Social Sector:

HEALTH

1st Draft - September 2001

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Background and Analysis of Health

I.1. Background to the Health System in FSM [1]

The constitution and its bylaws clearly state that “no one in need of medical care shall be denied such care because of inability to pay all or any part of any fee established.” Consequently, the people of FSM traditionally have viewed free health care as entitlement.

Associated with the most recent step down in Compact funds: Compact funds support most FSM national and state government services, including most of the education and health services. The latest phase-down in funds, which began in FY 1997, has precipitated serious problems in funding and delivery of health. For example, the amount of funds allocated by the states and national governments in FY for health was nearly 27 percent less than in FY 1997. I.e. Yap State had to shut down all of their dispensaries on Yap Proper for this reason. This budgetary shortfall caused nation-wide rationalization of health services, with elimination of unnecessary health personnel and programs. With savings obtained from such stewardship and augmented management practices, most states could by 2003 deliver most basic health services, albeit with some quality problems. With the end of the Compact imminent and the economy of FSM showing very minimal growth, it is apparent that if Compact funding ends and health budgets are further constrained, further limiting of health services at the best and rationing of health services in some states will occur.

The FSM (national) Health Division (FSM-DOH) of the Department of Health, Education and Social Affairs (DHESA) has no direct role in the provision of health care, but is limited to health planning, donor coordination, technical and training assistance. In its coordination and technical assistance role, it has considerable influence on the provision of many preventive medicine and public health programs, which are funded in large part by the United States Department of Health and Human Services (DHHS) and coordinated/managed through the FSM-DOH. It also has an implied role in quality assurance and health standards, but has been seldom involved with this to date.

The Department of Health Services (DHS) in each state is typically responsible for running state curative, preventive and public health services, including the main hospital, peripheral health centers, and primary care centers, generally called dispensaries. Most DHSs have minimal capabilities for planning and programming, and have structurally weak management systems. The hospitals are directly accessible only to residents of the urban (state) centers. For residents who live on the lagoon islands or the outer islands, timely access is difficult to almost impossible because of the lack of public transportation between the islands. Minimally trained primary health care workers called health assistants (HA) deliver most health care outside the major urban areas of

[1] Much of Part I in the health sector report was edited/updated from both the 1999 ADB Social Sector Study and the FSM Strategic Plan prepared by the EMPAT Team.

the states. Dispensaries typically are located in island municipalities based on population, need and political considerations.

I.2. Funding the Health System in FSM

Health services, including preventive and public health services, are financed through a mixture of funds associated with the Compact, other categorical program grants from the US independent of the Compact funds, insurance payments and hospital user and other fees. Grants from bilateral and multilateral donors and non-governmental organizations (NGOs), although crucial in some areas of health services, represent only a very small amount of total funding to health. The composition and mixture of funding to health varies according to the state.

The health budget for 1999, excluding revenues from international donors, was $ 8.6 million from Compact funds and approximately $ 2.6 million in other non-Compact US grants for a total of $11.2 million. At present, non-Compact grants are for programs in Maternal and Child Health (MCH), Children with Special Needs (CSN), Immunization, Family Planning, Tuberculosis (TB), Sexually Transmitted Diseases (STDs), HIV/AIDS, Substance Abuse and Mental Health (SAMH) and Non-Communicable Diseases (NCDs). Contributions to health from international and multilateral donors were approximately US $100,000 in 1999. Some 10.9 percent of Compact funds went to health. The total health allocation (compact and non-compact funds) represented about 5.4 percent of the GDP. Funding for health decreased 27 percent from FY1997 to 1999.

All FSM states are interested in cost recovery and all have instituted various fees to recover costs of health services. Collection of fees in all states remains problematic, however. As the right to health care is enshrined in the constitution, it is considered that health services cannot be refused if the clients refuse to pay or can not pay. This is true even for those who are known to have the means to pay. Some states seem more efficient than others at collecting fees. Additionally, several states are considering strategies to make their health services more efficient, including privatization of some support services, corporatization of curative health services and specific health insurance plans to meet specific needs.

All FSM national government personnel must have health insurance through the FSM National Health Insurance Plan (FSM-NIP). Additionally, such personnel can also purchase insurance for their families. The FSM Health Insurance Plan is also open to all state employees, employees of public corporations and employees of private business with greater than 5 employees. About 15 percent of the population of FSM is covered by FSM-NIP, although the potential for increased enrollment is high.

Recent surveys in the FSM have shown that most health consumers have a very low opinion of health services in the FSM, including the providers, the equipment and availability of supplies. However most still feel health services should be delivered without charge. Additionally, there is very little “ownership” of health services or responsibility for one’s healthcare remains the government’s business.

I.3. Health Statistics in FSM

1994 census data for the FSM showed a birth rate of 33/1,000, a death rate of 7/1,000 and an emigration rate of 7/1,000. Based on this data, growth projections for 1994-2004, made by the FSM government and DHHS, anticipated that fertility and mortality would continue to fall slowly and that there would be a slight increase in migration, yielding a growth rate of 1.9 percent. This growth rate would result in a doubling of the FSM population approximately every 35 years, a very high doubling rate compared to other Pacific Island countries. Some bilateral and multilateral agencies believe that birth rates may not fallen as much as anticipated and that the true growth rate is more on the order of 2.1 – 2.3 percent. However, their calculations do not take into effect the increase of migration to the US since the beginning of the last step-down in Compact funding in FY1997. Migration rates are higher than predicted in the FSM/DHHS growth projections and as a result, even if birth rates have not fallen as much as expected, the overall growth rate is likely to be 1.9 percent or lower.

A review of health statistics from the past two decades reveals a gradual decrease in mortality from diseases found in developing countries such as infectious and immunizable diseases of childhood. NCDs of lifestyle and modernization have supplanted these communicable diseases as leading causes of mortality and morbidity. Currently, the leading causes of morbidity and mortality in FSM among adults are diabetes, hypertension, heart disease, cancer, stroke, and lung disease. Among children, the leading causes of death, also associated with lifestyle diseases of the parents, are prematurely, malnutrition and diseases of childbirth.

Table A: Health Indicators for FSM

	Yap	Kosrae	Chuuk	Pohnpei
Population	11,000	7,300	53,000	34,000
% of population less than 15 years of age	41%	43%