cannot be justified.

Significant improvements in the operational efficiency and effectiveness of the Port's facilities can be achieved by investing in maintenance and task specific small-scale upgrading of the present infrastructure, together with improved governance, financial control and general improvements in the management of the Port.

Short Term Development Strategy

A short term development strategy has been prepared consisting of four Development Stages, which provides PPA with guidance for immediate, short-term and medium - term measures to improve the performance and management of the Port. The short-term improvements as detailed in the Short Term Improvement Strategy offer operational and economic benefits without major capital cost. The four Development Stages are:

Development Stage 1 – Urgent Rehabilitation Measures. This stage includes all recommended measures which are needed as soon as possible, to meet safety and operational standards, and immediately improve the operational performance of PPA and the Port. These include:

a) Short Term Operational Improvements

- Relocate all vessel boarding by clearance officers to the anchorage;
- Provide safety equipment to the pilot boat;
- Review the berthing procedure for the *MV Golden Micronesia* to permit bow-out berthing, in compliance with IMO/MARPOL standard procedures;
- Management of the current operations needs attention to plan vessel movements in harbor limits to ensure safe berth access is available to priority calling vessels; and
- An external audit of PPA's current seaport operation will identify work necessary to enable PPA to achieve basic compliance with accepted operational standards for safety and security at seaports (in preparation for becoming an operating member of IMO conventions).

b) Short Term Infrastructure Improvements

- hydrographic survey of Pohnpei navigation channel and/or obtaining the LiDAR mapping details (laser image detection and ranging survey) from the US Navy;
- dredging a re-alignment of the navigation channel at No.5 and No. 8 channel markers to provide a safer navigation route for vessels entering and departing Pohnpei seaport;
- Connection of bunker pits via pipeline to fuel tanks at the new fishing wharf;
- Installation of terminal lighting, firemains and paving of terminal area;
- Condition survey of sheet pile wharf and infrastructure content; and
- Replacement of wharf fenders and bollards at main wharf site (already programmed, but delayed).

Development Stage 2 – Operational, Governance and Organizational Improvements. This stage addresses a range of improvements needed to the organization and governance of PPA's operational procedures and management practices. These improvements are aimed at making optimal use of and obtaining the greatest benefit from PPA's existing organizational and corporate capacity to operate as a successful business enterprise. These include:

a) Governance Improvements

- Implement a system for monitoring the performance of the stevedore's operations;
- Undertake an asset maintenance audit;
- Undertake a TZ boundaries audit and rectification of anomalies;
- Undertake a human resources audit and implement a workforce planning process;
- Re-assess and re-arrange the role and activities of the Board of Directors;
- Implement a program of management and organizational strengthening;
- Improve general management practices; and
- Implement a risk management process.

b) Financial Performance and Practices

- Overhaul the debtor control process and procedures;
- Review all tariff charges;
- Implement a quarterly financial and budget review process;
- Implement a short-term cash investment process;
- Modify revenue reporting procedures to reflect actual practices;
- Modify ledger process to separate seaport and airport financial activities;
- Implement a formal internal audit process;
- Implement a monthly financial report process for Board meetings;
- Overhaul the operation of the accounts office; and
- Implement an EFT process for funds transfers.

Development Stage 3 – Selected Measures for Long-term Development. A number of more ambitious measures will bring significant operational and infrastructure improvements to the Port. These measures will provide selective expansion of the port's facilities where specific improvements can be targeted for the greatest benefit:

- Construct a new 100m dock at the northern end of the main wharf, to be occupied by CFC. The estimated capital cost of this development stage is $2.5 million;
- Construct a new 70m dock to allow for extra berth space for the fisheries operations at the southern end of the main wharf between the small boat ramp and the existing south facing fishing berth. The estimated capital cost of this development stage is $2.0 million;
- Develop a new Port Development Strategy for the future development and growth of the Port; and
- Undertake a dredging program to increase capacity and safe navigation in the anchorage area and a dredging program to remove any potential high spots in the swinging basin.

Development Stage 4- Development Consolidation. Long-term improvements need to be planned and implemented to bring on-going and continuous improvement to both the port's infrastructure and to the business of operating and managing the Port for long-term benefits to all stakeholders. The measures included in this stage are:

- Maintenance of improvements implemented during Development Stage 1;
- Long-term monitoring and consolidation of governance and financial control improvements implemented during Development Stage 2; and
- Bi-annual reviews of the Port Development Strategy.

Details of specific items included in each Development Stage are included in Sections 12 and 13 of the Report. The estimated costs for each stage are:

DEVELOPMENT STAGE	Cost estimate $"000
Development Stage 1	
– Short term operational improvements	Internal costs
– Short term infrastructure improvements	$2,080
Development Stage 2	
– Governance improvements	$100
– Financial performance and practices	$200
Development Stage 3	
– Long term infrastructure improvements	$5,300
Development Stage 4	
– *Ongoing improvements and consolidation	$100 +

*****dependent upon scale and selection of improvements undertaken

1. Introduction

1.1 General Situation

The Federated States of Micronesia (FSM), with a total land area of only 700 sq km is made up of 607 islands ranging over 3 million sq km of the Pacific Ocean. The country is made up of four States: Chuuk, Kosrae, Pohnpei and Yap. The FSM became a sovereign nation in May 1979 and is located just north of the equator in the western Pacific, approximately 5,000 km west of Hawaii.

FSM entered into a Compact of Free Association with the United States in 1986 and which provides for, FSM having control over all aspects of domestic and foreign policy, with the exception of defence and security issues, for which the United States is responsible. The Compact of Free Association between FSM and the USA provides the USA with defense and operating rights in FSM territorial waters in exchange for US economic assistance.

A second US Compact agreement, which came into effect in 2004, provides funding of US$1.8 billion over twenty years. That amount includes contributions to a central fund which will replace direct financial assistance concluding in 2023. As well as financial assistance, the Compact grants FSM citizens access to US federal programs and favourable provisions for travelling to and working in the United States.

English is the official language of FSM and is widely spoken. There are, however, at least eight major indigenous languages in the country, none of which are spoken across the island nation. Each State has its own language and many of the older citizens are familiar with the Japanese language due to its occupation by Japan prior to World War II.

The country has an American-style constitution, which incorporates a parliament composed of an executive branch, a legislative branch and a judicial branch. Each of the country's four States has an elected governor, a lieutenant governor and a legislative body. The FSM constitution allows each State to operate as autonomous entities, with exception of foreign affairs and defense, within a loose federation.

By the most recent count (2000), the total population of FSM stands at about 107,000, an increase of about 24,000 since the 1980 census. Pohnpei is approximately 350 sq km in land area, including the main volcanic island and accounts for about 32 percent of the FSM total, with a population of 34,500 as declared in the 2000 census.

In common with other FSM States, Pohnpei is highly dependent on imports arriving by sea. Pohnpei airport cannot currently provide access to wide body aircraft and has limited services for international airfreight. Over 40 percent of Pohnpei State's imports are sourced from the USA; other sources include Australia (20 percent) and Japan (13 percent). Pohnpei has few exports. Exports of marine products, mainly re-export of fish to the USA, Japan and a number of east Asian countries accounts for almost 85 percent of export revenue. A limited number of shipping services operate to Pohnpei and suffer consequential costs as a result of the trade imbalance which is reflected in freight charges for container shipments which in turn are conditionally regulated by the Micronesian Shipping Commission.

The efficient and safe operation of the Pohnpei seaport facilities is therefore essential to maintaining trade and commerce with the outside world and delivery of essential commodities including fuel, foodstuffs, building materials and manufactured goods and vehicles.

The current sea port of Pohnpei is located on Dekehtik Island which also provides the location for the international airport. Dekehtik Island has a declared Transportation Zone (TZ) of approximately 480.6 hectares including harbor limits is linked to the main island by a 1.2 km causeway.

As legislated by the State Government, the administration and jurisdiction of both airport and seaport is under the Pohnpei Port Authority (PPA). The administration of the Pohnpei airport takes direction for compliance of operating standards directly from the US Federal Aviation Administration (FAA). The Pohnpei State/PPA have an established agreement with the FAA under the Airport Improvement Program (AIP) which provides a 95 percent FAA grant, with a 5 percent matching fund from Pohnpei State/PPA. The matching fund grants are directly linked to adherence of FAA's Airport Compliance Program obligations when sponsored parties accept FAA US Federal grant funds. Current FAA grants for the period 2004-2009 total US$67 million with a further US$27 million planned from 2010.

In respect to Maritime conventions for compliance of safe and secure sea port operations, the FSM or Pohnpei State is neither a member of the International Maritime Organization (IMO) nor a signatory to any of that body's maritime safety, security, and pollution conventions and controls or environment protection treaties.

1.2 Terms of Reference

This "Scoping Study" has been completed by independent consultants:

- Mr. Adrian Sammons – Business Assessment Expert; and
- Mr. Douglas Oldfield – Operations and Engineering Expert.

(The Consultants) under contract retention by the Asian Development Bank (ADB) and under assignment from the Pacific Region Infrastructure Facility (PRIF) and technical mission direction and conduct from the Pacific Infrastructure Advisory Centre (PIAC).

The Consultants have been engaged under the terms of reference described in the contract documents and as discussed and agreed with representatives from PIAC. The project is entitled "Pohnpei Port Scoping Study, FSM" and directly relates to the activities and operation of the seaport as operated by the Pohnpei Port Authority (PPA), a self governing organisation of the Federated States of Micronesia (FSM).

This Scoping Study has been conducted in accordance with the Terms of Reference for the Project, a copy of which is in Appendix 1. The Scoping Study essentially focuses upon the following two key areas:

- Business assessment of the existing port facilities and their management. This includes the evaluation of existing service levels provided and their performance standards. A key part of this stage of the scoping study is a full analysis of current and forecast demand at the port covering all users and industry sectors activity and freight flows. Integrated into the analysis of facility operations is an assessment of the aspirational plans for port development and how this relates to demand projections and contributes towards increasing efficiency and productivity of the port. The Business Assessment is underpinned by a full financial evaluation of revenue source and operating costs complemented by a financial ratio and sensitivity analysis against various financial scenarios; and
- Short Term Port Improvement Strategy. This includes the determination of requirement for the full scale PPA infrastructure proposal against a range of short

term actions that mitigate the constraints that have been identified as demanding such new construction. Alongside the infrastructure consideration is the delivery of recommended actions to lift financial performance through a range of cost and revenue control measures. The final part of the improvement strategy covers the strengthening of organizational capacity and reinforcing governance within the organization.

1.3 Prior Studies and Reference

The PPA has combined jurisdiction over the Pohnpei international Airport and Seaport according to its operating mandate as established in the PPA Act of 1991. There have been a number of references made to the planning for Pohnpei seaport infrastructure development since the early 1990s. The most recent of these is in the Pohnpei State Economic Planning Conference Report (May 2010) which includes harbour entrance channel widening, channel dredging, turning basin radius expansion and construction of a new 275 m dock extension, for which an estimated capital cost of US$48M is provided. This is preceded by the PPA Five Year Strategic Plan 2007-11 (Sept 2006) which declared a capital cost in the range of US$22M for a similarly described development. This was also preceded by the FSM Infrastructure Development Plan 2004–2023 (May 2004) which provides an estimate of US$35-40M for the same broadly described port development.

The PPA is using an undated report entitled “Capital Improvement Projects”, prepared by their Facilities Maintenance and Construction Division (F&C) in 2009 and updated June 2010. This report describes in detail the ongoing infrastructure and materials maintenance and replacement programs and in general terms, capital improvement and development plans. The F&C report makes reference to the planning conference hosted by the Pohnpei State Government in May 2010. There is no analysis or projection of demand on Pohnpei port’s facilities and services.

The only source of comprehensive engineering design and substantive demand analysis is included in the EM Chen & Associates (FSM) Inc. Master Planning document prepared in September 1994. This PPA-commissioned study provided detailed information on port conditions, the criteria for expansion and planned expansion scenarios covering air and seaport, land usage, access roads and supporting infrastructure and delivered a robust solution against the evaluated base case for the day. But, a fatal flaw associated with projected demand of freight and vessel throughput, causes the design to be massively over engineered and ultimately, inappropriate.

1.4 Structure of the Report

This report is structured to provide the following:

Table 1 - Report Structure

Section	Title	Description
2	Objectives of the Study	The objectives of the Study
3	Port Operations	Description of the present shipping operations and services provided by the Port Authority, the scope of operational procedures and processes and how they are delivered to users. A description of current shipping lines, fishing operators and other users, a description of their activities and vessels that are operating in the port

		of Pohnpei. A description and assessment of the efficiency of the operational arrangements and services supplied to port users directly and indirectly by PPA. An overview of the regulatory processes and procedures used by State and FSM Government agencies for vessels entering and departing Pohnpei seaport.
4	Existing Infrastructure	Description and assessment of the existing port and port-related infrastructure and facilities. This includes the wharf area, office buildings and the Transportation Zone land under control of the PPA and its usage under lease and concession arrangements. A physical and desktop assessment of safety and accessibility of the harbor and navigable channel and anchorage area based on current and projected vessel usage. A review and assessment of supporting infrastructure and facilities including fresh water supply, bunker fuel supply, work boat, pilot boat and line boat deployment, navigation aids, security and fencing, safety services and pollution control equipment and storage.
5	Institutional and Organizational Assessment	Review and describe the institutional framework and laws creating the PPA and their scope of legislative authority and controls. Review and describe the inter-relationship of PPA and Government authorities on a State and FSM National level as it relates to PPA seaport governance and management. Review and report on the organizational capacity and capability of the PPA relative to its policy setting and adherence, strategic planning and trade/revenue forecasting and the supporting analysis undertaken to support the proposed expansion program. A review of financial controls and management systems, accuracy of reporting and procedures for evaluating performance and budget planning. Evaluate constraints and deliver recommendations for improvement.
6	Financial Assessment	Review and assessment of current revenue items and tariff structures in place. Review and assessment of current expenditures and budget planning processes. Financial assessment of PPA seaport operations and performance and scope for improvement. Analysis of key financial ratios and scenario testing of activity against financial variables including debt servicing. Identification of constraints and recommend areas for improvement.
7	Trade Forecasts	Analysis of past and current trade volumes to establish trends and predictability of trade flows against known changes in activity. Research and evaluate potential growth in trade and likely future trading patterns over 5, 10 and 15 year forecasts. Establish a base case for

		future trade growth and the drivers behind this. Set a number of options for future trade scenarios and testing of each on a sensitivity scale.
8	Options to Meet Future Demand with Current Facilities	Evaluation of potential options to satisfactorily meet future demand by improving current port and cargo operations, upgrading existing port and supporting infrastructure. Deliver capital cost estimates for each scenario.
9	Need and Options for New Port Infrastructure	Evaluation of the requirements for new port infrastructure and support facilities. Recommended options and stages for new infrastructure and supporting facilities considering land available. Deliver capital cost estimates for each scenario including ongoing costs.
10	Preliminary Cost Benefit Analyses	Perform a preliminary financial and economic benefit-cost analysis to assess the financial viability of recommended (proposed) infrastructure projects. Assessment of the financial and fiscal sustainability projections of projects.
11	Environmental, Social and Community	Assessment of environmental impacts associated with any short or long term seaport infrastructure projects. Assessment of climate change impacts relative to the current and future operations and access of Pohnpei seaport. Assessment of social and community direct and indirect impacts likely to occur on the basis of seaport infrastructure expansion. Discussion of other relevant issues including potential community relocations.
12	Short Term Port Improvement Strategy	Strategic options for short-term port improvements that assist in the mitigation of significant constraints presently confronting port operations, service delivery and organizational performance. These include operational strategies, infrastructure projects, governance, organizational strengthening and financial strategies.
13	Long Term Development of the Port	Development Stages 3 and 4 for long term development and sustainability of the Port.
14	Conclusions and Recommendations	Assessment of likely preferred stages and option(s).

2. Objectives of the Study

The Pohnpei port scoping study aims to deliver a broad assessment of the need for infrastructure expansion at the sea port on the scale identified by the Pohnpei State Government and PPA. In researching and evaluating the demand and drivers behind port expansion, the study will provide a set of quantifiable recommendations for a short term improvement plan designed to deliver greater access for current and projected trade volumes. The study aims to provide an initial assessment of alternative options available and their facility for improving port facilities at Pohnpei, focused upon the fisheries sector, general cargoes, containers, bulk liquid fuels and the potential for expanded cruise liner vessels.

The study also aims to deliver a considered recommendation covering organizational and institutional strengthening with emphasis on accountability and performance outcome measures targeted at providing port users a more reliable and consistent product. Alongside this deliverable is the targeted objective of lifting financial performance based around optimizing performance at operating levels, improving management of overhead expenditure and aligning tariffs on a competitive and productivity standard footing.

The study recommendations and target strategies are delivered with the intent to increase port productivity and efficiency to meet current and future demands.

The study also sets out to provide recommendations towards sustaining a safe navigable channel and secure harbor for mooring and operations of port user's vessels and associated industrial and support industries within the Transportation Zone (TZ), which is essential to maintaining safety and security of Pohnpei State's sea transportation links.

3. Port Operations

3.1 Existing Port Operations

Pohnpei Port navigation is restricted to daylight operations only, the anchorage area is approximately 5.6 sq km and provides safe anchorage for up to 18 frozen cargo carriers, but with removal of approximately four coral heads would provide capacity for up to 30 frozen reefer carriers at a single time.

Entrance to the harbor channel is approximately 110 m wide, a fish transshipment facility at the southern end of wharf was commissioned in the 1990s but is currently not used for the transfer of fish catch. PPA does not have a suitable pilot boat available and uses an open whaler (utility) type boat with an outboard motor, no safety gear, and Chinese long liner fishing boat owners have been identified as dumping old and unserviceable long line fishing boats at Pohnpei harbor.

All bulk petroleum products arrive from Guam on a twice-monthly cycle. A small parcel tanker discharges a variety of liquid bulk fuels using a pumping station at the southern end of the wharf. LPG is brought onto the island on container ships in 5ton cylinders. International cruise ships visit Pohnpei approximately once a year, with the majority of the vessel arriving from other Pacific countries. These vessels vary in size, crew and passenger numbers are limited to about 300 per vessel due to limitation in draft alongside the main wharf, turning basin and channel. Bulk diesel is delivered direct to the long line fishing fleet by a small tanker operated by Luen Thai Fishing Venture (LTFV, a Chinese fish processing company) on an ad hoc basis after taking on bulk diesel from a supply tanker.

The FSM National patrol boat fleet is based at Pohnpei. There are three vessels of 110 ton displacement with a total crew of 18. These vessels patrol the EEZ of the FSM and visit the other ports of the FSM during these patrols (see Appendix 16 showing a map of the EEZ waters of FSM). The US Coast Guard cutters also visit several times annually. Additional courtesy calls are infrequently made by small Australian and US Navy warships, and one visit per year is typically made by a Japanese research vessel.

Both long-line and purse-seine fishing vessels use the port and lagoon of Pohnpei. Purse-seine vessels transfer their catches to reefer fish carrier ships ‘motherships’ while at anchor within the lagoon. An average of 30 purse-seine vessels use the port each year, with a normal stay of five days. The ‘motherships’ usually remain in the lagoon for six to eight weeks, sometimes longer. An average of 25 long-line fishing vessels per month use Pohnpei, at an average stay of about five days each call. There are four local long-line tuna fishing companies that are based in the port, operating a total of about 37 boats. About 10 itinerant yachts call into Pohnpei each year mostly during the summer months. Majority of the visiting yachts anchor within the lagoon and rarely use the wharf.

Domestic shipping services within FSM are provided almost entirely by the public sector. The FSM Federal Government has a constitutional responsibility to maintain shipping operations between the States, and it currently operates a single vessel the MS Caroline Voyager an owned vessel of about 1350 GRT with freight and passenger capacity operated by the FSM Department of Transport, Communications and Infrastructure (DTC&I). This vessel typically operates between the main and outlying ports of Yap, Pohnpei and Chuuk on irregular schedules and is diverted for Government business including health services and delivery of food relief (see Appendix 11 showing the latest schedule). It is understood that freight carried between the main ports in the four States is usually carried by

international services that call at those ports. This was later discovered to be in contravention of the MSC rules and entry regulations.

The State of Pohnpei operates its own dedicated shipping service that connects the main island to remote islands. A single owned vessel the MS Micro Glory built in 1977-78 and provided to Pohnpei as a gift upon the dissolution of the Pacific Trust Territories is intended to provide such services, but has been laid up for an estimated 24 months within the Pohnpei harbor inlet. It is reported that this vessel is in very poor condition having not received regular preventative maintenance. The Pohnpei State Government issued a request for proposal for the dry docking of the Micro Glory in May 2009 (see Appendix 8) but the vessel still remains laid up within PPA harbor limits and not attracting any berthage fees.

Figure 1 shows the layout of the port, with some improvements recommended in Section 12, while Figure 2 shows the general layout of the Pohnpei Harbour.

Figure 1: Port of Pohnpei layout

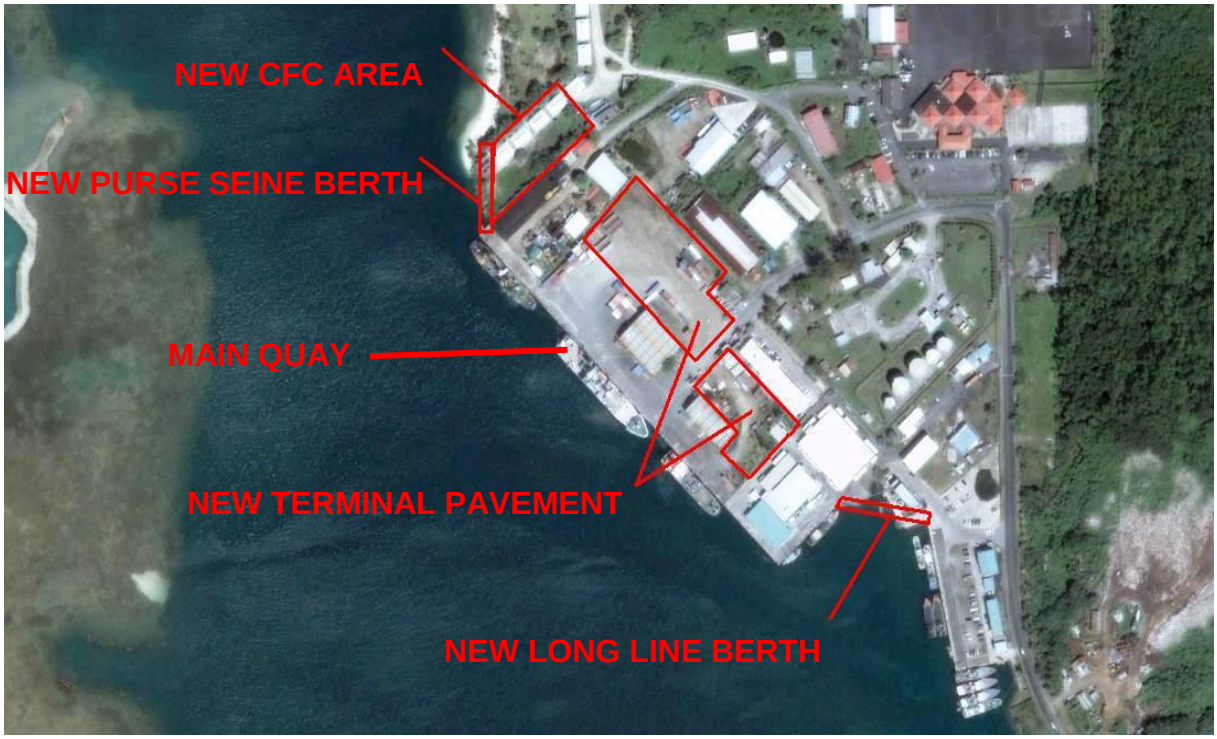
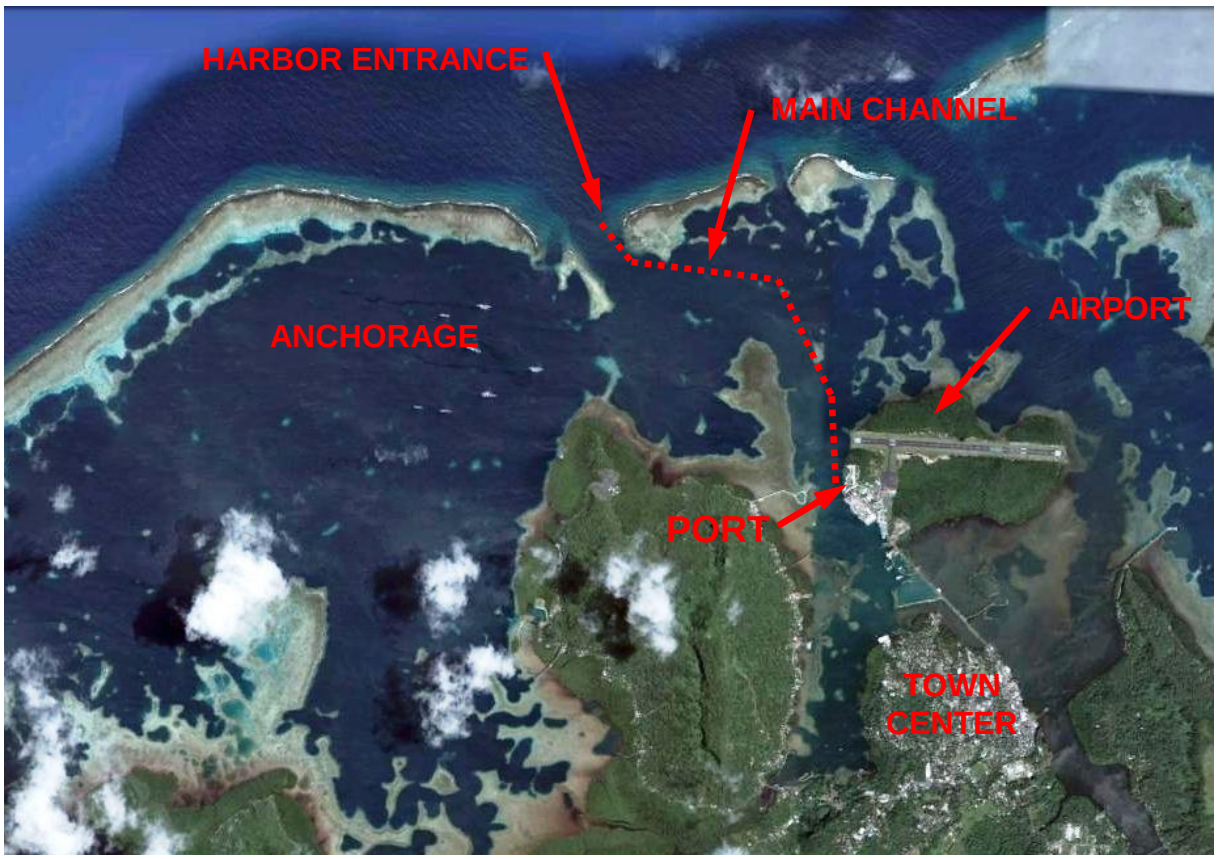


Figure 2: Pohnpei Harbor



3.2 Present Shipping Operations and Services

Although vessels visiting the Port of Pohnpei are required to comply with IMO regulations, FSM is not a signatory to the IMO, and does not comply with all IMO regulations.

The Port of Pohnpei serves a range of shipping which in turn serve a range of imports and exports. Table 2 summarizes the vessel numbers visiting Pohnpei port.

The main import trades to Pohnpei include:

- General cargo, including containers and break-bulk;
- Fuels; and
- Fish transshipment.

The main export trades from Pohnpei include:

- Fish;
- Rock aggregate;
- Scrap metal;
- Building materials; and
- Personal effects.

Other than exported fish, outbound tonnage is very low. Empty containers make up the bulk of outbound containers.

Table 2 - Vessel and cargo statistics for Port of Pohnpei

Vessel Arrivals	2007	2008*	2009
Reefer fish carrier	122	93	133
Purse seine	355	216	355
Long liner	312	359	550
Cargo	54	42	46
Tanker	11	20	21
Other	37	39	35
Total Vessel Arrivals	891	769	1140
Cargo inbound, revenue tons	62,814	67,847	71,819
Containers inbound, TEU	2,064	2,131	2,104
Cargo outbound, revenue tons	339	748	960
Transshipped (fish)			
Purse seine, tons	236,577	135,264	242,239
Long line, tons	2,395	2,049	2,975

Note: 2008* shows a significant drop in tonnage and vessel arrivals due to reduced demand for fresh tuna as a result of the Global Financial Crisis.

3.3 Operational Arrangement

3.3.1 Harbor control

Harbor Control operates within PPA to control all vessel movements within the port limits. This control includes:

- All vessels arriving and departing;
- Allocation of berths to arriving vessels;
- Co-ordination with the airport to avoid conflict between aircraft and vessel movements;
- Maintenance of navigation aids;
- Surveillance of vessels occupying the anchorage; and
- Assistance to pilots to meet arriving and departing vessels.

The steps for controlling an arriving vessel are:

- When the vessel reaches the pilot station (located approximately three miles to the north), the vessel advises Harbour Control;
- Harbour Control then requests a pilot to attend;
- Harbour Control delivers the pilot, using a PPA boat, to the arriving vessel; and
- The pilot delivers the vessel to the quay, and berths the ship.

A similar procedure operates for vessels arriving to or departing from the anchorage, and for vessels moving between the quay and the anchorage.

On departure, the procedure is reversed. Having berthed bow-out, turning the vessel is not required.

In times of high activity in the fishing fleet, a substantial number of purse seine and long line vessels can be rafted up at the north and south ends of the main quay. These vessels usually remain at the berth even during berthing and departing maneuvers by general cargo and fuel tanker vessels. This presents a serious risk to both the berthing vessel and the moored fishing vessels, the potential consequence being a collision between two vessels and sinking of a vessel at the berth.

An arriving vessel is always turned in the turning basin adjacent to the quay on arrival, so that loading/unloading is all across the starboard side, **except** that the *MV Golden Micronesia*, the fuel tanker which delivers fuels to Pohnpei, berths bow-in for unloading across the port side. This is apparently to facilitate direct access from the ship's manifold to the unloading point on the quay. The *MV Golden Micronesia* berths bow-in rather than the conventional bow-out for fuel tankers, which contravenes IMO regulations.

No tug assistance for berthing is available at Pohnpei. Most visiting vessels (including the *Kyowa Hibiscus*, the *Islander*, the *Golden Micronesia* and some purse seiners) are equipped with bow thrusters. In addition, the larger vessels sometimes utilise their bow anchor to help control the vessel while maneuvering in the turning basin. The bow thrusters, together with mooring lines and ship's winches are then used to bring the vessel alongside to the berth.

Once at the berth, vessels typically use 3 head lines, 3 stern lines and 2 or 3 spring lines for mooring.

North-east winds assist departing vessels but can create problems for arriving vessels. Conversely, south-west winds cause problems for departing vessels and assist berthing for arriving vessels.

Vessels less than 300 GRT do not require compulsory pilotage. In addition, CFC purse seiners have a pilotage exemption.

Vessels using the anchorage are normally the reefer fish carrier ships and the accompanying purse seiners. On rare occasions other cargo ships might occasionally use the anchorage. The pilot is responsible for positioning a vessel within the anchorage. Vessels are anchored by bow anchor only, thereby permitting swinging on the mooring.

3.3.2 Operating vessels

Table 3 provides details of the vessels which visit the port of Pohnpei on a regular schedule.

Table 3: Vessels operating into Pohnpei - typical arrangement

Name	MV Kyowa Hibiscus / Cattleya	MV Islander (Matson)	MV Golden Micronesia (fuel tanker)	MV Orion (reefer ship)	Typical purse seine	Typical long liner
IMO	9110248	9264738	9317250	8520496		
Year Built	1994	2002	2004	Unknown		
LOA, m/ft	117.52/385.58	132.6/435.0	120.0/393.0	94.0/308.4	71	26
BEAM, m	20.0	19.2	58.0/17.8	13.80	12	5
Draft full load (summer), m	7.374	7.22	7.854	5.344	6.5	2.4
Flag	Panama	Netherlands	Panama	Japan		
DWT	8,289	8015	9090.98	2690.45		
GRT	7,945	6704	5489	1278	1500	100
Net tonnage	2,847	3557	5489	991		
Service speed, knots	13.7	16.5		Unknown		
Name	**MV Kyowa Hibiscus / Cattleya**	**MV Islander (Matson)**	**MV Golden Micronesia (fuel tanker)**	**MV Orion (reefer ship)**	**Typical purse seine**	**Typical long liner**
Bow thruster	✓	✓		×	✓	×
Stern ramp capacity, tonne	8	-	-	-	-	-
Cargo gear	36T×2, 8m reach	40Tx2, 28m reach	-	Various	Various	Nil
Container capacity TEU	416	657	-	-	-	-
Loadable reefer TEU	40	Unknown	-	-	-	-
Cargo liquids/fish	-	-	61,306 barrels	3,232 m^3	20 x 100 = 2,000m^3	5-10 tonne capacity

3.4 Current Cargo Operations and Services

3.4.1 General cargo terminal

The general cargo terminal leased to and operated by Federated Shipping Co. Ltd (FSCO) has an area of 20,204 m^2. Two cargo sheds occupy part of the terminal and are 1,150 and 575 m^2 in floor area. The terminal pavement surface is a combination of bitumen seal and coral (unsealed) pavement, in reasonable condition. However, the unsealed areas at the back of the terminal tend to pond with water and soften under forklift truck traffic.

For handling containers, FSCO operate two 25 ton capacity forklift trucks, one 35 ton capacity top-loader truck (for 40' containers). No tractors or tugs are used although a number of trailers and other old cargo-handling equipment (including an Arbilift) are stored in the terminal unused.

Ship loading/unloading is all by ship's gear. No land-based craneage is used for loading ships.

Container stacking organisation within the yard comprises Matson line containers stacked at the north end of the terminal and Kyowa line containers stacked in the center of the yard. Containers are normally stacked one-high, with some two-high stacking. The forklift trucks and top-loader can stack up to three-high.

Typically, containers are unloaded from the ship and removed to the stack for later collection by the customer. Occasionally a customer will collect a container as it is unloaded.

On average 45 containers are unloaded and 10 loaded on each cargo vessel voyage. Other break bulk cargo and general cargo such as motor vehicles are also unloaded. Motor vehicles and large cargoes are unloaded via the quarter ramp available on the Kyowa cargo vessels. The average time in port for general cargo vessels was 27 hours in 2009 and 24 hours in 2008.

The larger of the two cargo sheds are used for unpacking containers and for storing small consignments of break bulk cargoes which need to be protected from the weather while waiting to be collected. The smaller shed is used for storing bagged cement which arrives stacked in bulker bags. It is loaded from the shed onto the customer's trucks as required.

3.4.2 Fuel

The *Golden Micronesia* unloads fuel to the FSM Petroleum Corporation (Petrocorp), via pipeline inlets/outlets set into the quay apron. While unloading, precautions are put in place to minimize the risk of fire. The immediate area around the discharge point on the apron is cordoned off, and fire extinguishers and warning notices are placed nearby. The *Golden Micronesia* is usually in port for about 24 hours.

3.4.3 Fish imports

Long line vessels berth at the southern end of the main quay to unload fish to the loining plant and cold store within the LTFV lease area. Fish is also unloaded for immediate shipment by air to North Asia and loading into refrigerated shipping containers for shipment to US West coast and North Asia. These vessels also use this section of the quay to refuel, load water, ice and provisions, and wait to be called out to their next voyage. Occasionally, multiple rafting of long line vessels at the south end of the quay causes considerable congestion at the quay, obstructing normal berthing operation for general cargo vessels.

3.4.4 Fish transshipment

Purse seine vessels returning with their catch transfer their catch directly to the reefer fish carriers while rafted up in the anchorage. No fish from purse seines is unloaded or transferred at the main berth.

3.4.5 Purse seine servicing

While purse seine vessels do not unload fish at the quay, they do occupy the quay berth for taking on water, fuel and provisions. They also use the main berth to wait for reefer fish carriers to arrive at the anchorage. Occasionally, multiple rafting of purse seine vessels at the north and/or south end of the quay causes considerable congestion at the quay. This further obstructs normal berthing for general cargo vessels.

3.4.6 Other operations

Other minor operations include miscellaneous vessels such as training ships, yachts, pole and line fishing boats, cruise ships, research vessels, tug boats, visiting US Coast Guard and military vessels. These vessels do not draw on port resources to a significant extent, and have not been considered in the assessment of current operations.

As shown in Table 2, around 35 to 40 other vessels visit Pohnpei port each year. These vessels contribute little to the general economy of Pohnpei other than port fees. However, some of these vessels, such as the military vessels (US Coast Guard, Foreign Navy ships, etc.), require berthing facilities which are secure and safe. At present these vessels berth at the fishing berth, where the three FSM patrol boats are also permanently stationed.

A very small number of cruise vessels have visited Pohnpei in recent years, with only one or two visits per year. On one occasion, a large cruise vessel was to visit the Port of Pohnpei, but on arrival at the port entrance at the outer reef decided not to enter the approach channel because of the perceived high risk of the vessel not being able to safely transit the approach channel, because of the large number of coral outcrops near the channel, as shown on the marine chart. However, cruise ship numbers may grow on a longer term. Should the State and FSM Governments wish to fully engage in this sector, allowance for these ships within the port for expanded infrastructure and facilities need to be considered.

Private vessels such as yachts and contractor's vessels anchor outside the harbor limits and have very little impact on the operation of the harbor and port.

3.5 Customs quarantine and security procedures

3.5.1 General

All vessels are required to berth at the quay to receive quarantine, customs, immigration and security clearances on arrival and prior to departure. No clearances for arriving or departing vessels are carried out in the anchorage. This is a considerable imposition on many vessels, in particular the reefer fish carriers and purse seine vessels.

3.5.2 Customs

All imported goods are subject to customs duty and excise tax, and imported items will not be released by customs officials until all import taxes have been paid.

3.5.3 Quarantine

On arrival, all vessels are required to be cleared by a quarantine officer from the FSM Department of Resource and Development, in accordance with FSM Marine Vessel Health Inspection regulations. The Health Quarantine Inspector boards the vessel immediately on its arrival at the berth. The vessel must be cleared by the inspector before any other person boards the vessel (indicated by lowering the yellow quarantine flag).

A fee is charged for inspection with additional fees levied if goods are removed. All confiscated goods are incinerated either at the airport or at the Customs and Quarantine office in Kolonia. Quarantine goods may otherwise be sealed and left on board the vessel until the vessel departs.

3.5.4 Security

Security is administered under the published procedures: Pohnpei Port Authority, Seaport Division – Harbor Patrol Standard Operating Procedures, December 2007. The purpose of the Port Facility Security Plan is stated in these Operating Procedures to be:

> *"To comply with the requirements of the International Convention for Safety of Life at Sea 1974 (SOLAS 1974), in particular the amendments to the SOLAS relating to Maritime and Port Security, as well as National laws and requirements"*

A comprehensive list of seaport emergency contacts is provided in the procedures, for emergency and security situations, including a list of names of Port (Harbor Patrol) Officers.

Standard Operating Procedures are provided, at Security Levels 1, 2 and 3, for:

- Restricted areas;
- Visit to a ship;
- Searching vehicles;
- Delivery of ship's stores;
- Access control; and
- Cargo handling.

Forms are provided for:

- Ship's stores inspection;
- Harbor patrol work shift exchange agreement;
- Visitors log; and
- Activity report.

3.6 Assessment and Efficiency

3.6.1 Harbor Control

Control of vessels to, from and within the harbor generally works well. Practices which hinder or restrict efficient harbor control include:

- No suitable pilot boat for open sea operation, and inadequate availability of safety equipment (life preservers, flares, back-up motor, safety briefing) on the small open boats being used as pilot boats; and
- No suitable line boats or mooring line handling equipment (boat hooks) to transfer lines from berthing vessels to the quay.

3.6.2 Vessel berthing operation

Berthing the tanker *Golden Micronesia* port-side to the berth contravenes IMO berthing regulations for liquid tankers, which are required to berth bow-out to facilitate rapid departure in the event of a fire. This breach needs to be addressed and resolved.

3.6.3 Vessel berthing priorities

Rafting of purse seine and long line fishing vessels at the north and south ends of the quay severely restrict access to the middle section of the quay for berthing general cargo and tanker vessels, as well as encroaching on the swing basin and channel approach to the berth. The berthing operation is particularly difficult when a north-east wind is blowing, tending to push the berthing vessel away from the berth.

Access for normal cargo handling operations across the quay is restricted by the fences delineating the two leased areas at the north and south ends of the quay, effectively reducing the length of the available quay from 338 m to 218 m. The available quay length is further reduced when purse seine and reefer fish carrier vessels overhang the CFC lease area into the FSCO terminal at the quay.

The US Coast Guard comments:

> *"It is not uncommon to find 5-6 purse seines moored abreast of each other extending into the harbor or channel. I've also observed up to 7 long liners moored abreast as well. All of these vessels encroach into the harbor and channel thus narrowing the entrance. On a wide beam vessel, the channel encroachment by the moored vessels can increase the risk for transiting ships. Visually marking the outer limits of the harbor may assist pilots in determining how much room they have in the harbor when the purse seines or long liners are moored."*

3.6.4 Security

Harbor Control Standard Operating Procedures – Seaport Emergency Contacts: These lists should be checked to ensure they are up-to-date and list all current emergency contacts.

3.6.5 Vessel clearance procedures

Clearance of fishing vessels (reefer fish carriers and purse seines) by FSM Authorities should be carried out within the anchorage, to avoid the need for these vessels to berth at the quay just to obtain the necessary clearances. The present procedure requires unnecessary pilot attendances, attracts unnecessary berthing fees and congests the quay with unnecessary vessel occupancies. Multiple transits between the quay and the anchorage also increase the risk of vessels grounding on high spots in the channel, swing basin and anchorage (see Appendices 4 and 5 which details current constraints imposed by boarding officers).

4 Existing Infrastructure

4.1 Port Infrastructure and Facilities

4.1.1 Tides

According to the original quay wall construction drawings prepared in 1972, the tides at Pohnpei are:

Tide State	Height (ft)		Height (m)	
Highest High Water (HHW)	+2.9	+4.7	+0.88	+1.43
Mean High Water Springs (MHWS)	+1.7	+3.5	+0.52	+1.07
Mean Sea Level (MLS)	+0.0	+1.8	+0.00	+0.55
Mean Lower Low Water (MLLW)	-1.1	+0.7	-0.34	+0.21
Mean Low Water Springs (MLWS)	-1.3	+0.5	-0.40	+0.15
Pohnpei Datum	-1.8	+0.0	-0.55	+0.00
Lowest Low Water (Tide Datum USCGS)	-2.3	-0.5	-0.70	-0.15

Note: Both MSL and MLLW have been used as construction data in the port. The US Navy chart measures soundings below MSL.

4.1.2 Marine Chart

Pohnpei harbour is shown on the US Navy marine chart 81453, POHNPEI HARBOUR, most recently issued in 2008. Much of the depth information on the chart has been prepared from LIDAR survey run by the US Navy in 2006.

4.1.3 Approach Channel

E.M. Chen (1995) stated:

> *"The approach channel generally has adequate depth to accommodate most cargo, fishing and passenger vessels. It is generally well marked for vessel navigation and contains no significant hazards to navigation. Consequently, future criteria for port expansion should focus primarily on maintaining an adequate approach channel width to support future vessel traffic. The type of incoming vessels should continue to be evaluated and monitored to ensure that adequate channel depths are available for them."*

These comments are, in the main, still applicable to vessel traffic entering and operating within the port. For most of its length, the channel is wide enough for two-way vessel traffic.

The marine chart has been used to determine the available channel width, depth and alignment between the channel entrance and the harbour turning basin in front of the main wharf. The existing channel, at its narrowest point, is approximately 100 m wide, where it passes through the outer reef. Vessels passing through this entrance generally keep well to the western side of the entrance to avoid the shallow (-8.9 m) reef encroaching across part of the entrance from the east side. Between the outer reef and the main berth, the channel widens substantially, generally being no narrower than about 200 m. At the approach to the berth the channel narrows to about 175 m. The first bend in the channel, just inside the entrance, has a channel centerline radius of about 600 m, while the second bend about half

way along the channel has a centerline radius of about 1,000 m. The width of the channel around these two bends is never less than about 200 m wide.

4.1.4 Anchorage

The present anchorage located to the north-west of the port and inside the main reef directly west of the entrance is a well situated area where a large number of vessels can anchor safely. The usable area of the anchorage is approximately 3 sq km. The general depth of the anchorage ranges from about 24 m to as deep as 70 m. However, the area is characterised by a small number of coral heads which are as shallow as 4 m, which constrain where vessels can be anchored. Not all of these coral heads are marked, although some are marked with rudimentary white poles. At present up to 18 reefer fishing vessels can occupy the anchorage. The pilot decides where in the anchorage a vessel is to be located.

The anchorage is a very significant natural asset for the Port of Pohnpei, which adds considerable value for attracting fishing vessels to Pohnpei.

4.1.5 Swing basin and berth box

The swing basin directly adjacent to the quay is required for vessels to swing on arrival, which allows loading/unloading across the starboard side. The swing basin has a diameter of about 400 m, which will be adequate for turning vessels up to 270 m LOA. Depth across the turning basin is shown on the chart to be up to 12 m below MSL, with some high points as shallow as 10 m. No influence from currents exists in the turning basin. Some problems with berthing a vessel when a north-east wind is blowing arise if a vessel is not equipped with bow thrusters or the vessel is not berthed stern-first.

During the berthing of a number of vessels, it was observed that some fine sediment was stirred up by propeller action and bow thrusters. This suggests the bottom of the swing basin and berth box comprises fine-grained silt rather than the more common coral sands typical of the approach channel and anchorage.

4.1.6 Main wharf

The main wharf comprises a vertical wall 338 m (1105 ft) in length and a declared depth at the berth of 10.5 m below MSL.

PPA provided archival copies of old drawings of the original wharf structure, designed in 1972, and also drawings of various upgrade works designed in 1978 and 1980. A summary of structural features follows.

The main quay wall comprises a steel sheetpile wall, of MZ-32 section with a concrete capping beam and steel tie rods anchored back to sheetpile anchors. A concrete apron pavement 66 ft wide and 12 in thick covers the entire area directly behind the berth line. The northern and southern ends of the quay are fenced off (60 m at the north end for CFC and 60 m at the south end for LTFV). The deck level at the quay line is +10.0 to +10.4 ft (+3.05 to +3.17 m) above MLLW. The capping beam serves as a front face for mounting pairs of rubber arch fenders, type V250H, 1.8 m long, in pairs at 6.4m centers, many of which are very badly damaged. Bollards of indeterminate capacity are provided at regular intervals along the quay. The size of the bollards varies greatly and all are in poor condition.

The concrete apron prevents ready access to the tie rods for inspection of their condition. It is likely that corrosion of these tie rods will, with time, result in localised or general failure of

the quay wall. However, corrosion of the steel sheetpile wall is expected to occur before these tie rods corrode and fail.

The southern return of the main quay provides a further 55 m of quay length, although this quay is not provided with fendering for berthing vessels. Depth at this berth is understood to be limited to about 5 m.

4.1.7 Fishing wharf

The new fishing wharf is located to the south of the Main Wharf and is intended to provide a facility for berthing long line fishing vessels and other shallow-draft vessels (depth is less than 4 m). The effective berth length on the front face is 110 m, and the berth return at the south end of the wharf is 30 m long. This wharf provides suitable berths and nearby office accommodation for the three FSM Police patrol boats and personnel, as well as long line fishing boats. Access between this wharf and the loining plant for transfer of fish catch is indirect. Long line vessels do not use this berth often, preferring the main quay which has access to fuel. The fishing wharf has fuel points installed but these are not connected to Petrocorp.

4.1.8 Other berth structures

A small boat ramp, suitable for launching and retrieving trailered boats is located directly adjacent to the northern end of the fishing wharf. This ramp appears to be rarely used.

An unusable area of land in the corner between the inner end of the main quay southern return and the boat ramp is available for possible development. The ice piped from the LTFV ice facility to the cold store is suspended across this corner and would need to be relocated to allow development of this area. The depth is likely to be less than 3 m and would need to be dredged to provide a useful depth.

4.1.9 Terminal facilities

The total area of the terminal leased and operated by FSCO (Federated Shipping Co. Ltd), designated as Track No. 71050-B-1, amounts to 20,204 m^2 (2.02 hectares, 217,474 ft^2). The terminal is partly paved, in a combination of concrete ground slab directly behind part of the quay wall and bitumen seal, with the remainder unsealed coral gravel pavement surface.

Services provided directly behind the quay wall include fresh water and fuel. Floodlighting is provided from a number of poles located approximately 25 m back from the quay which provide lighting for ship loading/unloading operations. Lighting is not provided in the rest of the terminal. There is no fire main or other fire service available within the terminal.

Two cargo sheds are operated, one to store general cargo from containers awaiting collection by customers, the other to store general cargo and bagged cement packed in bulker bags. Both sheds are in sound condition and do not require any major maintenance.

Cargo-handling equipment owned and operated by FSCO includes:

- 35 t Kalmar forklift truck, with a top-loading spreader frame with capacity to lift 40 ft containers;
- 25 t Komatsu forklift truck with tynes for handling 20 ft containers;
- 25 t TCM forklift truck with tynes for handling 20 ft containers;
- 2 no. 2 t forklift trucks for handling small loads inside the cargo sheds;
- Large number of 20 ft and 40 ft container trailers, mostly in average to poor condition; and

- Arbilift container lift trailer, not serviceable.

4.2 Supporting Infrastructure and Facilities

4.2.1 Navigation aids

The entrance through the outer reef, the main approach channel and the swing basin are marked with lateral channel markers. These mostly comprise small spars embedded in the seabed, at positions where coral reefs or obstructive high spots are located. Most marks carry navigation lights which are documented on the marine chart. The chart describes all these marks to be “POSITION APPROXIMATE”. Some marks are not shown on the chart. Nor are some reefs marked.

While no marks are shown on the chart to define the anchorage, a number of rudimentary marks are in place to identify high spots in the anchorage. Not all high spots in the anchorage which pose a risk to vessels using the anchorage are marked. The local knowledge of the pilots also plays a role in safely positioning vessels in the anchorage.

The Study Team received comments from the US Coast Guard in Guam relating to navigation of the approach channel to the port:

- The range markers identifying the main entrance channel to the harbor are very difficult to locate visually. The current colors of the range markers are black with a white stripe in the middle. Changing the range marker colors to red with a white stripe in the middle would provide more contrast against the background vegetation on the island.
- The size of the range marker into the main entrance was too small considering how far out you need to line up and how far inland the actual marker is.
- The day boards into the main channel and subsequent piloting waters were either missing or completely discolored due to weather and sea birds. This was a huge concern for USCGC *ASSATEAGUE* when transiting inbound/outbound restricted visibility (squalls).

4.2.2 Port work vessels

PPA possesses a number of service boats for pilot use, line boats and general port use. It is apparent that most of these boats are presently unserviceable. Harbor Control currently uses an open “banana” boat to deliver and collect pilots to/from the pilot station outside the channel entrance. This boat is not equipped with any safety equipment, such as life preservers, flares, auxiliary engine, tow rope, buoyancy tanks, navigation lights, etc.

4.2.3 Ship repair

No significant facilities for ship repair are available in the port or elsewhere in Pohnpei. There are no slipway facilities, nor vessel servicing facilities or capability. This severely restricts the ability of PPA and others to service their boats effectively.

4.2.4 Port offices

A main office building was constructed in 2007 to accommodate PPA administration personnel. The seaport building was constructed in 2005 and has available office space for lease to commercial tenants (see Appendix 12 on the PPA public notice seeking expressions

of interest for office rental). A separate building adequately accommodates Harbor Control and FSM Police (Maritime Surveillance Authority).

4.2.5 Pollution control

The Environmental Protection Agency (EPA) is charged with providing emergency response and facilities for pollution spills and incidents. Pollution response equipment for dealing with marine spill incidents is stored in a number of shipping containers located outside the main entrance to the main terminal. To deploy this equipment, assistance is needed from PPA or other agency to supply a boat, particularly if an offshore incident occurs.

4.2.6 Utilities

Utilities provided at or adjacent to the quay include water and fuel. Water is supplied via three points and is used to re-stock fishing and general cargo vessels. Fuel points, where diesel fuel can be taken onboard, are also provided along the quay. Telephone, power and other utilities are not provided. Demand for these services is low.

Power to the port is supplied from Pohnpei Utilities Corporation (PUC) via an overhead supply along the causeway connecting Dekehtik Island with the Pohnpei mainland. Interruption of this supply and no alternative supply route presents a risk to port operations and the administration building.

A single supply route for power to the port in general and the port administration building in particular, with no alternative supply route, needs remedy. This can be provided from a back-up generator and uninterruptible power supplies (UPSs) for critical electrical equipment such as computer servers. UPSs will also protect computers from power surges and other irregularities in power supply.

4.2.7 Safety and security

The Safety and Security (S&S) Division administers port and terminal security, in particular, providing access control at the main gate to the port terminal. Simple procedures for admitting visitors and trucks comprise signing-in at the gate and issue of a temporary pass (refer Section 3). The port lacks any fire services or fire fighting capability.

The S&S Division Manager reported that perimeter fence breaches are a constant minor problem. Another problem revolves around groups of females attempting to gain unauthorised access to berthed vessels, which are difficult for security personnel to deal with.

Security at the anchorage is virtually non-existent, except when the pilot and attending pilot boat visit this area. A suitable surveillance patrol boat is not available which would allow security personnel to make regular patrols of the anchorage.

4.3 Other TZ Infrastructure

4.3.1 Fuel supply and delivery to the quay

The Federated States of Micronesia Petroleum Corporation (FSMPC) procure their fuel requirements from ExxonMobil under a national fuel supply agreement that was approved by Congress. The agreement ensures that the FSM continue to receive regular and secure supplies of products over the next five years, with a pricing structure that is linked to world market movements. In recent weeks international crude oil prices have reduced to sixty-five

dollars per barrel as a result of weakening demand and a strengthening US dollar, however, domestic prices have been slow to reduce.

The FSMPC has terminal facilities in all four States and maintain strategic oil storage to ensure that there are uninterrupted supplies of products for all the States. Petroleum products for the Pacific are produced by refineries in Singapore. Products are then shipped by medium range tankers to large storage facilities in Guam, and then shipped to the FSM by a smaller local coastal tanker called the Golden Micronesia. The Golden Micronesia also serves Palau, the Republic of Marshall Islands and the Commonwealth of the Northern Mariana Islands.

FSMPC maintain a significant amount of inventory in their tanks. It is often well over twenty thousand barrels (3.2 million liters) of fuel valued at over $4 million. Because FSMPC receives cargoes on a monthly basis, they review the average value of their stock on hand after each delivery and determine what savings can be passed on to the consumer.

4.4 Assessment and Efficiency

4.4.1 Approach channel, anchorage and swing basin

PIANC Guidelines for approach channel design demonstrate that the approach channel provides an adequate channel for transit of all vessels presently visiting Pohnpei, and for most of its length is adequate for two-way transit. The entrance through the outer reef is only wide enough for one-way transit, but this should not be a constraint for vessel movements at the present and predicted future vessel traffic. However, it is clear from discussion with one of the pilots that isolated coral reefs, heads or islets do pose a risk to safe navigation of the approach channel. Removing a small number of these high spots will improve the safe transit, especially of larger vessels. As part of a minor dredging campaign, it would also be prudent to re-evaluate the width of the entrance at the outer reef, with a view to widening to improve the alignment of the channel through the entrance.

The anchorage is reported by one of the pilots to have a capacity of up to 18 reefer fish carriers and their associated purse seines. It is also reported that, at the peak of the fishing season, demand for mooring in the anchorage exceeds 18 vessels, and a small number of these vessels are forced to stand offshore outside the outer reef. Enlarging the anchorage will benefit the fishing fleet. By removing a small number of high coral outcrops across the anchorage will increase the area available for accommodating reefer fish carriers, possibly up to 30 vessels (see Appendix 14 for specifications of reefer fish carrier vessels).

4.4.2 Main wharf

The main wharf structure is nearly 40 years old and is likely to be deteriorating to the extent of possibly approaching the end of its useful life. To assess this in some detail, a detailed systematic inspection and condition assessment of the sheetpile wall needs to be undertaken by an experienced maritime structural engineer. This assessment will need to investigate the extent of corrosion of the wall, the connections of the tie rods and damage from corrosion to the concrete capping beam. The concrete apron makes it difficult to excavate down to the tie rods to inspect their condition, but it is likely that the sheetpile wall will deteriorate more rapidly than the tie rods.

All the bollards mounted along the quay are in poor to unserviceable condition. The US Coast Guard reports:

> *"When tying up to the main pier, we found it difficult to select proper locations on the pier to put over our mooring lines. I've observed some vessels feed their lines through concrete drains to tie up. We had to change the configuration of lines to properly secure the ship to the pier. Adding/updating bollards and cleats along the pier would provide better mooring points for visiting ships."*

Many of the rubber fenders mounted on the front face of the quay are badly damaged and provide no capacity to absorb the energy of berthing vessels.

PPA F&C Div has procured a number of replacement bollards and rubber fenders, and intend to install these to replace the existing bollards and fenders. Installing the new fenders will be difficult because the bolt pattern on the new fenders differs from the existing fenders.

A major omission from previous developments of the quay and terminal is the provision of fire mains and hydrants. A high priority addition to the port should be a fire ring main together with an adequate number of fire hydrants.

4.4.3 Main quay return

The southern end face of the main quay needs fenders to be more serviceable for long line vessels.

4.4.4 Fishing wharf

The depth of water at the fishing berth is limited to 4 m, but this is adequate for most long line fishing vessels and the Police patrol boats. This wharf needs its existing fuel points connected to Petrocorp.

5 Institutional and Organizational Assessment

5.1 Current Institutional Framework

The regulatory control and administration of transport activities and sea ports in FSM is the responsibility of State Governments.

State Governments operate their port facilities under a separate authority or as a division of the State Department of Transport. PPA controls the largest in terms of vessel and freight activity and most commercially important of FSM's ports. Pohnpei is also home to FSM's capital, Palikir.

The PPA is a wholly owned entity of the State Government, established under a Pohnpei State Law No. 2L-224-91 known as the Pohnpei Port Authority Act of 1991. The Law establishes the Authority as a distinct legal entity, which provides the PPA with planning authority for the port area, defines the duties of PPA, and grants the Authority the powers to carry out those duties.

In an associated legislative Act cited as the 'Transportation Zone Act of 1987' under Pohnpei State Law No. 1L-198-87, the land area on Dekehtik Island where both the main seaport and airport for Pohnpei are located, has been established for the operation of complementary services and activities relating to the promotion and development of sea and air transportation.

The PPA has been granted the powers to administer the TZ and the legislation governing the TZ, which includes managing the subdivision of land and providing lease agreements for occupancy by commercial entities wishing to operate within the TZ.

The Mission Statement of PPA is: *Promoting Pohnpei's efforts toward socio-economic development through the providence of safe and cost-effective logistics facilities and infrastructure and by facilitating and expanding movement of cargo, passenger, and competitive commercial activities through its ports in the best interest of Pohnpei* (PPA 2007).

Similar in application to other small nations where essential transport services are considered combinable, the PPA is responsible both for the seaport of Pohnpei and for Pohnpei International Airport. These two functions are integrated and operate separately through their functional operating divisions, each with its own manager. There are shared services which include facilities and construction, engineering and maintenance, security and safety, accounting, and general administration services.

Increasingly, port authorities around the world are redefining their objectives and taking account of their potential profitability. The PPA Act of 1991 does not fully declare the status of the PPA but based on statements contained in current policy documents, full cost recovery should be viewed as a minimum Port Authority objective. Evidenced by the revenue and profit position achieved in recent trading years, the PPA should seek to establish clearer guidelines as to its goals and profit outcomes. These should be established jointly by the State Government in consultation with the PPA as to forecast trading conditions.

Presently, the PPA is not except from taxation. Law creating the PPA - known and cited as the "Pohnpei Port Authority Act of 1991 describes that the PPA is exempt from all licensing and taxation imposed by the FSM National or Pohnpei State Governments. In addition there is no formal requirement for the PPA to pay royalties, commissions or dividends to the

Pohnpei State Government, which may in turn create a confusion of objective of financial goals.

As a direct comparison, the UNCTAD *Handbook for Port Planners in Developing Countries* lists the statutory powers of a National Port Authority as follows (on the assumption that operational decisions will be taken locally):

- Investment: Power to approve proposals for port investments in amounts above a certain figure. The criterion for approval would be that the proposal was broadly in accordance with a National plan, which the authority would maintain;
- Financial policy: Power to set common financial objectives for ports (for example, required return on investment defined on a common basis), with a common policy on what infrastructure will be funded centrally versus locally; advising the Government on loan applications;
- Tariff policy: Power to regulate rates and charges as required to protect the public interest;
- Labor policy: Power to set common recruitment standards, a common wage structure and common qualification for promotion; power to approve common labor union procedures;
- Licensing: When appropriate, power to establish principles for licensing of port employees, agents, etc.;
- Information and research: Power to collect, collate, analyze and disseminate statistical information on port activity for general use, and to sponsor research into port matters as required; and
- Legal: Power to act as legal advisor to local port authorities. Increasingly, central Governments implement seaport policies through the allocation of resources rather than through the exercise of wide-ranging regulatory powers.

While central Governments should pursue macro-economic objectives through an active seaport policy, Port Authority objectives should be more narrowly focused on port finances and operations. It is widely accepted among port specialists that a Port Authority should have as a principal objective the full recovery of all port-related costs including capital costs plus an adequate return on capital. The full recovery of costs will help a Port Authority to:

- Maintain internal cost discipline;
- Attract outside investment and establish secure long-term cash flows;
- Stimulate innovation in the various functional areas to guarantee a long-term balance between costs and revenues, especially when faced with innovations by terminal operators, port users, rival ports and hinterland operators;
- Generate internal cash flows needed to replace and expand port infrastructure and superstructure;
- Compete according to the rules of the market system, without excessive distortions of competition;
- Put limits on cross-subsidization, which may be rational from a marketing point of view (market penetration, traffic attraction) but which can undermine financial performance; and

- Avoid dissipation of the Port Authority's asset base to satisfy objectives of third parties (e.g., port users demanding the use of land in the port area without regard to the land's most economic use; port and city administrations using Port Authority assets to pursue general city goals).[1]

5.2 Current Policies, Strategies and Planning Frameworks

As a combined entity responsible for both airport and seaport, the PPA takes direction from US Federal Aviation Authority (FAA) on matters of airport safety, security, operational activity and compliance with regulatory regimes established for international airports. These include preventative maintenance schedules, engineering and technical standards and training and certification of staff. This flows through to all those associated with Pohnpei international airport matters of operation.

The PPA is left to decide the priorities and best solutions for operating their seaport. The training and attendance at FAA initiated or directed airport workshops including joint airport safety, security, firefighting, emergency procedures, general operations and various other activities are regularly attended by PPA staff from various departments.

The prescriptive nature of the FAA over airport matters leaves little for the PPA to consider for airport planning or strategic developments over the operational aspects of its international airport. The PPA therefore only needs to engage with directional activity such as localized upkeep of facilities, car park management, vendor agreements for stores and supplies and other general duties.

The PPA designates its day-to-day activities according to the nature of demands on its assets and the requirements to maintain and provide services. The airport as described operates on an external and prescriptive enrolment of duties and checklists. The seaport does not. The seaport operates on a regime of providing for user activities as they occur. There is little by way of policy guidelines apart from the Pohnpei Port Authority five year Strategic Plan 2007 – 2011 which provides high level guidance in the form of analysis and goal setting. The plan falls short of establishing key result areas and measurable criteria for achieving the goals. This may be the assumed responsibility of those within PPA carrying out the Strategic Plan's 24 programs but it is also apparent there is a misalignment in the description of the strategic goals by the author of the Plan and the understanding of how to achieve them at the working level.

There is a budget item for implementing the Strategic Plan established since the strategic plans adoption but it is also understood this budget used for training and travel purposes, which may relate in some sense to the plan's intent.

The PPA does have procedure manuals for each department and follows an accepted protocol of operations which brings a degree of efficiency. The seaport operational activities are provided with a day-to-day direction by the seaport manager who has a hands-on role of maintaining an order of activity. The seaport manager actively engages in the signing off of labour resources and calculation of fees and charges per vessel movement (see Appendix 2 for a PPA vessel clearance form).

The clearance form or a copy is provided to the accounts department for coding and entering into the PPA accounts system for invoices to be raised against the operations and delivered

[1] UNCTAD Handbook for Port Planners in Developing Countries.

to the local port agent for payment. It is understood the processing takes an established 15 days after which the agent receives 60 days credit (recently reviewed and previously 30 days).

The processing of manual forms and absence of any central computer system (server) creates an environment of operation in isolation within the PPA management and departments appear to either willingly or by default refrain from active engagement with each other.

The PPA management process of decision making over commercial matters appears to be redirected straight to Board level on most occasions. The PPA Board appears to encourage such direction and adopts an agenda which declares verbatim discussions on detailed decision making on management issues. This creates an apparent lack of willingness for the PPA management to make decisions on commercial matters and act instead as an advisory bank to the Board. It is understood that PPA management do not meet on a regular basis for the purpose of developing a management direction and inter-departmental understanding of business activities; instead they meet immediately prior to Board meetings to discuss the Board agenda.

The outcome of involvement by PPA Board members in running the commercial activities of the PPA is that they remove the management from any active decision-making ability and render them to day-to-day duties of caretaker.

In summary, the PPA seaport lacks an active Strategic Plan for the future and operates on a day-to-day basis according to demands. Departmental managers do not have to report against budgets or forecasts and the accounting department takes responsibility for arranging delivery of financial Statements and supporting commentaries on variances to the budget. Departments operate in isolation of each other and as caretakers for the Board instead of taking proper responsibility for the management of the Port.

5.3 Organizational Structure

The PPA has a single function assignment workforce consisting of tradespersons, secretarial staff, security staff, firefighting and rescue personnel, maintenance staff and various disciplines of management. There are 75 permanent staff employed at the PPA. Currently 28 staff are shared between air and seaport duties, 25 staff are designated 100 percent for seaport and 22 are designated 100 percent for airport duties. This assessment is an estimate provided in order to separate the costs relating to each operation. The true reconciliation of designated duties for seaport or airport may be different when a more detailed analysis of staff accountability and duties is completed. The staff numbers includes a large number of security and rescue personnel associated with airport activities as prescribed and demanded by the FAA.

There are no trainees or apprentices currently employed and there appears to be no planning for such. There appears to be no planning for redundancy, retirement or succession. Management of the recruitment process for the vacancy of General Manager was maintained at a high level. Whilst on site a Trade Technician in the Facilities and Construction division resigned with plans to relocate his family to Guam for work. It was generally accepted that skilled staff were difficult to recruit and retain in Pohnpei with the ever present risk of losing competent staff to offshore locations where wages and conditions were considered better. Similar to conditions applying to operational, maintenance and security the FAA provide an overarching prescriptive direction towards the deployment of staff activities and training to standards accepted by FAA. The seaport has no similar

external influence to guide and assert global best practice standards in the management, training and deployment of its workforce. There is an absence of a Human Resources policy and active practices to ensure staff have key result areas of task achievement and performance monitoring measures. The current organization chart is shown in Appendix 17.

5.4 Management Capacity and Staffing

It is evident that the PPA Board play a key and pivotal role in the monitoring, evaluation and execution of business activities of the PPA airport and seaport as described in the PPA Act of 1991. There is also evidence of the PPA Board taking an active role in directing core activities of management on matters of day-to-day operation and making decisions on issues affecting the trading profitability of the Authority. There is however apparent limited review of the financial trading position of the PPA by the Board when it meets. The PPA Board meets once a month and has a fixed agenda that the PPA management team meets to discuss prior to the Board meeting. There is no formal meeting of PPA management outside of this pre-Board meeting. There is evidence that individual managers of the PPA have attended State Government economic planning sessions without the knowledge of other PPA management and that PPA management applies themselves and their divisional responsibilities in isolation to other departments.

Such combination of events appears to contribute to an erosion of management knowledge and authority and limits their regime of governance over their appointed tasks and responsibilities. Uncertainty surrounds the core competencies of PPA management leading to a failure of tasks and planning into deliverables of efficient and productive seaport services. The governance of airport services is immune to a significant degree by the active and prescriptive involvement of the FAA in performance and deliverable measures for airport operations.

Staffing numbers at the PPA are currently listed as 75 but it is understood the target number is 80. The designation of staff for airport or seaport is clear for staff that have active duties comprising 100 percent of either, but this becomes less clear where staff have dual application for each operating entity. This became evident when separating staff numbers for each entity to gain a clear understanding of costs for each (see Appendix 18 for staff listing by discipline and department).

5.5 Financial Management Systems and Procedures

5.5.1 Financial/accounting procedures

The PPA maintains a consolidated financial reporting Statement and does not formally report separate profit and loss Statements individually for the seaport and the airport. There are three ledgers maintained including airport, seaport and administration. The administration ledger also accepts revenue items, thus confusing the scope and understanding of performance for each entity.

The PPA uses an accounting package called SAGE – MAS90 which was upgraded to perform broader tasks in May 2010 at a cost of $8,000. The system delivers a full suite of accounting software and produces sound detail and spread of financial reporting requirements.

5.5.2 Budget management

There is a formal budget management process within PPA mainly restricted towards the establishment of financial inputs. The budget process commences in January by the chief accountant and is submitted prior to 15 March to the State Governor who after review either makes adjustments or agrees and passes it to the PPA for signing off.

There are no standard budget forms, instead a cash flow type Statement is used that shows line items for expenses, salaries, consumables etc. PPA management has involvement in some departments in the budget construction at a consolidated level. There is no official report of monthly financial Statements to the PPA Boar

5.5.3 Debtor management

There is evidence from the debtor reports generated that robust and rigid adherence to the debtor management policy outlined in the port regulations handbook is not being adhered to. An analysis of the aged debtors report shows that 78 percent of all monies outstanding are over 120 days which includes 26 of the 28 tabled debtors. In addition it is shown that one single debtor accounts for 72 percent of the aging amount in excess of 120 days and is evidently still being extended credit as the ledger shows amounts outstanding within the 30 day period. It is recognized that the PPA requires a form of funds guarantee called a 'payable on demand' security underwritten by a financial or insurance company acceptable to PPA. There is no evidence that PPA is holding any forms of security guarantee from shipping agents engaged in port activity on behalf of ship owners nor tenants occupying PPA land under lease agreements.

The PPA receives an official audit annually as arranged by the FSM Office of National Public Auditor (ONPA). The current external auditor under contract to FSM National Government is Deloittes Independent Auditors. PPA staff's views on its accounting practices and policies are shown in Table 4.

5.6 Actions / Recommendations for Improvements

Detailed in Section 12 of this report is a full range of business improvements relative to institutional and governance matters.

Greater involvement by management in the commercial operations and decision-making of the PPA is essential if improved operational efficiencies and sound management and governance practices and outcomes are to be achieved. This would commence with a re-write of job descriptions to align commercial performance measures against management positions including preparing and reporting against budget performance of their designated area of responsibility. Further detailed critical action points are listed in Section 12 of this report.

Table 4 - PPA Accounting practices and policies

Accounting Practices and Policies	PPA Accounts' answers on presence of and how they treat accounting policies and practices
Basic financial policies regarding revenues and expenses	SOP at hand approved by Board
Appropriation of surpluses/treatment of deficits	Income rolled forward, no royalty
Recording of assets and inventories	Yes
Inventory control	Yes
Depreciation rules	Yes
Debt management	No
Billing and debt collection	No
Write-offs procedures	No
Planning and budgeting, including medium to long-term investment planning	No
Budgetary control	Yes
Bidding procedures	PPA only
Payment procedures	Yes, direct control
Form and timing of production of financial statements and balance sheets	Yes
Internal checks and controls	Yes
Internal audit	No/State Auditor can check
External audit	Yes, FSM ONPA

6 Financial Assessment

6.1 Current Operating Revenues

The study team reviewed the seaport revenue base and tariff pricing structure of the PPA and identified revenue items consistent with the activities of a landlord port being:

- Berthage and line handling (vessel mooring alongside wharves);
- Anchorage (provision of safe anchorage grounds);
- Wharfage (cargo and commodity transfer across the wharf);
- Navigation fees (channel access and navigation aids funding costs);
- Pilotage (provision of marine pilot for safe navigation and advice to master);
- Security, environment and levies associated with safe and secure workings of the port;
- Lease and concession income from land and service agreements; and
- Penalties associated with non compliance and violation of port rules and regulations.

In reviewing the current range of tariff charges for the seaport of Pohnpei (Table 5), it is evident these charges are significantly lower compared to other central Pacific ports with similar trading tonnages and vessel movements. It is understood that seaport tariff charges at Pohnpei and fees have not been reviewed or amended since 1995.

Table 5 - Pohnpei seaport tariff charges and fees

	POHNPEI SEAPORT TARIFF CHARGES		
	ITEM	CHARGE	UNIT
1	PORT ENTRY FEE / HARBOUR DUES	$25.00	Vessels under 1000GRT
2	PORT ENTRY FEE / HARBOUR DUES	$50.00	Vessels -|- 1000 - 2000 GRT
3	PORT ENTRY FEE / HARBOUR DUES	$50.00	Vessels over 2000 GRT
4	PORT ENTRY FEE / HARBOUR DUES (in addition to item 3)	$25.00	per each 2000 GRT in excess 2000 GRT
5	LIGHT DUES NAVIGATION AIDS	$10.00	per vessel movement
6	SECURITY SURCHARGE	$40.00	PLUS $20 EACH 2000 GRT over 2000 GRT
7	PILOTAGE	$1.25	per vessel LOA foot
8	PILOT LAUNCH FEE per move	$75.00	per movement
9	BERTHAGE (Dockage)	$0.06	LOA or GRT whichever is greater
10	BERTHAGE (Dockage) Variable on LOA		per 24 hour period
11	ANCHORAGE FEE	$0.03	50% of dockage fee per 24 hour period
12	LINE HANDLING FEE	$100.00	per movement
13	LINE BOAT FEE per usage	$50.00	per movement
14	WHARFAGE IMPORT / rev ton	$1.25	per revenue tonne
15	WHARFAGE EXPORT / rev ton	$1.25	per revenue tonne
16	WHARFAGE IMPORT FUEL / mt	$0.50	per revenue tonne
17	WHARFAGE TRANSHIPMENT / rev ton fish	$1.25	per revenue tonne
18	WHARFAGE EMPTY CONTAINER OUTBOUND	nil	
19	FRESH WATER SUPPLY access fee and per volume	nil	
20	FRESH WATER HOSE CONNECTIONS	nil	
21	ELECTRICITY CONNECTION FROM SHORE	nil	
22	PORT BUNKER FEE LUBE OIL access fee	nil	
23	PORT BUNKER FEE DIESEL FUEL access fee	nil	
24	PASSENGER TRANSFER FEE /PP	$3.00	per person (Inter State / Island exempt
25	ENVIRONMENT LEVY	nil	
26	CREW CHANGE per person	nil	
27	PERSONNEL PASS - port control per annum	nil	

The contribution from vessel and cargo activities to PPA reported revenue in current years (2007 –2009) represents approximately 78 percent of total gross operating revenue (Table 6).

Table 6 - Pohnpei seaport operating revenues, 2007-2009

Operating revenues	2007	2008	2009	Total #	AVDEV	% of total #
Dockage fee	$215,131	$218,946	$267,751	$701,828	$22,539	11.00%
Anchorage fee	$312,221	$177,631	$297,245	$787,096	$56,490	12.33%
Wharfage fee- Commercial	$88,772	$92,309	$94,929	$276,011	$2,154	4.32%
Wharfage fee- Fuel inward	$10,660	$10,011	$9,322	$29,993	$451	0.47%
Entry fee	$51,000	$39,790	$52,575	$143,365	$5,332	2.25%
Navigational aids	$24,260	$18,280	$24,980	$67,520	$2,818	1.06%
Transshipment fee	$350,879	$227,423	$355,693	$933,996	$55,939	14.63%
Line handling fee	$81,800	$32,100	$62,900	$176,800	$17,889	2.77%
Boat trans. Services	$231,600	$141,925	$180,464	$553,989	$31,291	8.68%
Pilotage service	$375,441	$354,858	$450,791	$1,181,090	$38,063	18.51%
Supplemental port service	$40,780	$31,640	$43,966	$116,386	$4,770	1.82%
Seaport passenger fee	$3,195	$2,610	$1,533	$7,338	$609	0.11%
Violation/penalty fee	$376,276	$163,516	$157,855	$697,647	$95,818	10.93%
Seaport other fee	$1,655	$1,669	-$58	$3,266	$765	0.05%
Land Lease	$240,386	$233,641	$232,131	$706,158	$3,333	11.06%
Total	$2,406,064	$1,748,357	$2,234,085	$6,382,482		100.00%

Source: PPA financial reports 2007, 2008 and 2009.

The PPA seaport revenues show the major six consistent contributing items above 10% on average over years 2007 to 2009 are:

- Dockage fees – vessel related;
- Anchorage fees – vessel related;
- Transshipment fees – cargo related;
- Pilotage services – vessel related;
- Violation penalty fees – vessel and cargo; and
- Land lease – rental income.

The PPA seaport scale of penalties varies dependent upon the violation issue and type. Typically the penalties are associated with unauthorized vessel movements and activities within the harbor limits and navigation channels. The average penalty is $1,000.00 per vessel violation. The contribution to PPA reported revenue from penalties in current years (2007–2009) represents approximately 11 percent of total gross operating revenue. The dockage and anchorage fees are directly related to vessel activity being cargo and fishing fleets calling for transshipment of fish at anchorage and wharf operation of general cargo and tanker vessels. The transshipment fees relate to tuna transshipment from purse seine vessels to reefer fish carriers at the anchorage and as can be seen from the table above 2008 revenues declined due for both anchorage and transshipment income as a result of the Global Financial Crisis and reduced demand for fresh catch and sashimi.

Contribution from pilotage and dockage revenues have increased in 2009 due mainly to the condition imposed by FSM Customs, Immigration and Quarantine boarding officers who refuse to alight vessels at the anchorage due to safety concerns. This unresolved matter is the cause of every vessel having to clear FSM entry formalities alongside the Pohnpei wharf (see Appendices 4-5 for copies of the letters from FSM Immigration).

The revenue contribution from land leases in the TZ on Dekehtik Island is decreasing mainly due to areas being removed from PPA control by State Government and a number of leases in dispute.

PPA attracts land lease revenue and operating revenue, contributing one percent of gross operating receipts, from a lease agreement for granting stevedoring rights and access, which in effect constitutes a concession agreement. The contribution to PPA reported revenue from land rentals and concession terms in current years (2007–2009) represents approximately 11 percent of total gross operating revenues (see Appendix 19 for details of land under lease agreements or leases under dispute).

6.2 Current Operating Expenditures

The PPA incurs ongoing financial expenses associated with the operation of the seaport and airport. The seaport expenditures were reviewed and analyzed which involved separating various aggregated expenses that included portions for both airport and seaport. After disaggregating the expense items were found to be consistent with the activities of a landlord port being:

- Personnel, salaries and benefits
- Depreciation
- Travel
- Utilities
- Supplies and materials
- Repairs
- Fuel
- Contractual services
- Communication
- Training
- Miscellaneous and others.

The highest and most consistent expense item recorded in current years (2007–2009) for PPA seaport operations is salaries and benefits which represents approximately 56 percent of total operating expenditure (Table 7). Thereafter, there is a degree of inconsistency with the percentage of cost items making up the total expenditure recorded in recent year's activity. Travel contributes about 6 percent of the total, whereas depreciation jumps from an average of 10 percent over the three years to an actual year end of 15 percent in the latest 2009 reported figures. There are several expense items, including travel and contractual services that are split exactly evenly between the airport and seaport over the current year's reporting periods and this may be for convenience in reporting final results rather than an actual spend.

Table 7 - Pohnpei seaport operating expenses 2007-2009

Operating expenses	2007	2008	2009	Total #	AVDEV	% of total #
Salaries and benefits	$390,606	$474,756	$457,631	$1,322,992	$33,594	56%
Depreciation	$52,676	$65,834	$123,740	$242,251	$28,660	10%
Travel	$37,956	$50,130	$54,758	$142,844	$6,439	6%
Utilities	$22,455	$31,945	$30,362	$84,761	$3,866	4%
Supplies and materials	$31,808	$29,763	$42,311	$103,883	$5,122	4%
Repairs	$21,731	$141,649	$23,548	$186,928	$52,893	8%
Fuel	$21,072	$24,433	$31,868	$77,374	$4,051	3%
Contractual services	$30,798	$38,823	$22,064	$91,686	$5,665	4%
Communication	$15,637	$10,480	$9,381	$35,498	$2,536	2%
Training	$6,518	$1,879	$2,374	$10,771	$1,952	0%
Miscellaaneous and ot	$14,680	$24,036	$24,734	$63,449	$4,313	3%
Total	$647,945	$895,736	$824,780	$2,362,437		100%

Source: PPA financial reports 2007, 2008 and 2009.

There are several items reported that are heavily weighted towards airport activity including training and repairs which could be associated directly with the involvement of the FAA programs for prescriptive adherence to FAA airport standards and certifications. It is uncertain as to the accuracy of the weighting of other reported expense items between airport and seaport including fuel usage which over the three year's review period (2007 – 2009) is shown to be slightly higher at the seaport. This cannot be the case given the fact that the seaport does not operate tugs or any heavy shore based equipment nor does the seaport operate a fleet of workboats apart from the skiffs that act as pilot boats and general runabouts for work activity. The airport on the other hand operates on a regular basis a number of heavy vehicles including large fire fighting trucks, fork lift trucks and baggage handling vehicles.

There are a number of such anomalies which cannot be fully reconciled due to the scope of this study and the limitation of available data on actual reportable operating expenses. For PPA to create a better understanding of their costs by operating entity it is recommended that line items be created that flow on a monthly basis to the chart of accounts separately for the airport and seaport.

6.3 Financial Assessment of Port Operations

Revenue derived from seaport operations being arrivals and departures of vessels going to berth or anchor and associated handling fees plus charges associated with freight and commodities moved across the berth provided total revenue of $2 million for year ended 2009. This compared favorably against the year ended 2008 which provided revenue of $1.5 million, predominantly due to increases in transshipment volume and pilotage movements. It should be stated that 2008 probably reflected GFC conditions that adversely affected the transshipment and transfer tonnage of fish at Pohnpei anchorage and dockside, combined with a reduction in fishing boat and refrigerated fish carrier vessel arrivals.

The reported revenues are conditional on an underlying situation of a substantial level of doubtful debts, in excess of $1.3 million over 120 days presently. All such doubtful debts are related to seaport operational charges for services provided. In particular, the fisheries sector accounts for the majority of aging debtors being carried. This matter is reported in greater detail in Section 12 of this report, but is shown by ageing in Appendix 29 at the end

of the report. This matter is an ongoing issue that has compounded in recent years, showing allowances for doubtful debts for 2007 of $55,000.00, 2008 of $600,000.00 and 2009 of approximately $290,000.00. Effective controls covering the terms of trading activity and policy for recovery of outstanding monies are lacking.

6.3.1 Expenses and costs

Costs for the same period from 2008 to 2009 varied only slightly in contrast to the cargo and vessel throughput shown in the revenue position. The total operating costs in 2008 were $893,728 compared to $822,770 in 2009. A significant factor contributing to this result was due to large repair costs of $141,648 in 2008.

In Appendices 21-23 are the profit and loss reports of both Sea and Air ports for the PPA for the years 2007, 2008 and 2009. It is considered unrepresentative to demonstrate variances against original budgets in the results as there is evidence that budget adjustments are made by apportioning amounts against incorrect cost items during the course of the trading year. In addition the trading results contain some items that reflect an arbitrary split between the airport and seaport reported costs making a comparison to original budget inconsequential.

Operations include land leases and penalties for violations of shipping movements with Pohnpei harbor limits which add strong and constant revenues to the seaport operations bottom line results. It is suggested that penalty revenue is an item that would be an indicator of seaport control and management of vessels operating within the jurisdiction of harbor limits. Therefore reductions in this item would indicate better harbor control and governance within the Authority's area of jurisdiction.

The leasing of land within the PPA's zone of responsibility (the TZ) represents an area of unaccounted-for rentals, lapsed agreements and agreements in dispute. The actual rental income performance varies greatly from $1.50 per m^2 per month down to $0.01 m^2 per month. There are at least four areas within the TZ that have been removed by either State or FSM National Government and PPA has not been compensated for loss of rental income associated with such annexure. In addition there are at least two leases that are in dispute with associated legal action evidently taking place. There are four areas occupied by Pohnpei State Government operations including warehousing and coastal vessel berth layby facilities where no lease agreements are in force and no rental income is paid. The assessment on a financial basis is that there are few controls over rental agreement values and site occupation either by activity or by square meter. The absence of lease agreements for land occupied by either State or FSM National Governments and used for maritime activity represents a loss of potential income and the avoidance of any contingency should there be a transfer to any commercial entity.

The relativity and quantum of current PPA port charges and tariffs reflects what was commercially and competitively active in and prior to 1995. The 15 year absence of any tariff review reflects a net loss in income to the PPA seaport of at least 2 percent per annum. This is demonstrated in the current tariff levels in force in comparative central Pacific ports. Majuro in RMI is an example of a port which competes as a sovereign State against Pohnpei for fisheries vessels and transshipment tonnages of fish catch. A similar number of general cargo and liquid petroleum product tankers call at Majuro. Overriding such vessel activity, the RMI, similar to FSM, is a member of the regulatory body, the Micronesian Shipping Commission (MSC) that controls vessel access to ports in signatory States. An evaluation of port charges at Majuro and Pohnpei provides evidence of major disparity between the two as

highlighted in the attached table that shows the charges a voyage would realize for the vessel 'M.V Kyowa Hibiscus' that currently calls at both ports. Annualized charges on current voyages scheduled for this vessel provides a disparity of nearly $200,000 per annum.

Full financial statements that are commented on in this section are shown in the following appendices: Appendix 24, Forecast profit and loss statement; Appendix 25, Principle financial assumptions used; Appendix 26, Assumptions for capital expenditure and borrowings; and Appendix 27, Forecast balance sheet.

6.3.2 Reporting

There appears to be little effort to retain integrity of reporting actual results against budget for seaport and airport as different operating entities. Instead there is evidence that PPA retains an aggregated reporting regime of the combined results and makes adjustments as necessary to retain commonality of costs between the two entities where it may deem necessary. A true account of performance by maintaining adherence to reporting separate line items for each entity would provide better understanding of each entity net position (see Appendices 21-23 for disaggregated totals showing profit and loss performance for seaport and airport individually).

Similarly, separate budget variances and forecast positions would provide a better account of active operational cost and revenue outcomes.

6.4 Financial Performance of PPA – Key Ratios

The financial performance of the PPA as an entity is dependent on reviewing it as a combined operation of both airport and seaport. The key ratios to consider are the cash flow statements, income statements and associated forecasts shown in Tables 8 and 9.

Table 8 - PPA combined total income statement current and forecast

Forecast Income Statements					
[Format for PPA financial projections]					
For the years ended 30 September					
		2007	**2008**	**2009**	**2010**
	Notes	**Actual**	**Actual**	**Actual**	**Forecast**
Operating Revenues					
Revenues from services	*1*	2,768,358	1,547,280	2,344,400	2,300,000
Investment income		-	-	-	-
Other operating revenue		12,820	43,084	51,832	-
		2,781,178	1,590,364	2,396,232	2,300,000
Operating Expenses					
Wages, salaries, and employee benefits		817,397	990,821	971,586	1,123,915
Supplies and consumables used		220,630	268,593	262,319	306,300
Repairs and maintenance		64,456	210,254	60,092	152,500
Depreciation and amortization expenses		255,581	469,988	561,973	485,000
Other operating expenses		188,987	245,359	235,035	341,285
		1,547,051	2,185,015	2,091,005	2,409,000
Surplus/(Deficit) from Operating Activities		1,234,127	(594,651)	305,227	(109,000)
Project-related costs - matching fund	*3*	-	-	-	(230,000)
Interest income		18,962	29,814	15,718	12,000
Gains on sale of fixed assets		123	-	-	-
Total non-operating revenues		19,085	29,814	15,718	(218,000)
Capital contributions	*2*	1,269,005	348,626	-	-
Surplus/(Deficit) from Ordinary Activities		-	-	-	-
Minority interest share of surplus/(deficit)		-	-	-	-
Net surplus/(deficit) before extraordinary items		-	-	-	-
Extraordinary items		-	-	-	-
Income tax expense		-	-	-	-
Net Surplus/(Deficit) for the Year after Tax		2,522,217	(216,211)	320,945	(327,000)

Note 1	Net of bad debt expense of $60,374 (FY 2007), $601,466 (FY 2008) and $287,015 (FY 2009).
Note 2	PPA received 2 firetrucks in FY 2007 and replacements parts in FY 2008 from the FSM National Government.
Note 3	Matching fund for the United States Federal Aviation Administration's Grant for the Aiport Improvement Project.

The above table shows an increase of capital and thus asset from the acquisition of new fire trucks and equipment for the airport. This translates through in other tables presented in depreciation escalation. The matching fund relates to a grant from the US Government under FAA requirements for airport operations where US grant provides 95 percent of funds matched by 5 percent from State Government of Pohnpei, which requires PPA to fund.

Table 9 - PPA combined cash flow statement to current reported period

	2007	2008	2009
	ACTUAL	ACTUAL	ACTUAL
OPERATING CASH FLOWS			
Receipts			
Sales of goods and services	2,707,254	1,885,866	2,180,994
Payments			
Employees	(809,544)	(996,437)	(948,982)
Suppliers	(524,568)	(651,508)	(587,991)
Interest paid	-	-	-
Other payments	-	-	-
Net Cash Flows from Operating Activities	**1,373,142**	**237,921**	**644,021**
INVESTING CASH FLOWS			
Receipts			
Interest received	18,962	29,814	15,718
Sales of fixed assets	-	-	-
Sales of investments	-	-	-
Payments			
Purchases of fixed assets	-	-	-
Purchases of investments	-	-	-
Net Cash Flows from Investing Activities	**18,962**	**29,814**	**15,718**
FINANCING CASH FLOWS			
Receipts			
Proceeds from borrowing	-	-	-
Proceeds from sale of fixed assets	444	-	-
Contributions from Pohnpei State	77,994	28,180	-
Payments			
Repayment of borrowings	-	-	-
Distributions / dividend payments	-	-	-
Reimbursment to FSM National Government	(342,637)	-	-
Acquisition of fixed assets	(348,976)	(900,974)	(194,058)
Net Cash Flows from Investing Activities	**(613,175)**	**(872,794)**	**(194,058)**
CASH AND CASH EQUIVALENTS			
Net increases/(decreases) for period	778,929	(605,059)	465,681
Balances as at 1 October	1,688,861	2,467,790	1,862,731
Currency changes on opening balances	-	-	-
Balances as at 31 December	**2,467,790**	**1,862,731**	**2,328,412**
Reconciliation to Income Statement			
Net Surplus per Income Statement	**1,234,127**	**(594,651)**	**305,227**
Items included in net surpluses but not in net cash flows from operations:			
Unrealized net foreign exchange gains	-	-	-
Asset movements			
Depreciation	255,581	469,988	561,973
Bad debt	60,374	601,466	287,015
Gains/(losses) on sales of assets	-	-	-
Other non-cash items			
Movements in employee benefit liabilities	7,853	(5,616)	6,104
Movements in working capital			
Decrease/(increase) in receivables	(173,404)	(300,996)	(502,252)
Decrease/(increase) in advances	(1,314)	(9,728)	16,501
Decrease/(increase) in replacement parts	-	(9,877)	-
Decrease/(increase) in work in progress	-	-	-
Decrease/(increase) in prepayments	-	(11,960)	12,151
Decrease/(increase) in receivables		-	-
Increase/(decrease) in deferred revenue	39,106	(4,968)	-
Increase/(decrease) in payables	(49,181)	104,263	(42,698)
Net Cash Flows from Operations	**1,373,142**	**237,921**	**644,021**

The above cash flow statement shows the reduction in trading volumes and revenue for 2008 as a result of the GFC slowing demand for fish and a collapse of global sashimi markets. The recovery was prompt in 2009 and shown in trading results. The acquisition of major airport equipment and associated depreciation contribute to the final summary. In addition the accrual and write off of bad debts continues to affect cash flow and unless arrested will maintain a recognized contributor to eroding the potential for stable cash flow.

The other ratios considered for this scoping study include operating and liquidity indicators, the findings and commentaries are in Tables 10 and 11.

Table 10 - PPA operating indicators (airport + seaport) for 2009 results

Operating Indicators	Values and Ratios	Commentary
Rate of Return on Net Fixed Assets in Service (%)	305,277 6,655,830 5%	5% return is relatively low for a monopoly operating asset.
Self-Financing Ratio(%)	644,021 481,336 134%	This ratio is relatively good. During good years, PPA can generate high cashflow to Capex.
Operating Ratio (%)	2,091,005 2,683,247 78%	This ratio is relatively good. The expenses are covered by revenues.
Return on Capital Employed (%)	305,227 9,060,957 3%	Relatively low return on capital employed. Would be more acceptable to see it above 10%.
Growth in Revenues (%)	491,417 2,191,830 22%	God revenue growth immediately after the financial crisis ceased.
Profit Element of Revenues (%)	320,945 2,683,247 12%	Average level of profit as a percentage of revenue.
Fixed Assets Turnover Ratio (%)	2,683,247 6,628,820 40%	Relatively good level of fixed assets turnover.
Revenues to Total Assets (%)	2,683,247 9,373,830 29%	Relatively high level of revenue to total assets.
Return to Equity (%)	320,945 9,060,957 4%	Return to equity of 4% is relatively low.

Table 11 - PPA liquidity indicators (airport + seaport) for 2009 results

Ratios or Other Measures	Ratio	Commentary
Current Ratio	2,745,010	The short term ability to pay debt is excellent for PPA as there are no current borrowings
	312,873	
	9:1	
Quick Ratio (Acid Test)	2,745,010	Similar to current ratio, excellent quick ratio
	312,873	
	9:1	
Days in Receivables	620,822,880	Have used gross receivable before prov. For doubtful debt.
	2,683,247	
	231	231 days is very concerning - urgent management intervention is required
Accounts Receivable Turnover	2,683,247	Similar to Days in receivables, this ratio indicates low turnover, preference would be above 6 times.
	1,724,508	
	2	
Days in Accounts Payable	174,407	Indicates PPA is paying it's creditors within an acceptable number of days
	4,946	
	35 days	
Accounts Payable Turnover	1,780,505	Similar to Days in Accounts Payable ratio, good positon with tunover of accounts payable
	174,407	
	10 x	

6.5 Constraints and scope for improvements

This financial assessment concludes that an adherence to tighter fiscal policies and procedures would deliver an improved financial performance. Accounting procedures are not considered to be at fault as the evidence shows that accounting functionality and delivery of financial statements are constructed in accordance with the PPA Board's desired formats and adjustments.

The accounting department at PPA delivers statements that conform to required standards and reflect accuracy.

The issues relate more to directions by the Board to the PPA accounting department to make budget adjustments and deliver aggregated results that do not deliver sufficient transparency of operating activity and budget variance to provide the required management knowledge base.

A financial model has been constructed which provides for scenario testing against the suggested increases in seaport tariff charges and fees that will provide increased revenue to PPA. Given that no increase has been implemented for over 15 years any new upward adjustment to tariff charges will have to be staged over a period of three to five years. The financial model takes this into account and delivers meaningful results over the incremental periods. In addition, the financial model takes account of borrowings and funding requirements for recommended infrastructure developments and capital expenditures as detailed in Sections 9 and 12 of this Study.

The financial model is in Appendix 28. In summary, the model shows that after including a tariff restoration process (incremental increases over six years and ongoing CPI adjustments) the gross cash flow from seaport operating activity moves from $1.9M reported in 2009 to $2.4M by 2016. This level reflects a conservative approach to tariff restoration and should a greater percentage be applied the gains within the same period would double in revenue and cash flow. The decision and selection of incremental tariff rises by item is a matter of further consideration for PPA Board and Management to conclude with assistance and details provided by this Study.

The primary constraint on financial performance resides with the non-recovery of monies for seaport services, shortfalls in commercial rates for land rentals and continued operating with a non-adjusted tariff. The issue of non-aligned seaport tariffs becomes evident when matched against the Pohnpei (private company) stevedoring tariff which was recently adjusted by an increase of 54 percent.

Table 12 details the disparity of Pohnpei current seaport tariff shown against Majuro seaport tariff for a cargo vessel that calls regularly at both ports.

Table 12 - Port tariff disparity (Pohnpei / Majuro) described against actual vessel call

PORT FEES and CHARGES				
AS APPLIED TO KYOWA HIBISCUS TYPE				
ITEM	**POHNPEI**	**MAJURO**	**Per Unit VAR**	**Estimated Voyage VAR**
PORT ENTRY FEE / HARBOUR DUES	$125.00	$477.00	-$352.00	-$352.00
LIGHT DUES NAV AIDS	$10.00	$30.00	-$20.00	-$20.00
SECURITY SURCHARGE	$100.00	$180.00	-$80.00	-$80.00
PILOTAGE	$480.00	$820.00	-$340.00	-$680.00
TUG LINE FEE	$0.00		$0.00	$0.00
PILOT LAUNCH FEE / MAJURO per move	$75.00	$200.00	-$125.00	-$250.00
BERTHAGE	$477.00	$477.00	$0.00	$0.00
ANCHORAGE FEE	$238.50	$160.00	$78.50	$0.00
LINE HANDLING FEE	$100.00	$160.00	-$60.00	-$120.00
LINE BOAT FEE per usage	$50.00	$150.00	-$100.00	-$200.00
WHARFAGE IMPORT / rev ton	$1.25	$3.00	-$1.75	-$5,691.00
WHARFAGE EXPORT / rev ton	$1.25	$3.00	-$1.75	-$234.00
Total per voyage variance				-$7,627.00
Total per annum varaince (26 voys)				-$198,302.00

As shown in the above table, the financial position for PPA would be much improved had there been adherence to a tariff review policy to deliver a similar position demonstrated by the port of Majuro today. It is suggested that Pohnpei would be less attractive if there had been such reviews taking place to port users over the preceding 15 years. However, given that fish stocks are migratory and entry and freight tariffs for general cargo vessels are regulated by the MSC and liquid petroleum carriers demand fixed voyage deliveries, an incremental increase per annum of 2 percent over the preceding 15 years is considered to have been realistically achievable.

The net effect of Pohnpei having maintained a regime of tariff increases over the last 15 years providing for a comparative market level port tariff to exist today would deliver a

conservative estimate of an additional $1.3 million in revenue for the current trading year based on current volume throughout and vessel arrivals. It would be difficult to adjust tariff items by such large percentage gains (in some cases more than two times current tariff) required over a short period of 12-24 months. A more acceptable approach would be to commence a program of tariff restoration and CPI index thereafter over a period of five to eight years. Table 13 provides a general guide for such activity.

Table 13 - Indicative tariff restoration program

Category	Tariff activity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
V	Dockage fee	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%
V	Anchorage fee	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%
C	Wharfage fee- Commercial	10%	10%	5%	5%	5%	2%	2%	2%	2%	2%
C	Wharfage fee- Fuel inward	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
V	Entry fee	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%
V	Navigational aids	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%
C	Transshipment fee	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%
V	Line handling fee	0%	0%	2%	2%	2%	2%	2%	2%	2%	2%
V	Boat trans. Services	0%	0%	2%	2%	2%	2%	2%	2%	2%	2%
V	Pilotage service	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%
V	Supplemental port service	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
C	Seaport passenger fee	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
P	Violation/penalty fee	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
V	Seaport other fee	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
L	Land Lease	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
V = VESSEL											
C = CARGO											
L = LAND											
P = PENALTY											

6.6 Recommendations

Recommended financial improvements are dealt with in greater detail in Section 12. In summary, improvement areas are:

- A full review of the seaport tariffs to take place prior to December 31st 2010;
- A program to competitively align wharfage, pilotage and berthage charges with those being charged by other ports in the region to commence in 2011 by incremental amounts over a period of three to five years;
- An audit of all TZ land leases is immediately conducted and PPA to negotiate commercial rates of return for businesses occupying and carrying on activities in the TZ area. This includes State and National FSM Government enterprises;
- An approach to State Government for a return of land excised/annexed from the TZ area or a negotiated compensation for such removal back-dated to the occurrence;
- Money at bank to be invested in bank-guaranteed short-medium term deposits in order to yield highest possible return from PPA's funds;

- Direct action to be taken to recover outstanding debts and conduct a risk assessment on all parties engaged in commercial transactions with PPA to ensure compliance with the legislative conditions of trade with PPA;
- An audit of staff numbers and activities for seaport functions commencing with operational areas and those that are engaged in revenue generating roles e.g.: harbor control, line boats, pilot boats, linesmen etc. followed by the assessment of roles and responsibilities for those engaged in administrative roles; and
- Introduce a budgeting process which includes 'bottom up' construction of revenue and cost items. A schedule of responsibility to be developed by departments and management to budget input and deliverables.

7 Trade Forecasts

7.1 Past and Current Trade Volumes

7.1.1 General

The external transactions of the Pohnpei economy are characterized foremost by a heavy and increasing reliance on imports. Non-oil product imports rose by 22 percent in the four years to 2008 or by $12.6 million in Cost Insurance and Freight (CIF) value. Food imports alone accounted for $18 million or 32 percent of total non-oil imports in 2008, and represented an increase of some 13 percent over 2005. Imports of machinery and transport vehicles rose to $12 million in 2008, while imports of petroleum products amounted to $19 million, an increase of 45 percent over 2005. In total, the State of Pohnpei accounted for 49 percent of all imports into FSM by CIF value recorded in 2008 (Table 14). This figure represented against Pohnpei population of 34 percent of the total of FSM is worthy of further consideration against forecasting growth ratios.

Table 14 - Pohnpei FSM imports by CIF value

POHNPEI (IMPORTS CIF value US$ millions)	**2005**	**2006**	**2007**	**2008**
Food	15.844	14.827	15.256	18.286
Beverages and tobacco	3.008	2.576	2.759	2.892
Household goods and consumables	5.421	6.286	10.46	7.629
Construction materials	4.756	5.728	5.086	7.123
Fuels	10.866	13.793	15.473	19.632
Machinery (non household)	5.957	5.827	5.557	6.845
Other intermediate goods	3.479	3.464	5.08	5.515
Transportation equipment and parts	3.697	4.803	5.535	5.098
Items not allocated to above	1.797	1.969	1.935	3.209
Total	54.825	59.273	67.141	76.229

Source: FSM Compact Economic Report, FY2008.

The trade account runs a significant deficit, reflecting the excess of imports over exports. Exports currently include fish, re-exports of fuel, and a small quantity of scrap metal, personal effects, and agricultural produce. Exports of tuna caught by foreign flagged and local (foreign owned vessels) purse seine and long line vessels operated by enterprises with joint private-public ownership but under private management. The majority of fish caught in FSM waters are, caught by foreign vessels under license, and the associated fishing access fees are treated as primary income in the FSM balance of payments.

The volume of freight equivalent revenue tonnes cannot be equated against the CIF value of the recorded years and stated above. This is due to the high cost component of sea freight associated with serving FSM States and that there are a limited number of shipping lines offering regular scheduled services which in turn maintain regular General Rate Increases (GRI) and incremental surcharge rises to compensate for shore and carrier related costs.

The total FSM national value of exports (including fish) is 30 percent of the value of imports. The balance of trade (goods) deficit was more than $115 million in 2008. There are no easily definable recorded figures for recent years to show Pohnpei's balance of trade. As a major contributor to fishing activity it is a fair assumption to consider the ratio for Pohnpei would be similar to the national average.

Recent trade and shipping activity relative to Pohnpei seaport provides for more detailed analysis and the trade activity can be defined into four sections:

- General cargo (weighted towards imported freight);
- Liquid bulk fuel imports;
- Fisheries transshipments for export via refrigerated ocean carrier, reefer container or airfreight; and
- Others including cruise ships, US Coast Guard, visiting warships and research vessels.

7.1.2 Ship visits

Pohnpei is remote from major trade and commerce centers. This puts it at a disadvantage in its attempts to use international trade to overcome the inherent limitations of its small domestic market. Shipping costs are high, not only because of the long distances between ports of call, but also because of the small and imbalanced cargo flows associated with a high merchandise trade deficit. Pohnpei relies heavily on oil based fuel imports for power generation and there are challenges imposed through diseconomies of scale in industry.

The compound effect of Pohnpei being serviced by regional shipping carriers has created a constrained outlook for the trading options available. The high volume of imports in Pohnpei as compared to exports (approx ratio of 53:11) represents a scenario of inbuilt high container shipping costs. This being the case as the cost of landing the container and its associated costs of storage, repair, cleaning and empty load out must be borne by the inbound freight activity and rate structure, on the assumed basis that for every 53 inbound containers only 1 is loaded out full and attracts freight revenue to offset the handling costs.

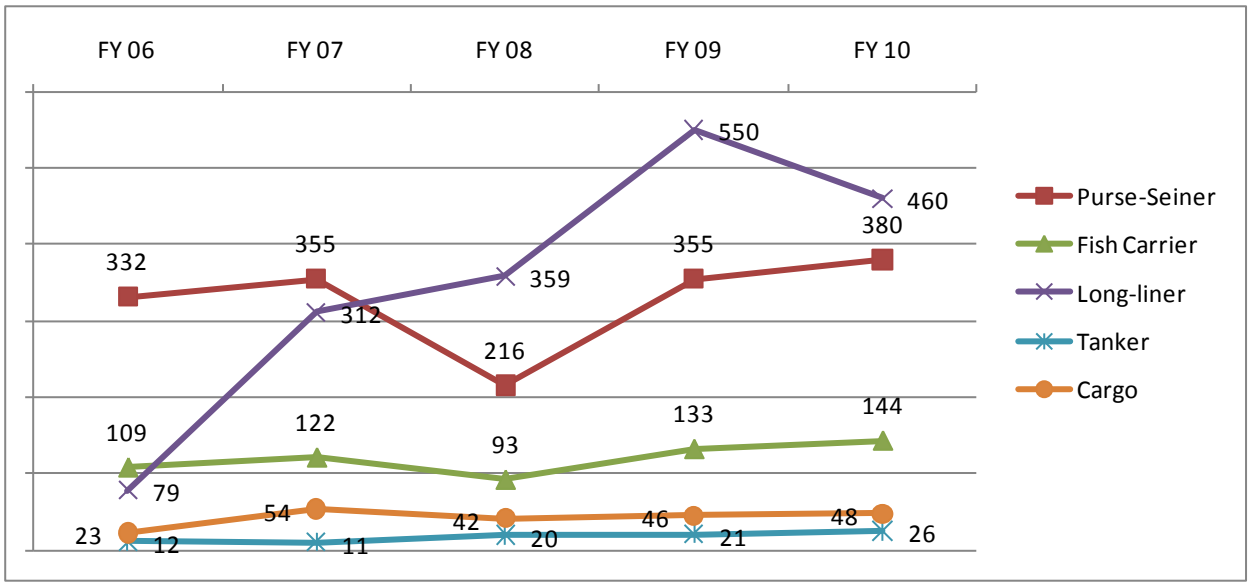
The narrow base of exports and limited opportunity currently for industrial processing and re-export at Pohnpei assumes that there will be little change to the current container imbalance in the immediate future of the existing US Compact Fund to 2023.

The current main vessel users of the Pohnpei port are:

- 1 x fuel tanker every 18 days (20 voyages per annum) discharges about 2000 tonne of liquid bulk fuel products per voyage;
- 2 x General cargo ships every 14 days (50 voyages per annum) discharge about 40 TEU per voyage (2000 TEU per annum);
- 350 purse seine boats per annum for discharge of fish catch to mother vessels (reefer ships) at anchorage;
- 300-500 long liner boats per annum for discharge of fish at the main & fishing wharf for processing into cooked loin for export by reefer container and whole tuna for export by airfreight and / or into reefer container for export;
- 100-130 Mother vessel (reefer ships) per annum arrive at anchor for receiving fish catch from purse seine fishing boats that raft alongside; and
- 1-2 small cruise ships and 1-2 coast guard cutters or small warship vessels per annum.

In reviewing the total volume of past and current trade activity at Pohnpei, a review of cargo and vessel movements was conducted by the study team which isolated the individual users and their vessel call frequency, freight related activities over time and trends associated with such past and current movements. Where the current year (2010) is shown the figures have been annualized to demonstrate an estimated full year comparison against previous years.

Chart 1 - Number of direct vessel calls at Pohnpei port by type



Note: Full year 2010 is annualized against data provided for year to date.

The five year trend of direct port users at Pohnpei indicates a variable rise in the arrivals of direct calling vessels over this period with the exception of the decline in fisheries and general cargo vessel arrivals in 2008 consistent with global trends associated with the GFC. The direct relationship of GFC conditions and the collapse of the Japanese and global sashimi tuna market was particularly evident in purse seine fish catch tonnage and transfer to reefer fish carriers (mother vessels).

Table 15 - Vessel type direct calls AVDEV / CAGR

Vessel type	FY 06	FY 07	FY 08	FY 09	FY 10	AVDEV	AV	4 Year CAGR
Purse-Seine	332	355	216	355	380	49	315	3.4%
Fish Carrier	109	122	93	133	144	13	114	7.2%
Long-liner	79	312	359	550	460	130	325	55.3%
Tanker	12	11	20	21	26	5	16	21.3%
General Cargo	23	54	42	46	48	9	41	20.2%

The analysis of direct calling vessels at Pohnpei port shows a high degree of variability over a short range of five years statistics. Prior years were either unavailable or subject to inaccuracy. The Compound Annual Growth Rate (CAGR) provides a growth rate applied to a rolling average on activities over a multiple-year period. The CAGR provides a sense that the growth rate is most marked in the long line fishing boat activity, but against the background of moving from a low base in 2006 the compound affect is artificially much higher. Growth in long line direct calls is trending down for 2009 to annualized 2010 period. Similarly the movement in growth is distorted for both tanker and general cargo vessel arrivals due to 2006 representing a low base by comparison to following consecutive years. If removing 2006 as a start point the data demonstrates very small increments of volume change for general cargo vessels, tankers and purse seine vessels calling direct to Pohnpei port.

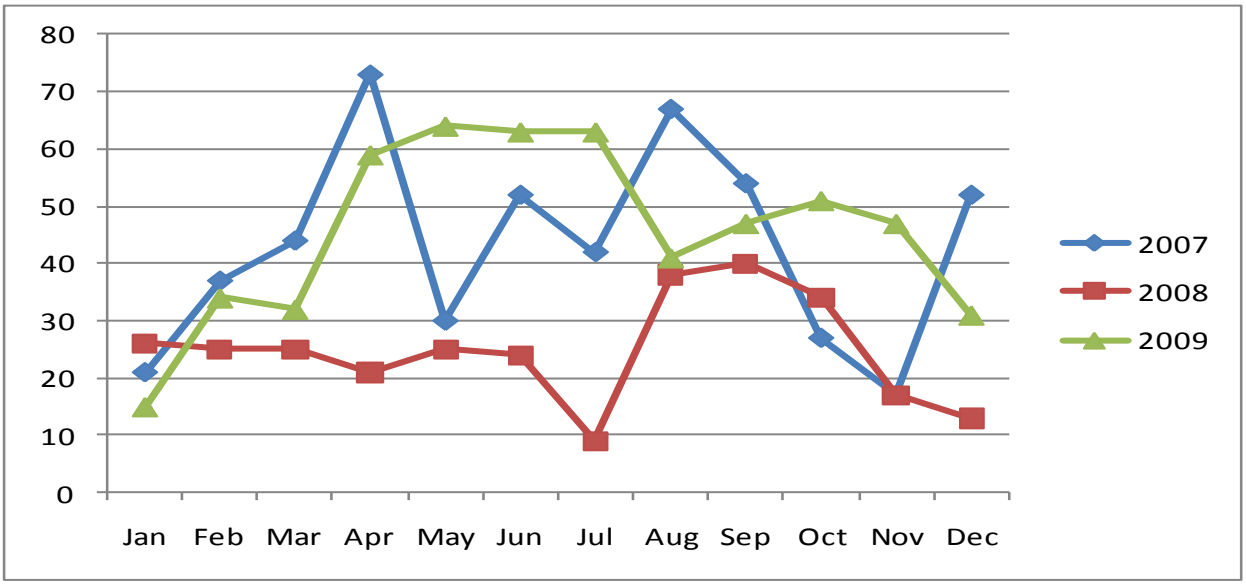
The long line fishing market caters mostly towards the processing of fish including loining and canning operations where the catch is transferred to refrigerated container for sea freight export or exported by airfreight to market and processing locations via Guam. The

volume of catch is significantly lower being only 2000 to 3000 tonnes per annum against purse seine transfer volumes of 250,000 tonnes per annum.

An 8 percent increase of reefer fish carrier vessels year on year from 2009 to annualized 2010 (estimate) indicates the transshipment of greater numbers of tuna at anchorage, but this condition is not consistent with chart 10 below that shows similar volumes of tuna transfer from purse seine vessels in 2009 as was the case in 2005, 2006 and 2007. The highest recorded transshipment tonnage occurred in 2007 which had 122 reefer fish carriers at anchorage in contrast to the 133 reefer fish carriers in 2009 for less transshipment tonnage.

It can be safely concluded from this analysis that the number of reefer fish carriers involved in transshipment at anchorage will vary depending on the hold capacity of such vessels calling at Pohnpei. The reefer fish carrier fleets operate vessels of varying sizes from 2500 GRT up to 6000 GRT.

Chart 2 - Number of vessels going to Pohnpei anchorage



The Pohnpei anchorage is primarily used by fishing industry vessels for the storage and transfer of fresh tuna caught by purse seine vessels to reefer fish carriers (mother vessels). The transshipment volume of tuna from a single purse seine vessel can be between 300 and 1600 tonnes of fish and hold capacity of the reefer fish carriers varies from 1800 to 4800 tonnes. Once the reefer fish carriers are full they depart the Pohnpei anchorage and proceed to market locations mainly in North and East Asia.

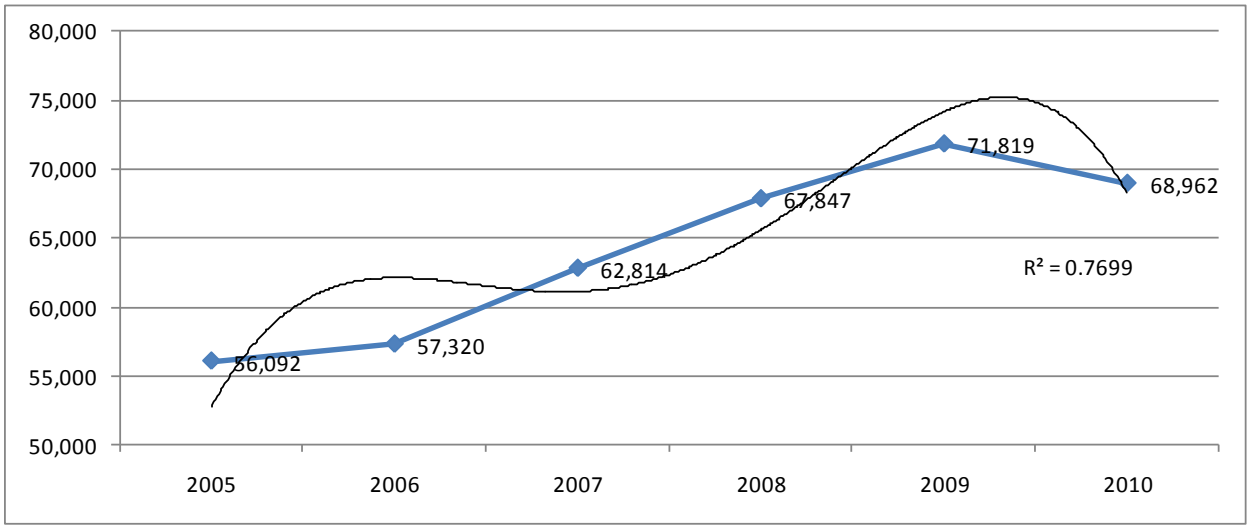
The generally accepted tuna migration seasons are:

- December – April / Tuna migrates to RMI EEZ waters; and
- April – November / Tuna migrates to FSM EEZ waters.

This migratory pattern spans thousands of kilometers and is an approximation of events that the fishing industry generally accepts. Ignoring year 2008 (GFC conditions influenced the market), Chart 2 above provides supporting evidence that this seasonal pattern of anchorage arrivals and transshipments is generally correct which is further supported by Chart 9 which demonstrates monthly transshipment by tonnage from purse seine vessels at anchorage.

7.1.3 General cargoes

Chart 3 – Pohnpei Inbound freight (non fisheries) volume by revenue tonnes



Note: Full year 2010 is annualized against data provided for year to date.

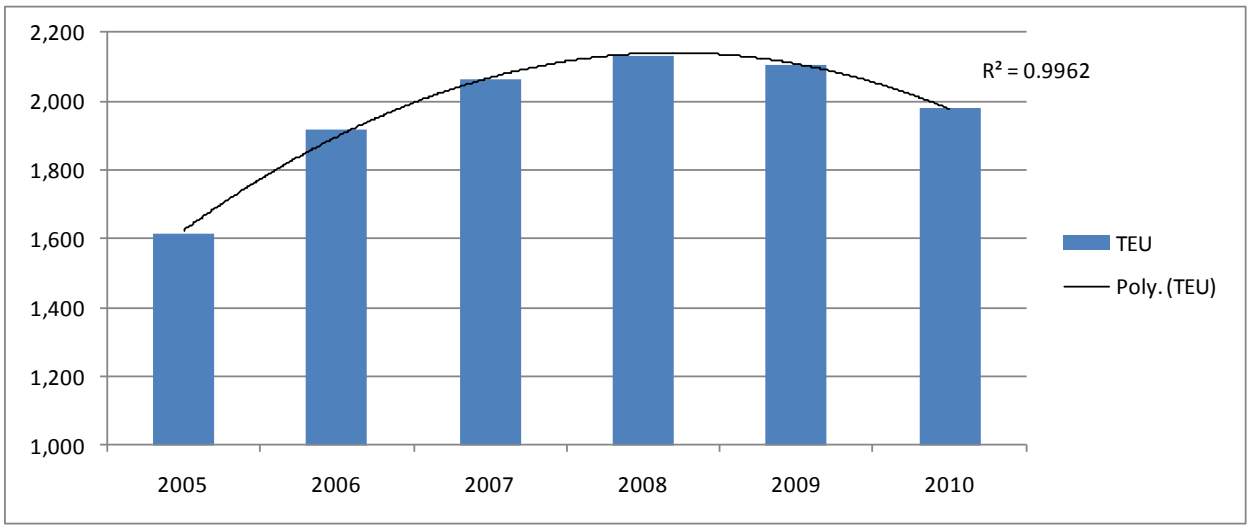
General freight tonnage imports are shown in Chart 3 with data provided by PPA for the periods shown. It is shown that a consistent rise in imports has been a feature over this period, but again moving from an apparent low base in 2005 and stabilizing over years 2007–2010. The GFC did not appear to have such a marked affect in 2008 on general cargo imports as it had on fish catch exports, as commented above. A further analysis of the current growth rates is indicated in the following table:

Table 16 - Pohnpei analysis of general cargo imports

Full Year	2005	2006	2007	2008	2009	2010	AVDEV	5 Year CAGR
Rev Tonnes	56092	57320	62814	67847	71819	68962	5400	4.2%
TEU (check)	1613	1918	2064	2131	2104	1982	135	4.2%

The average deviation in volume over the periods shown is 5,400 tonnes which as a comparison is 7.5 percent of the total recorded in 2009. The CAGR for the period is shown at 4.2 percent which is accepted as an average growth rate over the period given the comparative low base recorded in 2005. There is some flattening of growth shown between 2009 and the annualized 2010 revenue tonnage figure. Future growth rates and trade scenarios are explored later in this section of the report under section, *7.4 Future Trade Scenarios.*

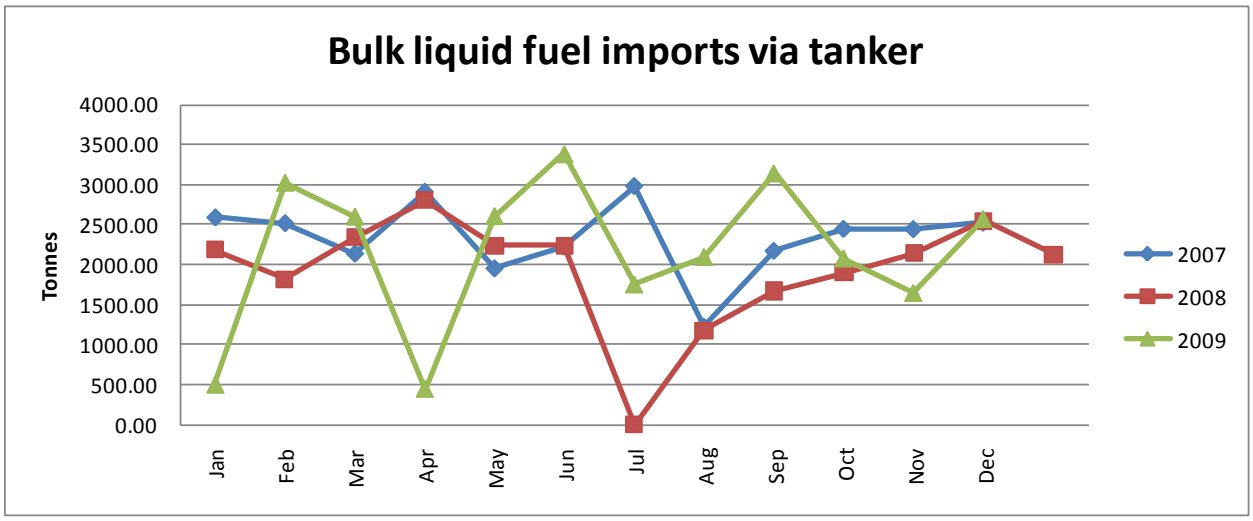
Chart 4 - Pohnpei inbound (non fisheries) TEU volume



Note: Full year 2010 is annualized against data provided for year to date.

7.1.4 Bulk liquid fuels

Chart 5 - Pohnpei bulk fuel imports by tonnes



In Chart 5, imported fuels and bulk liquid petroleum products are shown by month for three consecutive years 2007, 2008 and 2009. If removing consideration for the period July 2008 where no tanker called at Pohnpei and January and April 2009 recording low import volumes, the trend shown is of a flat line delivery schedule and consumption of bulk liquid petroleum products at Pohnpei. The following tonnage analysis in Table 4 demonstrates the regularity of imported tonnes and that average deviation of tonnes by month (negating the irregularities in 2008 and 2009) is of a low level. Table 17 below shows annual totals and a CAGR of 0.03 percent is recorded supporting the consideration that current demand is static.

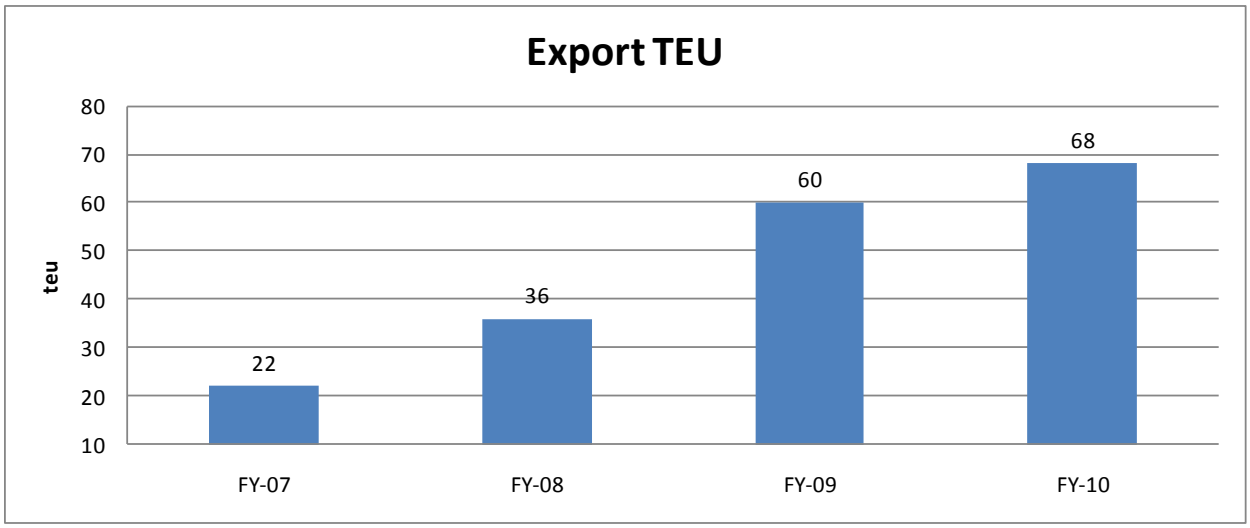
Table 17 - Liquid bulk petroleum product analysis / tonnage

Full Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AVDEV	CAGR
2007	2593	2521	2141	2912	1957	2228	2984	1229	2175	2449	2446	2526	334	-0.2%
2008	2189	1819	2339	2806	2236	2236	0	1180	1673	1901	2141	4680	654	6.5%
2009	496	3028	2603	445	2610	3385	1753	2097	3146	2078	1646	2573	736	14.7%

Full Year	Tonnes	CAGR
2007	28162	
2008	25198	
2009	25861	0.03%

7.1.5 Containers

Chart 6 - Pohnpei export volume TEU

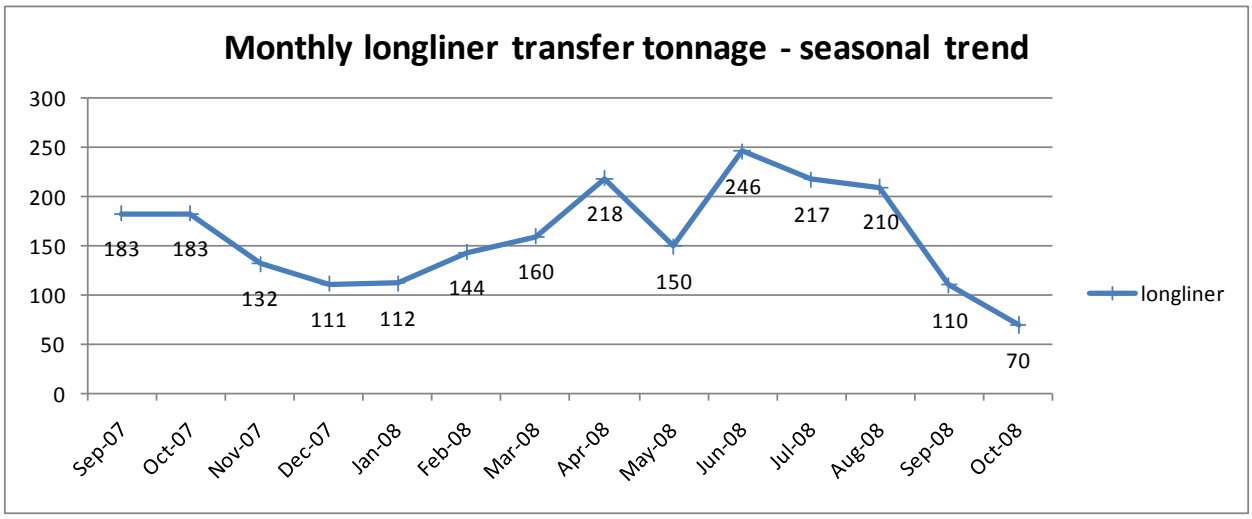


Note: Full year 2010 is annualized against data provided for year to date.

Total export TEU is shown in Chart 6 with 2010 annualized against first two quarters of recorded volumes. The export commodities include (mainly) frozen tuna in reefer containers, quarried aggregate in containers, scrap metal, personal effects and seasonal trocus shell. There is no heavy manufacturing or reprocessing industry in Pohnpei and export activities are centered on the fisheries industry. The tuna exported in reefer containers is mainly handled in 40 foot units and transshipped through Guam for US West Coast markets. The tuna catch transferred and loaded into reefer containers is related to the LTFV operations based in Pohnpei.

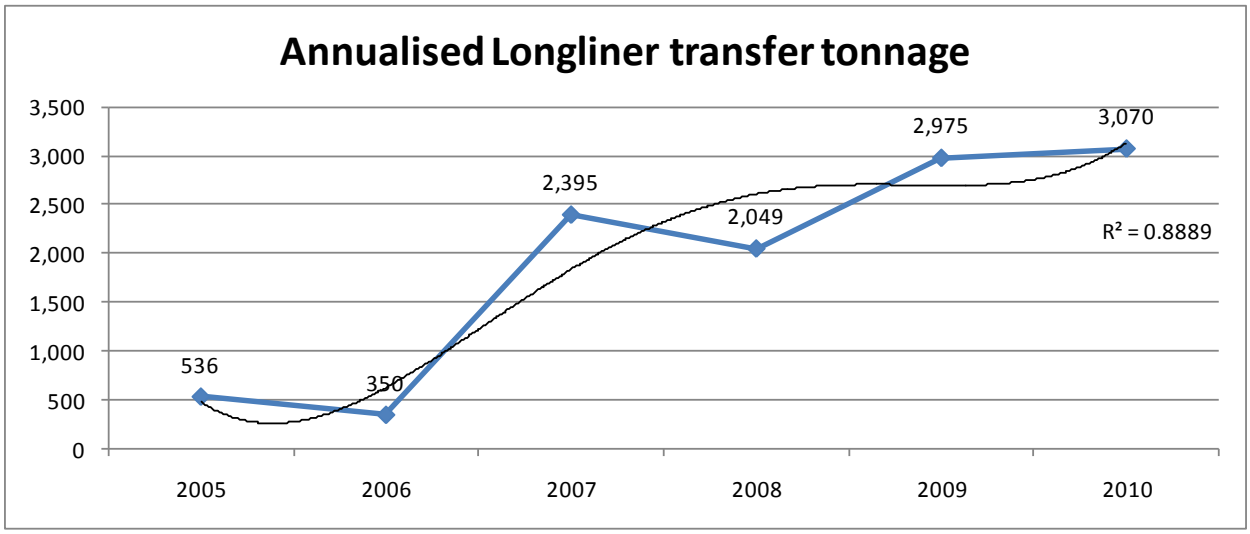
7.1.6 Fisheries

Chart 7 - Pohnpei long line fish transfer tonnage by month, 2008, FSM financial year



The seasonal fluctuations of fish catch can be recognized in the Chart 7 above, albeit that the long line catch is small by comparison to the purse seine catch size. The influence of the generally accepted tuna migration season is seen in the above catch numbers.

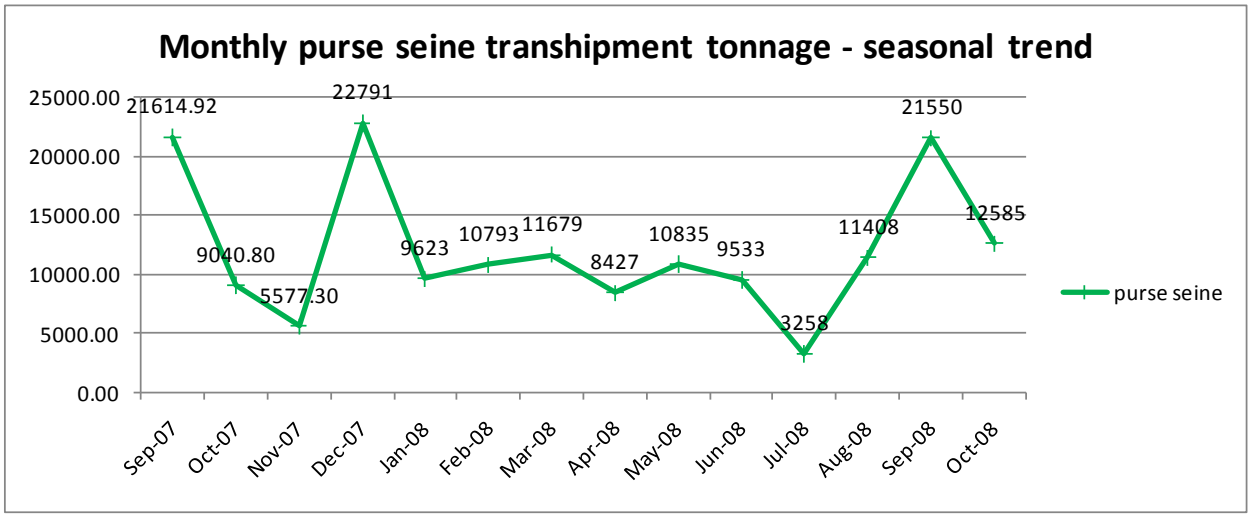
Chart 8 - Pohnpei long line annual fish transfer tonnage



Note: Full year 2010 is annualized against data provided for year to date.

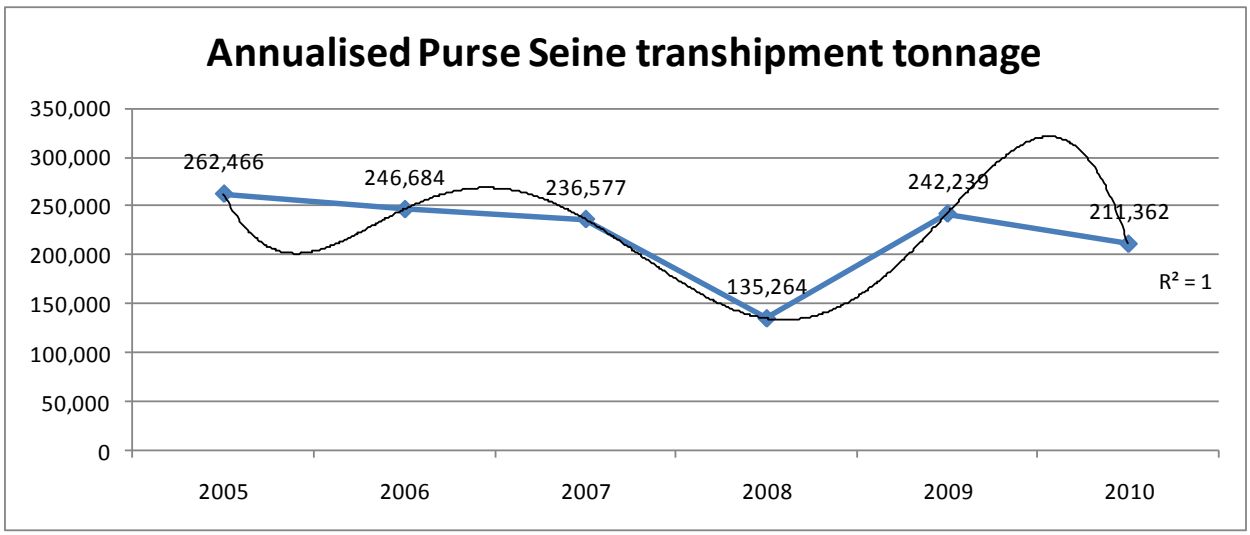
The annualized catch for long line transfer over the wharf at Pohnpei is shown in Chart 8. The catch volumes are directly related to the number of fishing boats based at Pohnpei port. See Chart 1 above that details the direct call voyages per annum for each type of vessel using Pohnpei. There are some anomalies in the above long line catch transfer tonnages when attempting to find a pattern between number of direct calls at Pohnpei and tonnages. This may be due to transfer tonnage records being distorted prior to 2007. There is a stable pattern emerging between 2007 and 2010 of total tonnage transfers from long line vessels and the establishment of LTFV fish processing facility at Pohnpei has a direct influence on demand having a nominal capacity of 250 – 300 tonne per month for processing activity.

Chart 9 - Pohnpei purse seine fish transshipment tonnage, 2008, FSM financial year



The seasonal fluctuations of purse seine fish catch can be recognized in Chart 9 which influence greatly the activity of the purse seine fleets and catch volumes. A planning approach to this seasonal adjustment could be concluded by PPA.

Chart 10 - Pohnpei purse seine annual fish transshipment tonnage



Note: Full year 2010 is annualized against data provided for year to date.

The annualized tonnage catch for purse seine vessel transshipment at anchorage is shown in Chart 10. The catch volumes are directly related to the number of fishing licenses issued to catch tuna in FSM waters. This is administered by the National Oceanic Resource Management Authority (NORMA) who in 2009 issued 282 licenses for 117 purse seine boats to fish in FSM waters. The number of direct calls into Pohnpei of purse seine vessels is shown in Chart 1 above that correlates directly to the transshipment tonnages. There are some major variances between PPA records and records for tuna catch and tonnage transshipment at Pohnpei maintained by NORMA. This may require some further investigation to understand why such discrepancies are evident on a single item of activity. Excluding the recorded tuna transshipment volumes in 2008 (GFC influences) there is a

stable pattern emerging between 2006 and 2010 of total tonnage transshipments from purse seine vessels at anchorage. Table 18 demonstrates the stable pattern emerging in this important contributor to PPA revenues from transshipment charges, pilotage and anchorage fees.

Table 18 - Pohnpei annualized transshipment tonnages at anchorage

Full Year	2005	2006	2007	2008	2009	2010	AVDEV	AVERAGE	CAGR
Transshipment -	262,466	246,684	236,577	135,264	242,239	211,362	32,746	222,432	-3.8%
tonnes	262,466	246,684	236,577		242,239	211,362		239,866	

The average volume in recent years is shown as 240,000 tonnes per annum of transshipped tuna at Pohnpei anchorage which links the reefer fish carrier's direct call and purse seine fishing and home base activities at Pohnpei port. There is no fish processing in FSM from the purse seine commercial activities. The caution on using such anticipated fish volumes in budget planning is linked to the continued seasonal migration patterns and continued availability of fish stocks in FSM EEZ waters. Risks associated with the continuance of fish transshipment volumes would come from:

- Occurrence of global financial shock that has a direct and long staying affect on the tuna purse seine industry;
- Competitive tension that may present itself from competing central Pacific ports that could mount a commercially attractive offer of services and costs for the industry; and
- The fisheries industry, especially transshipment activities, has an itinerant commercial nature that is easily transferable to alternate locations.

7.2 Potential Trade Growth and Future Trading Patterns

The PPA Port Master Plan that was delivered in September 1994 by E.M Chen & Associates (FSM) Inc concluded that the growth in Pohnpei population would underpin the future growth in general cargo trade volumes by the same ratios.

This assumption can now be considered a fatal flaw when forecasting trade growth for Pohnpei. E.M Chen used a base case population estimate of 36,278 for 1995 and adjusted by estimated growth rates of 3% compounding to 2020. This provided for a population of 44,258 by year 2000 62,912 by year 2010 and 76,000 by year 2020. These estimates are considerably higher than census records for year 2000 which showed a population of 34,486, and a current estimate of year 2010 population of about 40,000.

The population estimations and growth ratios used by E.M Chen were then applied to cargo volume and vessel call forecasts for years 1995 through to 2020.

Table 19 - 1994 Master plan general cargo trade forecasts vs actual

YEAR	EM CHEN		ACTUAL		VARIANCE			
	TEU	TONNES	TEU	TONNES	TEU	%	TONNES	%
2005	2857	81383	1613	56092	-1244	-44%	-25291	-31%
2010	3377	96189	1982	68962	-1395	-41%	-27227	-28%
2020	4165	118631						

Table 20 - 1994 Master plan direct call vessel forecasts vs actual

YEAR	EM CHEN			ACTUAL			VARIANCE		
	INTL CARGO	FUEL	INTL	INTL CARGO	FUEL	INTL	INTL CARGO	FUEL	INTL
	VESSELS	TANKERS	FISHING	VESSELS	TANKERS	FISHING	VESSELS	TANKERS	FISHING
2005	79	25	567	23	12	441	-56	-13	-126
2010	93	30	636	48	26	524	-45	-4	-112
2020	114	37	763						

These errors were carried through to the design criteria for new construction of seaport infrastructure to support such volume of freight and associated vessel calls. There was little by way of forecasting attached to the E.M Chen Master Plan regarding the fishing industry tonnage transshipment or transfer of catch at Pohnpei. The fishing industry should be regarded as the main sustaining industry for Pohnpei port.

An essential part of a realistic Port Master Plan is the identification of the potential users and the means of transport being used for the various commodities. This should take the form of a market and trade forecast. For Pohnpei, the market volumes and limited number of individual firms provide a high degree of visibility that can be applied to trade research. The current industrial participants in moving freight and commodities across the Pohnpei wharf and their potential for growth are shown in Table 21.

Table 21 - Pohnpei future freight growth potential

Industry	Inbound/ Outbound Transit	Commodity	Controling Party	Seasonal (Y/N)	Sustainable Growth Potential	Growth Factors	External Issues	Internal Issues
Petroleum Products	Inbound	Fuel	Importer	No	Maybe	Population and GDP	Price controls	Limited storage
Fisheries	Transship	Fresh fish	Overseas fishing companies	Yes	Yes	Stocks/migration	Distance financial markets	Small market, harbour/ anchorage access, cost to operations
Fisheries	Outbound	Processed fish	Processor	Yes	Yes	Stocks/migration	Financial markets	Servicess access, cost of operations
General Cargoes	Inbound	FAK	Importers	No	Yes	Population and GDP, migration	Freight costs, MSC regulations	Local demand, competition
Motor Vehicles	Inbound	CBU	Importers	No	Yes	Population and GDP	Freight costs	Affordability
Heavy Equipment	Inbound	CBU	Importers	No	Maybe	Population and GDP	Freight costs, distance	Construction demand, access to capital
Aggregate Quarry	Outbound	AGG	Buyers	No	Yes	Price and quality	Distance, freight costs	Volume available, capacity to provide
Tourism	Inbound	Cruise	Cruise line	Yes	Yes	Facilities and access	Schedule costs	Desire to develop, capacity to handle
Tourism	Inbound	Service	Package tourism	Yes	Yes	Facilities and access	Distance costs	Desire to develop, capacity to handle
Marine Services	Inbound	Service	Service providers	No	Yes	Suitable land, skills and stock	Acceptance of FSM as quality provider of services	Skills and maintenance
Agriculture	Outbound	Fresh produc	Buyers	Yes	Yes	Seasonal availability, potential yields	Competition	Quality and available volumes/skills
Infrastructure Development	Inbound	Building Materials	Contractors	No	No	Compact Funds release	Funding agreements	Planning and decision timelines

In the above table, the potential for growth is represented and can be considered as sustainable, meaning that growth volumes would be compounding and commercially based. Therefore such industry as infrastructure development is categorized as non-commercial

and activated for specific development for completion under set parameters. The growth factors for the following sectors are summarized:

7.2.1 Petroleum products

Any growth for increased fuel imports is directly linked to growth in population, power generation, capacity to service fishing fleets and supply lines from distributors. The current arrangements are tied to contractual agreements between FSM Petroleum Corporation (National entity) and Shell Oil Guam, which takes supplies from Singapore. The volumes imported to Pohnpei are relatively small and delivered via a small parcel tanker (approx 20 times per annum) which creates diseconomies of scale with many small volume frequent deliveries based around the capacity of the shore based tank farm. There are 5 main tanks and 4 service tanks currently in operation with a total capacity of 1.8 million gallons (8.1 million litres). The main customers for FSM Petroleum Corporation include the Pohnpei Utilities Corporation, airlines, gas/petrol stations and fishing companies including LTFV. The majority of electricity is generated from diesel powered plants. There is a hydro electric generator on Pohnpei which is believed to be undergoing re-commissioning. It is considered that the high cost of diesel deliveries and advancements in alternative power generation that Pohnpei could be well placed to supplement the diesel demand with wind power or another renewable source. The management of FSM Petroleum Corporation indicated that they were considering a relocation of the tank farm from its present location to an area currently occupied by the waste treatment plant at Dekehtik Island. The area vacated by FSM Petroleum Corporation would then be assigned to a planned expansion of LTFV's fish processing facility. As reported in other sections of this report FSM Petroleum Corporation has failed to connect feeder pipes to their main supply tanks to provide bunkering at the new fisheries wharf (commissioned 2002), thus compounding the issues with congestion at the main wharf in Pohnpei. FSM Petroleum Corporation only provides diesel to the long line fleets which take on an average of 40,000 gallons of fuel, whereas the larger purse seine vessels require up to 240,000 gallons which outstrips the operational capacity of FSM Petroleum Corporation current storage and resupply regime. A general assignment for main tank products is:

- Petrol (gasoline), 307,422 gallons;
- A1 Jet fuel (aviation fuel), 219,299 gallons; and
- Diesel (high speed automotive diesel), 873,925 gallons.

In summary, the importation of petroleum products is assumed to be maintained at current levels supporting the long line fleet and domestic demand of power generation. The potential for increased supply may be evident through expansion of the long line fleet based at Pohnpei and through the expansion of the tank farm capacity allowing refueling of purse seine vessels. The later is a major project which if facilitated would not be operational until after 2015. It is assumed that growth will be in the realistic to optimistic range of 22-32 vessel arrivals per annum between years 2010 and 2020.

7.2.2 Fisheries industry

The FSM National Government passed a Congressional resolution in July 2010 which directs FSM to consider restricting access to the FSM EEZ and to bid out fishing rights on an exclusive basis to a single country. It is understood the existing fisheries sector is in a state of review and FSM Congress are currently adopting a range of strategies for regional cooperation to control of illegal, unreported and unregulated fishing, as well as analysing the current economic exclusion zone and the application of fishing licenses.

The fisheries industry offers the main opportunity for growth in trade and associated cluster of marine support industries. The current arrangements for fisheries can be divided around those that transship fresh fish and those that offload to shore process and export after loading direct to containers or aircraft for export. The tonnages involved in the later industry are small, approx 2500 tonnes per annum, by comparison to the transshipment volumes of up to 250,000 tonnes per annum. The singular processing operation of LTFV, a joint venture with the FSM National Government, provides the base of operations for the long line fishing fleet of approximately 30 boats in Pohnpei which take on fuel, ice and provisions. LTFV employ approximately 20 Chinese expatriates, 130 FSM locals and 30 Filipino expatriate personnel to operate and administer the fishing fleet, export and processing operations. The LTFV fleet offloads direct to the wharf area mostly at the new fishing dock location but also at the South return area of the main wharf. Every two months, 1x20 ft refrigerated containers are sent to the US West coast and 3 x 40 ft refrigerated containers to China and Philippines for processing. In addition, approximately 100 tonnes is air freighted direct from Pohnpei using a subsidiary company, Asia Pacific Airlines and transferred by airfreight out of Guam to the US and Japanese sashimi markets.

LTFV is a wholly owned subsidiary of Liancheng Overseas Fishery (Shenzhen) Co., Ltd that have domestic fishery operations in Fuzhou, Xiamen, Shanghai, and Dongshan in China. Their overseas operations include longline tuna fishing in the central and west Pacific Ocean in the economic waters of the Republic of the Marshall Islands, the Republic of Palau, and the Federated States of Micronesia.

It is understood that the land leased by LTFV located in the TZ has been removed from the control of the PPA by either the State or National Government and represents an area of approximately 7000 m^2. The plans mentioned above to expand the fish processing facility would take almost 23,000m^2 of land inside the TZ area. The expansion of the fisheries cook loin plant has been reported to cost $9 million to construct with monies acquired under a soft loan arrangement from the Chinese Government and would be operational within a three year period. This expanded operation would add extra long line fishing boats to the fleet based in Pohnpei by an extra seven vessels and the processing plant would at least double its capacity output dependent on sufficient catch being available. The increased requirements for provisioning and fuel bunkers would create extra demand for supplies and diesel imports into Pohnpei. A review of cost benefit would provide a representative return for Pohnpei and the National/State Governments involved in the transaction.

It is understood the Chinese Government has offered a $22 million concessional loan to develop the ports of FSM by adding fish processing plants and other facilities which are being reviewed by FSM Congress. The potential exists to connect direct flights to Japan / Korea allowing immediate export of fresh tuna.

There are 117 purse seine vessels currently operating under license in FSM waters, the majority from Taiwan, Japan and Korea. There are six vessels under FSM flag country of origin that operate under license which is understood to include three purse seine vessels operated by Caroline Fisheries Corporation (CFC).

CFC is operated as a joint venture between the Pohnpei State Government and a private company of uncertain origin. As mentioned earlier in this report, the potential gains in fisheries revenue is considered to be held in the purse seine operations. The large catch capacities of vessels, ongoing need for provisioning, net repairs, vessel, helicopter maintenance, fishing winch equipment and electronic systems maintenance, and requirements for ongoing fuel bunkering (now done at deep sea from tankers) presents the

largest possible gain from this sector. The division of State and National Government enterprises, utilities and corporations would need to agree to a clear vision and engagement to allow such to be realized.

There are several past episodes of failed fishing ventures in Pohnpei including the Micronesia Longline Fishing Corporation (MLFC), formally established as a private shareholding company of the National Fisheries Corporation (NFC) in 1991. MLFC which operated 12 longline fishing vessels and subsequently ceased operations in 2002 after trading losses were realized over several years. The vessels operated by MLFC are abandoned lying inside the Pohnpei inlet area.

CFC was originally initiated in 1990 between the Economic Development Authority (EDA - Pohnpei State Government) and National Fisheries Corporation (NFC – FSM National Government) as joint venture with an Australian fishing company, Kailis and France. The Pohnpei legislature agreed to fund three purse seines at a cost of more than $11 million. It is not entirely clear how this venture altered in its operating partnership, but in 1994, the Pohnpei Supreme Court appointed a receiver for CFC.

Another failed fishing venture included the fish processing facility at Pohnpei which was commissioned in 1992 by Pohnpei Fisheries Corporation (PFC) and initially managed by the Danish firm, Sabroe. The operational plan included the production of fresh cuts and cooked loin for export. The PFC development package involved approximately $22.5 million loan to develop Pohnpei domestic fishing operations and included the acquisition of a small fleet of inshore reef fishing boats from Danish suppliers. These vessels are now abandoned inside the Pohnpei inlet area. It is understood that the fish processing facility owned by the State is leased to and operated by LTFV. The refrigerated transfer facility that was constructed on the main wharf apron and presents a major constraint to commercial vessel operations currently lies unused for the purpose it was intended for.

It is understood that both the EDA and PFC were dissolved in 2008 by the Pohnpei State Government legislature.

In order to realize significant gains from the fisheries sector there is clearly a need for strong governance of yield-producing ventures.

In summary, the fisheries industries are the main driver of vessel arrivals and freight (fish) transshipment. It is assumed that tuna fish stocks and long line catch will remain consistent for the next 10 years and growth will be in the realistic to optimistic range of 240,000-270,000 tonnes per annum of fish transshipment between years 2010-2020. Vessel movements similarly will be retained to handle such tonnage of 550-650 vessel arrivals per annum.

7.2.3 General cargoes, motor vehicles and heavy equipment

The general cargo volumes are associated with imports of foodstuff, motor vehicles, machinery, building products and other essential consumer items. The current vessel operators are limited to two direct carriers and a number of Non Vessel Operating Common Carriers (NVOCC):

- Matson Line that has a connecting carrier agreement with Horizon Line.
- Kyowa Line (FSM Line JV between Pohnpei Transfer and Storage - PT&S and Kyowa Line of Tokyo).

A third carrier PM&O ceased operations in September 2005 and was replaced by Matson thereafter. The Micronesian Shipping Commission (MSC) controls the application of licenses for international shipping to trade to FSM ports. The basis of this regulatory control is based upon allowing a degree of competition while encouraging the provision of stable services. The 'Entry Assurance System' is the main mechanism of the MSC which allows carriers to provide liner services on specified routes. The MSC acts on behalf of the FSM, Palau and the Republic of the Marshall Islands (see Appendices 9-10 for copies of MSC entry forms). This entry and license scheme extends to non vessel operators including freight forwarders and connecting carriers that offer services via Guam and Majuro connecting with the direct calling lines. In addition, there is a requirement by carriers to submit their tariffs for review and assessment by the MSC.

The MSC adopts as its Mission Statement:

..the general goal and main objective to encourage and promote an economical, reliable, safe and coordinated system that meets the demand for international commercial shipping throughout the three Micronesian island nations. (MSC 2006a).[2]

It states the MSC objectives are to:[3]

- Provide access to international markets to promote national trade and commerce;
- Provide adequate and reliable frequency to guarantee sufficient supply and inventory;
- Provide favorable route structures to serve all member States' ports;
- Provide affordable service rates in line with the local economies; and
- To limit competition based on the volume of cargo available.

The MSC requires all commercial carriers servicing the region, except for Government owned and operated vessels, to be issued with an Entry Assurance Certificate (EAC), which is granted or denied on the basis of the "merits" of proposals submitted. The EAC may be revoked if the carrier fails to provide the service, does not perform in accordance with internationally accepted shipping standards of operation or violates applicable laws of the participating Governments. A fee of $10,000 per year applies for each EAC issued by the MSC.

The MSC presents a regulatory control that restricts free market competition and the ability of ocean carriers to offer services without due constraint and hindrance. The intentions as described by MSC is to restrict competition based upon cargo volume and provide affordable service rates for local economies, these two statements are commercially in direct conflict. Given the nature of international shipping, the more restrictive a market, the higher the freight return is required to be and/or the yield from lower volumes for shipping lines to satisfy fixed and variable costs by increasing the average return per tonne as compared to destinations with greater volumes where the yield can be aggregated to provide a lower freight rate per tonne shipped.

It is unclear how exactly the MSC examines carrier's tariffs to produce 'affordable service rates in line with the local economies' as from examination of freight rates and surcharges on offer in 2010, the average rate from Japan, USA or NZ and Australia appears to be at levels significantly higher than other Pacific Nations outside of the MSC jurisdiction range.

[2] Micronesian Shipping Commission, *Micronesian Shipping Commission: Background and Function.*

[3] Micronesian Shipping Commission: *A Regional Cooperation Initiative*. Jack S. Chong-Gum, RMI Ports.

The development of general cargo volumes can be associated with the competitive application of landing goods into a market to provide and stimulate free trade activity. In association with this is the inherent demand in the Pohnpei economy which has a population base that has altered little over the recent 10 years between censuses. Albeit an unrestrictive application to shipping line entry to the market may allow affordability of goods for trade and small to medium business development for both import and export activity.

The general cargo volumes are therefore a product of the MSC covenant on trade access to FSM and Pohnpei and the associated high cost of delivered products and that of an island nation with a small population growth and without a manufacturing base or large scale services industry, such as tourism to broaden the demand.

In summary, the growth of general cargo activity will be directly linked to population growth and any development of sustainable commercial enterprises such as tourism. It is assumed that with the population census data obtained and examination of potential for sustainable commercial enterprises general cargo tonnage and vessel arrivals will be in the realistic to optimistic range of 2000 – 2600 teu per annum between years 2010 - 2020. Vessel movements similarly will be retained to handle such tonnage of 48 – 58 vessel arrivals per annum.

7.2.4 Aggregate quarry

There exists a major aggregate quarry at the northern end of Sokehs Rock which presents an excellent source of aggregates for road base, concrete manufacture and reclamation activity. A survey report by South Pacific Applied Geoscience Commission (SOPAC) 1999 found that Basalt blocks of good integrity have excellent potential for quarrying and supply of superior quality (compared to coral/carbonate material) aggregate for the construction industry in Pohnpei and in FSM. These include supply and applications for coastal rip-rap and armour rock for coastal scour protection, roads and pavements courses, concrete and cement works, rubble and masonry walls, coastal breakwaters, coastal protection structures and other hard engineering application.[4]

It has been observed that demand for such quarried materials is present from neighboring Islands, in particular Guam. The potential market for quarried aggregate and block has allowed export shipments to proceed to neighboring states in containers. Further investigation is needed as to how volume bulk materials could be competitively transported, and barging may be one option to open the potential of this new trade opportunity.

7.2.5 Tourism – package and cruise vessels

The tourism industry in Pohnpei remains under-developed and is evident in the fact that there are only 210 hotel rooms on the main Island. Tourism appears to be targeted at the fringe participants of ecotourism, scuba diving and outer reef surfing. The number of true tourist arrivals are few and there appears to be reluctance from National and State Governments to pursue a policy of development. The National Government declared in an interview that ‘National tourism rests in the case of what the States are doing and where they are heading with planning and marketing tourism’. In the same context, it was understood that the airport runway extension has a degree of anticipation of increased volume of tourists, particularly from North Asia.

[4] South Pacific Applied Geoscience Commission (SOPAC) Secretariat, Suva, Fiji, September 1999.

In discussions with the Pohnpei State Tourism Department, it was declared that Pohnpei has to be cautious in developing large scale tourism in order to retain its national identity and culture. It was also stated that FSM is a member of the Pacific Asia Travel Association[5] tasked with identifying measures to attract more cruise vessels to member states. But it was declared that Pohnpei is interested in attracting cruise liners of greater capacity and more regular calls, but is not ready given local amenities are not adequate and the scale is limited.

It was further noted from discussions that at present only two to three cruise vessels call at Pohnpei every year and are of a boutique small capacity (300 passengers) class of round-the-world cruise liner that can enter Pohnpei harbor safely. There was also understood to be an issue with extra cost burden that cruise lines had to bear with the cost of flights and provision of cabins and victuals for up to five FSM national boarding clearance officers from FSM Quarantine, Customs, EPA and Immigration services who are flown from Pohnpei to Guam to meet the ship so as they can effect clearance en route as it is claimed they have insufficient resource to clear the vessel upon arrival in Pohnpei or any other FSM port.

There are a number of aspirational developments that may have an effect on future trade growth. There are two projects being discussed in Pohnpei that include hotel development. One is understood to be with foreign support and the other designed by business interests from Pohnpei. Both projects are targeting growth in passenger arrivals by air as a result of the Pohnpei airport development and the potential for direct flights in 2011 linking Japan/ Korea. One major and potential development will have a strong ecotourism focus.

Tourism presents a potential for significant increased economic activity in Pohnpei, both onshore packaged tourist arrivals and cruise liner arrivals. Both would stimulate the increased activity in general cargo supply, building products and motor vehicles and fuel. Longer term there appears to be a degree of acceptance of the value of mass tourism in revenue, but short term a reluctance to make any meaningful developments is apparent. There was mention of a Chinese led plan to build a 5-star hotel and casino complex and it is understood there was a delegation of investors earlier in 2010 to view possible sites for its location.

7.2.6 Marine services

There has already appeared a gradual increase in the number of support industries for the fishing fleets calling at Pohnpei. These include helicopter servicing, electronic system repair and maintenance, salt and provision resupply and net repair services. Most of these activities are focused on the purse seine fleets and are required to deliver high-quality, cost-competitive solutions. It is considered that a diesel engineering service and maintenance facility would be well placed in Pohnpei and would add value to the broad range of services on offer.

Longer term a dry docking facility would add significant value to the fishing fleets calling at Pohnpei and create a strong competitive condition in the region. It is considered there would be benefit from a comprehensive review of the fisheries industry and long term applications as to its surety of tenure in Pohnpei.

[5] Pacific Asia Travel Association (PATA) Guam, RMI, Palau and FSM.

7.2.7 Agriculture

The main agricultural export products from Pohnpei include betel nut, kava, banana and root crops; small amounts of pepper and citrus are also exported. The small land area generally limits large-scale commercial farming for export. Small holding livestock production is important throughout the FSM, particularly for subsistence and cultural use.

Copra was a former high value cash crop throughout the FSM, but production has now ceased almost completely due to inefficiency and low prices for copra, coupled with increasing senility of the coconut palms. A perception persists among local growers that returns from agriculture are low and slow to materialize compared to other activities such as fishing and non-traded services, and Government employment. The US Compact assistance has exerted upward pressure on wages, turning the terms of trade against agriculture, and making agricultural production unattractive.

The FSM Government-run Coconut Development Authority (CDA) is processing relatively small amounts of copra into virgin oil and other health and beauty products. In 2008 it was reported that 52 tonnes of copra and coconut related products were exported compared with 2,300 tonnes in 1990. There remains longer term potential for agriculture to return a stronger yield and volume through development of new or complementary industries including beef and biofuels.

It is understood the FSM Congress is seeking to pursue opportunities for additional agricultural development concepts noting that Pohnpei was an exporter of rice to Japan during the pre World War II occupation.

7.2.8 Infrastructure development

The new Compact fund agreement between the US and FSM provides the equivalent of $1.8 billion over twenty years. That amount includes contributions to a trust fund which, from 2024, will replace direct financial assistance. FSM contributed $30 million to the trust fund in 2004. From 2007, annual grants from the US to the FSM Government will decrease each year, while contributions to the trust fund will increase accordingly.

Infrastructure development is one of the priority sectors under the amended Compact treaty between the US and the FSM. Twenty four percent of the total annual transfer ($76 million yearly for the first 5 years) in Compact grant funds from the US to FSM is earmarked for infrastructure development. The National and State Governments each have to identify prioritized infrastructure for development. This flexibility given each Government means an opportunity to vigorously push for placing ports infrastructure on the priority list.[6]

There remains unexpended Compact infrastructure grants of $67 million across all of FSM. There are several construction projects in the planning stage in Pohnpei including three schools and four waste water/sewerage programs. It is assumed these projects will come to fruition within the next 10 year time frame with an increase of temporary project cargoes arriving across the wharves in Pohnpei of between 20,000 – 50,000 tonnes of incremental freight volume.

Infrastructure developments will provide incentive to economic growth but the caveat is that stimulus also needs to have an ongoing growth target based on commercial activities for

[6] PPA Five Year Strategic Plan, 2007–2011.

such developments to be maintained. There are instances on Pohnpei of several trades and technical colleges that have been constructed but currently idle.

7.3 Base Case Future Trade

The current base for future trade activity with available information on hand, is considered in the short term of 5 years to continue at a conservative level of growth in general cargoes, but other commodities and industrial freight may remain static at current levels or even reduce. Over a longer term trend of 15 years it becomes more difficult to arrive at firm estimates given the apparent lack of confirmed development projects and uncertainty over infrastructure planning activities. It is therefore considered important for PPA to make some judgments based upon known industrial activity and engage with key importers and service suppliers to understand ordering cycles, seasonal periods of import activity and potential for growth.

Pohnpei achieved an average real GDP economic growth per annum of 0.2 percent between 1995 and 2008, which included Government sector of 0.5 percent and private sector of -0.3 percent. Over this period there was a reform adjustment to reduce Government spending which included early retirement and reduction in work force numbers.

In recent years, the Pohnpei economy has grown by 3.0 percent in 2005 and 0.7 percent in 2006, reflecting a positive outcome in most sectors. In FY2007, the State economy prospered and grew by 4.6 percent, reflecting a variety of factors. The public enterprise sector grew resulting from reasonable returns from State shareholdings in fishing enterprises and PPA.

The private sector also experienced reasonable growth. Public investment demand was also strong, with the construction of the new State Government administrative complex and airport runway improvements. In FY2008, the economy experienced a poor year, with the onset of the GFC, and GDP contracted by 1.6 percent. The year was less favorable to fisheries, and both the private and public enterprise sectors contracted.[7]

There remains uncertainty over Government infrastructure spending, new private sector industrial developments and the ability of the fisheries industry to maintain record catch numbers above the 240,000 tonnes per annum achieved in 2009. The fish loining plant expansion plans also falls into the category of uncertainty over timing and development likelihood. Tourism development both for cruise line acceptance and package tourism appears to have little short term support and this would delay the onset of any strategy if agreed in the future. This delay would also allow other Central and Western Pacific nations to develop their potentials without the competitive tension of FSM and Pohnpei interfering in large scale developments. Thus making the task for FSM and Pohnpei more difficult to compete against established destinations when they decide to enter the market.

There appears few opportunities for new export industries developing outside of the fisheries and fisheries services industry.

Population growth remains the final consideration for expansion in trade activity. The recently completed 2010 census provided preliminary results of household numbers that indicate the Pohnpei population (including outlying Islands) increased by 5,855 (Table 22).

[7] GDP Growth Rates - FSM Fiscal Year 2008, Economic Review released in August 2009.

The average growth was 1.89 percent which supports the consideration that FSM and Pohnpei migration to other countries by those of working age continues to be a trend.

Table 22 - Pohnpei population census results (2010 preliminary)

2000	2009	VAR	% increase	AV Var PA	AV % increase PA
34,486	40,341	5,855	17.0%	651	1.89%

When the final figures are released from the FSM Census 2010, it would make for conclusive findings which may indicate a significant decrease of the FSM population overall due to net migration having taken place. Age distribution in FSM and Pohnpei would provide an insight into the resident population make up and have an influence over disposable income per household.

7.4 Future Trade Scenarios

There are several underlying conditions that will influence the future trade activity in Pohnpei and core to this is the fisheries industrial developments. There are caveats on the likely growth including the sustainability of fish catch tonnages and the ability of Pohnpei to remain an attractive port for fishing fleets to be based and perform transshipment and transfer activity. As declared above the general cargo volumes will be influenced by population numbers and the disposable income per household which may reduce as working families depart for brighter prospects on foreign shores. Bulk liquid petroleum products may well remain static or reduce in volumes and if there is no activity by FSM Petroleum corporation to increase capacity to service the purse seine fleets then growth will be limited to domestic supply and long line fleets. Construction and infrastructure spending is an unknown quotient, but would have to proceed at some stage with perhaps intermittent programs of spending. Tourism is the last consideration and does present real opportunity for Pohnpei and in particular, in the cruise ship segment. There remains a reluctance to begin to engage on this front and for the sake of this exercise it would be safer to test scenarios on a longer term optimistic basis.

The following tables demonstrate an array of future scenarios:

Table 23 - Scenario vessel movements

YEAR	REALISTIC			OPTIMISTIC			VERY OPTIMISTIC		
	INTL CARGO	FUEL	INTL	INTL CARGO	FUEL	INTL	INTL CARGO	FUEL	INTL
	VESSELS	TANKERS	FISHING	VESSELS	TANKERS	FISHING	VESSELS	TANKERS	FISHING
2010	48	26	524	48	26	524	48	26	524
2015	48	22	550	50	25	580	60	35	650
2020	50	28	600	58	32	650	75	45	780
Intl fishing = total purse seine, longline and reefer fish carrier vessels									

Table 24 - Scenario freight movements

YEAR	REALISTIC			OPTIMISTIC			VERY OPTIMISTIC		
	TEU	TONNES	FISH	TEU	TONNES	FISH	TEU	TONNES	FISH
2010	1,982	68,962	214,432	1,982	68,962	214,432	1,982	68,962	214,432
2015	2,000	70,000	220,000	2400	83,000	240,000	2,600	88,000	260,000
2020	2,200	77,000	240,000	2600	90,000	270,000	3,200	108,000	300,000
tonnes = total TEU and breakbulk tonnage									
fish = total tonnes transshipped and transferred									

The ‘realistic’ growth levels shown above are based on: low population growth and net migration, limited growth activity in any commercial sector outside of fisheries, concern that fisheries are susceptible to immediate impacts of global financial slowdown cycles, and competition for fishing fleet bases from other Pacific States. The incremental increases may be considered conservative when compared to actual growth of imports by value over the last three years. The growth rates over the last three years have indicated an average of 22 percent increase by value and an average of 21 percent by declared weight (FSM Statistics Office, 2010). Therefore the relative assumed growth at below 2 percent should be considered a low case and as is the case with other countries’ comparative trade weighted growth indices and the relativity to real GDP growth must be considered. Another considered view for growth is declared in the tables above showing low at <2 percent, mid-case at <5 percent and high growth rate at <8 percent over selected years.

8 Options to Meet Future Demand with Current Facilities

8.1 General

Section 8 describes the range of future cargo and shipping demand scenarios, concluding that the prospects for significant growth in cargo volumes through the Port of Pohnpei in the foreseeable future are low. This is due primarily to growth in the State of Pohnpei's population showing no upward trend, with a possible downward trend as emigration from Pohnpei continues.

The current port facilities are essentially adequate to meet both present and likely future demands for cargo volume and ship numbers. Development options for meeting the future demand with the current facilities therefore primarily focus on improving the existing facilities to operate more efficiently, and implementing a comprehensive maintenance program to replace and repair existing infrastructure and facilities so they can continue to operate for the benefit of the port and its users.

8.2 Improving current port operations

The current port operations suffer from a lack of organisation, control and performance monitoring, resulting in a poor understanding of performance and hence potential opportunities for improving that operational performance. This applies both to the operational performance of PPA and their lessees. The options for improving performance need to focus on assessing the current performance and setting realistic benchmarks against which performance improvements can be measured.

8.2.1 Allocation of berth space

Harbor Control is responsible for allocating berths and/or anchorage space to all vessels arriving at the Port of Pohnpei. Berth allocation needs to take into consideration a range of factors which ensure the safe movement of vessels within port limits as well as ensuring adequate berth space and unhindered operation once berthed for each vessel. Some prioritization of berth space allocation is needed to ensure that higher-priority vessels are not queued waiting for a berth longer than necessary.

At present, berth allocation appears to operate on an *ad hoc* basis, with no forward planning for vessel arrivals. Some unsafe maneuvers have been observed, in particular the incidence of smaller vessels moving through the turning basin while a larger general cargo vessel is berthing or departing. There is also evidence that berth space is not prepared for a known ship arrival, and when the ship does arrive, other berthed vessels need to be moved so that the arriving ship can be adequately accommodated and safely berthed. These practices are disruptive, time-wasting and, in some cases, unsafe.

Harbor Control needs to establish a forward-planning roster or berth plan which will provide ship arrival and departure information which can be used to look ahead with allocating berth spaces before vessels arrive, so that better and more efficient use is made of each berth. This roster should also reduce the incidence of unsafe vessel movements within the port. The ship roster should be prepared at least one week in advance, and copies provided to all relevant stakeholders, including the ship's agent, the stevedore, the pilots, security division, and other relevant agencies, so that all parties are fully informed.

By forward planning and advising the stevedore, this enables the stevedore to prepare export containers in advance of the ship's arrival, ready for their loading, as well as

preparing yard space for receiving import containers and break-bulk cargoes. For example, shed space may need to be made available for an arriving cargo of cement or similar cargo needing under-cover storage space. This forewarning and planning also assists the shipping agent to advise customers in advance of an impending vessel visit. This assists the customer to prepare for prompt pick-up of cargoes when they arrive and have been cleared.

A suitable method of vessel movement planning will also include planning the demand for pilots for arriving and departing vessels.

8.2.2 Government clearances for arriving and departing vessels

All Government officers involved in conducting vessel clearances when a ship arrives or seek to depart from Pohnpei must berth at the main quay for these procedures to be completed. This applies to all vessels, including those intending to anchor at the port anchorage for the full duration of their stay in the Port. This procedure applies to ensure the safety of these Government inspectors. However, substantial time is wasted by reefer fishing vessels who could easily and safely be attended at the anchorage for these arrival/departure procedures.

Normal practice is for up to five Government personnel to be involved in these clearance inspections, including from customs, immigration, quarantine and port clearance. It may be possible to combine tasks and reduce the number of personnel attending the vessel to complete clearance procedures.

It may be necessary to review the capability of the present Government personnel conducting these inspections and clearances to ensure that only those physically capable of boarding a vessel while moored within the anchorage are engaged in this task.

8.2.3 Optimizing the main quay for all operations

The total length of the Main Quay from end to end is about 338 meters. This quay should be able to comfortably accommodate two vessels each of 130 meters LOA with ease. However, with each end of the quay occupied permanently by tenants, the available berth length is often less than 210 metres, sufficient space for only one vessel of 130 meters LOA.

If the northern end of the quay was opened up for general unencumbered operations, the available berth length could be increased to 280 meters, which would allow general cargo vessels to berth and depart in safer conditions than is presently available. Safe berthing and departure is particularly compromised by a substantial number of purse seine vessels (at the north end) and long line vessels (at the south end) rafting up, thereby hindering the berthing maneuver for general cargo vessels.

There is a real and high risk that a general cargo vessel will collide with a moored purse seine vessel or long line vessel during a berthing operation. Such a collision may result in sinking of one of these fishing vessels at the quay. The consequence of an event of this nature would be extreme for the operation of the main berth. The berth would need to be closed until the sunk vessel is cleared from the berth. A salvage operation may take some weeks or months to complete. No general cargo vessels could come to Pohnpei until the berth is clear. The impact this would have on the Pohnpei community would be extreme.

Options available to rectify this unsatisfactory arrangement include:

- Reducing the size of the CFC lease area by removing exclusive rights to the quay and a strip of at least 20 meters of quay apron behind the quay wall, and permit unlimited access to all vessels to this extended quay. Some compensatory area of

land may need to be provided to CFC, in the event that this company satisfactorily accepts the recommended modification and reconciliation of their outstanding departments to PPA; and

- Relocating all long line fishing vessels away from the south end of the main quay to the fishing wharf. The incentive to achieve this might be enhanced by connecting the bunker fuel line to the existing but unconnected bunker discharge points located on the fishing wharf.

The present poor control of the purse seine and long line vessels is considered to be a function of poor planning of berth allocations and vessel movements presently evident within Harbor Control.

8.2.4 Fuel tanker berthing procedure

IMO regulations require that all bulk liquid fuel tankers berth with their bow facing seawards (facing towards the harbor entrance). This allows a vessel faced with an emergency, such as a fire onboard or onshore, to depart the berth as quickly as possible without the need to maneuver by swinging the vessel before steaming out.

The liquid product tanker which delivers fuels (aviation, diesel and petroleum) to Pohnpei, the MV Golden Micronesia, is noted to always berth at the quay port-side, with the bow facing into the port. Although FSM is not a member of the IMO or a signatory to any of the body's maritime protocols, this procedure is in direct breach of this important regulation. The apparent reason this procedure is adopted is so that the unloading manifold of the vessel can be lined up with the discharge point located on the berth.

A detailed assessment of this berthing procedure is needed, to examine options for modifying the unloading arrangement so that a new berthing procedure can be developed and implemented to comply with IMO requirements and generally accepted safety protocols. An internal PPA review may identify the necessary modifications to remedy this situation.

8.3 Improving Current Cargo Operations

8.3.1 Cargo handling operation

The present stevedoring operation is run entirely by FSCo, who record a comprehensive set of information relating to the unloading/loading of each general cargo vessel while in port. The information collected and recorded includes:

- Vessel name;
- Voyage number;
- Date of arrival in and departure from port;
- Number of gangs attending the vessel while in port;
- Total time (hours) in port;
- Total work time;
- Total container moves;
- Total moves per hour;
- Show-up time (hours);
- Standby time (hours);
- Lashing/unlashing time (hours);
- Rain delay time (hours);
- Winch problem time (hours);
- Overtime (hours);

- Loose cargo (tonnes);
- Steel (tonnes);
- Loose cargo in bags (tonnes);
- Vehicles, RORO (no.);
- Discharged vehicles (tonnes);
- Hazardous cargo (tonnes);
- Heavy lift cargo (tonnes);
  - Containers: (20', discharged;20' loaded;40' discharged;40' loaded;20' empty;40' empty;20' shifted on board;40' SOB;20' SVS; and40' SVS)
- CFS delivery (tonnes).

These statistics have been provided to the Study Team for 2008 and 2009, and show that the stevedoring operation is reasonably efficient. This is expected, since general cargo vessels visit Pohnpei on a regular weekly schedule. In 2008, there were 39 general cargo vessel voyages while in 2009 there were 55 voyages. This means that the stevedoring operation is carried out at an effective, if not, expedient pace.

The statistics show that, on average over 2009, a total of 4,454 containers or 5,345 TEUs were loaded and unloaded from these 55 vessels; on average, 81 containers or 97 TEUs were loaded and unloaded per voyage. Since the average total time in port for these voyages was 27 hours, this equates to an average of 3 containers moved per hour. Even using ship's gear to load and unload the ship, this is a very slow rate of handling. Typical container-handling rates for small ports using ship's gear is at least 10 TEUs per hour.

However, there is no incentive to improve the rate of cargo transfer to/from a vessel, since there is no pressure to reduce the time in port for a vessel. Commonly, the primary reason for seeking to shorten the berthing time is to avoid vessel queue. However, the weekly schedule for general cargo vessels visiting Pohnpei does not generate a queue.

The PPA should be taking possession of the Stevedore's statistics and analysing the information for each voyage. This analysis can then be translated into more informed forward planning of berth allocations and vessel movements within the port. Harbor Control is presently charged with this forward planning task but is not adequately controlling berth allocations nor vessel movements. PPA can also make use of this information to better understand the productivity of the port and target their improvement strategy for the port with the objective of improving the port's productivity and operational efficiency. This provides sound justification for increasing tariffs to better reflect market demand. It may also be possible to reduce the time a general cargo vessel is in port, thereby reducing the shipping line's costs.

8.3.2 Terminal improvements

Container handling within the FSCo terminal utilises three forklift trucks, with one operating with a top-lift frame for handling 40 ft containers. Containers are generally stacked one-high, which optimizes the availability of any particular container for collection by a customer or delivery to the ship for loading. The total area of the terminal available for container stacking is about 12,850 m^2, of which about half is paved with sound bitumen and concrete pavement, and the other half is surfaced with coral gravel. The unpaved (coral surface) area is susceptible to constant damage from forklift traffic, which is further exacerbated by high rainfall. Containers stacked in the unpaved area are susceptible to collecting coral mud on the twistlock corners, which creates a quarantine issue for exported containers when delivered to their destination.

A substantial improvement in the handling and stacking of containers in the terminal yard will be achieved if the unsealed area is paved with a bituminous seal pavement.

Based on a total operating area of 12,850 m^2, the storage capacity of the terminal yard is about 400 containers stacked two-high, or 200 stacked one-high. The capacity of the yard is easily increased by stacking all containers two- or even three-high. While this is not an appropriate practice in the unsealed area, it would be desirable in the paved area and across the entire terminal if the unpaved area is sealed.

Increasing the container capacity of the yard provides improved capability to pre-plan container stacking for vessel visits, where export containers can be set aside in a designated area and stacked in a way which facilitates efficient transfer to the vessel in the correct order of loading. This reduces the number of container movements needed while the vessel is in port and will therefore lead to reducing the time in port for a vessel. This should lead to reduced costs per container.

8.4 Upgrading Existing Infrastructure

8.4.1 Port support vessels

The Port is involved in a number of activities requiring the services of a sound work vessel or special-purpose vessel. These activities include:

- Pilot transfer to and from arriving/departing ships;
- Line handling; and
- Security surveillance of the anchorage and general port waters.

In addition, the Port could provide tug assistance to vessels when turning within the swing basin, if a suitable tug was available. Furthermore, line boat services are presently provided by the shipping agent, and could be transferred to PPA if a suitable boat was available.

The present operations involving work boats are being conducted with small fiberglass outboard-powered coastal boats (“banana” boats), which are not suitable for open water operation, nor for heavy work activities. They are suitable for line handling, but this operation has apparently been handed over to the shipping agent.

The Safety and Security Division Manager has reported that patrolling the anchorage area to ensure that security and compliance with refuse disposal regulations is maintained is virtually impossible. The security surveillance task will be facilitated if regular security patrols can be implemented with the aid of adequate boat support. A surveillance boat does not need to be large or sophisticated. A small reliable launch equipped with mandatory safety equipment, security equipment and communications will be adequate for patrolling the anchorage both day and night. The presence of regular boat patrols will act as a deterrent for illegal activity and incidents of non compliance with environmental regulations. Since other Pohnpei State and National agencies (Customs, Immigration, EPA/quarantine), are involved in security and monitoring matters these surveillance patrols could be an activity shared between these agencies as a joint cost task. The pilot launch could be utilized for such surveillance activity when not required by the pilot.

The PPA marine pilots need a replacement pilot boat to avoid using a “banana” boat (open fiberglass skiff with outboard motor) for transit to/from the pilot station located on the outside of the outer reef entrance. Standard safety equipment and other equipment such as navigation lights, life preservers, fire extinguisher, boat fenders, flares, back-up fuel tank,

back-up outboard motor and communications will need to be included with the pilot boat package.

Improved efficiency within the port will be achieved if a number of suitable vessels together with coxswains and boat crews were available for the various boat-dependent operations. Operating rules and procedures will need to be prepared and disseminated to all port personnel to define operating procedures, including banning unauthorised use of port vessels (e.g. for personal use), the provision of comprehensive and properly maintained safety equipment for each boat, routine maintenance and safe operation. As well, a set of charges for the services provided by these boats will be needed.

A small second-hand tug with a bollard pull of 10 tonne (TBP) capacity is estimated to cost $250,000 to purchase and deliver to Pohnpei. PPA will need to provide support for a vessel of this nature, by way of engine and winch servicing, holding of spare parts and regular general preventative maintenance, as well as a part-time operator (coxswain) and maintenance personnel. An alternative arrangement which offers reliability of operation would be to engage the services of a commercial charter company that supplies work boats and tugs with crews and maintenance engineers. A number of such firms based in Singapore offer this type of contract service. A suitable tug can be obtained by engaging a marine broker to source a suitable workboat/harbor tug and compare costs against that of a contract service supplier to operate and maintain such a vessel.

A suitable vessel can be obtained by:

- inspecting similar workboats and pilot cutters deployed in Fiji, FSM and Guam and engaging a marine broker to locate a suitable pilot/work boat(s) for operation in Pohnpei.
- reviewing the deployment of security and safety staff and harbor control staff and plan to allocate a number of trained personnel for both pilot boat and work boat patrol duties;
- engaging with FSM statutory authorities in order to seek agreement for contracting PPA work boats to carry out duties as required by FSM Government authorities.

8.4.2 Main quay fenders and bollards

The primary purpose of the main quay wall is to provide a safe and secure berth for all visiting vessels. This includes suitable fendering for all expected vessel sizes to guard against damage to the vessel and the quay structure. In addition, adequate capacity for securing mooring lines to the quay is essential to safely moor the vessel.

Observation shows that many of the rubber fenders installed along the main quay wall concrete face beam are badly damaged and no longer provide adequate fendering coverage along the quay face. This increases the risk of damage during berthing to both the vessel and the quay wall structure. To reduce the risk to vessels and the quay wall structure, the fenders should be replaced with new fenders of an appropriate size. It may be necessary to increase the size of these fenders to improve their energy-absorbing capacity.

Observation also shows that the mooring bollards mounted along the quay face are in very poor condition due to excessive corrosion. Replacing these bollards with new bollards will ensure that vessels are safely and securely moored while in port. For the general cargo vessels presently visiting Pohnpei Port, the bollards should have a capacity of at least 30 tons, although 50 ton bollards would be preferable for accommodating larger vessels which may visit Pohnpei Port in the future.

8.4.3 South end berth fendering

The southern return of the main quay provides a useful additional quay length of 55 m. Depth at this berth is understood to be limited to about 5 m, so this berth would be very useful for accommodating a number of long line fishing vessels. These fishing boats are typically 25 to 30 m long so this berth could accommodate at least two vessels, and considerably more when rafted up. Berthing these fishing vessels at this berth relocates them away from the south end of the main quay, which will significantly improve the accessibility of the main quay berths for general cargo vessels.

This southern berth face does not have any fenders fitted to the quay face. Occasionally, when the port is very congested with large numbers of long line and purse seine vessels in port, this berth is used with old truck tyres used for fendering. This is unsatisfactory and does not encourage fishing vessels to utilise this berth in preference to the main quay berths. It is essential that new fenders be fitted to this southern quay wall so that Harbor Control can use this berth for long line fishing vessels in preference to the southern end of the main quay.

8.4.4 Fire service

The safety of the terminal and vessels berthed at the quay is primarily determined by the facilities available for preventing or combating hazardous situations. One important hazardous situation which needs a rapid response with appropriate facilities is fire. While a vessel berthed at the quay will be able to provide some capability to fight an on-board fire, a fire-fighting capability from on land is essential for both assisting fighting a fire on-board a vessel and for fighting a land-based fire within the terminal.

A general cargo terminal is normally provided with a fire ring main which is located underground around the perimeter of the terminal. By adopting a ring main approach, redundancy is automatically available in the event that the main is damaged in any way, e.g. accidental breach by excavation. Fire hydrants are provided at designated spacing along the fire main to ensure that full coverage of the entire terminal is achieved.

The Pohnpei fire authority (Pohnpei Utilities Corporation) should be consulted at the outset when planning and designing a fire main and hydrant arrangement for the terminal.

8.4.5 Terminal lighting

The operation of a general cargo terminal with most cargo handled as containers is commonly operated 24 hours per day, with three shifts covering the 24 hour operation. Records for 2008 and 2009 from the stevedore giving cargo-handling statistics show that only two shifts are typically worked for each vessel visit, with an average of 13 hours worked to unload and load each vessel. These records show that the average stay in port for these vessels was 27 hours. It is apparent from these records that stevedoring activities do not extend to night-time operation.

So that the terminal can be operated at night, which will require three shifts to work a vessel, the entire terminal area needs to have sufficient lighting for safe operation. At present, the quay area has light poles which provide adequate lighting for the vessel unloading operation, but no lighting exists around the general container stack areas. Suitable light poles with high-intensity light fittings located strategically around the terminal stack areas will allow for safe forklift operation. Around-the-clock operation of the cargo terminal will improve the efficiency of the port and shorten the time a vessel needs to stay in port.

8.4.6 Port hydrographic survey

Safe navigability of the Port's approach channel, turning basin and anchorage relies on accurate hydrographic information to be available, which identifies any hazards to navigation in or near the channels and in the anchorage. While the local knowledge of the pilots is invaluable in assisting ship's masters to identify the hazards, an accurate hydrographic survey of all port waters will enhance this knowledge significantly.

The only comprehensive hydrographic survey information available for the Port of Pohnpei is the US Navy marine chart 81453, POHNPEI HARBOR, 7th ed issued on November 8, 2008. An old survey completed in 1994 has also been located; however, the datum for this survey is not stated on the survey sheets and is therefore unlikely to be useful. Since this survey is now 16 years old it is likely to contain inaccuracies due to movement of silt and various private dredging activities around the harbor and outside harbor limits.

To assist with planning any improvements to the navigability of the approach channel or obstructions in the anchorage, PPA needs to obtain more detailed hydrographic information for the entire port and harbor. In particular the scoping and design of any dredging works proposed for the port, either to remedy short term problems or as part of longer term port expansion, will receive considerable benefit from having a detailed and comprehensive hydrographic survey in place.

A note on the marine chart states:

> *Much of the hydrography on this chart is based on surveys using Laser Image Detection and Ranging, or LIDAR. The ability of LIDAR to detect depths and hazards is limited by water conditions, such as water clarity, depth and the state of the sea surface. Therefore, certain LIDAR-surveyed areas are not thoroughly examined, particularly in areas with depths greater than 20 meters. In such areas, additional sources may have been used.*

In a separate note on the chart pertaining to source data, the main area of the harbor inside the outer reef is shown to be based on LIDAR, referenced as US Navy LIDAR Survey, Archive No. 04HFM01 (2006). This LIDAR data will be reliable and accurate at least to a depth of 20 meters.

It is recommended that:

- PPA approach the US Navy and request this LIDAR hydrographic information for the entire area of coverage across Pohnpei; and
- Once the LIDAR information is received, a detailed assessment will identify any areas which have not been adequately covered. Further hydrographic survey should then be commissioned to complete the survey coverage.

8.5 Cost Estimates (Capital and Recurrent)

A range of improvements and capital development items have been recommended for implementation at the Port of Pohnpei. Table 25 summarises the estimated capital and recurring costs for implementing and operating these developments.

Table 25 - Capital and annual recurrent costs of Port improvements

Improvement	Capital cost, $'000	Annual recurrent cost, $'000
Construct new bitumen pavement to unpaved terminal area	200	2
Procure port support vessels (tug, pilot launch, workboat)	330	20
Main quay fender and bollard replacement	500	0
Fire ring main and hydrants	300	02
Terminal lighting	100	5
Connect fishing wharf bunker lines to existing pits	100	2

9 Need and Options for New Port Infrastructure

9.1 Need for New Infrastructure and Facilities

Forecast trade growth for the Port of Pohnpei, as described in Section 7, will be flat or possibly negative for the foreseeable future. This strongly indicates that cargo volumes and the number of ships visiting Pohnpei will not increase, and any demand for expanding the port's facilities will not eventuate.

Previous studies and strategy plans have suggested that expansion of the port's facilities is needed, but these studies and plans have contained flaws in their methodology for making predictions for future trade growth and the consequent demand for expanding the port's infrastructure.

Any new port infrastructure can only be justified in terms of improving the efficiency of the port's operations and improvements in safety, ease of operation, improved reporting and general management of the port.

9.2 The Port's Existing Capacity

Based on the present available berth facilities, a simple estimate of the Port's current capacity to handle ships and cargo can be made by considering the present number of ship visits and the time for turn-around of a general cargo vessel. As previously noted, the annual number of vessel visits, including general cargo/container vessels, fuel tankers and other vessels which occupy the main berth presently totals around 100 vessels (refer Table 1). Each vessel remains at berth on average for 36 hours.

The Port typically operates over a six-day week, and operations do not generally take place at night. Using a 36-hour turn-around time for each vessel, the maximum number of vessels which could be accommodated per week at the berth is four vessels. This equates to about 200 vessels per year. On this basis, it can be considered that the Main Berth is being used at 50 per cent of its potential capacity.

The Port's potential capacity of 200 vessels per year can only be further improved by operating the Port on a three-shift 24 hour basis, to reduce the time at berth per vessel, which at present vessel visit statistics does not appear to be justified.

9.3 Options for New Infrastructure and Facilities

9.3.1 Navigation dredging

The current marine chart 81453 has been used to assess the available channel width, depth and alignment between the channel entrance and the harbor turning basin in front of the main wharf. The channel at its narrowest point, is approximately 100 m wide, where it passes through the outer reef. Vessels passing through this entrance generally keep well to the western side of the entrance to avoid the shallow (-8.9 m) reef encroaching across part of the entrance from the east side. Between the outer reef and the main berth, the channel widens substantially, generally being no narrower than about 200 m. The first bend in the channel, just inside the entrance, has a channel centerline radius of about 600 m, while the second bend about half way along the channel has a centerline radius of about 1,000 m. The width of the channel around these two bends is never less than about 200 m. At the approach to the main quay the channel narrows to about 175 m wide. The turning basin has

a diameter of about 350 m. For the entire length of the channel, the available depth always exceeds 16 m.

A preliminary analysis of the minimum channel requirements for the Pohnpei approach channel has been undertaken, using PIANC guidelines[8]. This analysis shows that, for two vessels of Design Vessel size passing in this channel at the designated vessel speed limit of 8 knots, the minimum required width for a straight channel is 150 m. For a one-way entrance channel, the width can be reduced to 86 m. If the two bends in the channel are retained (i.e. the existing channel alignment is substantially retained as now), the minimum channel width on these bends will need to be 230 m, at a minimum radius of 550 m. The minimum design depth for the channel for the Design Vessel is 9.6 m below MSL.

This analysis indicates that the existing channel is adequate in depth, width and bend radius for its entire length for two-way traffic, except for a couple of locations where the channel width on the bend is less than adequate by about 40 m. In addition, the entrance through the outer reef is only wide enough for one-way transit. However, noting that the analysis assumes a two-way channel for its full length, the volume of ship traffic is very low and the likelihood of two vessels of Design Vessel size using the channel at the same time is remote.

The channel should be retained on its current general alignment and relatively minor improvements made to remove some existing hazards to navigation. Any re-alignment of the channel is not recommended because:

- The high capital cost of dredging to realign the channel cannot be justified for the limited benefits gained;
- The environmental damage which will be caused by removing a substantial area of inner coral reef to construct the new channel would be irreversible and have a very high adverse impact;
- Disposal of the dredged spoil will also create adverse environmental impacts; and
- A preliminary analysis based on international guidelines shows that navigational requirements for vessels of design size, operating under pilot control, are adequately provided by the existing channel, if minor improvements to remove isolated hazards to navigation, such as coral islets and shallow outcrops, are made.

9.3.2 Anchorage dredging

Within the boundaries of the anchorage, coral outcrops and high spots are a hazard to navigation and ships moored in the anchorage. Some of these outcrops can be seen in aerial photos of the anchorage and some are shown on the marine chart. Some are marked with rudimentary white poles, but a number of shallow areas are not marked. The pilots rely on local knowledge to avoid them.

The useful anchorage area can be substantially enlarged by removing some of these outcrops and high spots. A dredging campaign which utilizes a local dredging contractor will be effective in achieving significant benefits, including:

- Reduced risk of vessels running aground on shallow outcrops within the anchorage; and

[8] Approach Channels – Preliminary Guidelines, PIANC-IAPH, PTC II-30, April 1995.

- Significant increase in the capacity of the anchorage, estimated to be from 18 to about 30 reefer fishing vessels and associated purse seine vessels, and the attendant increase in fee revenue.

9.3.3 New berth for purse seine vessels

The current lease arrangement with CFC at the north end of the main quay and adjoining land-backed area has removed about 60 meters of quay owing to this area being fenced off for exclusive use by CFC. It would be appropriate to rearrange the area provided to CFC within the terms of their lease, to provide an equal area further to the north beyond the northern end of the quay wall. A suitable arrangement involves an equal area (4,769 m^2) and a new length of quay wall for berthing purse seine vessels engaged in maintenance and provisioning activities. A berth of 100 meters length would be more than adequate for this purpose, and a 70 meter berth is likely to be adequate, if a mooring bollard is also provided on land beyond the northern end of the new berth.

Some dredging will be required to provide navigable depth of about 7.5 meters at the berth. The berth structure can be constructed as a steel sheetpile wall and concrete capping beam, similar to the main quay structure, and the dredged material used to fill behind the quay wall. Fenders and bollards will furnish the berth. Fuelling and water points will be needed to service the purse seine vessels. A new access road will be needed to the new lease area. The lessee would be responsible for providing any other infrastructure (fences, buildings, offices, etc) on the lease site.

9.3.4 New berth for long line vessels, south end

At certain times during the fishing season, the demand for berth space within the port out-strips the availability of suitable berth spaces. This is particularly the case with purse seine and long line vessels. A viable solution for providing additional berth space for purse seine vessels has been discussed above. Moving long line vessels to the fishing berth at the south end of the port will also contribute to freeing up berth space along the main quay, needed for essential vessel visits from general cargo vessels.

Construction of a new 55 meter dock to provide extra berth space for long line fisheries operations at the southern end of the main wharf between the small boat ramp and the existing south facing fishing berth will allow extra berth space for long line vessels adjacent to the ice making plant. Long liner vessels require loading of up to 10 tons of ice prior to departure for fishing and currently congregate at the south end of the main quay creating substantial congestion.

The unimproved area between the south end of the main quay and the boat ramp is an unproductive part of the port. Development of this space with an additional berth suitable for long line vessels will increase the capacity of the port and vacate the south end of the main quay for general cargo vessel berthing.

9.3.5 Navigation aids

The approach channel which traverses from the entrance in the outer reef to the port's turning basin is approximately 4.3 km long and includes two curved sections. The channel is marked with lateral marks and the entrance alignment is marked by three lead/range markers which are difficult to identify, particularly in conditions of poor visibility and/or heavy rain. The marks are more visible at night as all the lateral marks and the lead marks are lit.

All vessels above a specified size require compulsory pilotage, except pure seine vessels which have pilot exemption. The local knowledge of the four pilots is some value for bringing vessels safely along the approach channel. However, navigation aids provide essential information for defining the limits of the channel and must be provided to acceptable standards. Regular maintenance of all navigation aids must be undertaken to ensure that: the navigation lights are operating correctly and in accordance with the information shown on the marine chart, and that all marks are visible and identifiable.

The three lead marks shown on the marine chart are inadequate for clearly defining the lead line for entering the port through the entrance channel in the outer reef. These range markers are very difficult to locate due to their small size and poor color contrast to the surrounding landscape. In conditions where visibility is restricted due to sun glare or heavy rain, a common occurrence in Pohnpei, the marks are barely visible at close range.

These marks need to be painted a higher-contrast color (red/white stripes) to improve their visibility. The mark at the entrance should be fitted with a larger red can, to comply with the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA-AISM) standards. All other navigation aids and marks should be re-painted red or green. All maintenance of navigational aids should be undertaken in accordance with IALA-AISM Guideline No. 1077, Maintenance of Aids to Navigation, Ed 1, Dec 2009.

A number of coral heads and high spots remain unmarked along the main approach channel and inside the anchorage. Until these areas can be removed by dredging, they should all be marked with white-painted spars embedded in the seabed. These need to be installed as permanent (vandal-proof) markers or navigation aids on all coral islets within the boundary of the anchorage and the approach channel.

A longer term improvement to navigation aids must include a full technical review of the range marks, with a view to replacing these with modern lead lines, designed and installed in accordance with IALA-AISM Guidelines for the Design of Lead Lines, Publication No. 1023, Dec 2001.

9.4 Cost Estimates (Capital and O&M) for Each Option

A range of improvements and capital development items have been recommended for implementation at the Port of Pohnpei. Table 26 summarizes the estimated capital and recurring costs for implementing and operating these developments.

Table 26 – Capital and annual recurrent costs for new port infrastructure and facilities

Improvement	Capital cost, $'000	Annual recurrent cost, $'000
Navigation dredging (approach channel & turning basin)	300	0
Anchorage dredging	750	0
New berth for Purse Seine vessels	2,500	0
New berth for long line vessels	2,000	0
Navigation aids	200	5

9.5 Land Tenure

The consideration of new construction activity relating to land tenure is directly centered on the control and application of the TZ by the PPA as defined in the PPA Act of 1991. The zoning map attached in Appendix 20 declares the boundaries of the TZ operation on Dekehtik Island. The Act states that “any and all activities should be complementary to the promotion and development of the sea and air transportation including areas for air and sea terminals.” Thereby, the application of infrastructure developments declared above in Section 9 of this report is considered to be secure.

There are residual concerns on land tenure given the evidence that various segments of land within the TZ area have been removed from the jurisdiction of the PPA and thus fall outside of the PPA Act of 1991 and reside with other State Government authorities including the Department of Resources Management and Development. Any infrastructure developments should be underwritten by the State Government to the effect that sea port facilities cannot be annexed by other state enterprises unless the PPA Act of 1991 is dissolved and replaced by another agreement, thus requiring a legislative enactment.

9.6 Benefits Derived from Investment in New Infrastructure

A range of options have been developed for improving the operation and infrastructure of the Port. These options have been identified through their potential to improve the overall operation of the Port, and provision of facilities which an efficient port of this size needs for normal operations. There are strong elements of enhanced safety and security of personnel working in the Port, as well as basic facilities normally required to provide adequate facilities for berthing vessels and handling cargo.

Other than the anchorage dredging proposal, no other improvements to the operation on infrastructure of the Port is likely to generate additional revenue for the Port. None of the improvements will have any effect in attracting new business to the Port and hence no consideration has been given to determining benefit value for a conventional cost-benefit assessment.

In regard to the anchorage dredging, it has been estimated that the proposed dredging will increase the capacity of the anchorage from about 18 reefer fishing vessels to 30 vessels. This will attract additional annual revenue of about $200,000.

10 Preliminary Cost Benefit Analyses

10.1 General

The following section is preliminary and prepared from the initial scoping study data and covers the recommended short term improvement plans which include estimated capital expenditure of civil works and improvements totaling $7.68 million.

In attempting to construct a standard Internal Rate of Return (IRR) and Net Present Value (NPV) associated with the Pohnpei seaport improvement program it became clear that at this preliminary stage this was not conclusive and may not provide an accurate representation of the current and future forecast of Pohnpei port financial status. This conclusion is based mainly upon the difficulty of identifying and quantifying financial benefits associated with the project stages and contingent and ongoing liabilities associated with doubtful debts and forecast reductions in income from land leases.

Against this background it was concluded that to represent a FIRR for the port improvements recommended in this report would misrepresent any 'Cost Benefit' conditions. The main issues are:

- Capex spend of $7.68 million will not produce greater revenue or cashflow;
- Capex spend of $7.68 million is regarded as 'Protecting Current Income and Cashflow'; and
- Incremental benefits from Capex spend are:
    - Safety through unconstraining existing facilities/overcoming congestion;
    - Promoting better work practices; and
    - More favourable conditions for attracting (longer term) new trade and market activity (cruise liners, tourism supply and fishing support industry).

Further financial rigor will be necessary when and if decisions are made towards progressing any of the recommended improvement strategies and expenditures made in this report. Such further review should take place after the PPA has accepted and committed to selected short term improvements and taken remedial steps to engage in the necessary financial standards recommended, including debt recovery and land rentals.

10.2 Preliminary Financial Cost Benefit Analysis

It is difficult to calculate the net cost savings and additional revenues associated with the staged infrastructure developments. The primary benefits of the recommended project investments are derived from creating more efficient and safer port operations that would also serve to protect existing revenue derived from vessel and cargo throughput. The investment cost cannot be judged on traditional application of investment return and payback periods or discount rates.

There are limiting conditions influencing the expansion of trade activity through the port of Pohnpei. The population numbers addressed elsewhere in this report cast doubt over the rate of growth due to increasing net migration of working-age adults and families as the US compact funds approach a closing phase in 2023. Industrial and commercial development is not evident in any sector apart from fisheries and this remains ongoing, subject to stability of fish stocks and the foreign fishing license scheme providing equitable conditions for entry.

Domestic consumption in Pohnpei and future demand is considered to present static conditions with low growth and varying demand based around fisheries.

The following keys points should be noted when considering the financial conditions:

- Borrowings of $7.68 million for total project implementation (may vary);
- Additional costs of $107,000 in interest payments per annum;
- Depreciation of $915,000 per annum over 10 years (estimated);
- Ongoing assumptions of bottom line 'writes offs' of bad debts of $130,000 per annum;
- Ongoing reductions in rental income from TZ land leases;
- Revenue for seaport increased by assumed tariff incremental increases, not volume; and
- Operating cash flow of approximately $550,000 per annum (Table 27).

Table 27 - Preliminary cash flow indicative values for improvements

	2012	2013	2014	2015	2016	2017
Net profit after allow doubt debts	-$372,638	-$368,140	-$378,464	-$366,889	-$367,500	-$368,025
Add back Depreciation	$915,892	$915,892	$915,892	$915,892	$915,892	$915,892
Less working capital	$215,102	-$5,612	-$4,541	-$6,357	-$5,455	-$5,578
Operating cash flow	$758,356	$542,140	$532,887	$542,646	$542,937	$542,289
	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Net profit after allow doubt debts	-$368,461	-$368,803	-$369,048	-$369,190	-$369,226	-$369,150
Add back Depreciation	$915,892	$915,892	$250,000	$250,000	$250,000	$250,000
Less working capital	-$5,703	-$5,832	-$5,963	-$6,097	-$6,234	-$6,374
Operating cash flow	$541,728	$541,257	-$125,010	-$125,287	-$125,460	-$125,524

The financial model shown in Appendixes 24-26 has been constructed using assumptions of capital cost and incremental revenue adjustments from seaport tariff increases.

The preliminary financial model covers a 13-year period with the initial first two years focusing on civil and wharf constructions and the ordering of hydrographic survey and supporting port equipment. The major assumptions used to develop the model are:

- The civil works are depreciated over 10 years and the transport equipment over 5 years; and
- A total capital expenditure of $7.68 million consisting of civil works and infrastructure and other items is listed in Table 28.

Table 28 – Pohnpei Port Capital expenditure

PPA Improvement Plans	Development Stage	Capital Cost (US$'000)
Short Term Operational Improvements	**1a**	Internal Costs
Short Term Infrastructure Improvements	**1b**	
Hydrographical Survey		$100
Approach Channel Dredging		$250
Minor improvements (fishing wharf bunker, terminal lighting, quay wall condition survey, replace wharf fenders and bollards)		$700
Fire ring main and hydrants		$300
Terminal paving in container storage areas		$200
Work/push boat		$250
Pilot launch		$80
Navigational aids including new lead line markers		$200
Governance Improvements, Financial Performance and Practices	**2**	$300
Long Term Infrastructure Improvements	**3**	
New berth for purse seine vessels (north end)		$2,500
New berth for long line vessels (south end)		$2,000
Anchorage dredging		$750
Turning basin dredging		$50
Ongoing Improvement Plan	**4**	
Maintenance of improvements implemented during Development Stage 1		$100+ (dependent upon the scale of improvements undertaken)
Long -term monitoring and consolidation of govenance and financial control improvements implemented during Development Stage 2		
Bi-annual reviews of Port Development Strategy		

10.3 Major Volume and Operating Assumptions

The plan described in the Short Term Improvement Strategy is designed to create a safe and operationally secure environment for vessel and cargo operations. The migratory movements of fish stocks and competition from other central Pacific ports coupled with an uncertainty over future population growth patterns with migration playing an increasingly significant role in the workforce dissipation to US and other locations, create the scene for a highly conservative estimation at static growth for this model. The focus of the short term developments is to protect the current position.

This is further set against the background of limited opportunities or apparent willingness to domestic or foreign investment for industrial or tourism capacity to enter as economic drivers to stimulate volume freight throughput. The involvement of the Micronesian Shipping Commission (MSC) as a regulator may also create contraction in freight volumes as the few licensed shipping lines (granted entry permits) may well continue to add surcharges and general freight increases due to their monopoly positions and the inattention to freight activity by the MSC.

The primary driver is the transshipment movement of fish at anchorage which in this model is set to continue at 250,000 tonnes per annum.

Revenue projections: The average revenue projections for freight tonnage are based on the current total revenue divided by the total tonnage handled. The total revenue consists of container and non-container revenue. The average revenue per revenue tonne is assumed to grow by 2.0% pa. There is assumed a period of higher incremental increases in certain revenue items which acts as a catch up mechanism in attempts to move tariff rates for port services towards more realistic market rates.

It may be more accurate to introduce separate line items for container revenue and break-bulk revenue in the future when more exact historic numbers are available to allow such forecasting to present.

Operating costs: The strategy - assumed inflation of 3% per annum in line with forecast indicators and the assumed introduction of a Goods and Services Tax in FSM. Fuel is assumed to rise by 5% on the assumption that the single provider and single supplier condition and low tank capacity create a rising delivered cost per tonne. Other costs are projected to escalate by inflation. Some variable costs will also escalate by the growth in volume handled. Operating labour costs consist of between 74 and 80 permanent staff.

10.4 Economic Analysis

The Short Term Improvement Strategy cannot, with any degree of accuracy, at this point, be tested conclusively due the limited number of valid observations that can contribute to this type of analysis.

It is safer to consider that short term improvements will transform Pohnpei seaport from an operationally fragmented and constrained facility with moderate financial and economic value at present into a more robust facility capable of safely accommodating the largest class of operating vessels in the central pacific islands trades.

This will protect the current trade flows and revenues and add value to the Pohnpei collective port profile and provide improved capability through the potential to capitalize on the physical facility to deliver assumed gains in efficiency and assumed gains in productivity when handling international cargo and fishing vessels and their exchange of imports, transshipments and exports at Pohnpei seaport.

Failure to implement seaport management controls and performance benchmarking, as described in the improvement strategy, will have a negative impact on facility improvements as well as constrain the economic growth potential and competitive position of Pohnpei. It is noted that FSM has existing data residing in the public domain that displays cost and performance comparisons against its Pacific Island neighbors. These attributes build an existing reputation throughout the shipping line and freight forwarding industry for being a high cost and underperforming destination in which to conduct business. Such reputation will

take a number of years to dissolve against recognized improvements when and if they become consistently evident.

10.5 Risks and Assumptions

The risks likely to emerge relate to institutional behavior and the lack of deliberate measures to arrest the evident causes of lost revenue and increases in quantum and period of doubtful debts that incur write-off of income. There are perceptions about the PPA that indicate weak contract enforcement and inequity associated with operating shipping agencies that represent ship owners and their activities in Pohnpei. It may well be in the interest of the improvement strategy to consider introducing stakeholder dialogue to display a level of transparency into any staged development process and the economic and safety benefits that will be delivered from successful completion of the project.

Pohnpei may well be presented with two working waterfront facilities, one for fishing vessels and one for cargo and tanker vessels which theoretically overcomes the issue of berth congestion. Coupled with the infrastructure develop is the associated need to improve cargo handling productivity (vessel and on-shore). Without both delivering such gain the high cost of freight handling will still be a unique feature of Pohnpei and shipping lines will retain the higher cost freight and surcharges associated with servicing the State.

Note: The MSC acts singularly to regulate the number of shipping lines operating in FSM ports. Presently this provides for only two direct calling shipping operators that control pricing over direct connecting ports and transshipment connecting carriers using their vessels. The MSC activities may act to negate any efficiency gains and cost savings in freight charges as they do not actively engage in shipping line tariff review. and as a consequence the MSC restricts free market competition and prevailing equitable freight charges that could be delivered under such conditions.

It may be considered that the limited volumes of current and forecast freight volumes can tacitly support the existence of the MSC regulatory regime, but the MSC actively restricts those that could supply shipping services on an irregular or tramper basis to add to the diversity of lines calling at Pohnpei.

In consideration of the key economic drivers for Pohnpei, it is considered that externalities contribute large scale risks to the improvement projects and continued revenue drivers. When understanding the nature of the economy the base is extremely narrow and to a degree fragile, depending upon external factors to provide favourable outcomes. With its small export base, outside of fisheries transshipments, Pohnpei has run a consistent trade deficit throughout its history, which has been financed in recent years through inflows of US Compact funds and official development assistance.

Other risks that should be considered are:

- Foreign currency exchange rates: particularly Yen and Asian currencies against US$;
- Net migration of skilled workers from Pohnpei to Guam, USA and other favored job and wealth opportunity-providing countries;
- Changes suggested to the FSM EEZ fishing license scheme including limiting to single country status and increasing license fees;
- Continued rising ocean freight rates for delivered products to FSM, possible under the protected MSC entry permit arrangements for shipping lines;

- Imported diesel fuel: single supplier with small capacity tank farm reliant on a single source contract without any other regional base of revenue;
- Shock from a Global Financial Crisis that immediately impacts demand for fresh high value fish and collapse of sashimi world markets, as seen in 2008;
- Potential for rising public sector employment and associated wages could deplete the required skills desired for private sector expansion; and
- Lack of investment and low take-up of internal interest within FSM and State governments to invest in tourism. The tourism sector is being developed in other Pacific states (RMI, Palau, Guam, Hawaii, Fiji & French Polynesia) to secure greater market share of the tourist market.

11 Environmental and Social Issues

11.1 Environmental Impacts

The FSM's Environmental Protection Agency (EPA) is involved in a range of activities in the port including:

- Clearing vessels on arrival for quarantine and health;
- Monthly monitoring of the environmental performance of the seaport area;
- Issuing permits for dredging and other construction activities; and
- Providing first-response to oil spills and leaks (Marine Spill Contingency Plan).

The EPA has indicated that the general performance of the port from an environmental perspective has been satisfactory in the past. There have been no reports of oil spill incidents requiring deployment of the oil spill response kit.

The port is well situated and located such that any impacts on the natural environment are minimal and are likely to stem more from operations than from infrastructure development. No coral reefs exist close to the port. Any dredging of coral high spots as suggested will only have very localised impact and be very minor in relation to the size and extent of the outer fringe coral reef.

The IMO provides policy and procedures for a range of environmental issues within the maritime industry and shipping in particular. Guidelines and procedures have been prepared for matters which are directly relevant to the Port of Pohnpei, including:

- Oil spills;
- Management of ballast water; and
- Disposal of waste.

Although FSM is not a signatory to the IMO, these guidelines and procedures will assist PPA to adhere to sound environmental practices.

11.2 Climate Change Impacts

11.2.1 Background

The Inter-governmental Panel on Climate Change (IPCC), in their most recent Technical Summary (IPCC, 2007), states:

> *"Throughout the 20th century, the global rise of sea level contributed to increased coastal inundation, erosion and ecosystem losses, but the precise role of sea-level rise is difficult to determine due to considerable regional and local variation due to other factors."*

and

> *"Anticipated climate-related changes include: an accelerated rise in sea level of 0.2 to 0.6 m or more by 2100; further rise in sea surface temperatures of 1 to 3°C; more intense tropical and extra-tropical cyclones; generally larger extreme wave and storm surges; altered precipitation/runoff; and ocean acidification. These phenomena will vary considerably at regional and local scales, but the impacts are virtually certain to be overwhelmingly negative. Sea-level rise has substantial inertia and will continue beyond 2100 for many centuries."*

and

> *"Climate change is likely to heavily impact on coral reefs, fisheries and other marine-based resources (high confidence). Fisheries make an important contribution to the GDP of many island states. Changes in the occurrence and intensity of El Niño- Southern Oscillation (ENSO) events are likely to have severe impacts on commercial and artisanal fisheries*."

The IPCC has not been able to provide accurate predictions of sea level rise for specific regions around the globe. They state:

> *"Sea-level changes are of special significance, not only for the low-lying atoll islands but for many high islands where settlements, infrastructure and facilities are concentrated in the coastal zone. Projected globally averaged sea-level rise at the end of the 21st century (2090 to 2099), relative to 1980 to 1999 for the six SRES scenarios, ranges from 0.19 to 0.58 m... Climate models also indicate a geographical variation of sea-level rise due to non-uniform distribution of temperature and salinity and changes in ocean circulation. Furthermore, regional variations and local differences depend on several factors, including non-climate related factors such as island tectonic setting and postglacial isostatic adjustment."*

11.2.2 Sea level rise

Based on IPCC predictions, a reasonable estimate of sea level rise over the next 90 years (i.e. to 2100) at Pohnpei is 0.5 m. The existing quay structure has been constructed in 1972 with a deck level varying from +10.0 to +10.4 ft (+3.05 to +3.17 m) relative to Mean Lower Low Water (MLLW). The tidal range at Pohnpei is 1.22 m between MLLW and Highest High Water (HHW).

Based on these predictions, in 2100 the combined effect of high tide and sea level rise will result in a still water level of up to +1.72 m relative to MLLW, which reduces the quay's freeboard to 1.33 m. This freeboard, while small, should continue to be sufficient for the berth to operate satisfactorily for the vessels presently visiting Pohnpei.

It is also recognised, that the present quay wall structure is already nearly 40 years old, and will undoubtedly reach the end of its useful life within the next 20 years or so. At the end of its life, it will be necessary to replace this structure with a new quay structure, either of similar form or other structural form. The need to reconstruct this quay structure entirely will present an ideal opportunity to raise the deck level a suitable amount, in the event that sea level rise is found to actually be occurring as predicted.

The causeway which connects the sea port and airport on Dekehtik Island with the Pohnpei mainland, outside the port limits, has an elevation in parts as low as +1.5 m above MSL. Sea level rise combined with a high tide will regularly inundate the lowest sections of this causeway. PPA may need to make application to the State Government for the level of the road to be raised to reduce the risk of this inundation as sea level rises.

11.2.3 Other impacts

While the IPCC suggests that other impacts from climate change, such as more frequent storms and stronger winds, may occur, no guidance is available for applying such possible

impacts to specific locations. Hence, immediate action to counter these intangible impacts is not considered necessary.[9,10]

11.3 Social Issues

The improvement strategy contained in Section 12 of this report must give due consideration to the integration and coordination process necessary in other sectors such as ground transportation, land use, social services and the impact on the community in Pohnpei and greater FSM. The community support for such programs would be provided from proper engagement and community information sessions to communicate the planned increase in sea transport activity and management which would deliver safer and more secure port operation. These would present opportunity for other related sector growths in Pohnpei that may occur to satisfy what will be essential retention of population growth. In addition, there will be the added benefits of a potential expansion of the tourism sector, which would bring about developments related to tourism and construction.

The range of social implications requiring further evaluation on the basis of such improvements taking place would be:

- Transportation to and from the airport and sea port along the same single lane route could incur congestion to a point that consideration of industrial traffic may have to operate outside peak hours or take other steps to mitigate issues. It was witnessed at times during airliner arrivals and departures maximum personal vehicle traffic was present.
- The constrained seaport operations with associated congestion present a risk for a maritime incident within harbor limits. Such occurrence of significance could render the harbor inaccessible to general cargo vessels and fuel tankers. This would produce severe hardships to the community for a short and midterm period until such obstruction was cleared.
- Limited pollution controls and shortfall in required environmental patrolling and enforcement of regulations creates a suspicion from the community that this is not a priority for PPA.
- Fish catch transfer, processing and manning of long line vessels is majority occupied by foreign workers residing in and around Dekehtik Island. Continued observation and occurrence may well create community resentment of such reserved rights and restriction of job opportunities.
- A limited approach to recruitment of apprentice and trainee workers at PPA may be seen by the community as a reservation of job positions for those selected by internal mechanism only.

[9] Parry, M.L., O.F. Canziani, J.P. Palutikof and Co-authors 2007: Technical Summary. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Inter-Governmental Panel on Climate Change*.

[10] Mimura, N., L. Nurse, R.F. McLean, J. Agard, L. Briguglio, P. Lefale, R. Payet and G. Sem, 2007: Small islands. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Inter-Governmental Panel on Climate Change.*

- A general sense of community observance of airport upgrades was understood to be concern over the volume of coral and coral sand dredging taking place. Indeed the study team became recipients of hostile feedback upon some members of the public becoming aware of our involvement with port development reviews.
- Any attempts to engage with tourism development in the cruise line sector would, it is suggested, require professional assistance from experts in public relations to handle community engagement and the existing sensitivities, concerns and mistrust such mass volumes of tourist arrivals would cause to the cultural conditions and natural environment.
- Productivity improvements[11] are often associated with social and commercial factors which offset them. The trend of shorter working hours and the resistance to working at night or at weekends in industry in general, may become important factors in ports of the future.

[11] UNCTAD Port Planners Handbook for Developing Countries.

12 Port Term Improvement Strategy

12.1 PPA Vision and Mission

This section serves as recommendations of short term port improvements for the FSM Pohnpei seaport for the PPA. It is concluded from the initial scoping study conducted on site during June 2010. This report forms part of the complete scoping study which describes in full the technical assistance findings and conclusions. The complete scoping study document will also build on the critical findings listed in this report and assist with the prioritizing of projects under recommendation.

In developing the Short Term Improvement Strategy for the Pohnpei Port Authority, an initial consideration is directed towards the PPA legislated authority and the definition of their charter of operations. Stated in the PPA Act of 1991, the establishment of PPA is:

> *"To facilitate use of available transportation systems, and to promote Pohnpei as the natural crossroads for north and south as well as east and west travel and transport through the Pacific region".*

This mention of PPA operating as a 'crossroads' or hub is repeated in several official documents and in discussions with Pohnpei State and FSM National Government representatives. The consideration as to how this aspiration relates selectively to the Pohnpei Seaport is diluted against the current condition of PPA as a combined Authority responsible for both Air and Sea ports. The intent of this policy being applied to the Pohnpei Seaport becomes clearer in the PPA Five Year Strategic Plan: 2007 – 2011 where it makes direct reference to maritime trade by stating:

> *"Seaport charges are expected to grow at an annual average rate of 25 percent. This will be as a direct result of the revitalization of the fishing industry and increasing cargo shipments to Pohnpei. If the capacity of the seaport is expanded, the growth rate will be more than double making PPA a true maritime trade hub in the Central Pacific".*

Thereafter, the Strategic Plan itemizes the anticipated growth against operating revenues and quantum of increase but does not provide a detailed composition of trade forecasts for revenue activity from freight, fisheries or vessel throughput growth.

Positioning Pohnpei as a hub seaport in the central Pacific is ambitious given its current and anticipated external trade volumes, its lack of facilities to handle gearless container vessels and its geographical location and distance to markets, and the competing ports in the region through which that hub trade already passes. The ports of Majuro and Guam already act in varying degrees as hub ports for freight originating in USA, North and South-East Asia, Australia and New Zealand.

The definition of a hub port is one that can handle both domestic cargo and that of neighboring countries for subsequent redistribution to regional ports. In view of the low degree of probability that the establishment of Pohnpei as a hub port would be a success, it might be more advisable to seek greater regional coordination of transport policies and of investments in port and land transport infrastructure within FSM, in order to promote integration between the states of Micronesia.

A more realistic and acceptable positioning statement which links the prosperity of the nation with the port activity is made in 'The PPA Five Year Strategic Plan: 2007 – 2011' where it defines PPA's mission statement as:

> *"Promoting Pohnpei's efforts towards socio-economic development through the providence of safe and cost-effective logistics facilities and infrastructure and by facilitating and expanding movement of cargo, passenger, and competitive commercial activities through its ports in the best interest of Pohnpei".*

It is also important to define the PPA operating model prior to developing the improvement strategy. In doing so, the following consideration was made.

Port Authorities, as defined in publications that focus on port development strategies including The World Bank 'Port Reform Toolkit', often have broad regulatory powers relating to both shipping and port operations. The Port Authority is responsible for applying conventions, laws, rules and regulations. Generally, as a public entity it is responsible for observance of conventions and laws regarding public safety and security, environment, navigation and community care.

Port Authorities also issue port by-laws, comprising a multitude of rules and regulations with respect to the behavior of vessels in port, use of port areas, etc. Often, extensive police powers are also part of Port Authorities' powers. Within the port system, one or more organizations fill the following roles:[12]

- Landlord for private entities offering a variety of services;
- Regulator of economic activity and operations;
- Planning for future operations and capital investments;
- Operator of nautical services and facilities;
- Marketer and promoter of port services and economic development;
- Cargo-handler and storage provider; and
- Provider of ancillary activities.

PPA operates its assets in a manner that can be defined as a Landlord Port model, wherein the infrastructure is leased to private operating companies and/or to industries such as fuel tank terminals and industrial processing plants. The lease to be paid to the Port Authority is usually a fixed sum per square meter per year, typically indexed to some measure of inflation. The level of the lease amount is related to the initial preparation and construction costs (e.g., land reclamation and quay wall construction). The private port operators (lessees) provide and maintain their own superstructure including buildings (e.g., offices, sheds, warehouses, Container Freight Stations, workshops). They also purchase and install their own equipment on the terminal grounds (e.g., quay cranes, forklift trucks, conveyor belts) as required by their scope of operations and customers. In Landlord Ports dock labor is employed by the private stevedore / terminal operators and the lease agreement operates for an extended period of usually between 10-25 years dependent upon the scope and size of operations and the investment required. As the Authority has a vested interest in the performance of stevedoring operations the agreement usually includes terminal and stevedoring performance rates which are benchmarked and tested regularly to ensure the port's customers are being serviced adequately. The combined land lease and stevedoring

[12] World Bank, Port Reform Toolkit, Transport Division, 2002.

operating rights are then considered as a form of concession agreement rather than a land lease.

Another port model that may represent possible alternatives to the PPA Landlord status is the Tool port model. In the Tool port model the port authority will perform its role by financing, building or purchasing the works and equipment necessary for efficient operation of a port and making them available to operators under short term contracts generally incorporating public service obligations. The port then plays the role of a 'Tool port', as it has created the 'Tool' but does not operate it. Some port authorities may combine the Tool port role with that of a landowner role, if it has sufficient land space available.

In view of the strategic significance of port land, port land is rarely sold outright to private parties because of its intrinsic value and scarcity. Therefore, a key role for many Port Authorities is that of landlord with the responsibility to manage the real estate within the port area. This management includes the economic exploitation, the long-term development of the land and the upkeep of basic port infrastructure such as channels, berths, access roads and rail systems.

Thereby in defining the Pohnpei Port Authority as a Landlord Port which wishes to facilitate and expand the movement of freight, passenger, and competitive commercial activities through its port in the best interest of the State of Pohnpei, the following short term improvements can be considered appropriate.

12.2 Objectives

Based upon the results of the assessment and analysis of the current Pohnpei sea port infrastructure, its application to serve the needs of existing and forecast demand and the management and procedural application by the Port Authority in delivering services, the Short Term Improvement Strategy has been developed in the course of the Technical Assistance (TA) program together with PPA management and assistance provided by the TA consultants.

The objective of the Short Term Improvement Strategy is to develop strategic options for preliminary port improvements that assist in the mitigation of significant constraints presently confronting the port operations, service delivery and organizational performance. This includes operational strategies, infrastructure projects, governance, organizational strengthening and financial strategies.

The categorized strategies follow these principles:

- To optimize commercial shipping and fisheries vessel movements within harbor limits;
- To assert efficient control and management of assets inside the port facility boundaries;
- To lift financial performance and optimize productivity and revenue return from assets;
- To control overhead expenditure and conform to budget planning by activity;
- To address performance outcome standards of operating divisions.

It is recommended that the PPA continue with a current Landlord port style of operations but take affirmative action to retain and re-secure land tenure over the transportation zone land area. In addition the PPA needs to re issue the operating lease for the stevedoring activities

to ensure it reflects a concessionary style of agreement that includes agreed minimum service levels and productivity rates.

The improvement strategy is aimed at increasing operating efficiency by speeding up the ship/shore transfer and enhancing the ship turn-around time, by more rapid clearance of cargo and containers. To achieve this the port must make institutional and procedural improvements first, in order to utilise the existing resources in an optimal way. Thereafter, further improvements can be gained from a more systematic maintenance of existing infrastructure. Finally, investment in civil work should be envisaged to increase the physical capacity of the port.

PPA should engage on a more meaningful commercial level with their customers where they promise their customers to meet their needs and provide them with value-for-money services promptly, reliably and efficiently. PPA should demonstrate commitment to its employees by recognising that they are most important resources, and by creating a rewarding, challenging and innovative environment, PPA should help staff achieve their fullest potential and focus on teamwork and harmonious management relations that is essential for high productivity. PPA should review the competitive conditions and advantages within the regional and neighboring ports and ensure they are offering equitable and sustainable tariff charges.

12.3 Governance

12.3.1 General

The in-principle scope of corporate governance in relation to the PPA is broadly included in the Pohnpei Port Authority Act of 1991.

The objectives of good governance is the set of processes, customs, policies, laws, and institutions affecting the way a corporation is directed, administered or controlled. Corporate governance also includes the relationships among the many stakeholders involved and the goals for which the corporation is governed. In relation to the PPA, the principal stakeholders are the shareholders (Pohnpei State Government), management, and the board of directors. Other stakeholders include employees, customers, creditors, suppliers, regulators, and the community at large.

In the case of the PPA, the Pohnpei State government has delegated decision rights to the PPA Board and management to act in the best interests of the State in administering and operating the seaport and airport assets. The PPA board of directors plays a key role in corporate governance. It is their responsibility to endorse the organization's strategy, develop directional policy, appoint, supervise and remunerate senior executives and to ensure accountability of the organization to the State and external authorities as dictated by the laws of the land.

Some key fundamentals of good corporate governance principles include honesty, trust and integrity, openness, performance benchmarking, responsibility and accountability, mutual respect, and commitment to the organization.

The scope of the PPA's jurisdiction and governance over services provided to seaborne trade has a direct impact on the costs of international shipping links and translates directly into the economy of Pohnpei State at a number of levels. In respect to Governance, the following are high level findings for consideration by the PPA management and board in respect to its port operations.

It has a responsibility to provide:

- An adequate, safe and secure wharf infrastructure and waterfront services for vessels using the port;
- Security and adherence to health and safety regulations as required by law;
- A safe and sheltered anchorage area monitored for security and statutory obligations;
- A safe channel and operational navigation aids for vessels arriving, maneuvering in and departing the port;
- Competent pilotage services and effective line handling services;
- Ancillary services and supply of electricity and fresh water to visiting vessels; and
- A qualified stevedoring operation either directly or via a performance based concession agreement.

It has a responsibility to oversee:

- The safety, security and environmental control of craft operating within its harbor limits
- Tenants within its TZ to ensure their activities are complementary to transport related compliance with lease terms and conditions
- The commercial activities of the stevedore are price competitive;
- The stevedoring range of services are adequate and performance and handling rates are to acceptable levels; and
- Occupational health and safety performance of the stevedores and other service providers engaged in contractual services and that of PPA.

The PPA needs to be more proactive in providing information about the seaport such that ship owners and operators that may wish to call at Pohnpei in the future can determine navigation accessibility and berthing information.

In this regard, a simple web site listing essential data similar to that offered by the FAA13 that provides a detailed description of Pohnpei airport, runway and landing access and facilities is considered essential.

12.3.2 Governance of performance over stevedoring operations

The stevedoring operation within a sea port is the essential component of vessel activity and relates directly to the shipping lines cost relationship of providing services to that port. In so choosing to devolve delivery of stevedoring operations to a third party, the PPA has a responsibility to ensure the good business governance of stevedoring is maintained and performance is delivered within acceptable levels. The lease agreements applied currently to the independent stevedore operating in Pohnpei does not contain key result outcomes or performance measures. It is recommended that:

- PPA seek to cancel the existing lease agreement and replace with a concession agreement that applies similar terms of land rental and access and also includes performance measures and a criteria that meets international standards in respect to a range of issues including operational, safety, and administrative procedures.

[13] https://airports-gis.faa.gov/airportsgis/airportLookup/airportDisplay.jsp?category=nasr&airportId=pni

12.3.3 Preventative maintenance and seaport infrastructure

Unlike the external third party governance and prescriptive compliance regime provided by the FAA for the operation, upkeep and maintenance, security and safety of the Pohnpei airport, the seaport is left to its own discretion of maintenance programs and priorities of attending to its infrastructure and services supporting seaport assets. There is evidence of shortcomings in the advance planning and mobilization of activities required in maintaining the seaport assets in operating condition. It is recommended that:

- A third party audit of operational and fixed assets is concluded by a seaport engineer with the express task of assessing requirements and priorities for regular preventative maintenance and operational upkeep. This should then be consolidated into a regular self compliance regime with performance measures and result areas.

12.3.4 Governance of Transportation Zone boundaries

The TZ applicable under the Pohnpei State TZ Act 1987 designates an area for activities and complementary services relating to the promotion and development of sea and air transportation. There is evidence of certain areas within the TZ that have been removed from the TZ area and placed under the jurisdiction of other Pohnpei State Government authorities including the Department of Lands.

There are at least four instances of this occurrence including the fisheries industrial activities operated by LTFV and Oceania Inc. The combined areas that have been removed from the TZ area and excluded from PPA jurisdiction are 13,387 m^2 or 13% of the total identified area under lease. There is no evidence of an adjustment or compensation being granted to PPA for lost rental income as a result of these land acquisitions by the State.

There is evidence of various FSM National and State Government authorities not paying land rental for areas they are using within the TZ. In addition, there are instances of commercial private interests occupying land in the TZ and not paying land rental due to disputes over renewal agreements. It is recommended that:

- PPA Board seeks to negotiate with State and FSM National Governments the release and transfer back of land to the TZ area under PPA jurisdiction. This would allow the broad based planning of land use and activities of the entire TZ area, which was considered to be the original concept of designating the TZ.
- PPA Board commissions an audit of individual leases in the TZ area (either current or expired) and take steps to negotiate a commercial rent for those currently not paying any amount or those on non commercial lease rates and take steps to assign lease agreements to areas and organizations that do not have any lease agreements in force.
- Areas of land within the TZ that are occupied and in dispute over lease renewals should be placed on notice of eviction. Failure to act will prolong the defaulting or delinquent tenant(s) status as a squatter and create difficulty longer term when such time arrives that the land is essentially required for transportation developments.

12.3.5 Human resources

The PPA has a single function assignment workforce consisting of tradespersons, secretarial staff, security staff, firefighting and rescue personnel, maintenance staff and various disciplines of management. There are 75 permanent staff employed at the PPA. Currently 28 staff are shared between air and sea port duties, 25 staff are designated 100% for seaport

and 22 are designated 100% for airport duties. This assessment was an estimate provided in order to separate the costs relating to each operation.

The true account of designated duties for seaport or airport may be different when a more detailed analysis of staff accountability and duties is completed. The staff numbers includes a large number of security and rescue personnel associated with airport activities as prescribed and demanded by the FAA.

There are no trainees or apprentices currently employed and there appears to be no planning for such. There appears to be no planning for redundancy, retirement or succession. The observation of the recruitment process for the vacancy of General Manager was maintained at a high level. It was generally accepted that skilled staff were difficult to recruit and retain in Pohnpei with the ever present risk of losing competent staff to offshore locations where wages and conditions were considered better. Similar to conditions applying to operational, maintenance and security, the FAA provide an overarching prescriptive direction towards the deployment of staff activities and training to standards accepted by FAA. The seaport has no similar external influence to guide and assert global best practice standards in the management, training and deployment of its workforce. This is evident in a number of areas, not least of which is a HR policy and active practices to ensure staff have key result areas of task achievement and performance monitoring. It is recommended that:

- A full audit of competence for assigned duties is undertaken for all positions related to PPA seaport activities. This should be overlaid with an assessment of number of personnel required to deliver such duties.
- Key result areas of responsibility and key deliverables be described for each division providing services for the PPA seaport and those linked to each individual staff member whom in turn would have KRA's assigned that are working in that division. Performance measures to be introduced to assess the achievement of ongoing assigned tasks and used to identify areas where skills need to be improved and used to identify staff with capability in succession planning.
- A workforce plan should be considered which would include identifying those approaching retirement, succession planning, recruitment and selection criteria for all roles engaged in seaport services and recruitment of apprentices for trades related roles, and graduate trainees for management support and succession consideration.

12.3.6 General management and Board of Directors governance

It is evident that the PPA Board plays a key and pivotal role in the monitoring, evaluation and guidance of business activities of the PPA airport and seaport as described in the PPA legislative Act of 1991. There is also evidence of the PPA Board taking an active role in directing core activities of management on matters of day-to-day operation and making decisions on issues affecting the trading profitability of the Authority. There is however apparent limited review of the financial trading position of the PPA by the Board when it meets. The PPA Board meets once a month and has a fixed agenda that the PPA management team meet to discuss prior to the Board meeting. There is no formal meeting of PPA management outside of this pre-Board meeting. There is evidence that individual managers of the PPA have attended State Government economic planning sessions without the knowledge of other PPA management and that PPA management applies themselves and their divisional responsibilities in isolation of other departments.

These unconventional practices appear to contribute to a lack of awareness of corporate affairs by management and limits their authority and capacity to undertake their appointed

tasks and fulfill their responsibilities. Therein, a critical aspect of uncertainty surrounding the core competencies of PPA management and the transference of tasks and planning into deliverables of efficient and productive seaport services. The governance of airport services is immune to such a degree by the active and prescriptive involvement of the FAA in performance and deliverable measures for airport operations. It is recommended that:

- A Board Charter (Governance framework) is constructed that could be either written into Pohnpei State legislation or another regulatory mechanism that would create binding arrangements that detail the Board's functions and responsibilities.
- A Board might consist of business people who have backgrounds in the following areas or where they might be lacking, need to appoint a Non Executive Director who does:
    - Current international seaport or container terminal practice;
    - The commerce of FSM and the State of Pohnpei;
    - Finance;
    - Legal;
    - Logistics and /or transport development and marketing; and
    - Employment practices.
- A State Government Communication Policy should be created that sets out the framework for providing the Governor with sufficient information to maintain an informed view of the PPA and its operations, and to maintain effective relationships with management and the Board.
- Directors must ensure that the company's practices comply with the States laws relating to financial transactions, corporate law and other relevant legislation which might require that directors ensure that the following are produced (in a form of such reports complying with generally accepted accounting principles) and evaluated at each board meeting:
    - Regular Profit and Loss statements showing variances YTD;
    - Balance Sheets;
    - Cash Flow forecasts: and
    - Debtors aging reports.
- Key duties and responsibilities as defined in the Board Charter might include:
    - ensuring that appropriate processes are in place for risk assessment and management, internal control, and monitoring performance against agreed benchmarks;
    - evaluating, approving and monitoring the annual budgets, Business (Strategic) Plan and Statement of Corporate Intent;
    - evaluating, approving and monitoring major capital expenditure (subject to shareholding State Governments approval), capital management and all corporate transactions;
    - appointing, monitoring, managing the performance of, and, if necessary, terminating the employment of the GM in accordance with Governance arrangements for the GM (to also be established);
    - monitoring performance in relation to principles of best-practice corporate governance (to be established);

  - Directors are required to undertake their responsibilities in accordance with standards of behavior outlined in a Directors Code of Conduct (to be established).

- Key business duties of the Board under their Charter might include:
  - Setting of a Corporate Mission, Values and Goals;
  - Review and approval of an annual Business Plan;
  - Approval of Financial Plans and Budgets;
  - Reviews of Accounting Practices;
  - Establishment of Audit Procedures both internal and external;
  - Review of Risk Assessment policies and controls including insurance covers and compliance with legal and regulatory requirements;
  - Review of the Company's Code of Conduct and Ethical Standards;
  - Approval of all Company Policies;
  - Scrutiny of monthly Management Reports including financial statements;
  - Review of Customer and Supplier relationships and contracts; and
  - Scrutiny of human resource strategies and procedures including employment and remuneration.

12.3.7 Management and organizational strengthening

As described above there is evidence of some misalignment of management practices associated with a non cohesive and non collective approach by PPA divisions to the combined effort of delivering an efficient and productive seaport. The appointment of a new General Manager may improve such a situation. The PPA budget identifies a line item for Strategic Plan Programs and this is understood to relate to the PPA Five Year Strategic Plan 2007-2011. It is also understood that this budget item is used for training purposes but is also reallocated to other budget cost line items including travel expenses.

The PPA Five Year Strategic Plan 2007-2011 is not so much a strategy but more a 'road map' of management objectives and goals. There are broad based activities and tactics described in the plan and program timetables to follow. It is understood that little has been achieved in the compliance of the plan and with a change in PPA Board and resignation of the General Manager in February 2010, there has been no consistency to allow such compliance.

It is further considered that the PPA Five Year Strategic Plan 2007-2011 maybe at such a high level and lacking in detailed management application that the adherence is currently unachievable. It may also be that the PPA management cannot clearly be able to identify benefit flowing from the amount of time and effort required to assign tasks to the 24 programs identified.

As described earlier there is a separation of assignments and duties between airport and seaport with some staff shared and others assigned as fully engaged for either area. The airport has the benefit of having the FAA dictate and arrange training programs, testing of skills, provision and measures of operational performance and asset maintenance and control. The seaport does not have an external international overseer and sponsor and therefore relies upon its own staff to establish processes and procedures to manage its seaport assets.

The delivery of services and supporting controls to manage seaport activities is presently lacking in operational timeliness and falls short of international accepted standards. This may be due to the absence of a General Manager for a period of 6 months and could well be remedied upon the appointment of such, expected within the third quarter of 2010.

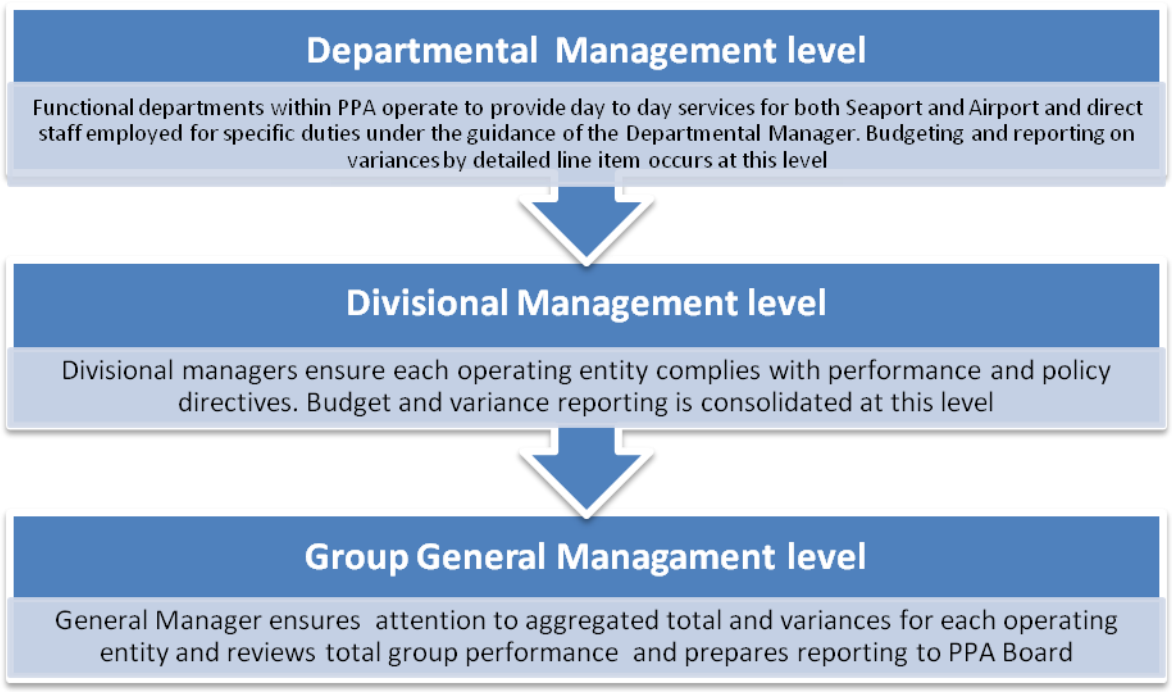
It is recommended to create a seaport and airport division headed by an airport manager and seaport manager as divisional direct reports of the General Manager and move operating departments a tier below that provide support and core activities to each operating division, see chart 11.

Chart 11 - Proposed organizational structure

This is designed to alleviate the evident void of direction by the absence of a GM and longer term, create a more focused approach to both operations as having separate and independent assets which both require a unique management application. The proposed reporting and operating matrix is described in Chart 12.

The proposed re alignment of the PPA structure is also designed to engage the divisional managers more in the financial and asset usage and maintenance of their facilities. There is a need to adjust the reporting requirements and make divisional managers responsible for bottom line financial performance and reporting against variances, rather than leaving such requirements to the accountant. It is also evident that a need for ongoing formal management work in progress divisional meetings needs to be established. Such meetings would involve each divisional manager (airport and seaport) to lead separate meetings with heads of departments against a formal agenda that might include:

Chart 12 - Proposed PPA Management reporting activity matrix



- (Divisional Seaport Manager) - Business activity for the current month, YTD and variance against forecast, expected vessel movements for next month and YE estimate by type and freight volumes. Performance measures and variances relating to each supporting Department, measures to mitigate and work in progress and deadlines.
- (Departmental Support Managers, Security and Maintenance) – Status for current month and YTD v budget and forecast targets of activity, costs, performance measures and variances and measures to mitigate.
- (Marketing Department) - Market information - regional market activity / any key info on contract negotiations / new business gained / existing business lost. Promotional activity occurred and planned with budget and variances.
- (Finance Department) – Current month and YTD financial performance of seaport by profit and loss and cash flow, invoice approvals & accuracy of operational cost items against budget, aging debtors report and issues relating and steps to recover outstanding amounts, land lease in TZ current month and YTD against budget declaring variances and required reasons from other departmental mangers.
- Any other business listing target projects, performance measures, costs and timing of commencement and completion.

12.3.8 Management practices

As described earlier in this chapter the PPA Management appear to be disassociated from a common goal and collective corporate objectives. This may be due to the absence of a General Manager at present, but to ensure a coordinated effort targeted towards achieving common mission outcomes, rather than listing such as ambitious statements, will need to ensure the following:

- Proper segregation and visible accountability of functional responsibilities;
- Departmental goals that are performance based and associated directly with the PPA corporate mission;
- Proper processes for limits of authorization of operational and capital expenditure;
- A system of authorization, recording and procedures adequate to provide accounting control of assets, liabilities, revenue and expense;
- Sound practices in performance of duties and functions by each of the organizational departments; and
- Procedures to ensure that persons have capabilities commensurate with responsibilities.

These internal controls should be established primarily to prevent loss, whether accidental or deliberate and also to capture loss which might occur despite the PPA's prevention controls. These internal controls will provide assurance to the State Government and the PPA Board of directors that the accounting records, systems and procedures are well maintained and reliable.

12.3.9 Financial controls

These include but not limited to:

- Segregation of Duties - the functions of authorization, execution, custody and recording need to be separated;
- Physical - To ensure access to PPA assets is limited to authorized personnel for business use only, and should include both direct access and indirect access via documentation;
- Authorization and Approval - All transactions require authorization or approval by an appropriate responsible person;
- Accounting Controls – This is designed to check that transactions are duly recorded and processed and to have been properly authorized;
- Personnel – PPA should ensure full competency and integrity of those operating the control systems and ensure that qualifications, selection and proper training comply with the characteristics required for the particular functions;
- Supervision - Supervision will need to be performed by trained and responsible managers for the day to day activities; and
- Management Controls - These provide for overall supervisory controls, review of the management accounts and comparisons with budgets, internal audit functions and other special review procedures.

PPA should recognize that the adequacy and effectiveness of its internal control procedures are the responsibility of its Management and the PPA Board of Directors, and the latter will need to ensure that regular reviews of control procedures are being conducted.

12.3.10 Accounting functions

The Board of Directors should reaffirm the authority of the General Manager (when appointed) to properly and effectively administer all accounting and administrative controls.

The PPA's main functional accounting and administrative areas of control under routine generally accepted accounting procedures are listed below:

- Five Year Plans, constructed and collectively agreed by the PPA Management;
- Budgets, constructed and collectively agreed by the PPA Management;
- Capital Expenditure, constructed and collectively agreed by the PPA Management;
- Internal audits and procedure reviews;
- Ensuring revenue integrity;
- Pricing and tariff analysis;
- Preparation of financial statements;
- Preparation of all returns to regulatory authorities;
- Cash receipts;
- Banking and bank debt;
- Purchasing;
- Creditors;
- Cash payments;
- Sales;
- Debtors;
- Inventories;
- Payroll;
- Fixed assets; and
- General Management.

12.3.11 Risk management

PPA needs to incorporate Risk Management as part of its overall business policies and safeguarding its assets, its employees, contractors, visitors, within its occupational health and safety and environmental policy. It is recommended that policy specifics include:

Management of risks as part of PPA's overall management processes;

- Focus on the identification, assessment, control and monitoring of risks;
- Assessment of the risk associated with all projects from inception to completion;
- Cost benefits in the risk/treatment control options;
- Compliance with all State and National legislation;
- Consultation between all levels of the corporate structure; and
- The institution of a Process Risk Assessment (PRA) policy.

12.4. Financial

12.4.1 General

This section is provided to deliver an assessment of short term improvements after detailing constraints and explaining objectives and benefits. There is a considerable cross subsidy from PPA seaport operations to PPA airport operations. This could cause potential investors to refrain from supporting new developments in the seaport and it also does not reflect and charge airport users with the real costs of the use of these facilities. This is an issue that could be alleviated under the recommendations to establish two operating divisions which would then add transparency to the cost and revenue performance of each entity. The wider issue of cross subsidy in its current condition and its continuation needs to addressed at a board level. The financial details contained here are provided in greater fiscal detail under Section 6 of this report.

12.4.2 Debtors control and policy for recovery of services rendered

Day-to-day operational responsibility for implementing the PPA's financial policies and guidelines is assumed to have been delegated to the PPA Finance Division. Such responsibility usually includes monitoring the day-to-day compliance with the policies and guidelines as set out in the port regulations handbook and as agreed by the manager of the division and endorsed by the general manager of the organization. There is evidence from the debtor reports generated that a more robust and rigid adherence to the policy outlined in the port regulations handbook should be adhered to. An analysis of the aged debtors report shows that 78% of all monies outstanding is over 120 days which includes 26 of the 28 tabled debtors. In addition it is shown that a single debtor accounts for 72% of the aging amount in excess of 120 days and is evidently still being extended credit as the ledger shows amounts within the 30 day period. It is recognized that the PPA require a form of funds guarantee called a 'payable on demand' security underwritten by a financial or insurance company acceptable to PPA. There is no evidence that PPA is holding any forms of security guarantee from either shipping agents engaged in port activity on behalf of ship owners or tenants occupying PPA land under lease agreements. It is recommended that:

- PPA undertake a credit risk assessment of their full portfolio of port users that currently obtain services from the PPA;
- PPA seek to recover outstanding amounts by engaging an independent and reputable debt collection agency of international standing; and
- PPA to replace the current scheme of security guarantee with the implementation of a formal credit application which, once signed by the applicant, allows full investigation into credit worthiness of the entity seeking the credit facility. Failure to comply with acceptable credit risk will thereafter place the applicant on a trading position of cash for services or pre payment of an estimated percentage of the tariff fee. This is not unusual in the port trading environment considering that shipping agents standard procedures are to be pre funded for ship operations by the principals they represent.

12.4.3 Partial or nil invoicing of revenue items

The PPA port regulations handbook includes details of tariff and charges for services available at Pohnpei seaport. There are apparent instances of tariff charges not being invoiced or partial amounts being invoiced to port users. In one such instance there is evidence that no charge is being made for line boat services due to the fact that the PPA does not have the allocated manpower and that a number of work boats are in an inoperable condition. Other instances of nil recovery relate to services provided to Pohnpei State and FSM National vessels and various port operation services. There are a number of other tariff items where there is uncertainty as to application of invoicing for services supplied, including the provision of fresh water and wharfage fees for bunker fuel being taken on. It is recommended that:

- PPA undertakes a review of recent invoiced actual charges being made against a base study of tariff charges for each type of user at Pohnpei seaport and review variances. Implement an action plan thereafter to address tariff items to then be enforced.
- PPA to meet with all external suppliers of services related to port activity and concludes effective working relationships and boundaries of responsibility and as required enter into service contracts and/or access agreements.

12.4.4 Budget planning and forecasting

The PPA creates their budget on an annual basis for a financial year 1 August to 30 September which they include all standard items and appropriations. The budget is submitted to the board for approval and becomes active once this approval has been granted. A formal independent audit of the PPA financial statements is conducted annually and signed off in June of the following year. There was evidence of budget adjustments being made where a reallocation of budget expense items to other expense line items has been occurring. The quantum of such variations and reasons were noted in monthly reports to the PPA board for such activity.

It is recommended that:

- PPA undertakes quarterly re-forecasts of expense and revenue items and track variances against budget and actual results. This will provide a more visible platform for understanding and tracking changed trading activity and allow detailed and high level review. The subsequent outcome of quarterly re-forecasts is also to better plan annual budgets.

12.4.5 Interest income

There is evidence to suggest that cash equivalent reserves at year end provided interest income at a low rate of investment.

It is recommended that:

- PPA reviews the short term money investment program in order to maximize interest return. Based upon requirements for working capital and such scheme to provide access to funds without due constraint.

12.4.6 Accounting for actual revenues receipted

There is evidence that some revenue collection items are adjusted by forms of contract agreement or commission prior to appearing in the financial statements. An example of this is the pilot service revenue which has an adjustment made according to a contract pilot agreement where a service or contract fee is paid in the form of a variable commission.

It is recommended that:

- PPA should report the full pilot service fee collection in the revenue item reserved and refrain from reporting the amounts net of commission fees. The commission fees paid to contract pilots should appear in a separate line item against operating expenses.
- Other such accounting practices whereby net amounts are reported should cease and be replaced by the true accounting process of showing full disclosure of receipted revenues and payments made.

12.4.7 Aggregated financial ledgers

PPA presently carries separate ledgers for seaport, airport and administration. The administration ledger reports a number of various expense and revenue items and then combined financial statements are constructed of aggregated totals.

This has the potential to limit the visibility of operating ratios for each area of activity (sea port and airport).

It is recommended that:

- PPA move to two (cost & revenue) ledgers only, one for seaport and one for airport. This process should included allocation of costs and revenue by percentage of activity or provision of service to either principal ledger. There may be items that by virtue of their complexity may remain in a third ledger (administration), but this should be limited to residual cost items only.

12.4.8 External / internal audit

The PPA currently does not have any formal internal audit activity and relies on annual external audits performed by Delloitte as contracted by ONPA to perform financial audits of the Authority. In making assessment of business activity and financial practices associated with supporting the PPA the Study Team became aware of evidence to indicate a number of business practices that had the potential to limit the transparency of financial reporting and outcomes, and exclude access to information that would assist in planning and clarity of forecasting cost and revenue activity.

It is recommended that:

- A formal internal audit be arranged to assist PPA in achieving their stated objectives by using a systematic methodology for analyzing business processes, procedures and activities with the goal of highlighting organizational problems and recommending solutions. The scope of such internal audit would test the efficacy of operations, the reliability of financial reporting, deterring and investigating fraud, safeguarding assets, and compliance with laws and regulations.

12.4.9 Financial reporting

As set down in the Pohnpei Port Authority Act of 1991:

> *the Board shall meet once a month and shall hold at least one public meeting each calendar quarter and other public meetings as it may deem necessary for the transaction of its general business.*

Accordingly the PPA Board presently meets once a month (first Tuesday) and against a set agenda reviews the general business activity associated with the operation of air and sea ports and attends to other matters arising. There is evidence that the Board does not cite official minutes associated with the year-to-date financial position of the PPA and instead carries over an addendum of financial statement prepared separately.

It is recommended that:

- The PPA Board includes a YTD review of the PPA financial statements including cash flow, balance sheet and profit and loss statements showing YTD variances against top line items. In addition an aging debtors listing be presented with the budgeted provision for doubtful debts showing against the final balance.
- As suggested under the budget planning section of this report, a need to show reforecast items would provide clarity against the original budget which should remain static quantum during the reporting year.

12.4.10 Accounts payable

PPA presently centralizes all payments thru the Finance Department resident in the PPA head office at Dekehtik Island. All wages, payments to contractors and suppliers is made by

cheque. There is understood to be a requirement for cheque signatories to include the General Manager and a member of the Board. In addition to the burden of payments via cheque which is singularly administered by the senior accountant (Comptroller) the PPA accounts department is also responsible for collection and receipting of wharfage, anchorage and berthage monies over the counter direct from importers, freight forwarders and shipping agents. It was evident that general public access to the accounts section offices is allowed and anyone from a truck driver to the owner of shipping agency can access the comptroller without an appointment and demand attention.

It is recommended that:

- Security access to the accounts office be enforced to restrict access to those with need to conduct business directly and all others to use the window counter to request services which may or may not be rendered depending upon priority.
- The PPA investigates direct credit via electronic funds transfer through their banking service.

12.4.11 Financial performance strategy

In the above listed items covering financial short term improvements there are several considerations that will, through adherence to better business practices, lift revenue through the monitoring and receipt of invoiced monies for seaport services. Similarly there is a requirement to regain control of land under the designated TZ area and return such to commercial rates of return for those businesses leasing land and carrying on business activities, including both Pohnpei State and FSM national Government enterprises. The prospect of investing money at bank on short to medium term guaranteed bank term deposits would yield higher interest than that currently reported. There is noted a high number of staff associated with seaport police activity and this overhead cost could relate to 24 hour shift assignments or utilizing port police for other duties, but the number still appears high. There may be areas of consolidated work effort and the study team became aware of evidence indicating areas where workloads could be shared across departments, but the implications for such cost savings are negligible given the commensurate remunerations. There is significant scope for lifting performance through the application of annual reviews of the seaport tariff and testing the rates of return for seaport services, assets provided and maintenance and any infrastructure development and construction programs.

The generally accepted principles for seaport tariff testing are as follows and provided as a guide for PPA to consider the approach to their tariff review and quantum adjustments.

The accepted definitions for tariff charges related to ship and port dues and charges and income from real estate, whatsoever their nature, arising in the Port domain, are earned and destined for the Port Authority, with exclusion of other Government Authorities.

The tariffs are determined by the Port Authority.

The proceeds of the tariffs shall be sufficient to meet the financial needs of the port, including:

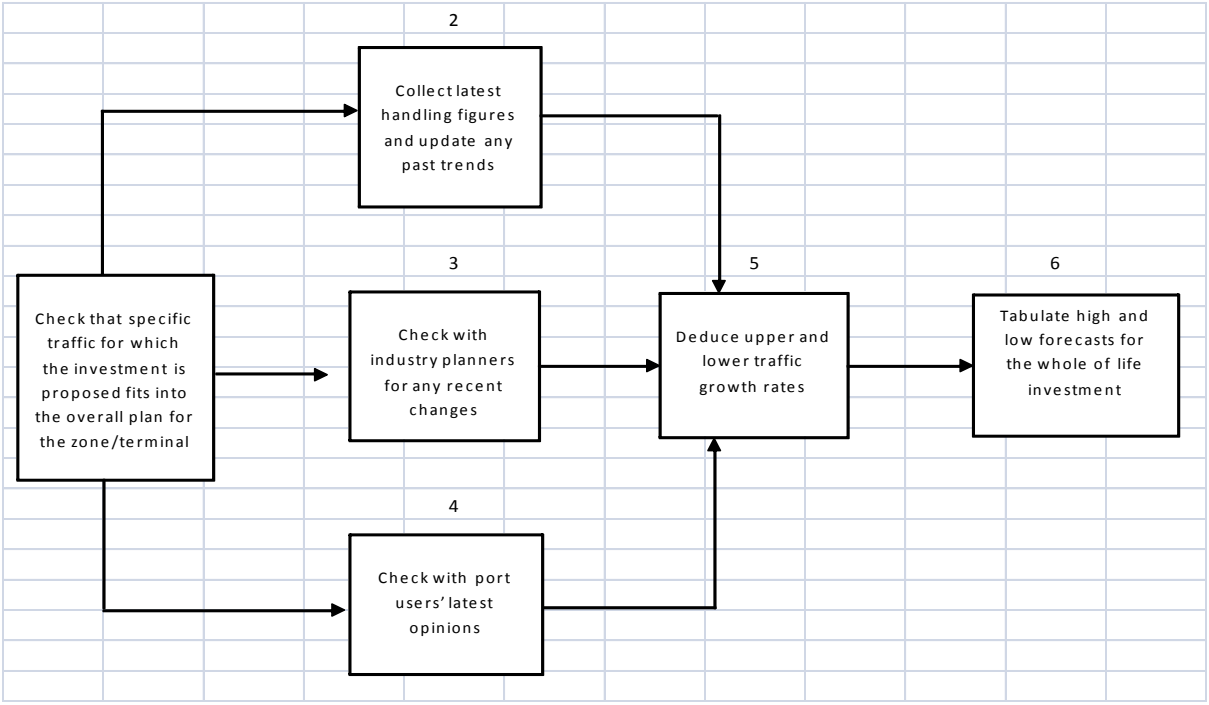
- Operational expenses;
- The maintenance of assets;
- The payment of interest;
- Allocation for depreciation of assets; and
- Other standard commercial elements (including shareholders' dividends and a reasonable profit).

The next level of tariff testing requires a financial analysis to determine what the revenue will be at different traffic levels and tariffs and whether such revenue will support the costs of the facilities and the servicing of any loans for port infrastructure maintenance, upgrades and developments. The effect of any port infrastructure developments on existing costs and revenue, and the resulting financial viability of the whole port, must also be studied.

The evaluation should be completed for a range of traffic growth forecasts. Moreover, the opportunity should also be taken, while computing the financial results, to calculate the consequences of different tariff levels. This will provide the necessary information for a soundly based discussion of what would be an appropriate scale of charges.

The financial criterion for justifying any infrastructure projects is that, with a realistic tariff, and after covering all costs, including that of annual depreciation the net revenue earned in each year of operation will pay the interest on loan capital and the equivalent of the interest foregone on the port's own capital expenditure. The adoption of this financial criterion will thus lead to the accumulation of the reserves that would be necessary for building facilities of equivalent value upon expiration of the amortization period.

Chart 13 - Simplified trade forecasting flow chart[14]



There is also the issue of competition between ports to be considered and fair market appraisal of port charges and tariff levels imposed by port authorities. In the case of Pohnpei, the direct competition is considered to be from the ports of Guam and Majuro. Both these ports act as transshipment locations for general cargo destined to or originating from FSM ports and as a destination for cruise ships rotating itineraries through the North West Pacific. Majuro represents another source of competitive tension associated with the fisheries industry. As seasonal migration patterns dictate, the tuna fleets utilize ports in FSM

[14] Port development for planners in developing countries, Secretariat of UNCTAD,1985.

waters for half the year and ports in RMI waters for the other half. Pohnpei and Majuro offer safe harbors and safe anchorages and provide a range of support facilities and host a number of service providers to the fishing fleets. Thus, Majuro levels itself in five following distinct categories of competition with Pohnpei:

1. Transshipment port for shipping lines serving other FSM ports;
2. Fishing vessel fleet base port for migratory tuna
3. Transshipment location for transfer of tuna to mother vessels at anchorage
4. Hosting service industries for the fishing industry; and
5. Scheduled port of call for cruise vessels.

Therein, Majuro as a sovereign state with a similar population and similar trade flows represents a suitable test case for competitive tariff comparison (Table 29). A review of top line tariff items listed by both port authorities indicates that Pohnpei has significantly lower levels for services associated with vessel activity and cargo activity.

Table 25 - Comparative seaport tariff, Majuro/Pohnpei

PORT FEES and CHARGES		
AS APPLIED TO KYOWA HIBISCUS TYPE		
ITEM	POHNPEI	MAJURO
PORT ENTRY FEE / HARBOUR DUES	$125.00	$477.00
LIGHT DUES NAV AIDS	$10.00	$30.00
SECURITY SURCHARGE	$100.00	$180.00
PILOTAGE	$480.00	$820.00
TUG LINE FEE	$0.00	
PILOT LAUNCH FEE / VILA per hour / MAJURO per move	$75.00	$200.00
BERTHAGE	$477.00	$477.00
ANCHORAGE FEE	$238.50	$160.00
LINE HANDLING FEE	$100.00	$160.00
LINE BOAT FEE per usage	$50.00	$75.00
WHARFAGE IMPORT / rev ton	$1.25	$3.00
WHARFAGE EXPORT / rev ton	$1.25	$3.00
WHARFAGE IMPORT FUEL / mt	$0.50	$3.00

It is understood that the last review of the PPA Seaport tariff occurred in 1995. An escalation of 25% per year on Pohnpei current pilotage, berthage and wharfage tariff charges over a period of three years would achieve an extra $1.16 million in revenue and still place Pohnpei on a competitive footing of seaport tariff charges against Majuro. In summary of items to lift financial performance, it is recommended that:

- A full review of the seaport tariff to take place prior to December 31st 2010.
- A program to competitively align wharfage, pilotage and berthage charges with those being charged by Majuro is commenced starting from 2011 by incremental amounts over a period of 3-5 years.
- An audit of all TZ land leases is immediately conducted and PPA seeks to negotiate commercial rates of return for businesses occupying and carrying on activities in the TZ area. This includes State and National FSM Government enterprises.

- An approach to State Government for a return of land removed from the TZ area or failing that a negotiated compensation for such removal back dated to the occurrence.
- Money at bank to be invested in bank guaranteed short-medium term deposits in order to yield highest possible return from PPA's funds.
- Direct action to be taken to recover outstanding debts and conduct a risk assessment on all parties engaged in commercial transactions with PPA to ensure compliance with the legislative conditions of trade with PPA.
- An audit of staff numbers and activities for seaport functions commencing with operational areas and those that are engaged in revenue generating roles e.g.: harbor control, line boats, pilot boats, linesmen etc. Followed by the assessment of roles and responsibilities for those engaged in administrative roles.
- A market review of how to attract potential allied industries to support fishing fleet operations be undertaken in order to strengthen the competitive position against Majuro and other competing ports. The more support industries clustered in Pohnpei would add to the attraction of fishing fleets to base their operations permanently there.
- A market review of cruise line routes and companies in order to understand the scope of services operating through the region and what type of shore based services and infrastructure they require to permanently schedule cruise voyages to Pohnpei. This project would require the engagement and support from FSM and State Tourism departments and Economic Development to ensure alignment of strategies.

12.5 Operational

The current port operations suffer from a lack of organization, control and performance monitoring. Benefits by way of improved potential for operating efficiencies and the safety of personnel are expected to be realized by implementing some or all of the following changes in operating procedures and adjustments in the control of port activity:

12.5.1 Opening North and South ends of the dock for open access wharf operations

Space for berthing general cargo vessels, visiting coast guard and cruise ships in the center section of the quay is limited by the occupation of both the north and south ends of the quay by permanent lessees. On regular occasions, a substantial number of purse seine vessels and long line vessels can be moored alongside and rafted up at the north and south ends of the wharf, making the task of berthing a cargo vessel in excess of 100 m LOA in the remaining central berth area of the wharf very difficult with the high risk of potential collision of moored vessels or the wharf. Rafting of two or more fishing vessels alongside the main wharf also encroaches on the vessel swinging basin constraining space available for swinging vessels when arriving and departing from the berth creating a hazard to safe navigation.

It would be particularly advantageous if the quay constraints at the northern end of the main wharf leased currently to Caroline Fisheries Corporation (CFC) were opened to permit free access to the quay apron for a width of at least 25 m back from the quay line. A fence currently closing off this area will need to be relocated to implement this change. A new fence, provided by the lessee, can be erected across the new frontage alignment for security

of the smaller leased area. The objective of this modification is designed to free up access to the quay line for its full length and allow unconstrained port operations to be safely carried out along the full length including to the quay apron. The estimated cost of this improvement is $25,000.

Alternatively, a new berth could be constructed at the northern end of the present Misko Beach Resort lease area (16,090 m^2), of land equal in size to the present CFC leased area (4,769 m^2). CFC will then be able to relocate their operations at this new berth location and back-up area, which would serve to free up the end of the main quay for general cargo shipping operations. This is a longer term option requiring construction of a new berth structure along with reclamation and improvements in the access road presently providing access to the Misko Beach Resort lease, the cost of the new berth construction is estimated at $2.5m. It is noted that the Misko Beach Resort lease is currently in default or otherwise in dispute. It is also noted that the current lease between PPA and CFC is due to run until 2021. It is recommended that:

- PPA takes steps to renegotiate the lease conditions with CFC before the suggested modifications and / or relocation of CFC can be implemented.

12.5.2 Tug / workboats / pilot boat

The port currently operates with a very limited fleet of work boat vessels. Berthing of larger vessels (cargo vessels, tanker vessel and reefer ships) will be made substantially safer if a small tug, pushboat or multi-purpose workboat was available in the port.

A small second-hand tug/push boat with a bollard pull of 10 tonne (TBP) capacity is estimated to cost $250,000 to purchase and deliver to Pohnpei. PPA will need to provide support for a vessel of this nature, by way of engine and winch servicing, holding of spare parts and regular general preventative maintenance, as well as a part-time operator (coxswain) and maintenance personnel. An alternative arrangement which offers reliability of operation would be to engage the services of a commercial charter company that supplies work boats and tugs with crews and maintenance engineers. A number of such firms based in Singapore offer this type of contract service.

The PPA marine pilots need a replacement pilot boat to avoid using a “banana” boat (open fiberglass skiff type with outboard motor) for transit to/from the pilot station located on the outside of the outer reef entrance. Standard safety equipment and other equipment such as navigation lights, life preservers, fire extinguisher, boat fenders, flares, back-up fuel tank, back-up outboard motor and communications will need to be included with the pilot boat package. A small launch suitable for pilot services is estimated to cost $80,000.

The Safety and Security Division Manager has reported that patrolling the anchorage area to ensure that security and compliance with refuse disposal regulations is maintained is virtually impossible. The security surveillance task will be facilitated if regular security patrols can be implemented with the aid of adequate boat support. A surveillance boat does not need to be large or sophisticated. A small reliable launch equipped with mandatory safety equipment, security equipment and communications will be adequate for patrolling the anchorage both day and night. The presence of regular boat patrols will act as a deterrent for illegal activity and incidents of non compliance with environmental regulations. Since other Pohnpei State and National agencies (Customs, Immigration, EPA/quarantine), are involved in security and monitoring matters these surveillance patrols could be an activity shared between these agencies as a joint cost task. The pilot launch could be utilized for such surveillance activity when not required by the pilot. The management, reporting and

frequency of the patrols would be controlled by the PPA harbor control office. It is recommended that:

- PPA engage a marine broker to source a suitable workboat/harbor tug and compare costs against that of a contract service supplier to operate and maintain such a vessel.

- PPA review similar workboats and pilot cutters deployed in Fiji, FSM and Guam and engage a marine broker to locate a suitable pilot / work boat(s) for operation in Pohnpei.

- PPA review the deployment of security and safety staff and harbor control staff and plan to allocate required number of trained personnel for both pilot boat and work boat patrol duties and engage with FSM statutory authorities in order to seek agreement for contracting PPA work boats to carry out duties as required by FSM Government authorities.

12.5.3 Clearance / Boarding officer at anchorage (possible combined efforts)

The present procedure for Government officers and inspectors conducting customs, immigration, quarantine and port clearance on arrival and departure requires all vessels to berth at the main quay. For vessels which only intend to occupy a mooring in the anchorage a prohibition has been imposed on conducting these clearances at the anchorage.

This requirement for all vessels seeking clearance to berth alongside the main wharf is considered to be onerous for fishing vessels, and also unnecessarily creates congestion in the harbor and at the main berth, as well as extending the time a vessel needs to remain in port and adds extra berthage costs to ship-owners utilizing Pohnpei port.

An audit of this procedure is required to assess the risks associated with clearance officers attending to vessels while moored at the anchorage. This audit should be able to develop safe procedures which will allow inspections and statutory vessel clearances, see appendices 6-7 for copies of FSM boarding forms, to be completed at the anchorage for those vessels which by nature of their operations do not need to berth at the main quay. It is recommended that:

- The procedure for boarding vessels on arrival and prior to departure be critically reviewed, such that it will permit boarding of vessels by Government officers and inspectors while the vessel is moored in the anchorage.

12.5.4 Safety compliance – life preservers, flares in work boats

PPA is presently operating one or more “banana” boats for general purpose use and access within the port, as well as for ferrying the pilot between the pilot station offshore from the outer reef entrance and the shore base. These small boats do not have any safety equipment. If PPA wishes to continue using these boats for such designate official tasks (for which they are not entirely suited due to their small size), they must be provided with safety equipment including personal flotation devices (one for each person), marine distress signal flares, a stout tow rope attached to the bow ring, a small back-up outboard motor, baler or bilge pump and fire extinguisher. The boats should also be fitted with navigation lights in compliance with International Collision Regulations. Safety equipment must be maintained, tested and replaced as necessary. It is recommended that:

- A full suite of safety equipment and navigation lights be provided in the pilot boat, compatible with the number of personnel occupying the boat.

12.5.5 Harbor control – berthing line up, vessel movements, in-port fuelling

The PPA Harbor Control is responsible for direct control of all vessel movements and navigation to, from and within the harbor limits. Discussions with Harbor Control personnel and one of the contract pilots has shown that no forward planning of vessel movements exists. Instead, there exists an 'as needed basis', ad hoc radio communications between arriving vessels, ships agents and Harbor Control. As vessels approach the offshore Pilot Station, the first formal communication is received by Harbor Control, to which they then respond for pilot attendance, allocation of berth space and priorities for vessel movements within the harbor. Harbor Control does have the forward shipping schedules for the three shipping lines operating regular services to Pohnpei (Kyowa, Matson and Dorval Kaiun) and the irregular movements of reefer fish carriers as advised by agents so some forward notice of a ship's likely arrival time is known and contract pilots are placed on standby for the approximate time required. There are instances of many vessel movements within the harbor by fishing boats either for refueling, taking on ice and provisions, or maneuvering to allow other vessels berth access or to allow rafted vessels to depart. Evidence indicates that all such activity is unplanned and managed by Harbor Control on a daily as-needed present basis. In addition, the airport flight path for arriving and departing aircraft converges and intersects the inner harbor shipping channel. Therefore ship and fishing boat movements are constrained by and are required to give priority to the movements, of aircraft using the runway. It is apparent that similar to ship movements the communication with the airport control is on a daily basis as and when activity is about to commence.

A more proactive approach is required for controlling vessel movements and berth allocation within the port to assist with planning wharf space and to allow safe navigation. A simple forward listing of likely vessel movements, berthing requests overlaid with aircraft activity can be prepared. Such a schedule needs advance information which will be available if all vessels are required to inform Harbor Control at least 24 hours ahead of any proposed movement, both within harbor limits and those outside the approaches. A simple vessel line up showing a rolling schedule can be manually maintained on a spreadsheet, so that vessel movements and berth allocations can be made in advance. This will enable the correct prioritization of vessel movements and berth allocation to be made and enforced, as well as enhance the authority vested in Harbor Control to comply with Pohnpei Seaport Rules and Regulations, and in particular Rule 222, Berthing. This rule sets out the requirements for prioritizing berthing and vessel movements, notification of arrivals and departures and allocation of related port services. It is recommended that:

- A structured schedule for managing vessel movements and berth allocations be developed and implemented by Harbor Control.

12.5.6 Channel operation

Based on direct observation of the arrival in Pohnpei of the MV Islander on 21 June, it is clear that the approach channel is, in the main, adequately sized to accommodate this class of general cargo vessel in a safe and expeditious manner. The swinging of the ship at the berth was carried out without problems and the ship was berthed at the quay in a timely and safe manner. It should be noted that the arrival of this ship was concluded in fair weather with clear visibility.

The entrance through the outer reef is only wide enough for a one-way ship movement; it is considered too narrow for two-way movement. This is not an immediate problem, since the likelihood of two ships wanting to use the entrance at the same time is negligible. However,

this entrance would be safer by being widened to provide greater clearances between a transiting vessel and the reef edges.

It is recommended that:

- the entrance through the Outer Reef be widened by dredging to at least 135 m width.

12.5.7 Contract pilotage

Contract pilotage serves PPA adequately, but requires consistent planning and evaluation of competence and coverage. The Study Team has been advised that at least one incident relating to the substandard performance of two of the four contract pilots has given cause for the Master of the MV Kyowa Hibiscus (Kyowa Line vessel) to submit a formal complaint in writing to the PPA (refer Appendix 3 for copy of correspondence). It is also understood that pilot licenses are issued by the FMS National Department of Transport, Communications and Infrastructure, which was unable to provide their procedures for licensing pilots.

It is apparent that the appointment and licensing of pilots is not planned or adequately administered. It is difficult to suggest any short term remedy for these circumstances, however, it is recommended that:

- The procedures and process of testing and issuing licenses to pilots be investigated and modified to comply with International Maritime Pilots Association and IMO requirements.

12.5.8 Line handling and line boat

Line handling onshore is carried out by PPA personnel, although security staff and harbor control personnel have been observed handling mooring lines on the quay. Line boats are presently provided by the shipping agent due to the absence of available craft operated by PPA. Because of this, PPA is unable to charge a line boat fee and foregoes a small but ongoing revenue source. If PPA owned more suitable work boats, a line boat service could be provided. In normal circumstances, the line boat service is provided by the port authority directly or under contract. It is recommended that:

- At least one vessel suitable to operate as a line boat be procured and a suitable part-time operator (coxswain) be engaged to operate the line boat.

12.5.9 M.V Golden Micronesia (parcel tanker) berthing bow in

IMO regulations require that all bulk liquid fuel tankers berth with their bow facing seawards (facing towards the harbor entrance). This allows a vessel faced with an emergency, such as a fire on board or onshore, to depart the berth as quickly as possible without the need to maneuver by swinging the vessel before steaming out.

The liquid product tanker which delivers fuels (aviation, diesel and petroleum) to Pohnpei, the M.V Golden Micronesia, is noted to always berth at the quay port-side, with the bow facing into the port so that the unloading manifold of the vessel can be lined up with the discharge point located on the berth. Although FSM is not a member of the IMO or a signatory to any of that body's maritime protocols, this procedure is in direct breach of this important regulation.

An internal PPA detailed assessment of this procedure is needed, to examine options for modifying the unloading arrangement so that a new berthing procedure can be implemented to comply with IMO requirements and generally accepted safety protocols. It is recommended that:

- Procedures for berthing fuel tankers, and in particular the M.V. Golden Micronesia, be investigated and modified to permit starboard-side berthing to comply with IMO safety requirements.

12.5.10 Incinerator at suitable location within TZ

All vessels entering Pohnpei are subject to quarantine inspections. A fee is charged for inspection with additional fees levied if waste goods are removed.

The demand for a port waste reception facility in Pohnpei is small but important for quarantine reasons. Waste is not accepted from the larger commercial merchant vessels unless specifically requested. The largest potential demand arises from the regular operations of the international and domestic tuna fishing fleets, including the larger motherships. The majority of the purse-seine vessels and motherships are fitted with oil separators, holding tanks and in some cases incinerators and their demand for waste reception facilities are, therefore, low. The long-line fishing vessels based in Pohnpei do not normally have holding tanks or oil water separators and hence require a shore waste reception facility. Currently all confiscated goods are incinerated either at the airport's small incinerator or transported through the township to the Customs and Quarantine office incinerator in Kolonia. Otherwise, quarantine goods are sealed and left on board the vessel until the vessel departs. It is recommended that:

- A medium sized gas fired incinerator be constructed within the TZ area and operated under control of PPA. The cost of providing and operating this facility could be recovered through access charges and will also allow PPA to offer the service for other government and private interests requiring disposal of designated materials.

12.6 Infrastructure Rehabilitation and Expansion

12.6.1 Hydrographic survey

To assist with planning any improvements relating to navigability of the approach channel or obstructions in the anchorage, PPA needs to obtain more detailed hydrographic information for the entire port and harbor than is presently available.

The only comprehensive hydrographic survey information available for the Port of Pohnpei is the US Navy marine chart 81453, POHNPEI HARBOR, 7th ed issued on November 8, 2008. The main area of the harbor inside the outer reef is shown on the chart to be based on LIDAR, referenced as US Navy LIDAR Survey, Archive No. 04HFM01 (2006). This LIDAR data will be reliable and accurate at least to a depth of 20 meters.

It is recommended that:

- PPA approach the US Navy and request this LIDAR hydrographic information for the entire area of coverage across Pohnpei;
- Once the LIDAR information is received, a detailed assessment will identify any areas which have not been adequately covered. Further hydrographic survey should then be commissioned to complete the survey coverage.

12.6.2 Condition survey of sheetpile wall

Since the quay wall is nearing 40 years in age, PPA should conduct a thorough visual inspection of the steel sheetpile wall. This inspection should be conducted at low tide to enable viewing as much of the steel as possible. The inspection should also inspect and

assess the condition of the tie rods where they pass through the sheetpiles if possible. The inspection should be thoroughly and carefully documented as a permanent record, and should be used to make an assessment of the general condition of the sheetpiling and the concrete capping beam. Any areas where corrosion is found to be severe should especially be noted and the location clearly identified. If any areas along the sheetpile wall are found to be corroded, PPA should undertake repairs as necessary to extend the life of the wall for another 15 years. PPA personnel should be able to conduct this condition assessment within their maintenance budget; hence no cost will be allocated for this task. It is recommended that:

- An immediate inspection program be undertaken of the sheetpile wharf condition in line with details described above. Any incidence of major damage or visible corrosion beyond common accepted wear and tear be reported and the services of a qualified marine structural engineer be engaged to make further assessment and recommend suitable methods of repair.

12.6.3 Navigational dredging

A scheme to re-align the main approach channel into the Port of Pohnpei has been proposed by PPA (refer report and drawing provided by the Manager, Facilities and Construction Division, 8 March 2010). Item 9 of the proposed Seaport Facilities capital improvements states:

> *9. Seaport Route deepening and coral islet and edges clearing – The above proposed turning basin widening and deepening project [Item 8 of the report] will be entailed with proposed continuous clearing and widening of the shipping route all the way out to the coral reef opening or entrance (please see goggle earth picture). Deeper studies of the concept and the involved amount of work is very much required and for the breaking and listing down of the Cost. Please see Google Earth picture no. 17 of sheet no. 7.*

The proposed channel re-alignment significantly improves the channel alignment and removes two large-radius bends in the existing channel. It is difficult to estimate the total cost to complete the dredging needed to completely re-align the channel as proposed. Based on a dredging volume of 21 million m^3, the estimated cost could be in the order of $150 million. A less ambitious realignment of the channel, involving around 8 million m^3 of dredging could cost in the order of $60 million. One significant issue with a dredging project of this magnitude is the matter of disposal of this quantity of dredged spoil, without causing excessive environmental impact. Disposal offshore in deep water could be the preferred method for dredged spoil disposal but would add to the cost.

Using the current marine chart, 81453, POHNPEI HARBOUR, a preliminary analysis of the minimum channel requirements for the Pohnpei approach channel has been undertaken, using PIANC guidelines[15]. This analysis indicates that the existing channel is adequate in depth, width and bend radius for its entire length for two-way traffic, except for a couple of locations where the channel width on the bend is less than adequate by about 40 m. In addition, the entrance through the outer reef is only wide enough for one-way transit, which should be adequate for much of the time.

[15] Approach Channels – Preliminary Guidelines, PIANC-IAPH, PTC II-30, April 1995.

It is recommended that:

- The channel be retained on its current general alignment and relatively minor improvements made to remove some existing hazards to navigation.

The estimated cost to carry out minor improvements to the channel, to remove coral islets and shallow outcrops is difficult to determine and needs further investigation. Based on enquiries made in Pohnpei, a local contractor should be capable of undertaking this dredging, which will significantly reduce the costs to be less than $300,000. The benefits gained will be significant, including:

- Reduced risk of vessels running aground on the edge of the channel or on shallow outcrops within the channel; and
- Providing a wider channel, particularly on the two bends.

12.6.4 Anchorage clearing/dredging

Within the boundaries of the anchorage, coral outcrops and high spots are a hazard to navigation and ships accommodated in the anchorage. Some of these can be seen in aerial photos of the anchorage and some are shown on the marine chart. Some are marked with rudimentary white poles, but a number of shallow areas are not marked. No GPS information is available to locate these hazards. The pilots rely on local knowledge to avoid them.

A detailed hydrographic survey of the anchorage or the LIDAR survey already completed by the US Navy will assist in identifying the location and size of hazardous outcrops.

The useful anchorage area can be substantially enlarged from its present 1.5 km^2 to 3 km^2 by removing some of these outcrops and high spots. The estimated cost to complete this dredging, utilizing a local contractor, could be less than $750,000. It is recommended that:

- A dredging campaign within the anchorage be commenced which utilizes a local dredging contractor, to be effective in achieving significant benefits, including:
    - Reduced risk of vessels running aground on shallow outcrops within the anchorage;
    - Significant increase in the capacity of the anchorage, estimated to be from 18 to about 30 reefer fishing vessels and associated purse seine vessels, and the attendant increase in fee revenue.

12.6.5 Fenders & bollards

PPA has in place a maintenance task to replace damaged fenders and corroded bollards along the main quay. Two new large bollards have been procured and await fitting. A number of new fenders have also been procured for fitting to the end face of the main quay. Preparatory work has been completed and these fenders are expected to be fitted this year, which will provide very useful berthing space for long line vessels which presently occupy the south end of the main quay. The F&C maintenance budget (awaiting board approved) for 2011 includes an allowance of $500,000 for replacement of the fenders on the main quay. It is recommended that PPA:

- Undertake a program to complete this work as soon as possible.

12.6.6 Terminal paving and container wash down area

The area of land within the TZ which is leased to Federated Shipping Company (FSCo) for a period of 15 years to carry out stevedoring and cargo storage and transfer activity consisting of 20,204 m^2 of wharf access has at present approximately 12,500 m2 of paved area. Further sealing and/or paving of unsealed terminal stacking areas where empty containers are stored awaiting the arrival of the next general cargo vessel for load out, is needed. The imbalance of full containers imported into Pohnpei against those loaded out with export freight is approximately 53/1 (for every 53 full import containers only one is exported with freight, the balance are exported empty). FSM is designated as a Giant African Snail (GAS) infested country by Australian Quarantine and Inspection Service (AQIS), New Zealand Ministry of Agriculture and Fisheries (MAF) and the US Department of Agriculture Inspection service (USDA – APHIS). All containers arriving from FSM are subject to isolation stacking and external inspection. If the presence of GAS is detected then the container is subject to pest fumigation and the resulting cost is borne by the importer and/or ships agent. This cost is then associated with direct trading activity with the offending country that failed to meet the load out requirements for external container washing and cleanliness prior to load out.

In the case of Pohnpei the storage of containers awaiting load out on unsealed areas contributes a high risk of GAS contamination. Additionally any number of other exotic pests may also infest the externality of the containers prior to load out. AQIS targets imported sea containers and break bulk cargo from high–risk Giant African Snail (GAS) areas, for inspection prior to release from the terminal.

AQIS states the following on their 'Sea Container Hygiene Scheme' website:

http://www.daff.gov.au/aqis/import/sea_container_hygiene_scheme#high

> *"Measures that can be put in place offshore include:*
>
> 1. *ensuring ports of loading have effective means to clean shipping containers prior to loading*
> 2. *to minimise the risk of recontamination, ensuring cleaned containers are stored in a clean area prior to loading*
> 3. *ensuring cleaned containers are not re-contaminated in transit to the ship, prior to loading*
> 4. *increasing sea container hygiene awareness with overseas clients and offshore container processing facilities"*

The estimated cost to complete the paving of the terminal is $200,000.

It is recommended that:

- PPA negotiates with FSCo a contributing amount of shared cost to construct bitumen seal to all unsealed areas of the container/cargo terminal operated under the by FSCo lease. In doing so, the PPA should include the requirement for FSCo to install at their cost a dedicated container wash down facility with permanent container frames mounted over waste water drainage basins.

12.6.7 Terminal lighting

There is an absence of lighting towers at the PPA wharf with which to provide operational and security lighting for nighttime working at Pohnpei. There are instances of cargo vessels

and fishing boats continuing work during nighttime and in such instances rely upon ships lighting to illuminate such activity. It is recommended that:

- PPA invest in providing up to 4 lighting towers which can be lowered (hinged) during times of cyclonic or high winds.

12.6.8 Fire mains

No fire mains exist inside the terminal. A fire ring main and hydrants should be installed in the terminal to provide an adequate facility for fighting a fire in the terminal or on a berthed vessel. The Pohnpei Fire Department should be involved in the design and approval of this fire main and hydrant installation. The cost is estimated to be $300,000. It is recommended that:

- A project be established for supply and installation of a fire ring main and hydrants in accordance with Pohnpei fire regulations.

12.6.9 Navigation aids

In the short term, the Seaport Division Maintenance crew should include checking on a regularly (weekly) basis that all lights on the navigation aids within the harbor limits and along the approach channel are operating correctly and are well maintained, including any replacements as necessary. After observing from the bridge (*MV Islander*) the transit of a general cargo ship from the pilot station to the main quay under pilot direction, it is apparent that the three lead marks shown on the marine chart are inadequate for clearly defining the lead line for entering the port through the entrance channel in the outer reef. The US Coast Guard has also commented that range markers are very difficult to locate due to their small size and poor color contrast to the surrounding landscape. In conditions where visibility is restricted due to sun glare or heavy rain the marks are barely visible at close range.

It is recommended:

- In the short term, these marks need to be painted a higher-contrast color (red/white stripes) to improve their visibility. The mark at the entrance should be fitted with a larger red can, to comply with the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA-AISM) standards. All other navigation aids and marks should be re-painted red or green.
- All maintenance of navigational aids should be undertaken in accordance with IALA-AISM Guideline No. 1077, Maintenance of Aids to Navigation, Ed 1, Dec 2009.
- A number of coral heads and high spots remain unmarked along the main approach channel and inside the anchorage. Until these areas can be removed by dredging, as recommended in earlier sections of this report, they should all be marked with white-painted spars embedded in the seabed. These need to be installed as permanent (vandal-proof) markers or navigation aids on all coral islets within the boundary of the anchorage and the approach channel.
- A longer term improvement to navigation aids must include a technical review of the range marks, with a view to replacing these with modern lead lines, designed and installed in accordance with IALA-AISM Guidelines for the Design of Lead Lines, Publication No. 1023, and Dec 2001.

12.6.10 Alternative location for CFC lease area and purse seiner vessels

The current lease arrangement with CFC at the north end of the main quay and adjoining land-backed area has resulted in the loss of about 60 meters of quay owing to this area having been fenced off for exclusive use by CFC. It is apparent that the terms of the lease do not permit this action, and PPA should endeavor to retrieve this length of quay for shared use with CFC and other port users.

It may be appropriate to rearrange the area provided to CFC within the terms of their lease, to provide an equal area further to the north beyond the northern end of the quay wall. Suitable options would be for an equal area (4,769 m^2) and a new length of quay wall for berthing purse seine vessels engaged in maintenance and provisioning activities. A berth of 100 meters length would be more than adequate for this purpose, and a 70 meter berth is likely to be adequate, if a mooring bollard is also provided on land beyond the northern end of the new berth.

Some dredging may be required to provide navigable depth of about 7.5 meters at the berth. The berth structure can be constructed as a steel sheetpile wall and concrete capping beam, similar to the main quay. Fenders and bollards will complement the berth. Fuelling a water points will be needed to service the purse seine vessels. A new access road will be needed to the new lease area. The lessee would be responsible for providing any other infrastructure (fences, buildings, offices, etc) on the lease site.

The cost of providing a new lease area and berth is estimated to be $2.5 million.

It is recommended that:

- Following successful negotiation with CFC to relocate their operations away from the main quay and their current leased area, develop a project to provide a new lease area of equal size, together with a new berth and services for purse seine vessels beyond the north end of the main quay wall.

12.6.11 Activation of fuel lines at fishing wharf for long liners/purse seiners

The new fishing wharf located south of the main quay has been designed to accommodate the long line vessels visiting Pohnpei for their fishing activities. One of the important activities for these vessels is refueling. However, the fuel delivery pipeline from the FSM Petroleum Corporation tank farm in the port only connects to the discharge points along the main quay. It is understood there are three such points along the main quay. There are no connections to the fishing wharf, even though this wharf was constructed to include at least one refueling outlet directly behind the berth face.

The present operation for long line vessels, therefore, is for every vessel to berth at the south end of the main quay rather than at the fishing wharf, so they can refuel.

It is recommended that:

- The existing fuel points on the fishing wharf be connected to FSM Petroleum Corporation’s delivery pipeline to allow refueling of long line vessels at the fishing wharf.

The cost to complete this connection is estimated to be $100,000.

12.6.12 Evaluation of new fishing dock between existing fishing and main dock

At certain times during the fishing season, the demand for berth space within the port out-strips the availability of suitable berth space. This is particularly the case with purse seine and long line vessels. A possible option for providing additional berth space for purse seine vessels has been discussed above. Moving long line vessels to the fishing berth will also contribute to freeing up berth space along the main quay, needed for essential vessel visits from general cargo vessels.

Construction of a new 55 meter dock to allow for extra berth space for long line fisheries operations at the southern end of the main wharf between the small boat ramp and the existing south facing fishing berth will allow extra berth space for long line vessels adjacent to the ice making plant. Long liner vessels require loading of up to 10 tons of ice prior to departure for fishing and currently congregate at the south end of the main quay creating substantial congestion.

It is recommended that:

- a project be established to redevelop the unimproved area between the south end of the main quay and the boat ramp, as an additional berth suitable for long line vessels.

The estimated capital cost of this development stage is $700,000.

12.6.13 Estimates of Costs

Table 30 - Summary of estimated costs of short term infrastructure improvements

PPA Improvement Plans	Development Stage	Capital Cost (US$'000)
Short Term Operational Improvements	**1a**	Internal Costs
Short Term Infrastructure Improvements	**1b**	
Hydrographical Survey		$100
Approach Channel Dredging		$250
Minor improvements (fishing wharf bunker, terminal lighting, quay wall condition survey, replace wharf fenders and bollards)		$700
Fire ring main and hydrants		$300
Terminal paving in container storage areas		$200
Work/push boat		$250
Pilot launch		$80
Navigational aids including new lead line markers		$200
Governance Improvements, Financial Performance and Practices	**2**	$300

Table 30. Cont.

PPA Improvement Plans	Development Stage	Capital Cost (US$'000)
Long Term Infrastructure Improvements	**3**	
New berth for purse seine vessels (north end)		$2,500
New berth for long line vessels (south end)		$2,000
Anchorage dredging		$750
Turning basin dredging		$50
Ongoing Improvement Plan	**4**	
Maintenance of improvements implemented during Development Stage 1		$100+ (dependent upon the scale of improvements undertaken)
Long -term monitoring and consolidation of govenance and financial control improvements implemented during Development Stage 2		
Bi-annual reviews of Port Development Strategy		

12.7 Strategy Options

12.7.1 Staged Development

Four Development Stages have been prepared, which provide PPA with guidance for immediate, short-term and long-term measures to improve the performance and management of the Port.

The short-term improvements as detailed in the Short Term Improvement Strategy have been identified as being worthy of further consideration as they offer operational and economic benefits without major capital cost. The Short Term Improvement Strategy is described in detail in Section 12 of the Report, and has also been prepared as a stand-alone report.

The four Development Stages are:

Development Stage 1 – Urgent Rehabilitation Measures.

This stage includes all recommended measures which are needed as soon as possible, to meet safety and operational standards, and immediately improve the operational performance of PPA and the Port.

Development Stage 2 – Operational, Governance and Organizational Improvements

This stage addresses a range of improvements needed to the organization and governance of PPA's operational procedures and management practices. These improvements are aimed at making optimal use of and obtaining the greatest benefit from PPA's existing organizational and corporate capacity to operate as a successful business enterprise.

Development Stage 3 – Selected Measures for Long-term Development

A number of more ambitious measures will bring significant operational and infrastructure improvements to the Port. These measures will provide selective expansion of the port's facilities where specific improvements can be targeted for the greatest benefit.

Development Stage 4- Development Consolidation

Long-term improvements need to be planned and implemented to bring on-going and continuous improvement to both the port's infrastructure and to the business of operating and managing the Port for long-term benefits to all stakeholders.

The Short Term Improvement Strategy needs to include implementation of Development Stages 1 and 2. These infrastructure stages and development scenarios are designed to individually provide short term benefits and are worthy of further consideration as they exhibit operational and economic benefits without major capital cost. These are:

12.7.2 Development Stage 1

a) Short Term Operational Improvements

- Relocate all vessel boarding by clearance officers to the anchorage;
- Provide safety equipment to the pilot boat;
- Review the berthing procedure for the *MV Golden Micronesia* to permit bow-out berthing, in compliance with IMO standard procedures;
- management of the current operations needs attention to plan vessel movements in harbor limits to ensure safe berth access is available to priority calling vessels;
- An external audit of PPA's current seaport operation will identify work necessary to enable PPA to achieve basic compliance with accepted operational standards for safety and security at seaports (in preparation for becoming an operating member of IMO conventions).

b) Short Term Infrastructure Improvements

- hydrographic survey of Pohnpei navigation channel and/or obtaining the LiDAR mapping details (laser image detection and ranging survey) from the US Navy;
- dredging a re-alignment of the navigation channel at No.5 and No. 8 channel markers to provide a safer navigation route for vessels entering and departing Pohnpei seaport
- Connection of bunker pits via pipeline to fuel tanks at the new fishing wharf;
- Installation of terminal lighting, firemains and paving of terminal area;
- Condition survey of sheet pile wharf and infrastructure content; and
- Replacement of wharf fenders and bollards at main wharf site (already programmed).

12.7.3 Development Stage 2

c) Governance Improvements

- Implement a system for monitoring the performance of the stevedore's operations;

- Undertake an asset maintenance audit;
- Undertake a TZ boundaries audit and rectification of anomalies;
- Undertake a human resources audit and implement a workforce planning process;
- Re-assess and re-arrange the role and activities of the Board of Directors;
- Implement a program of management and organizational strengthening;
- Improve general management practices;
- Implement a risk management process.

d) Financial Performance and Practices

- Overhaul the debtor control process and procedures;
- Review all tariff charges;
- Implement a quarterly financial and budget review process;
- Implement a short-term cash investment process;
- Modify revenue reporting procedures to reflect actual practices;
- Modify ledger process to separate seaport and airport financial activities;
- Implement a formal internal audit process;
- Implement a monthly financial report process for Board meetings;
- Overhaul the operation of the accounts office;
- Implement an EFT process for funds transfers.

Development Stages 3 and 4 are discussed in detail in Section 13 of this report.

13 Long Term Development of the Port

The Short Term Improvement Strategy has identified a range of measures recommended for improving the operation and management of the Port in the immediate future. A longer term strategy can be defined by two further Development Stages, which outline measures which, while not needed immediately, will bring operational and other benefits to the Port in the longer term future. Detailed discussion of the proposed measures included in these two Development Stages has been provided in previous Sections of this Report.

13.1 Development Stage 3

A number of more ambitious measures will bring significant operational and infrastructure improvements to the Port. These measures will provide selective expansion of the port's facilities where specific improvements can be targeted for the greatest benefit.

Improvements include:

- Construct a new 100m dock at the northern end of the main wharf stepped in and at a different alignment to provide a relocation of the existing tenant who has a binding lease to 2021. This development will be occupied by CFC and return the northern end of the main quay line to PPA full operation and deliver unconstrained safe operations to vessel traffic berthing and departing Pohnpei. The estimated capital cost of this development stage is $2.5 million;
- Construct a new 70m dock to allow for extra berth space for the fisheries operations at the southern end of the main wharf between the small boat ramp and the existing south facing fishing berth. This will allow extra berth space for long line vessels adjacent to the ice making plant. Note; long line vessels require loading of up to 10 tonnes of ice prior to departure for fishing and currently congregate in this area creating substantial congestion. The estimated capital cost of this development stage is $2.0 million;
- Anchorage dredging to remove a number of coral heads to allow extra capacity for commercial operations of fish catch transfer and to mitigate safety issues of current anchorage conditions. The estimated capital cost of this development stage is $750,000; and
- Develop a new Port Development Strategy for the future development and growth of the Port.

13.2 Development Stage 4

Long-term improvements need to be planned and implemented to bring on-going and continuous improvement to both the port's infrastructure and to the business of operating and managing the Port for long-term benefits to all stakeholders. The measures included in this Stage are:

- Maintenance of improvements implemented during Development Stage 1;
- Long-term monitoring and consolidation of governance and financial control improvements implemented during Development Stage 2; and
- Bi-annual reviews of the Port Development Strategy.

14 Conclusions and Recommendations

The main conclusions of this study are that the seaport of Pohnpei is currently poorly managed and requires enhancements to the operating structure and implementation of benchmark performance standards to ensure delivery of effective services. The seaport has been operated on an ad-hoc basis without a clear focus and definitive operating model and that the current infrastructure is inadequately maintained and not efficiently used.

Financially, the seaport is subsidizing the airport operations and financial performance needs and can be significantly improved through the intervention of tariff reviews. Trade forecasts project only limited growth in the foreseeable future and therefore current facilities are more or less adequate but need to be better operated and utilized. The current organization structure is not very effective and demonstrates signs of disconnect of essential information flow between departments. The report proposes a short term improvement strategy with a phased approach in three phases over a period of 5-6 years and makes the following specific recommendations.

14.1 Governance and Financial Performance

The Short Term Improvement Strategy will only suffice to protect current cash flows of approximately $550,000 per annum. The improvements and expenditure on new infrastructure and deployment of new and improved equipment and implementation of institutional strengthening will not directly deliver increases in more vessel arrivals and greater movement of freight across the wharf. Market growth will be borne by greater involvement by the PPA in their own institutional strengthening and proactive involvement in driving and developing market initiatives that will yield gains in volume throughput.

There remains a level of concern as to non-collection of outstanding monies for services provided. This ongoing aspect of the commercial operation of the PPA reflects poor controls and governance protocols.

The quantum and number of outstanding debtors is cause for great concern given that any ability for PPA to return its service tariff and fees to realistic market levels would be compromised by the inability to collect monies due to it. Furthermore where the PPA wishes to engage upon new infrastructure developments and incur liabilities of capital expenditure and borrowings for capacity building, they also come under scrutiny with their ability to finance such from their cash flow against the background of their inability to recover monies owed. In the process of separating the accounting entities it is quite clear that the airport operational losses are subsidized by seaport revenues and profits. The ongoing effect of non-recovery of monies will affect not just the cash flow of the seaport operations but also the ongoing ability of the PPA to cross-subsidize its airport operations.

The culmination of recent year's trading in which ageing debtors have accumulated to the current position in excess of $1.3 million and building by the month, coupled with recent PPA Board agreement to extend credit terms beyond the previous 30 day period to 60 days and decisions to continue trading with customers that exhibit poor payment records without taking into account any assessment of its liability, is exposing the PPA to unnecessary high risk exposure.

Failure to arrest the ongoing problem by an immediate halt to current trading terms with delinquent debtors and changed arrangements to include recovery and cash against services may well draw the attention of external or internal auditors to question and report on

this activity. Such non-attention will create short and longer terms issues for the PPA in its cash flow and in its ability to show good corporate governance over its own internal affairs. The result may well have an impact upon the PPA's ability to secure funding from financial institutions and credit agencies. Similarly, the PPA is ignoring the potential developments and yields from TZ land rentals. There is an immediate need to make gains in improving rental income to commercial standards and treatment of land as an asset regardless of the tenant.

The PPA, in providing consolidated financial statements, creates limited exposure of the actual trading costs and revenues for both airport and seaport as separate transportation activities with their own areas of operation. It is considered necessary to introduce a group discipline to separate the true trading entities in financial reporting and in operational activity. This would include preparing separate budgets for each entity and reporting separate cash flows and profit and loss monthly statements showing variances against itemized budgets. The true nature of operational cash flow and the true identify and actual quantum of costs could be allocated to their correct trading entity.

Failure to introduce a group discipline will continue the uncertainty of trading activity and assumptions of longer term (next 10 years) operational viability.

It is generally accepted that Pohnpei seaport will be operated by a single stevedore under license or concession from the PPA. The PPA regulations are not sufficiently clear to state that this monopoly restriction is enforceable and therefore may be contested by one or more other party. What is understood is that the PPA granted permission to the existing stevedore to increase their tariff for services by 54% in 2010. This large one-off increase represents a massive jump to users which will most likely be passed on in freight rates. It is not evident that PPA takes such actions into consideration with flow-on landed price and community and wider economic effects. The application of such considerations would be necessary to allow for free debate and transparency of operations and how PPA delivers their corporate and community obligations.

It is understood that the PPA invited the business community and the general public to meet and discussed the tariff increase before the approval was ratified.

The stringent and high degree of institutional application provided towards the Pohnpei airport by the PPA under the watchful and prescriptive direction of the FAA is at stark contrast to what occurs at the Pohnpei seaport.

The institutional management of maritime safety at Pohnpei and wider in FSM are currently insufficient to meet international standards that are becoming more and more a part of a sea port's core business to allow international trading to be conducted. There is no apparent involvement from the National FSM government agency (DTC&I) to engage in the review, understanding or development of a policy to keep watch of existing maritime conventions and protocols, which they are not compliant with.

There is a further misalignment of where the State authorities and national authority powers intercede. The DTC&I are currently a provider of shipping services, and the regulator of maritime safety. In observation and enquiry it is difficult to ascertain for certain where clear assignment of responsibility and accountability resides for the provision of navigational aids and the general management of maritime safety outside port limits. There should be immediate action to ensure that this interpretation of duties is clear and documented.

The fact that FSM has yet to ratify many of the major international maritime conventions is also a cause for concern. The FSM has taken the responsible position that it is unwilling to

commit to conventions that it does not have the capacity to enforce. But the fact that breaches of some of the conventions to which FSM is not a signatory, such as MARPOL, may have serious cross-border consequences and reinforces the case for capacity building in this area. Becoming a signatory member of the IMO should be a prime objective of the FSM Government.

The lists of activities that require attention under an institutional framework are recorded in detail in Section 12 of this report and others of administrative importance would need to be investigated fully to support any attempts to make improvements in high level institutional governance procedures. Such administrative supporting activities would include development of controls over documentary policies and procedural publications. At present there are no documentary controls and it is difficult to ascertain which publication is the active and current one.

It has been observed by the study team that a high incidence of legal proceedings is prevalent in Pohnpei which appears to be standard procedure when two companies are in dispute. This for PPA shows signs of involving high workloads and added costs to any attempted resolution of commercial disagreements. The considered opinion is that attempts should be made to seek resolution by prompt and direct commercial action and negotiation for such matters that contribute a significant level of revenue or cost.

A reinvigorated approach to direct involvement in the market with users both at local representative level and with owners and principals of companies would position the PPA to make and initiate critical business decisions about its current operations and allow strategic developments to be driven for the mid- and long-term future.

14.2 Prospects for Growth and Expansion

Forecast trade growth for the Port of Pohnpei, as described in Section 7, will be flat or possibly negative for the foreseeable future. This strongly indicates that cargo volumes and the number of ships visiting Pohnpei will not increase by means of current and existing trade activity. Any demand to support decisions for expanding the port's facilities will not eventuate unless the PPA takes proactive steps to engage in market developments.

Any new port infrastructure can only be justified in terms of improving the efficiency of the port's operations and improvements in safety, ease of operation, improved reporting and general management of the port. Implementation of any port improvements (as discussed in more detail below) are not expected to result in any tangible benefits by way of trade growth.

14.3 Short Term Improvement Strategy

A range of improvements to the governance, operation and infrastructure of the Port of Pohnpei have been identified. These improvements aim to address a range of constraints identified as affecting port operations, service delivery and organizational performance. Some of these improvements have been developed to bring real efficiencies to the operation of the port. Other improvements address shortcomings in the safe operation of the port, and are considered to be essential to ensure the safety of personnel, vessels, cargo and the public.

14.4 Longer Term Infrastructure Expansion

The present seaport of Pohnpei is constrained by a number of historic agreements, transfers of obligations and rights under various interventions of State and National Governments

which are then complicated by non-direct action by PPA in resolving disputes and uncertain activities of various parties within its area of responsibility.

The construction, under the terms of an aid package many years ago, of a fish transfer facility at the southern end of the wharf which is located a few meters away from the main wharf dock side is currently and reportedly been inactive for many years. This presents a clear constraint to vessel and cargo operations and is locked off by a gated perimeter fence.

The encroachment of fishing vessels berthing along the main quay, and in particular at the north and south ends, places significant constraint on the capacity of the main quay to accommodate general cargo and bulk fuel vessels. While it is recognized that fishing vessels are a major and dominant source of revenue for both PPA and the State of Pohnpei, general cargo vessels provide an essential service to the Pohnpei community by delivering essential consumer goods, and any constraints on this general trade must be corrected.

Accordingly, it is essential that the main quay be vacated by fishing vessels (both purse seine and long line vessels) to make the main quay available as a first priority to general cargo and fuel tanker vessels. Alternate berths for the purse seine vessels at the north end and the long line vessels at the south end should be constructed to achieve this objective.

14.5 Recommendations

Four Development Stages have been prepared, to assist with the sequencing of the recommended improvements and to prioritise the most urgently needed measures.

The following changes and improvements are recommended for implementation in forthcoming years, in line with current funding constraints:

- **Governance improvements** estimated at $100,000 - as detailed in Section 5:
    - Setting of a Corporate Mission, Values and Goals;
    - Review and approval of an annual Business Plan;
    - Approval of Financial Plans and Budgets;
    - Reviews of Accounting Practices;
    - Establishment of Audit Procedures both internal and external;
    - Review of Risk Assessment policies and controls including insurance covers and compliance with legal and regulatory requirements;
    - Review of the Company's Code of Conduct and Ethical Standards;
    - Approval of all Company Policies;
    - Scrutiny of monthly Management Reports including financial statements;
    - Review of Customer and Supplier relationships and contracts;
    - Scrutiny of human resource strategies and procedures including employment and remuneration.
- **Financial performance and practices** estimated at $200,000 - as detailed in Section 6:
    - A program to competitively align wharfage, pilotage and berthage charges with those being charged by other neighboring states is to commence in 2011 by incremental amounts over a period of three to five years.
    - An audit of all TZ land leases is immediately conducted and PPA seeks to negotiate commercial rates of return for businesses occupying and carrying on activities in the TZ area. This includes State and National FSM Government enterprises.

- An approach to State Government for a return of land removed from the TZ area or failing that a negotiated compensation for such removal back dated to the occurrence.
- Money at bank to be invested in bank guaranteed short to medium term deposits in order to yield highest possible return from PPA's funds.
- Direct action to be taken to recover outstanding debts and conduct a risk assessment on all parties engaged in commercial transactions with PPA to ensure compliance with the legislative conditions of trade with PPA.
- An audit of staff numbers and activities for seaport functions commencing with operational areas and those that are engaged in revenue generating roles e.g.: harbor control, line boats, pilot boats, linesmen etc. Followed by the assessment of roles and responsibilities for those engaged in administrative roles.
- A market review of how to attract potential allied industries to support fishing fleet operations be undertaken in order to strengthen the competitive position against Majuro and other competing ports. The more support industries clustered in Pohnpei would add to the attraction of fishing fleets to base their operations permanently there.
- A market review of cruise line routes and companies in order to understand the scope of services operating through the region and what type of shore based services and infrastructure they require to permanently schedule cruise voyages to Pohnpei. This project would require the engagement and support from FSM and State Tourism departments and Economic Development to ensure alignment of strategies.
- A review of security procedures and their implementation to ensure access to PPA assets is limited to authorized personnel for business use only, and should include both direct access and indirect access via documentation;
- A review of authorization and approval procedures and their implementation to ensure that all transactions receive authorization or approval by an appropriate responsible person.
- A review of accounting control procedures and their implementation, to ensure that transactions are duly recorded and processed and have been properly authorized.
- PPA should ensure full competency and integrity of personnel operating the management and accounting systems and ensure that qualifications, selection and proper training comply with the characteristics required for the particular functions.
- Supervision will need to be performed by trained and responsible managers for the day to day activities.
- Management Controls which provide for overall supervisory control, review of the management accounts and comparisons with budgets, internal audit functions and other special review procedures.

- **Short term operational improvements** estimated to be internal cost items as detailed in Sections 8 and 12:
  - Re-negotiate the Caroline Fisheries Corporation (CFC) lease to open up the north end of the main quay;
  - Modify the procedure for Government officers to board an arriving reefer fishing vessel at the anchorage instead of at the berth;

  - Provide safety equipment for all personnel in the port's pilot boat and other work boats;
  - Make improvements to pre-planning of vessel arrivals, departures and in-harbor movements, as well as berth allocations for all vessels;
  - Improve contract pilotage administration and granting and renewal of pilot's licenses; and
  - Modify the berthing procedure for fuel tankers to comply with IMO regulations.
- **Short-term infrastructure improvements** – estimated at $2,08M as detailed in Sections 9 and 12:
  - Obtain LIDAR hydrographic survey data from the US Navy;
  - Conduct a condition survey of the steel sheetpile quay wall;
  - Prepare a contract for dredging high spots in the approach channel and turning basin and commence dredging program of approach channel;
  - Prepare a contract for dredging high spots in the anchorage;
  - Procure a tug/push boat, pilot and other work boats;
  - Provide incinerator within the port for handling and disposing of hazardous quarantine wastes;
  - Replace all fenders and bollards along the main quay wall;
  - Construct terminal paving of the unsealed area (cost sharing between PPA and the stevedore);
  - Install terminal lighting to the whole container terminal yard;
  - Install fire ring main and fire hydrants in the container terminal yard;
  - Improve navigation aids with painting and replace the range markers with new lead marks; and
  - Connect bunker fuel to the new fishing berth.
- **Long-term infrastructure improvements** - estimated at $5.3 million
  - Construct a new berth and lease area for CFC in the current Misko lease area at the north end;
  - Complete dredging of the anchorage to remove high spots;
  - Complete dredging the turning basin; and
  - Construct a new fishing berth at the south end adjacent to the boat ramp.

All of these recommended improvements need to be identified as individual projects, which can then be prioritized and further feasibility study applied to each project to assess its feasibility, benefits, value and plan of action for implementation, including funding.

APPENDICES

Appendix 1 - Terms of Reference, Pohnpei Port Scoping Study, FSM

1. BACKGROUND INFORMATION

The State Government of Pohnpei recognizes the need to upgrade and expand the port of Pohnpei in order to better serve the needs of port users and to gain maximum benefits from port operations, enhance trade facilitation support to the fishing industry and commercial operations within the port, and improve competitiveness by enhancing productivity and quality of port services. The Pohnpei Port Authority has prepared a comprehensive commercial dock expansion program designed to handle increased shipping activity arising from the development of the country's fishing resources. There is also the need to address results-oriented management of Pohnpei port's systems and organization (Pohnpei Port Authority), improve port service delivery, and emphasize on performance and profitability of operations.

The State Government of Pohnpei has requested financial and technical assistance from its development partners for the construction work and related expenditures associated with the expansion program. The Asian Development Bank (ADB) has, as a first step, with the concurrence of the Government, proposed to an initial scoping study to determine the needed improvement to the port. PIAC has been requested by the FSM to provide assistance for the conduct of the scoping study.

2. SCOPE OF WORK AND METHODOLOGY

A scoping study focused on two major aspects is proposed to be undertaken:

2.1 Business Assessment

1) Identification and assessment of existing port facilities and support infrastructure (e.g. water supply, power, drainage, etc), services provided, logistical chains, customs procedures, operations and performance efficiency.

2) Analysis and projections of likely future demands upon Pohnpei port's facilities and services in terms of the requirements of the commercial and fisheries sectors. This will include analysis of the shipping movements at the port over the last five years, identifying changes in shipping services including patterns of usage and likely developments going forward. The future projections should include an assessment of both commercial cargo movements, specialized shipping activities (inter island services/oil/chemicals etc) and fishing vessel usage.

3) Analysis of other relevant port usage (e.g., mooring and stevedoring) to build an understanding of the changing pattern of shipping activity and the implication these changes have on the future infrastructure capacity and service delivery capability of the port.

4) Review and analysis against projected requirements of the commercial dock expansion program that has been developed to increase the capacity of the port facilities – that includes a turning basin and channel deepening; improvement of the anchorage area; and a widening program intended to increase the efficiency and effectiveness of the port.

5) Undertake a financial analysis of the Port and in particular, determine current sources of revenues and tariff structure, assess current financial viability of operations, determine whether revenues are maximized based on constraints in availability of core facilities or the extent to which trade-offs among different

services are exercised, and determine the scope for improvement in financial performance. The analysis should include the building or use of an existing financial model that is capable of testing different scenarios under changing financial variables such as revenues, operating costs, financial structural changes – increasing levels of debt and debt servicing charges and changes in key financial ratios based on the proposed upgrading and/or expansion program.

6) Review the current organizational capability of the Pohnpei Ports Authority from the perspective of its planning function and the robustness of the analysis it has undertaken in terms of the proposed expansion program. The review should also focus on confirming the Authority's understanding of the linkages between the projected future shipping activity at the port and the possibility of its translation into a proposed capital investment program.

2.2 Short-Term Port Improvement Strategy

Using the results of the above assessments and analysis, determine if a port upgrading or an expansion program is needed and warranted. If the former, develop options for preliminary port Improvement Strategy that will assist in the mitigation of the significant challenges presently confronting port operations, services delivery and organizational performance. It is envisaged that the strategies will tackle the following issues:

- Optimize commercial shipping and fishing vessel movements within the port facility. An improved scheduling of shipping movements using logistical tools that would lead to immediate improvements in critical time sensitive shipping and cargo/material handling requirements.
- Propose possible financial strategy options designed to lift financial performance. The plan should be based on a review of tariffs, savings resulting from changes in operational processes, improved management of overhead expenditure and if appropriate, changes to the capital structure of the port.
- Determine needed changes in governance and set out organizational capacity strengthening requirements for the effective implementation of the strategic and tactical actions for the strategy.

If an expansion program is needed, determine the scope of civil works taking into consideration the developed commercial dock expansion program, and layout the requirements and action plan for the Government for the conduct of a feasibility study.

3. SPECIALISTS REQUIRED

The Study is proposed to be undertaken by two international consultants: a Business Assessment Expert/Team Leader for a maximum of 2.25 months and a Maritime Operations/Engineering Expert for 2.0 months.

3.1 International Business Assessment Expert

The Business Assessment Expert should have maritime experience; knowledge of assessment of public enterprises' operational and financial performance and competitive status; 5-7 years experience in business analysis and conduct of pre-feasibility and feasibility studies; and excellent interpersonal skills, including cultural and gender sensitivity. The Expert shall:

a) Lead the review of existing documentation and conduct of consultations with key Government officials of the State of Pohnpei, the Pohnpei Ports Authority and other FSM ministries involved in port operations and management as well as port users

and the private sector for the conduct of the Business Assessment and formulation of the short-term Port Improvement Strategy.

b) Undertake a financial analysis of the port including its revenue and tariff structure, assessment of the commercial viability of its operations and determine the scope for improvement in financial performance.
c) Review current participation of the private sector and recommend suitable roles in providing, using, and maintaining some facilities in the port.
d) Determine the governance structure in the port, review the organizational capability of the major agency(ies) involved in port operations and management, and determine any organizational capacity strengthening requirements.
e) Lead the preparation of the draft Business Assessment Report containing findings and recommendations, its presentation to Government officials, and finalization.
f) Lead the preparation of a Final Report, including the conclusions of the Business Assessment Report and the options of a Port Improvement Strategy for the Port of Pohnpei.

3.2 International Ports Operations/Engineering Expert

The Port Operations/Engineering Expert should have 5-7 years experience in port and harbor operations and engineering design; 5 years experience in the conduct of pre-feasibility and feasibility studies; and have good interpersonal and multicultural skills. The Expert shall:

a) Identify and assess existing port facilities and support infrastructure (e.g. water supply, power, drainage, etc), services provided, logistical chains, customs procedures, operations and performance efficiency. Recommend ways to improve operational performance.

b) Analyze and make projections of likely future demands on the port's facilities and services in terms of the requirements of the commercial and fisheries sectors. This will include analysis of the shipping movements at the port over the last five years, identifying changes in shipping services including patterns of usage and likely developments going forward. The future projections should include an assessment of both commercial cargo movements, specialized shipping activities (inter island services/oil/chemicals etc) and fishing vessel usage.

c) Determine and analyze other relevant port usage (e.g., mooring and stevedoring) to build an understanding of the changing pattern of shipping activity and the implication these changes have on the future infrastructure capacity and service delivery capability of the port.

d) Assess the commercial dock expansion program that has been developed to increase the capacity of the port facilities which includes a turning basin and channel deepening; improvement of the anchorage area; and a widening program intended to increase the efficiency and effectiveness of the port. Recommend needed improvement based on projected port usage.

e) Provide input to the Business Assessment Report and assist in the presentation of findings and recommendations to the Government.

f) Identify potential environmental and social/resettlement risks that may result from the implementation of the proposed strategy options for port improvement.

g) Provide input to the Final Report and for the options for the Port Improvement Strategy.

Outputs of the Business Scoping Study covers identified commercial activities within the port including traffic volume and export and import flow; requirements and associated demand for port services and facilities; preliminary assessment of port performance (operational,

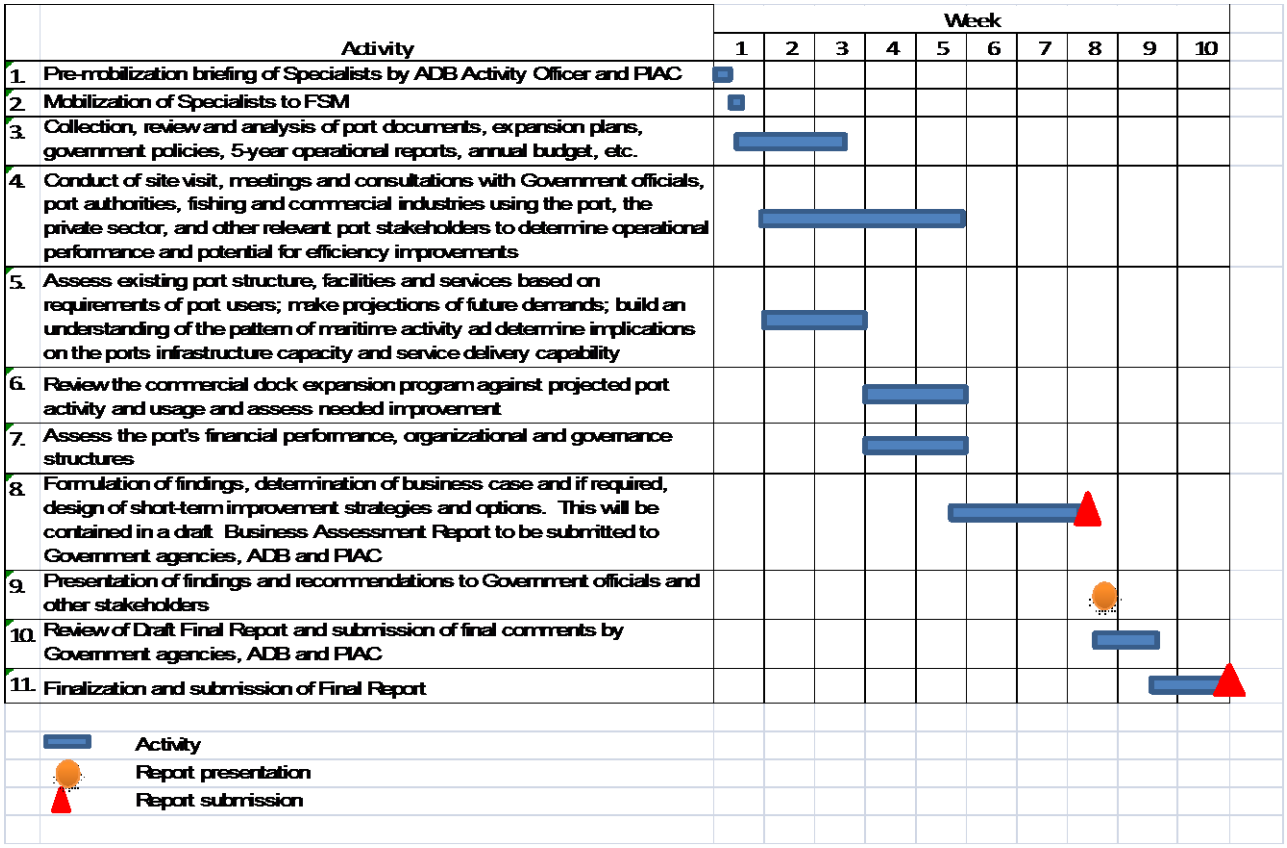
financial, institutional) and additional income generation and employment impact that can be gained from the proposed port upgrading; a list of required specific port infrastructure improvements; and preliminary institutional analysis of PPA and public and private sector agencies involved in Pohnpei port operations and management.

The Study aims to produce a report with recommendations on whether to provide and support the proposed port upgrading/development and a best development strategy/action plan for consideration by the Government and potential development partners.

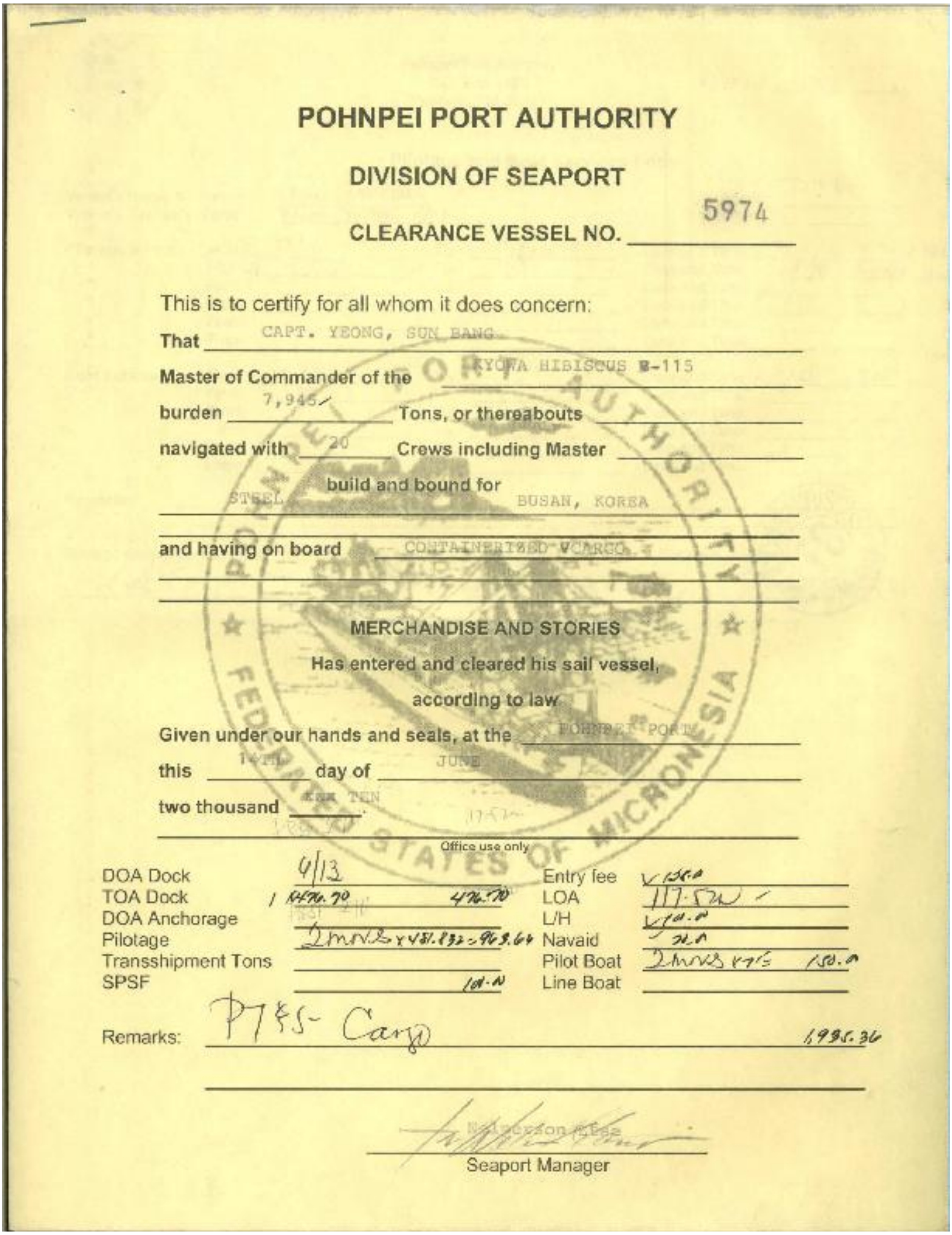
4. IMPLEMENTATION ARRANGEMENTS AND SCHEDULE

The State Government of Pohnpei is the executing agency. It will ensure provision of support and cooperation by the Pohnpei Port Authority, relevant Government agencies, and other stakeholders, during the Specialist field work and consultations and in assessing the output of the Scoping Study.

PIAC will provide the funds and oversee the overall implementation of this TA including the fielding of identified specialist. Activities involved in this TA are as follows:



Appendix 2 - PPA standard invoice request document



POHNPEI PORT AUTHORITY

DIVISION OF SEAPORT

CLEARANCE VESSEL NO. 5974

This is to certify for all whom it does concern:

That CAPT. YEONG, SUN BANG

Master of Commander of the KYOWA HIBISCUS B-115

burden 7,945 Tons, or thereabouts

navigated with 20 Crews including Master

STEEL build and bound for BUSAN, KOREA

and having on board CONTAINERIZED CARGO

MERCHANDISE AND STORIES

Has entered and cleared his sail vessel, according to law

Given under our hands and seals, at the POHNPEI PORT

this 14TH day of JUNE

two thousand TEN

Office use only

DOA Dock	6/13	Entry fee	150.0
TOA Dock	1 1476.70 476.70	LOA	117.52
DOA Anchorage		L/H	10.0
Pilotage	2 moves x 481.832 = 963.64	Navaid	20.0
Transshipment Tons		Pilot Boat	2 moves x 75 150.0
SPSF	10.0	Line Boat	

Remarks: P7&5 - Cargo 1,995.36

Seaport Manager

Appendix 3 - Complaint about PPA Pilots from Master of Kyowa Hibiscus

Recd 6/14/10

TO :Pohnpei Port Authority
CC : Pohnpei Transfer and storage inc
As an Agent

MV: Kyowa Hibiscus
Date: 14th June 2010

TO WHOM IT MAY CONCERN

This is report to your good office that K/Hibiscus called at Pohnpei on V-114 and 115,
When we are docking maneuver with pilot who name Mr Mathias Mongmog
on Voy 114 and Mr Ludig Yoshiro on Voy 115.
The above pilot mentioned was not in good operation for docking maneuver
and fear.
I think , not many experience for docking maneuver.

In the future ,Prevent or avoid for any incident happened
So please arrange Pilot who name Mr GIBSON HALVERSON and Mr VAUGH ALLAN
next call in Pohnpei .

Sincerely yours,

Capt. Bang Yeong Sun
Master of Kyowa Hibiscus

M/V KYOWA HIBISCUS PANAMA TC

Appendix 4 - FSM Immigration concerns over boarding vessels at Pohnpei anchorage

FSM IMMIGRATION & LABOR

Department of Justice

P.O. Box PS-157, Palikir, Pohnpei FM 96941 Phone: (691) 320-5844/2605 Fax: (691) 320-7250 Email: ImHq@mail.fm,Mesiel@mail.fm

3/30/09

RECEIVED

March 24, 2009

MEMORANDUM

TO: All Local Fishing Company Agencies/Agents
Commercial Vessels Agencies/Agents

THRU: Secretary, Department of Justice__________

FROM: Chief of Immigration & Labor

SUBJECT: **Security and Safety – FSM Inspectors at Anchorage Point**

I have repeatedly objected to the clearing of vessels at the anchorage point because of the potential threat to life it might cause when there are no security and safety measures provided and in place.

In this recent incident the life of a Custom Inspector was put in great danger during inspection conducted on March 2, 2009, whereby the inspector fell off a smaller boat and was almost crushed against the mother vessel when she was attempting to land safely on the small boat from the vessels' ladder. Title 18 §201 is very specific on where inspection is to be conducted and it reads in part that "all vessels must enter and obtain FSM clearance from an official port of entry... and no vessel shall call at any port in the FSM without first entering and obtaining clearance from the official port of entry..." emphasis mine. The official designation port for inspection of all vessels is at the wharf and not the anchorage point.

In this unpleasant incident the vessel entered and anchored at the anchorage point assigned by PPA, which is not an official port of entry, and further requires the services of the clearing parties to boat out and conduct clearance avoiding clearance at the authorized inspection area. We suspect what gave rise to this are: (a) the dollar amount involved/expenses; (b) pressed with time for loading and shipping; (c) availability of space at the wharf; (d) less hassle in the movement of vessels to and from anchorage; and (e) mindset in profit making not weighing in balance the importance of ones life. By law, "Mesenieng Harbor" is the designated port of entry and not the "Anchorage Point".

On an undivided point, the entry and departure of vessels at the port of entry is at the dock adjacent to the airport, similar to the arrival and departure of aircraft at the airport point of entry. The aircraft does not utilize any other holding area for its clearance other than at the official port of entry, which is the airport, and that is equally the same as vessels requiring inspection and other administrative inspections at the designated point of entry authorized by law.

Title 50 of the Code of the FSM, as amended by PL 12-65, mandated that incoming vessels shall be boarded by officials authorized by the President to perform inspection functions and the same procedure shall be followed for passengers arriving on aircraft, except that inspection shall be conducted after passengers have disembarked and prior to departure from airport terminals.

Within this context and frame of thought, the same procedure is applied except that clearing parties are required to board the vessel and conduct inspection on all arriving passengers and crew *after the vessel is secured at the wharf and is declared ready for boarding.* The same process is also done for clearance of all passengers and crewmembers prior to departure.

Conclusions and Recommendations

Boarding commercial fishing vessels and other sea going crafts, inherently a dangerous undertaking, has one of the highest concerns for the clearing parties and it exposed in most cases life threatening situations when our officers are called upon to conduct inspection at the anchorage point. Furthermore, PPA nor local fishing company agents failed to provide safety guidelines for boarding as well as its failure to provide each officer survival equipments. Overall, the local agents' safety performance record is so poor that the availability of the necessary survival equipments has become major sources of concern to us. Despite these facts, unlike most other maritime activities, the safety of boarding fishing vessels has gone largely unregulated.

The safety and security of our officers is most paramount and of the highest regard and must be the priority concern of all fishing and other shipping companies in the FSM, regardless of monetary and materialistic issues. I personally think this can improved to our advantage, not only in saving life but to expose our fishing industry to the world that we have excellent vessel boarding policies that are strictly regulated and there exist a systematic attention to safety throughout the industry, meaning a collaborative scheme between PPA, local fishing company agents, transportation and the government.

Furthermore, I feel that greater government involvement is required to bring all safety measures used into a cohesive and effective plan. Short-term plan of basic

safety measures is feasible to kick start a safety plan utilizing existing resources and coordinating efforts by national and state governments, fishery management offices, fisheries commissions, industry, and interested third parties in the administration process.

Immediate Action/Restriction

As a result of these new developments, including the question of responsibility in terms of liability, insurance, hazardous compensation, etc. is equally important and need to be resolved as soon as possible. I came to this conclusion with the hope that local companies involved in the commercial activity of vessels will see fit to make amends in order to bring into line those conflicting interests involved. It is imperative that a careful and thorough examination of the matter is seriously addressed, which if not carefully investigated may have tremendous adverse legal repercussions.

I am by way of this communication is implementing this policy to restrict the Immigration inspection and clearance of all vessels at the "Anchorage Point" effective immediately.

All OIC and Senior Officers are instructed to comply with this directive and you are hereby further advised to properly consult all companies, agencies, persons, organizations, etc., that are involved in the commercial transportation of passengers, freight, fishing, or other commercial activities of this directive.

Mohner A. Esiel

Cc: All Clearing Parties

Appendix 5 - FSM Immigration reminder letter / boarding vessels at Pohnpei anchorage

FSM IMMIGRATION & LABOR
Department of Justice

P.O. Box PS-157, Palikir, Pohnpei FM 96941 Phone: (691) 320-5844/2605 Fax: (691) 320-7250 Email: ImHq@mail.fm,Mesiel@mail.fm

April 1, 2009

RECEIVED

MEMORANDUM

TO: All Local Fishing Company Agencies/Agents
Commercial Vessels Agencies/Agents

FROM: Chief of Immigration & Labor

SUBJECT: **Security and Safety – FSM Inspectors at Anchorage Point**

I write again to follow up and remind all parties of the requirements indicated my earlier letter of March 24, 2009 that requires full cooperation between your companies and the government, in this regard FSM Immigration Service.

As mentioned in the aforementioned letter there is a critical need to take action in this matter in a form and manner consistent with our legal mandates keeping in perspective the importance of the lives of the officers.

For FSM Immigration Service to provide clearance inspection at the anchorage point the following issues must be resolved.

1. Safe Transport – A safe seagoing craft that can transport the officers to and from the inspection site.
2. Life Jackets – This is an international requirement that must be complied with and must be provided to all officers prior to leaving the designated clearance point, which is the wharf.
3. Agreement – An agreement between parties that should include;
    a. Insurance Coverage – Since inspection will be at a site not designated by law it is imperative that an agreement is put in place.
    b. Liability – In case the officer(s) is injured during the process liability of must be provided the officer(s)

c. Hazardous Compensation – Unsafe and harmful conditions of the work environment when inspection is required away from the designated site required by law must be provided.

It is strongly urged that all parties involved are aware of the seriousness of these concerns. Furthermore, it is also urged that a meeting is scheduled as soon as possible to address these issues so that parties can come to a mutual agreement before the officers are allowed to perform the necessary clearance inspection at the anchorage.

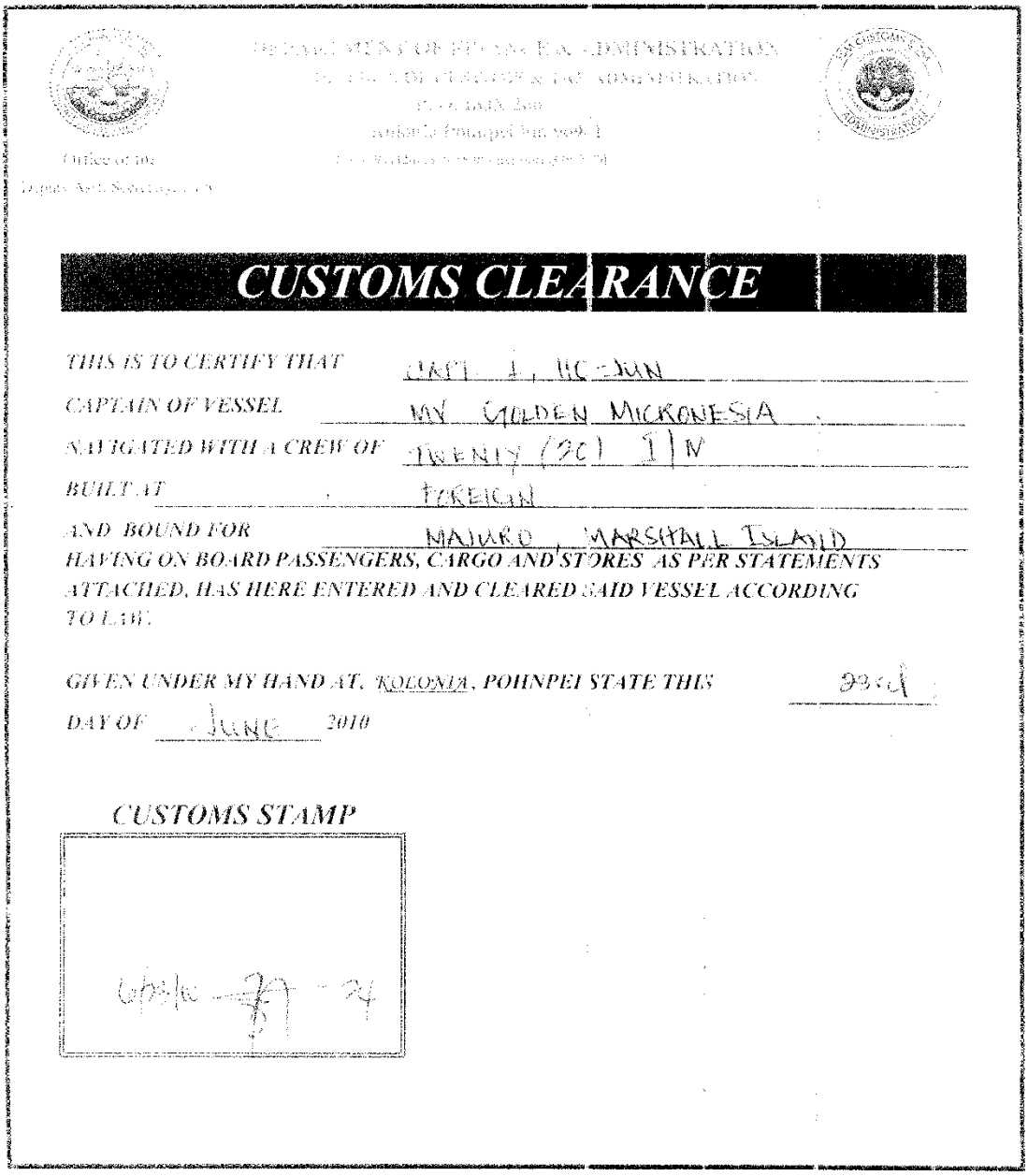
I have designated Senior Immigration Officer David Wolphagen to represent us at the meeting on a date, place and time of your choosing. It is important to note that any unnecessary delay in resolving this matter will only cause pointless delays and additional expenses to your company.

Thank you for your support and cooperation.

Mohner A. Esiel

Cc: All IL Offices
All Inspectors

Appendix 6 - FSM Customs boarding officer clearance form



DEPARTMENT OF FINANCE & ADMINISTRATION
DIVISION OF CUSTOMS & TAX ADMINISTRATION

Office of the
Deputy Asst. Secretary - FSM

CUSTOMS CLEARANCE

THIS IS TO CERTIFY THAT CAPT. I. HC-JUN

CAPTAIN OF VESSEL MV GOLDEN MICRONESIA

NAVIGATED WITH A CREW OF TWENTY (20) I/M

BUILT AT FOREIGN

AND BOUND FOR MAJURO, MARSHALL ISLAND

HAVING ON BOARD PASSENGERS, CARGO AND STORES AS PER STATEMENTS ATTACHED, HAS HERE ENTERED AND CLEARED SAID VESSEL ACCORDING TO LAW.

GIVEN UNDER MY HAND AT, KOLONIA, POHNPEI STATE THIS 23rd

DAY OF JUNE 2010

CUSTOMS STAMP

Appendix 7 - FSM Quarantine boarding officer clearance form

№ 09 431

FEDERATED STATES OF MICRONESIA

AGRICULTURAL QUARANATINE SERVICE

SHIP INSPECTION REPORT

		1. Name of Vessel & Voyage No. [illegible]
		2. Nationality & Type of Vessel [illegible]
		3. Purpose if Visit [illegible]
4. Dock [illegible]	5. From (Port & Country) [illegible]	6. Via (List all Ports) [illegible]
7. Arrival (Date & Time) [illegible]	8. Inspection (Date & Time) [illegible]	9. Departure Date [illegible]
10. Number of Crew [illegible]	11. Number of Passangers X 1	12. Next Port of Call (Notify if FSM) [illegible]
13. Derat Certificate (Date and Port Issue) (If expired re-issue) [illegible]		14. Is any person on boaro sick [ ]YES [✓]NO
15. Are there any animal on board, eg. dogs, cats, birds, monkeys etc [ ]YES [✓]NO		16. QUARANTINE FEE $ [illegible]
17. Are there any any live plants on board *List Plants* [ ]YES [✓]NO		18. Type of cargo for discharge [illegible]

AGRICULTURAL QUARANTINE SAFEGUARD NOTICE

SAFEGUARD NOTICE: While this vessel is in teh territorial waters of the Federated States of Micronesia, no crew member or other person shall remove any of the following items unless under the direct supervision of an Agricultural Quarantine Inspector: (1) fruits, vegetables, meats or other animal products (2) live plants or other plant materials (3) live or dead animals (4) hay, straw, rice hulls, hold sweepings or dunnage (5) garbage from food materials, including all galley waste, rootcop bags, meat wrappers, vegetables and egg cartons and other food containers.

Note: CARBAGE MUST BE KEPT IN COVERED, LEAKPROOF CONTAINERS INSIDE THE VESSEL'S RAILING AT ALL TIMES.

If any agricultural items are sealed, the seals are not to be broken or removed while the vessel is within territorial waters of the Federated Staes of Micronesia except under the direction of an Agricultural Quarantine Inspector.

ANY PERSON WHO FAILS TO COMPLY WITH THE PRESCRIBED SAFEGUARDS AND CONTROLS IS LIABLE TO PROSECUTION.

19. I Fully Understand the Safeguards Prescribed Above

MASTER OF M/T GOLDEN MICRONESIA

Signature of Responsible Ship's Officer — Title: Master — Date [illegible]

LIST BELOW ALL PROHIBITED AND RESTICTED AGRICULTURAL GOODS & ANIMALS

20. COMMODITY	21. LOCATION	22. ORIGIN	23. SAFEGUARDS PRESCRIBED
[illegible]	[illegible]	Guam	[illegible]
[illegible]	[illegible]	"	all times [illegible]
[illegible]	"	"	[illegible] must remain on board.
[illegible]	China	"	
[illegible]	"	"	
[illegible]	"	"	

24. SHIP AREAS INSPECTED			25. GARBAGE CONTAINERS			ACTION TAKEN
DRY STORES / PANTRIES	[ ]YES	[ ]NO	COVERED	[ ]YES	[ ]NO	
QUARTERS	[ ]YES	[ ]NO	INSIDE RAILING	[ ]YES	[ ]NO	
HOLDS	[ ]YES	[ ]NO	LEAKPROOF	[ ]YES	[ ]NO	

26. Official remarks

Appendix 8 - Pohnpei State RFQ dry-docking MS Micro Glory

OFFICE OF THE GOVERNOR

STATE OF POHNPEI
KOLONIA, POHNPEI FM 96941
TEL: (691) 320-2235/5238 FAX: (691) 320-2505

May 1, 2009

Re: Micro Glory Drydocking RFP-P5-09

To Whom It May Concern,

Please find enclosed a request for proposal for the drydocking of the Micro Glory as well as a specifications package. The Micro Glory is a passenger vessel registered to the State of Pohnpei, Federated States of Micronesia. The State, along with the assistance of the National Government, is seeking proposals for the repair of the Micro Glory.

I welcome you to place a bid for the drydocking of the Micro Glory. If you have any further questions, please do not hesitate to contact me.

Sincerely,

Churchill Edward
Lieutenant Governor

Appendix 9 - Micronesian Shipping Commission entry permit regulations (page 1)

NOW THEREFORE, in recognition of the interdependence of shipping services and the need for and benefits of cooperation, the Governments of the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau having agreed on certain principles and arrangements in order that international commercial shipping may be developed in a safe economical and orderly manner hereby agree as follow:

CHAPTER I
GENERAL PRINCIPLES AND APPLICATION

Article 1
Statement of Policy

(a) The governments of the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau (hereinafter "the Participating Governments") by approving this Agreement, agree to formally establish the Micronesian Shipping Commission (hereinafter "the Micronesian Shipping Commission", " the Commission", or by its acronym "MSC"). The Commission, on behalf of the Participating Governments represented therein, shall meet and jointly consider, as hereinafter set forth, for the purpose of achieving consensus on applications, proposals or requests for Entry Assurance submitted to it by commercial carriers.

(b) An application, proposal, or request for Entry Assurance will not be granted if there is clear and convincing evidence that a substantial adverse impact to shipping services on common routes will result from the granting of such application, proposal or request for Entry Assurance. Common routes are herein defined as

Appendix 10 - Micronesian Shipping Commission vessel entry permit application form

MSC 05-01

Annex I

MICRONESIAN SHIPPING COMMISSION

ENTRY ASSURANCE ANNUAL REPORT AND RENEWAL FOR THE YEAR:_____

SECTION A – GENERAL

1. **Name of Carrier:** _____
   Address: _____
   Telephone No:_____ **Fax:** _____ **e-mail:**_____
2. **Permit No.:**_____ **Date of Issuance:** _____
3. **Registered Agents in Micronesia:** _____
   _____
4. **Date business operation began:** _____
5. **Current percentage ownership held by Micronesian citizens:**_____
7. **Name of your Banks:** _____
8. **Membership in the Chamber of Commerce** **Yes** **No**
   If "Yes", state address:_____

SECTION B – FOR ALL ORGANIZATIONS

1. **Form of Organization:**
   a) **Sole Proprietorship** ( )
   b) **Partnership** ( )
   c) **Foreign Corporation** ( )
   d) **Joint Venture** ( )
   e) **Non-Profit Corporation** ( )
2. **Date of Incorporation/registration:** _____
3. **Name and Addresses of Sole proprietors, Partners/Board of Directors:**
   a)_____
   b)_____
   c)_____
   d)_____
   e)_____

Appendix 11 - MS Caroline Voyager - FSM Government coastal vessel schedule

Tentative Revised Schedule

MS Caroline Voyager
Pohnpei/Chuuk Yap Regular Run
V-01

Depart		Arrive	
Pohnpei	Oct. 29, 2009	Likinioch	Oct. 30, 2009
Likinioch	Oct. 30, 2009	Satawan	Oct. 30, 2009
Satawan	Oct. 30, 2009	Moch	Oct. 30, 2009
Moch	Oct. 30, 2009	Namuluk	Oct. 31, 2009
Namuluk	Oct. 31, 2009	Nama	Oct. 31, 2009
Nama	Oct. 31, 2009	Weno	Nov. 1, 2009
Weno	Nov. 1, 2009	Polap	Nov. 2, 2009
Polap	Nov. 2, 2009	Tamatam	Nov. 2, 2009
Tamatam	Nov. 2, 2009	Murilo	Nov. 3, 2009
Murilo	Nov. 3, 2009	Ruo	Nov. 3, 2009
Ruo	Nov.3, 2009	Fanam	Nov. 3, 2009
Fanam	Nov. 3, 2009	Nomwin	Nov. 3, 2009
Nomwin	Nov. 3, 2009	Pisarach	Nov. 4, 2009
Pisarach	Nov. 4, 2009	Onari	Nov. 4, 2009
Onari	Nov. 4, 2009	Ono	Nov 4, 2009
Ono	Nov. 4, 2009	Magur	Nov. 4, 2009
Magur	Nov. 4, 2009	Ulul	Nov. 4, 2009
Ulul	Nov. 4, 2009	Polowat	Nov. 5, 2009
Polowat	Nov. 5, 2009	Houk	Nov. 5, 2009
Houk	Nov. 5, 2009	Satawal	Nov. 6, 2009
Satawal	Nov. 6, 2009	Lamotrek	Nov. 6, 2009
Lamotrek	Nov. 6, 2009	Elato	Nov. 6, 2009
Elato	Nov. 6, 2009	Faraulop	Nov. 7, 2009
Faraulop	Nov. 7, 2009	Ifalik	Nov. 8, 2009
Ifalik	Nov. 8, 2009	Woleai	Nov. 8, 2009
Woleai	Nov. 8, 2009	Eauripik	Nov. 9, 2009
Eauripik	Nov. 9, 2009	Fais	Nov. 10, 2009
Fais	Nov. 10, 2009	Ulithi	Nov. 10, 2009
Ulithi	Nov. 10, 2009	Yap	Nov. 11, 2009

Appendix 12 - PPA RFP seeking interest in rental of office space

Pohnpei Port Authority
Pohnpei International Airport Terminal
P.O. Box 1150
Kolonia, Pohnpei FM 96941
Phone: (691)320-2793 Fax: (691)320-2798
Email: pauthority@mail.fm

REQUEST FOR PORPOSALS

The Pohnpei Port Authority is soliciting proposals from Businesses or Individuals interested in leasing four office space units located in the Seaport Building on the Pohnpei Fisheries Dock at Dekehtik, Pohnpei State. Following are descriptions of offices spaces:

1. Unit 1, approximately 208 square feet, located on the 2nd floor of Seaport Building.
2. Unit 2, approximately 430 square feet, located on the 1st floor of Seaport Building.
3. Unit 3, approximately 430 square feet, located on the 1st floor of Seaport Building.
4. Unit 4, approximately 430 square feet, located on the 1st floor of Seaport Building.

Proposals should include the nature of business to be conducted and other relevant information regarding the Businesses or the Individuals.

Proposals will be accepted from June 14, 2010 until 5:00 PM on July 16, 2010.

The Pohnpei Port Authority reserves the right to reject any and all proposals received in connection with this request for proposals.

Additional information regarding this request for proposal can be obtained from the Office of the General Manager, Pohnpei Port Authority, Dekehtik Island, Pohnpei State.

Zorro Dorre
Acting General Manager
Pohnpei Port Authority

Date: 6/a/10

Appendix 13 - Typical vessel specifications of Reefer Fish Carrier Pohnpei anchorage

Ships Particular

NAME OF VESSEL	M/V "ORION"
KIND OF VESSEL	FROZEN CARGO CARRIER
FLAG	JAPAN
PORT OF REGISTRY	TOKYO, JAPAN
OFFICIAL NUMBER	129771
IMO NUMBER	8520496
SIGNAL LETTER	JATC
GROSS TONNAGE REGISTRY	1278 TON
NET TONNAGE REGISTRY	991 TON
DEAD WEIGHT	2690.45 TON
INTERNATIONAL GROSS TONNAGE	2604 TON
LENGTH OVER ALL	94.00 METER
LENGTH REGISTRY	87.60 METER
BREADTH (MLD)	13.80 METER
DEPTH	8.20 METER
DRAFT, FULL LOAD, SUMMER	5.344 METER
MAIN ENGINE	DIESEL 2800 PS x 240 RPM, 1SET (2059 KW)
CARGO HOLD CAPACITY	TOTAL 3232 M^3 (114137 F^3)

OWNER'S NAME	SHINSEI KAIUN CO., LTD
OWNER'S ADDRESS	10F. KN-NIHONBASHI-BLDG 4-8-17 NIHONBASHI-HONCHO CHUO-KU, TOKYO, JAPAN 103-0023
〃 PHONE	03 (3241) 7503
〃 FAX	03 (3246) 2045
〃 e-mail	shinsei@msc.biglobe.ne.jp

OPERATOR'S NAME	INT WORLD, LTD.
〃 ADDRESS	LIONS MANSION #401, KAMIOGI 4-22-11 SUGINAMI-KU TOKYO, JAPAN 107-0043
〃 PHONE	03 (5310) 5381
〃 FAX	03 (5310) 5382
〃 e-mail	ship-uw_kotani@nifty.com

INMARSAT-B PHONE & TELEX	343-147-210
〃 FAX	343-147-240
e-mail	orion@mailliner.com
INMARSAT-C TELEX	443-147-210
〃 e-mail	443147210@satmailc.com
Maritime Mobile Station Identies	431472000

MASTER'S NAME ..... Yoshiki Seki

SIGNED BY ----------

MASTER OF M/V "ORION"

M.V "ORION" JAPAN

Appendix 14 - Typical specification for purse seine vessel calling Pohnpei

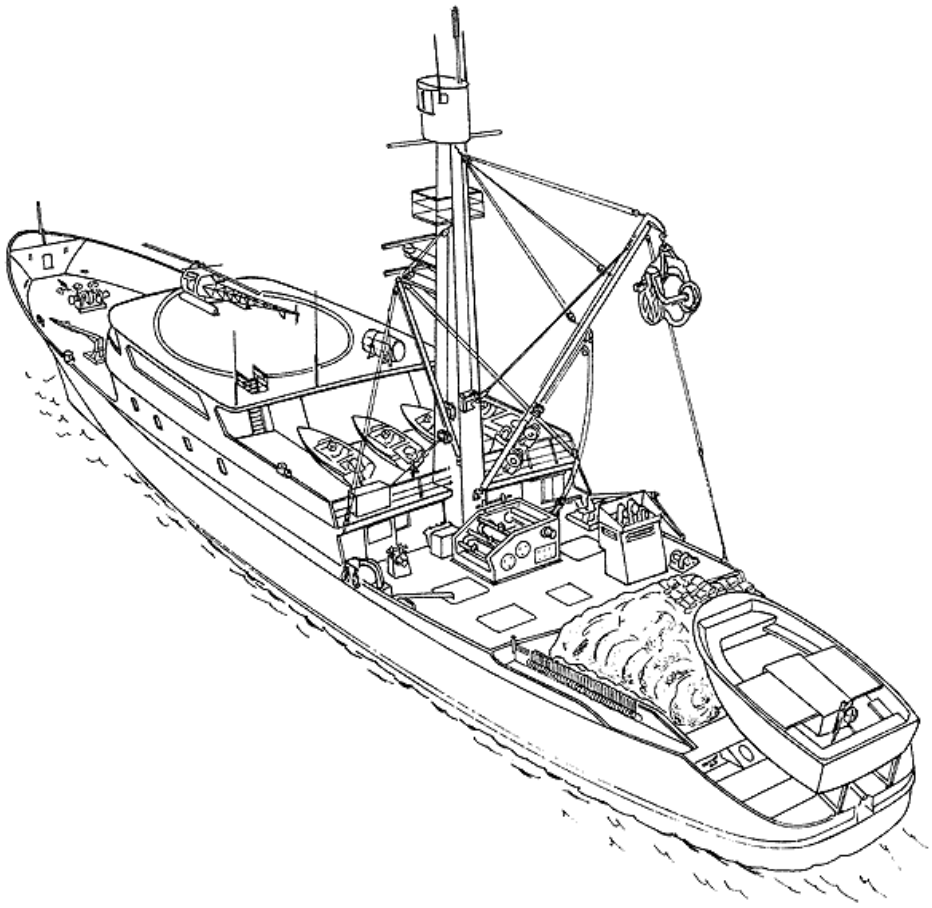
PURSE SEINER 77m

LOA: 76m 75cm LWL: 66m cm Beam: 13m 50cm Draft: 6m 30cm

The vessel has 20 steel fish tanks as shown in the G.A,10 on each side, each one with a capacity of around 100 m3 to make a total capacity of around 2000 m3 to absorb the Tuna fish capture for freezing then storage, these tanks are lined with steel lining all-around and isolated with injected high density 40kg/m3 polyurethane foam for thermal isolation. The tanks are designed and constructed in a way to enable transferring the sodium chloride or the sea water from one tank to the other or to a specific tank by a means of a manifold and a transfer pump to ensure maximum usage of the system.

Freezing plant; The vessel is equipped by a freezing plant consists of 4 MYKOM screw compressors each of around 190 KW driven by a marine ABB electric motor of around 180 HP for the Calcium Chloride freezing which is circulating in the 20 freezing tanks by a steel pipes all over the tanks.

The plant consists of 2 fast freezing sodium chloride compressors for a fast freeze process in 2 tanks



Appendix 15 - Typical specifications for General cargo vessel calling Pohnpei

m/v ISLANDER
SHIP'S PARTICULARS

Last update: 09 / May / 2009

Captain's name: **DE JAGER, Pieter**

Ship's name	**m/v ISLANDER**
Call Sign	**P B K N**
Nationality	**The Netherlands**
Port of registry	**Winschoten**
Owner	**Scheepvaartbedrijf MS Ijssel Trader C.V.**
Owner's Address	**c/o Reider Shipping BV**
	Zeefbaan 20C, Winchoten / The Netherlands
Register Number	**20266 ZR 2003**
MMSI	**245940000**
IMO Number	**9264738**
GL Registry Number	**110157**
Date Keel Laid:	**14 / May / 2002**
Type of vessel	**Container with cranes**
Classification society	**Germanisher Lloyd (GL)**
Class	**GL+100 A5E Container Ship, NAV-OC SOLAS II-2, Reg.54**
Vessel build at	**Zhoushan / China / 2003**
Hull Number	**Nb 2006**
Date launched	**May 2003**
Date delivered	**June 2003**
ISPS Cerificate	**27.10.2009**
ISM Certificate	**12.12.2013**
SSCEC (sanitation exemption)	**Valid till: 15 /Oct / 2009**

Gross Tonnage	**6704**
Nett Tonnage	**3557**
Dead Weight	**8015.1**
Displacement	**11987.2**
Light ship	**3972.1**
Suez Gross Tonnage	**6966.3**
Suez Nett Tonnage	**6584.2**
SI vessel number	**42076**
Panama canal cbm	
Panama usm nett	
Length over All	**132.60 m**
Bow to Superstruct.	**115.48 m**
Aft to Superstruct.	**17.12 m**
L.P.P.	**123.40 m**
Beam moulded	**19.20 m**
Depth moulded	**9.20 m**
Maximum draft	**7.218 m**
Fr. Water allowance	**14.4 cm**
Freeboard	**2.004 cm**
Air draft	**37.12 m**
TPC	**20.75 mt**

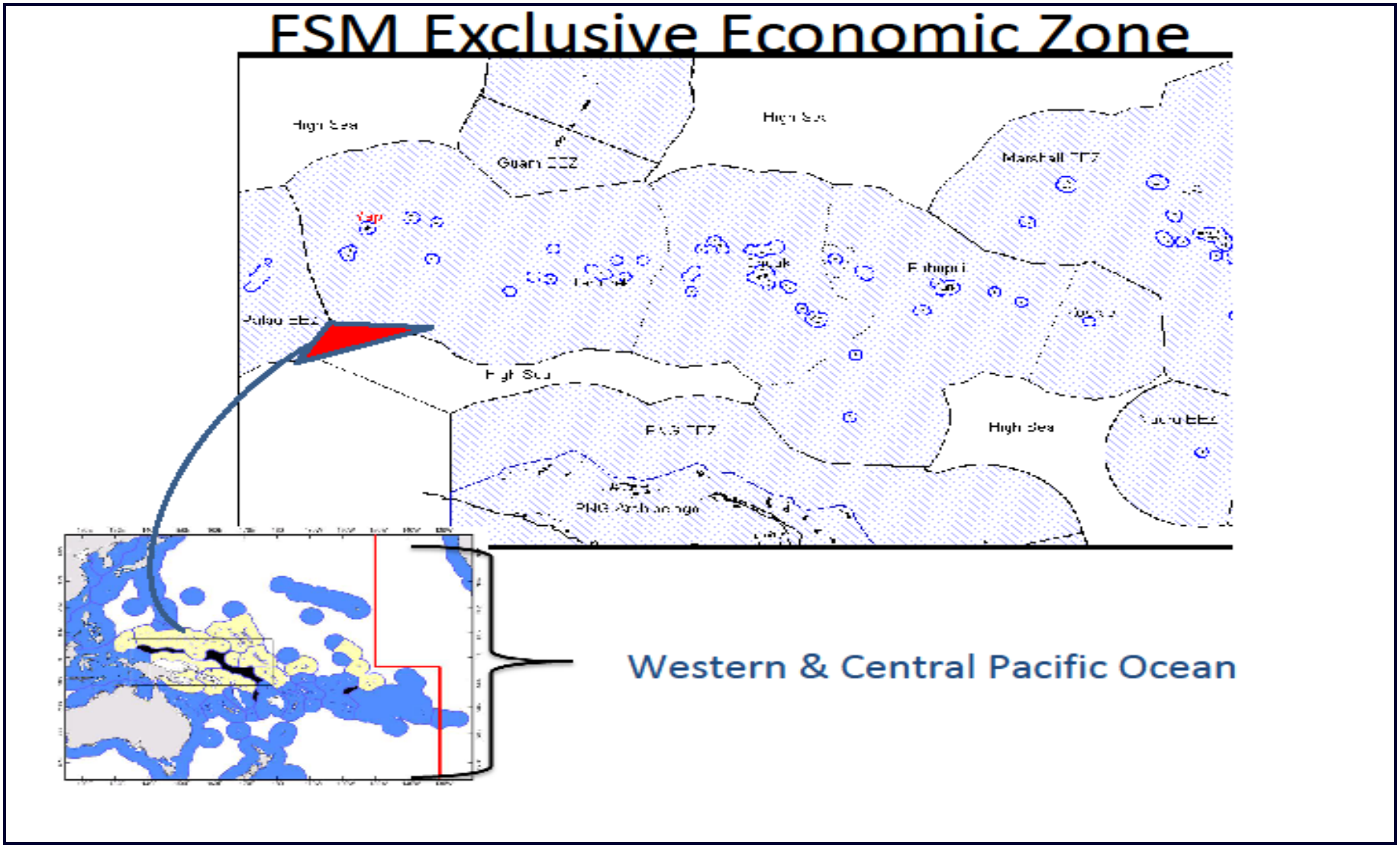
Main Engine Type	**MAK 7M 43**
Engine Number	**65129**
Output	**6300 kW / 8450 HP**
Auxiliary engines Type	**Volvo-Penta TAMD 165A**
Machinery Class	**MC E AUT**
Anchor Chain Lengths	**PS 9.5 / SB 9.5 Shackles**
Bowthruster	**410 kW / 550 HP**
Propeller	**CPP / Left handed**
Type of Rudder	**Flap Rudder (Becker Rudder) 4 blades 1 set / max. angle 45°**
Average speed	**16,5 kn**
Daily Consumption	**25.0mt HFO IFO 180**
Capacity HFO IFO180	**599.3**
Capacity MDO	**185.1**
Ballast water	**3330.2**
Fr. Water capacity	**112.1**
Capacity Oil residue	
Capacity Oil bilge	
Capacity crane 1 & 2	**SWL 40 t at 28 m**
Provision crane	**SWL 5 t at 12 m**

COMMUNICATION FACILITIES	
Phone GSM	**49 151 1204 8814**
Phone Inmarsat B	**324 594 010**
Fax Inmarsat B	**324 594 014**
Inmarsat C No.1	**424 594 013**
Inmarsat C No.2	**424 594 014**
E-mail	**ijssel-trader@les-raisting.de**
Owners	**31 597 595 400**
Designated Person	**31 597 595 460**
Design.Person Mobile	**49 151 1204 8806**

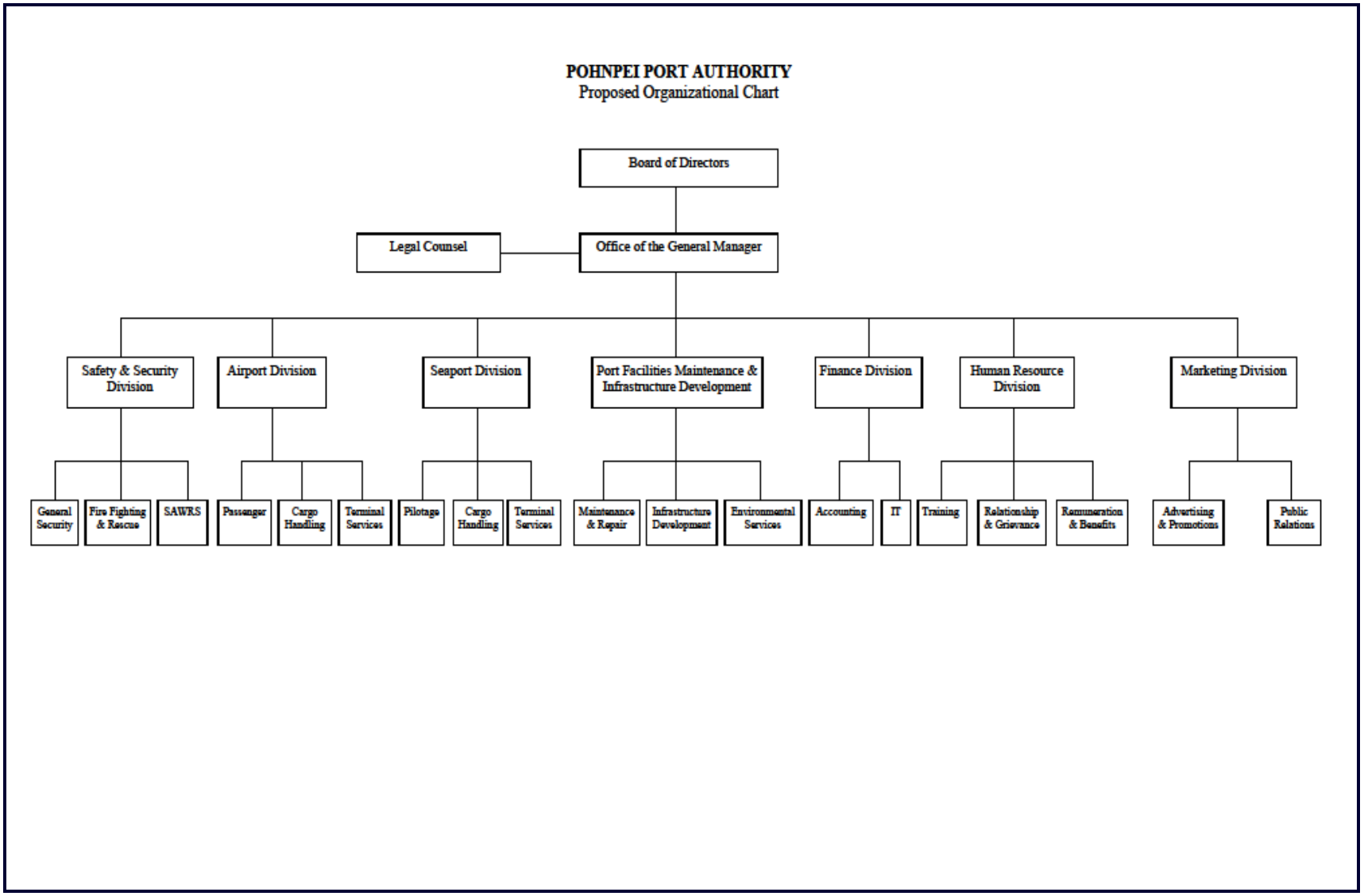
CONTAINER CAPACITY	
Hold	**228 TEU**
Deck	**429 TEU**
Total	**657 TEU**
Stackweight Tanktop	
Stackweight Deck	
Stackweight Hatches	
Cargo securing	**MacGREGOR**

HATCH / HOLD DIMENSIONS	
Hatch-cover 1	**25.20m X 16.00m / 13.24m**
Hatch-cover 2	**25.20m X 16.00m**
Hatch-cover 3	**25.20m X 16.00m**
Hold 1	
Hold 2	
Hold 3	
Capacity Bale space	

Appendix 16 - FSM Exclusive Economic Zone - Ocean fishing area



Appendix 17 - PPA Organization Chart



Appendix 18 - PPA Staff allocation by designated duty and operating entity

AIR	Pohnpei Port Authority	SEA			AIR		SEA	
	Organizational Budget			23	0%	Port Police Officer I	100%	Bergen
	Personnel Listings and Salaries			24	0%	Port Police Officer I	100%	Weichep
				25	0%	Port Police Officer I	100%	Scaliem
	Position		**Employees Name**	26	0%	Port Police Officer I	100%	John
				27	0%	Port Police Officer I	100%	Pluhs
	General Management			28	0%	Port Police Officer I	100%	Helgenberger
50%	General Manager	50%	vacant	29	0%	Port Police Officer I	100%	Rodriquez
50%	Executive Secretary II	50%	Etse	30	0%	Port Police Officer I	100%	Amor
				31	0%	Port Police Officer I	100%	Edgar
	Finance			32	0%	Port Police Officer I	100%	Samuel
50%	Comptroller	50%	Merencillo	33	0%	Port Police Officer I	100%	Ligorio
50%	Senior accountant	50%	Skilling	34	0%	Port Police Officer I	100%	Kalio
50%	IT Specialist	50%	vacant	35	0%	Port Police Officer I	100%	Mudong
50%	Accountant I	50%	Pelep	36	0%	Port Police Officer I	100%	Eliou
50%	Accountant I	50%	Iehsi	37		~~Safety & Security Clerk~~		Phillip
50%	Account technician	50%	Johnny					
	Human Resources					**Facilities& Maintenance Infrastucture Dev.**		
50%	Human Resource Manager	50%	Donre	1	50%	F & C Manager	50%	Comendador
50%	Human Resource Assistant	50%	Anson	2	50%	Maintenance Supervisor	50%	Sam
				3	50%	Trades technician I (Elec.)	50%	Solomon
	Marketing			4	50%	Trades technician I (Carp)	50%	Manuel
50%	Marketing Manager	50%	Roby	5	50%	Trades technician I (Plum)	50%	Silbanuz
				6	50%	Trades helper(Mechanic)	50%	Edward
	Safety & Security			7	80%	Caretaker.- Pingelap airfields	20%	Ohry
50%	Safety & Security Manager	50%	Reyes		80%	Caretaker.- Sapwuafik Airstrip	20%	Sehpin
	Chief ARFF		Samuel	8	80%	Caretaker - Mokilloa airfields	20%	Edmund
	Chief of Port Police		Jacob	9	50%	Custodial worker	50%	Seneres
	Aircraft rescue & firefighter		Panuelo	10	50%	Custodial worker	50%	John
	Aircraft rescue & firefighter		Pelep	11	50%	Custodial worker	50%	Gallen
	Aircraft rescue & firefighter		Susaia	12	50%	Ground Keeper	50%	Jonathan
	Aircraft rescue & firefighter		Joab	13	50%	Ground Keeper	50%	Abraham
	Aircraft rescue & firefighter		Elias	14	50%	Ground Keeper	50%	Penias
	Aircraft rescue & firefighter		Mauricio	15	50%	Procurement & Supply Tech.	50%	Eliou
	SAWRS- observer		Henry					
	SAWRS- observer		Donre			**Airport**		
100%	Port Police Officer II	0%	Ohped	1		Airport manager		Darra
100%	Port Police Officer II	0%	Shoniber					
100%	Port Police Officer II	0%	Augustine			**Seaport**		
100%	Port Police Officer I	0%	Moses	1	0%	Seaport manager	100%	Etse
100%	Port Police Officer I	0%	Semens	2	0%	Port Control Supervisor	100%	Nanpei
100%	Port Police Officer I	0%	Seiola	3	0%	Port Control Officer II	100%	Alex
100%	Port Police Officer I	0%	Benjamin	4	0%	Port Control Officer II	100%	Charley
100%	Port Police Officer I	0%	Pelep	5	0%	Seaport Clerk	100%	Luke
100%	Port Police Officer I	0%	Kirielmo	6	0%	Marine Navigational Aid Inspector	100%	Ludwig
100%	Port Police Officer I	0%	Jack	7	0%	Navaid Maintenance Helper	100%	John
100%	Port Police Officer I	0%	Sallel	8	0%	Port Control Officer I	100%	Lorens
				9	0%	Port Control Officer I	100%	Edward
				10	0%	Port Control Officer I	100%	Oliver
				11	0%	Port Control Officer	100%	Johnny

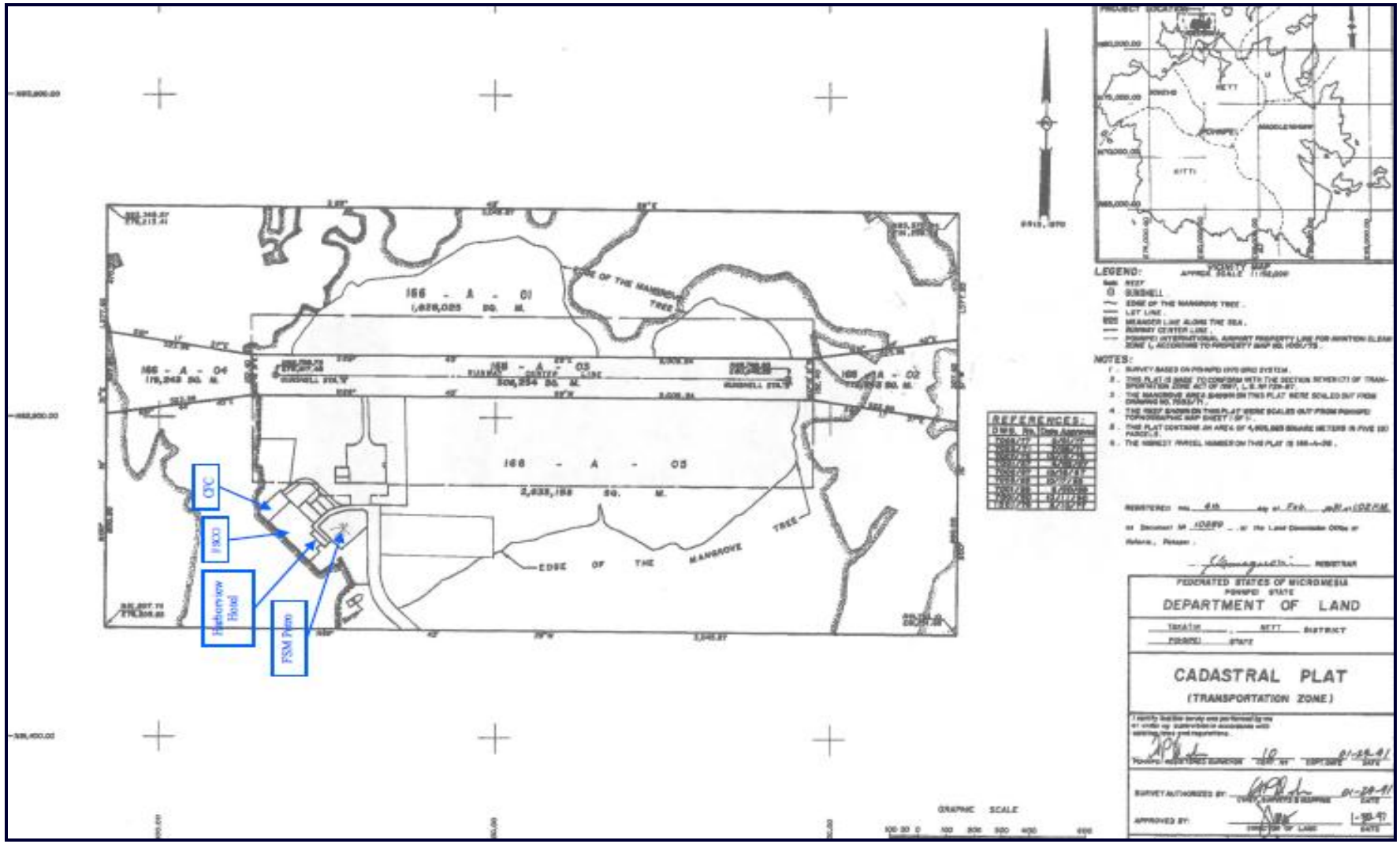
Appendix 19 - Assessment of current PPA - TZ leases

PPA TRANSPORTATION ZONE LAND LEASES

LESSEE	LOCATION	NAME OF ORGANISATION	TYPE OF BUSINESS / ACTIVITY	CURRENT	PERIOD	EXPIRY
Federated Shipping Co	Wharf area	Federted Shipping Co. (FSCO)	Stevedore, warehouse & transport	YES	15	31-March-2019
Isamu Nakasone	TZ Land	Harbour View Hotel	Hotel & shop	YES	5	01-December-2010
Timakio Ehsa	TZ Land	Pohnpei Marine Services	warehouse & shipping agent	No	2	07-April-2012
Pohnpei Transfer & Storage	TZ Land	Pohnpei Transfer & Storage	warehouse & shipping agent	YES	25	30-April-2016
National Fisheries Corporation	TZ Land	National Fisheries Corp. (NFC)	warehouse & shipping agent	No	No lease	31-December-2006
Caroline Fisheries Coporation	Wharf area	CFC	Fishing fleet operations	YES	30	17-June-2021
FSM Petroleum Corporation	TZ Land	FSM PETRO Corp (FPC)	Bulk liquid storage & transport	Yes	25	30-June-2023
Misko Edwin	TZ Land	MISKO BEACH	Hotel & bar	No	20	31-October-2005
LUEN THAI	Wharf area	LTFV	Fishing fleet operations & processing	No	No lease	01-January-2000
OCEANIA INC	Wharf area	OCEANIA INC	Cold storage fish transfer facility	No	No lease	01-January-2000
FSM National Government	TZ Land	Coconut Development Authority (CDC)	Warehouse & agricultural processing	No	25	28-May-2010
SEAIR	TZ Land	SeAir (DHL)	warehouse & shipping agent	YES	25	30-November-2016
FSM National Government	Wharf area	FSM POLICE MARITIME WING	Patrol and surveliance vessels	No	No lease	
Pohnpei State warehouse	TZ Land	Pohnpei State Government	Warehouse	No	No lease	
FSM National Government	TZ Land	FSM National Government	Warehouse	No	25	28-May-2010
Pohnpei State Government	Wharf area	MV Micro Glory - State Transport	Interisland passenger and trading	No	No lease	
AMBYTH	TZ Land	Ambyth	Shipping Agent	No	No lease	24-August-2008
Pohnpei State Government	TZ Land	ECONOMIC DEVELOPMENT AUTHORITY	Cold Storage/Tranship/Provisining	No	No lease	01-January-2000

LESSEE	AREA M2	RENT per annum	RENT per month	$ per M2 / month	REASON IF NO LEASE CURRENT
Federated Shipping Co	20,204	$93,342.48	$7,778.54	$0.39	
Isamu Nakasone	1,433	$4,127.00	$343.92	$0.24	
Timakio Ehsa	261	$28,682.40	$2,390.20	$0.85	Board approved awaiting Lessee signature - This company lost its permit to operate as an agent
Pohnpei Transfer & Storage	5,530	$4,147.00	$345.58	$0.06	
National Fisheries Corporation	572	$10,301.04	$858.42	$1.50	Dispute over lease rate
Caroline Fisheries Coporation	4,769	$6,000.00	$500.00	$0.10	
FSM Petroleum Corporation	16,090	$91,149.36	$7,595.78	$0.18	FSM Petro assumed Mobil lease - LEASE HELD BY PPA
Misko Edwin	24,774	$19,819.20	$1,651.60	$0.07	Dispute over lease renewal
LUEN THAI	6,819	$0.00	$0.00	$0.00	Lease with Pohnpei State Government
OCEANIA INC	474	$0.00	$0.00	$0.00	Lease with Pohnpei State Government
FSM National Government	1,858	$0.00	$0.00	$0.00	Lease is under consideration by Board
SEAIR	1,426	$4,200.00	$350.00	$0.34	
FSM National Government	1,584	$0.00	$0.00	$0.00	PPA has limited knowledge of FSM police lease arrangements
Pohnpei State warehouse	3,044	$0.00	$0.00	$0.00	No lease for such area - FOC
FSM National Government	2,040	$350.00	$29.16	$0.01	Lease is under consideration by Board
Pohnpei State Government	4,278	$0.00	$0.00	$0.00	No lease for such area - FOC
AMBYTH	37	$4,080.00	$340.00	$0.85	lease terminated by request of lessee
Pohnpei State Government	4,510	$0.00	$0.00	$0.00	Lease with Pohnpei State Government

Appendix 20 - Transportation Zone - Dekehtik Island Pohnpei



Appendix 21 - PPA disaggregated profit and loss statements Year end 2007

Pohnpei Port Authority						
STATEMENT OF PROFIT AND LOSS						
September 30, 2007						
Acct. no.		Acct. name	SEAPORT	AIRPORT		TOTAL
	Operating revenues:					
4301- SEA	v	Dockage fee	215,130.93			215,130.93
4305- SEA	v	Anchorage fee	312,220.82			312,220.82
4311- SEA	c	Wharfage fee- Commercial	88,772.44			88,772.44
4313- SEA	c	Wharfage fee- Fuel inward	10,660.20			10,660.20
4321- SEA	v	Entry fee	51,000.00			51,000.00
4323- SEA	v	Navigational aids	24,260.00			24,260.00
4325- SEA	c	Transshipment fee	350,879.30			350,879.30
4327- SEA	v	Line handling fee	81,800.00			81,800.00
4331- SEA	v	Boat trans. Services	231,600.00			231,600.00
4332- SEA	v	Pilotage service	375,440.95			375,440.95
4333- SEA	v	Supplemental port service	40,780.00			40,780.00
4334- SEA	c	Seaport passenger fee	3,195.00			3,195.00
4391- SEA	p	Violation/penalty fee	376,275.91			376,275.91
4395- SEA	v	Seaport other fee	1,655.00			1,655.00
4101- SEA		Land leases	240,386.13			240,386.13
4203- AIR		Departure fee		181,360.00		181,360.00
4103- ADM		Terminal concessions		111,048.88		111,048.88
4201- AIR		Landing fee		101,879.51		101,879.51
4209- AIR		Parking fee		733.07		733.07
4101- ADM		Land leases		7,979.03		7,979.03
4179- ADM		Personnel services		11,455.96		11,455.96
4151- ADM		FSCO gross receipts		18,535.07		18,535.07
4105- ADM		Car rental stall leases		3,500.00		3,500.00
4197- ADM		Bidding fee		70.00		70.00
4161- ADM		Car parking fee		375.00		375.00
4291- AIR		Violation/penalty fee		410.00		410.00
4279- AIR		Personnel services		151.24		151.24
		Total operating revenues	2,404,056.68	437,497.76		2,841,554.44
5553- ADM		Less allowance for doubtful debts	55,594.87	4,779.18		60,374.05
		Net operating revenues	2,348,461.81	432,718.58		2,781,180.39
	Operating expenses:					
		Salaries and benefits	390,606.10	426,791.45		817,397.54
		Depreciation	52,676.11	202,904.62		255,580.73
		Travel	37,955.91	37,955.91		75,911.82
		Utilities	22,454.51	65,069.10		87,523.61
		Supplies and materials	31,808.40	31,455.74		63,264.13
		Repairs	21,731.03	42,725.28		64,456.30
		Fuel	21,072.49	22,786.91		43,859.40
		Contractual services	30,798.50	30,979.00		61,777.49
		Communication	15,636.94	10,347.97		25,984.90
		Training	6,518.10	11,322.10		17,840.20
		Miscellaaneous and others	14,679.62	18,777.90		33,457.51
		Total operating expenses	645,937.68	901,115.95		1,547,053.63
	Net income (loss)		1,702,524.13	(468,397.37)		1,234,126.76
	c	Wharfage fee- Commercial	88,772			
	c	Wharfage fee- Fuel inward	10,660			
	c	Transshipment fee	350,879			
	c	Seaport passenger fee	3,195	453,507		
	p	Violation/penalty fee	376,276	376,276		
	v	Dockage fee	215,131			
	v	Anchorage fee	312,221			
	v	Entry fee	51,000			
	v	Navigational aids	24,260			
	v	Line handling fee	81,800			
	v	Boat trans. Services	231,600			
	v	Pilotage service	375,441			
	v	Supplemental port service	40,780			
	v	Seaport other fee	1,655	1,333,888		
			2,163,671	2,163,671		

Appendix 22 - PPA disaggregated profit and loss statements Year end 2008

Pohnpei Port Authority						
STATEMENT OF PROFIT AND LOSS						
September 30, 2008						
Acct. no.		**Acct. name**	**SEAPORT**	**AIRPORT**		**TOTAL**
	Operating revenues:					
4301- SEA	v	Dockage fee	218,946.03			218,946.03
4305- SEA	v	Anchorage fee	177,630.52			177,630.52
4311- SEA	c	Wharfage fee- Commercial	92,309.29			92,309.29
4313- SEA	c	Wharfage fee- Fuel inw ard	10,010.71			10,010.71
4321- SEA	v	Entry fee	39,790.00			39,790.00
4323- SEA	v	Navigational aids	18,280.00			18,280.00
4325- SEA	c	Transshipment fee	227,423.32			227,423.32
4327- SEA	v	Line handling fee	32,100.00			32,100.00
4331- SEA	v	Boat trans. Services	141,925.00			141,925.00
4332- SEA	v	Pilotage service	354,857.95			354,857.95
4333- SEA	v	Supplemental port service	31,640.00			31,640.00
4334- SEA	c	Seaport passenger fee	2,610.00			2,610.00
4391- SEA	p	Violation/penalty fee	163,516.06			163,516.06
4395- SEA	v	Seaport other fee	1,669.19			1,669.19
4101- SEA		Land leases	233,640.76			233,640.76
4203- AIR		Departure fee		179,710.00		179,710.00
4103- ADM		Terminal concessions		110,569.68		110,569.68
4201- AIR		Landing fee		95,729.20		95,729.20
4209- AIR		Parking fee		30,647.00		30,647.00
4101- ADM		Land leases		6,050.00		6,050.00
4179- ADM		Personnel services		10,578.87		10,578.87
4151- ADM		FSCO gross receipts		5,853.19		5,853.19
4105- ADM		Car rental stall leases		3,955.00		3,955.00
4197- ADM		Bidding fee		1,475.00		1,475.00
4161- ADM		Car parking fee		530.00		530.00
4291- AIR		Violation/penalty fee		364.24		364.24
4279- AIR		Personnel services		19.25		19.25
		Total operating revenues	1,746,348.83	445,481.43		2,191,830.26
5553- ADM		Less allowance for doubtful debts	600,928.16	538.46		601,466.62
		Net operating revenues	1,145,420.67	444,942.97		1,590,363.64
	Operating expenses:					
		Salaries and benefits	474,755.78	516,064.80		990,820.57
		Depreciation	65,834.29	347,081.01		412,915.30
		Amortization	-	57,071.96		57,071.96
		Travel	50,130.03	50,130.03		100,260.06
		Utilities	31,944.70	91,475.10		123,419.79
		Supplies and materials	29,763.47	31,135.93		60,899.40
		Repairs	141,648.86	68,604.96		210,253.82
		Fuel	24,433.35	36,376.85		60,810.20
		Contractual services	38,822.99	38,822.99		77,645.97
		Communication	10,480.35	12,984.51		23,464.86
		Training	1,878.56	16,538.67		18,417.23
		Miscellaneous and others	24,035.73	24,999.27		49,035.00
		Total operating expenses	893,728.10	1,291,286.07		2,185,014.16
	Net income (loss)		251,692.58	(846,343.10)		(594,650.52)

Appendix 23 - PPA disaggregated profit and loss statements Year end 2009

Pohnpei Port Authority						
STATEMENT OF PROFIT AND LOSS						
September 30, 2009						
Acct. no.		**Acct. name**	**SEAPORT**	**AIRPORT**		**TOTAL**
	Operating revenues:					
4301- SEA	v	Dockage fee	267,750.55			267,750.55
4305- SEA	v	Anchorage fee	297,245.05			297,245.05
4311- SEA	c	Wharfage fee- Commercial	94,929.08			94,929.08
4313- SEA	c	Wharfage fee- Fuel inward	9,321.78			9,321.78
4321- SEA	v	Entry fee	52,575.00			52,575.00
4323- SEA	v	Navigational aids	24,980.00			24,980.00
4325- SEA	c	Transshipment fee	355,693.33			355,693.33
4327- SEA	v	Line handling fee	62,900.00			62,900.00
4331- SEA	v	Boat trans. Services	180,463.72			180,463.72
4332- SEA	v	Pilotage service	450,790.67			450,790.67
4333- SEA	v	Supplemental port service	43,966.17			43,966.17
4334- SEA	c	Seaport passenger fee	1,533.00			1,533.00
4391- SEA	p	Violation/penalty fee	157,855.19			157,855.19
4395- SEA	v	Seaport other fee	(58.19)			(58.19)
4101- ADM		Land Lease	232,130.92			232,130.92
4203- AIR		Departure fee		176,050.00		176,050.00
4201- AIR		Landing fee		97,638.85		97,638.85
4103- ADM		Terminal concessions		108,784.68		108,784.68
4209- AIR		Parking fee		29,080.80		29,080.80
4101- ADM		Land leases		11,720.60		11,720.60
4105- ADM		Car rental stall leases		2,700.00		2,700.00
4151- ADM		FSCO gross receipts		1,894.98		1,894.98
4161- ADM		Car parking fee		550.00		550.00
4179- ADM		Personnel services		10,174.92		10,174.92
4197- ADM		Bidding fee		4,486.77		4,486.77
4279- AIR		Personnel services		222.56		222.56
4291- AIR		Violation/penalty fee		7,866.57		7,866.57
		Total operating revenues	2,232,076.27	451,170.73		2,683,247.00
5553- ADM		Less allowance for doubtful debts	286,754.63	260.37		287,015.00
		Net operating revenues	1,945,321.64	450,910.36		2,396,232.00
	Operating expenses:					
		Salaries and benefits	457,630.62	513,955.09		971,585.70
		Depreciation	123,740.28	352,625.14		476,365.42
		Amortization	-	85,607.97		85,607.97
		Travel	54,757.84	81,922.73		136,680.57
		Utilities	30,361.80	82,580.22		112,942.02
		Supplies and materials	42,310.72	33,153.87		75,464.59
		Repairs	23,548.48	36,543.85		60,092.33
		Fuel	31,868.32	20,951.81		52,820.13
		Contractual services	22,064.13	22,064.13		44,128.25
		Communication	9,380.75	11,711.24		21,091.98
		Training	2,374.21	2,374.21		4,748.41
		Miscellaneous and others	24,733.60	24,743.78		49,477.38
		Total operating expenses	822,770.73	1,268,234.02		2,091,004.75
	Net income (loss)		1,122,550.91	(817,323.66)		305,227.25

Appendix 24 – Forecast profit and loss statement

Pohnpei Port Authority								
STATEMENT OF PROFIT AND LOSS actual to 2009								
September 30	Actual			Forecast				
	2007	2008	2009	2010	2011	2012	2013	2014
Operating Revenue								
Seaport charges - Cargo	453,507	332,353	461,477	470,484	498,751	528,676	542,764	557,310
Seaport charges - vessel	1,333,888	1,016,839	1,380,613	1,407,559	1,436,067	1,476,799	1,521,543	1,551,974
Seaport charges - penalty	376,276	163,516	157,855	160,936	164,233	167,517	170,868	174,285
Land lease and space rentals	381,823	360,599	357,781	255,011	204,079	201,901	201,901	201,901
Departure Fees	181,360	179,710	176,050	176,050	181,332	186,771	192,375	198,146
Landing fees	101,880	95,729	97,639	97,639	100,568	103,585	106,693	109,894
Other	12,820	43,084	51,832	51,832	51,832	51,832	51,832	51,832
Total Operating Revenue	2,841,554	2,191,830	2,683,247	2,619,512	2,636,861	2,717,081	2,787,975	2,845,341
Less allowance for doubtful debts	(60,374)	(601,466)	(287,015)	(130,976)	(131,843)	(135,854)	(139,399)	(142,267)
Net Operating Revenue	**2,781,180**	**1,590,364**	**2,396,232**	**2,488,536**	**2,505,018**	**2,581,227**	**2,648,576**	**2,703,074**
Operating Expenses								
Salaries and benefits	817,397	990,821	971,586	1,073,885	1,208,304	1,244,553	1,281,890	1,320,346
Depreciation and amort.	255,581	469,988	561,973	377,892	915,892	915,892	915,892	915,892
Travel	75,912	100,260	136,681	60,000	82,270	84,738	87,280	89,899
Utilities	87,523	123,419	112,942	150,000	200,000	206,000	212,180	218,545
Supplies and materials	63,264	60,899	75,465	66,800	86,100	88,683	91,343	94,084
Repairs	64,456	210,254	60,092	52,500	57,500	59,225	61,002	62,832
Fuel	43,859	60,810	52,820	62,000	81,500	85,575	89,854	94,346
Contractual services	61,777	77,646	44,128	106,000	155,830	160,505	165,320	170,280
Communication	25,984	23,465	21,092	27,500	48,000	49,440	50,923	52,451
Training	17,841	18,417	4,748	4,890	5,037	5,188	5,344	5,504
Miscellaneous and others	33,457	49,036	49,478	50,962	52,491	54,066	55,688	57,359
Total Operating Expenses	1,547,051	2,185,015	2,091,005	2,032,430	2,892,924	2,953,865	3,016,716	3,081,538
Earnings (loss) from operations	1,234,129	(594,651)	305,227	456,106	(387,906)	(372,638)	(368,140)	(378,464)
Non-operating revenue								
Interest Income	19,085	29,814	15,718	17,463	23,866	27,618	31,110	34,662
Interest Expense				-	(53,800)	(107,600)	(107,600)	(107,600)
Total non-operating revenue	19,085	29,814	15,718	17,463	(29,934)	(79,982)	(76,490)	(72,938)
Capital Contributions/borrowings	1,269,005	348,626	-	-	-	-	-	-
Change in Net Assets	**2,522,219**	**(216,211)**	**320,945**	**473,569**	**(417,841)**	**(452,620)**	**(444,630)**	**(451,401)**
Net assets at beginning	6,434,006	8,956,225	8,740,014	9,060,959	9,534,528	9,116,687	8,664,067	8,219,438
Net assets at end of year	8,956,225	8,740,014	9,060,959	9,534,528	9,116,687	8,664,067	8,219,438	7,768,036

Appendix 25 - Principle financial assumptions

Pohnpei Port Authority	Forecast				
	2010	2011	2012	2013	2014
Inflation- Pohnpei	3.0%	3.0%	3.0%	3.0%	3.0%
Revenue items					
Seaport charges					
assume tariff to increase by p.a. effective from 2011: refer to revenue assumptions					
Fishing revenue metric ton handled (longline & purse)					
- foreast at 250,000 metric per year from 2010 onwards	250,000	250,000	250,000	250,000	250,000
	2.0%	0.0%	0.0%	0.0%	0.0%
Land leases and space rentals	2.0%	0.0%	0.0%	0.0%	0.0%
- as per Financial Statements and Independent Auditors' Report Sept 2009					
Departure fees - as per 2009 inflate by tariff increase of		3.0%	3.0%	3.0%	3.0%
Landing fees - as per 200+ and inflate by tariff incr. of		3.0%	3.0%	3.0%	3.0%
Other revenue - as per 2009					
Prov. For doubtful debt as a percentage of revenue	5.0%	5.0%	5.0%	5.0%	5.0%
Operating expenses					
Salaries and benefits: as per 2011 proposed budget then increase as per inflation			3.0%	3.0%	3.0%
Depreciation and amortization: as per worksheet					
Travel: as per 2011 proposed budget thereafter increase as per inflation			3.0%	3.0%	3.0%
Utilities: as per 2011 proposed budget and thereafter inc. by inflation inflation			3.0%	3.0%	3.0%
Supplies and materials: as per 2011 proposed budget and thereafter by inflation			3.0%	3.0%	3.0%
Repairs: as per 2011 proposed budget and thereafter by increase as per inflation			3.0%	3.0%	3.0%
Fuel: with no significant increase in operation activites forecast, increase at			5.0%	5.0%	5.0%
Contractual services: Based on proposed 2011 budget (less $146k for pilotage fees dec			3.0%	3.0%	3.0%
Other costs increase by inflation	3.0%	3.0%	3.0%	3.0%	3.0%

Appendix 26 - Assumptions for Capital expenditure and borrowings

Pohnpei Port Authority						
Capital Expenditure and new Borrowings						
	2009	**2010**	**2011**	**2012**	**2013**	**2014**
Capital expenditure						
Land						
Building						
Infrastructure & Machinery			5,380,000			
Total Capex	-	-	5,380,000	-	-	-
Borrowings						
- Beginning bal				5,380,000	5,380,000	5,380,000
additions			5,380,000	-	-	-
Repayments						
End borrowings			5,380,000	5,380,000	5,380,000	5,380,000
Inetrest rate			2.0%	2.0%	2.0%	2.0%
Interest expense			53,800	107,600	107,600	107,600
Cash						
- beginning		2,328,412	3,182,070	3,682,385	4,147,987	4,621,650
Interest rate		0.750%	0.750%	0.750%	0.750%	0.750%
Interest Income		17,463	23,866	27,618	31,110	34,662

Appendix 27 - Forecast balance sheet assumptions

Pohnpei Port Authority									
STATEMENT OF Net Assets									
September 30									
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Current Assets									
Cash and cash equivalents		2,467,790	1,862,731	2,328,412	3,182,070	3,682,385	4,147,987	4,621,650	5,088,614
Accounts receivable, net		498,165	197,695	412,933	412,935	412,935	412,935	412,935	412,935
Advances		10,438	20,166	3,665	3,665	3,665	3,665	3,665	3,665
Prepaid expenses		28,180	12,151	-					
Total Current Assets		3,004,573	2,092,743	2,745,010	3,598,670	4,098,985	4,564,587	5,038,250	5,505,214
Replacement parts, net		-	199,752	114,144	114,144	114,144	114,144	114,144	114,144
Property and equipment, net		6,207,246	6,796,983	6,514,676	6,136,784	10,600,892	9,685,000	8,769,108	7,853,216
Total Fixed Assets		6,207,246	6,996,735	6,628,820	6,250,928	10,715,036	9,799,144	8,883,252	7,967,360
Total Assets		**9,211,819**	**9,089,478**	**9,373,830**	**9,849,598**	**14,814,021**	**14,363,731**	**13,921,502**	**13,472,574**
Current Liabilities									
Accounts payable		85,416	204,150	144,663	144,663	144,663	144,663	144,663	144,663
Due to FSM National govt.		92,466	78,186	78,186	78,186	78,186	78,186	78,186	78,186
Accrued liabilities		72,746	-	16,789	16,789	16,789	16,789	16,789	16,789
Accrued annual leave		4,968	67,130	73,235	75,432	77,695	80,026	82,427	84,899
Total Current Liabilities		255,596	349,466	312,873	315,070	317,333	319,664	322,065	324,537
Long Term Liabilities									
Borrowings					-	5,380,000	5,380,000	5,380,000	5,380,000
Net Assets									
Invested in capital assets		6,207,246	6,796,983	6,514,676	6,136,784	10,600,892	9,685,000	8,769,108	7,853,216
Unrestricted		2,748,977	1,943,029	2,546,281	3,397,744	(1,484,205)	(1,020,933)	(549,670)	(85,180)
Total Net assets		8,956,223	8,740,012	9,060,957	9,534,528	9,116,687	8,664,067	8,219,438	7,768,036
		-	-	-	0	0	0	0	0
Fixed Assets									
Land beg bal.			2,776,034	2,776,034	2,776,034	2,776,034	2,776,034	2,776,034	2,776,034
Adddn			-	-	-	-	-	-	-
Closing Land		**2,776,034**	**2,776,034**	**2,776,034**	**2,776,034**	**2,776,034**	**2,776,034**	**2,776,034**	**2,776,034**
Buildings and improvements			13,653,151	14,741,817	14,841,468	14,841,468	14,841,468	14,841,468	14,841,468
addn			1,088,666	99,651	-	-	-	-	-
Closing Building & imp		**13,653,151**	**14,741,817**	**14,841,468**	**14,841,468**	**14,841,468**	**14,841,468**	**14,841,468**	**14,841,468**
Wharf and equipment			2,134,477	2,308,195	2,304,129	2,304,129	7,684,129	7,684,129	7,684,129
additional			173,718	(4,066)	-	5,380,000	-	-	-
Closing wharf and equipment		**2,134,477**	**2,308,195**	**2,304,129**	**2,304,129**	**7,684,129**	**7,684,129**	**7,684,129**	**7,684,129**
Accumulated depn									
Buildings,imps and machinery			(12,657,005)	(13,029,063)	(13,406,955)	(13,784,847)	(14,700,739)	(15,616,631)	(16,532,523)
addn depn.- existing			(372,058)	(377,892)	(377,892)	(377,892)	(377,892)	(377,892)	(377,892)
addn depn.- new					-	(538,000)	(538,000)	(538,000)	(538,000)
Closing Accumulated depn.		**(12,657,005)**	**(13,029,063)**	**(13,406,955)**	**(13,784,847)**	**(14,700,739)**	**(15,616,631)**	**(16,532,523)**	**(17,448,415)**
Net Property & equipment		5,906,657	6,796,983	6,514,676	6,136,784	10,600,892	9,685,000	8,769,108	7,853,216

Appendix 28 - PPA Statement of Cash Flows 2007 - 2014

Pohnpei Port Authority								
STATEMENT OF Cash Flows								
September 30								
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Cash flows from operating activities								
Cash received from customers	2,707,254	1,885,866	2,180,994	2,488,536	2,505,018	2,581,227	2,648,576	2,703,074
Cash paid to suppliers	(524,568)	(651,508)	(587,991)	(580,653)	(768,728)	(793,420)	(818,934)	(845,299)
Cash paid to employees	(809,544)	(996,437)	(948,982)	(1,071,688)	(1,206,041)	(1,242,222)	(1,279,489)	(1,317,874)
Net Cash provided by operating activities	1,373,142	237,921	644,021	836,195	530,249	545,585	550,153	539,901
Cash flows from capital and related financing activities								
Proceeds from disposal of property and equip	444							
Borrowings					5,380,000	-	-	-
Repayment of borrowings					-	-	-	-
Contributions from Pohnpei State	77,994	28,180	-					
Reimburesment to FSM National Govt	(342,637)							
Acquisition of property and equipment	(348,976)	(900,974)	(194,058)	-	(5,380,000)	-	-	-
Net Cash used in capital and related financing activities	(613,175)	(872,794)	(194,058)	-	-	-	-	-
Cash flows from investing activities:								
Interest income	18,962	29,814	15,718	17,463	23,866	27,618	31,110	34,662
Interest expense	-	-	-	-	(53,800)	(107,600)	(107,600)	(107,600)
Net cash flow provided by investing activities	18,962	29,814	15,718	17,463	(29,934)	(79,982)	(76,490)	(72,938)
Net change in Cash	778,929	(605,059)	465,681	853,658	500,314	465,603	473,663	466,963
Cash at the beginning	1,688,861	2,467,790	1,862,731	2,328,412	3,182,070	3,682,385	4,147,987	4,621,650
Cash at the end year	2,467,790	1,862,731	2,328,412	3,182,070	3,682,385	4,147,987	4,621,650	5,088,614

Appendix 29 - PPA Aging Debtors Full year 2009

Pohnpei Port Authority							
Aged Accounts Receivable- Seaport Division							
FY 2009							
			Aging of Accounts Receivable				
Customer	% by debtor	Amount	Current	30 days	60 days	90 days	120 days
AMCRES Shipping Company	0.70%	12,007.36	-	-	-	-	12,007.36
Bernard Enterprises	0.04%	680.00	-	-	-	-	680.00
Caroline Fisheries Corporation	2.77%	47,733.01	18,295.06	-	-	-	29,437.95
Center Pac Kolonia	0.34%	5,778.10	-	-	-	-	5,778.10
Clear Water Tuna Inc	0.16%	2,702.54	-	-	-	-	2,702.54
Economic Development Authority	2.03%	34,952.12	-	-	-	-	34,952.12
Elihter Edgar	0.15%	2,565.00	-	-	-	-	2,565.00
Federated Shipping Company	8.91%	153,725.12	-	-	-	-	153,725.12
FSM Marine Surveillance	3.15%	54,240.00	-	-	-	-	54,240.00
Lagoon Services Inc	0.09%	1,590.79	-	-	-	-	1,590.79
Luen Thai Fishing Ventures Ltd	0.61%	10,523.31	10,523.31	-	-	-	-
Micro Longline Fishing Co.	1.01%	17,485.39	-	-	-	-	17,485.39
Micronesian Fishing Venture	0.12%	2,000.00	-	-	-	-	2,000.00
Mobil Oil Micronesia	0.01%	231.75	-	-	-	-	231.75
NFC Corporation	0.60%	10,288.47	-	-	-	-	10,288.47
NFC Ettal Fishing Operation	0.19%	3,325.87	-	-	-	-	3,325.87
NFC Fishing Operation	0.25%	4,297.26	-	-	-	-	4,297.26
Kosrae Sea Venture Inc.	0.22%	3,830.67	-	-	-	-	3,830.67
NFC Transshipment Operation	0.24%	4,084.32	-	-	-	-	4,084.32
Ocean Care Pohnpei Kolonia	2.34%	40,315.16	32,542.45	7,772.71	-	-	-
Pacific Longline Services	0.39%	6,753.28	-	-	-	-	6,753.28
Pacific Missionary Aviation	0.03%	589.60	-	-	-	-	589.60
PM&O Headquarters	0.87%	14,969.95	-	-	-	-	14,969.95
Pohnpei EDA 01 & 02	0.06%	1,000.00	-	-	-	-	1,000.00
Pohnpei Marine Services	57.13%	985,192.22	9,186.39	-	-	-	976,005.83
Pohnpei Transfer & Storage	16.98%	292,894.87	79,626.53	97,010.18	83,593.72	32,664.68	(0.24)
Pohnpei White Sand	0.06%	1,100.00	-	-	-	-	1,100.00
Sea Bird Agent		9,652.03	-	-	-	-	9,652.03
Total		1,724,508.19	150,173.74	104,782.89	83,593.72	32,664.68	1,353,293.16
Percentage by aging periods			8.71%	6.08%	4.85%	1.89%	78.47%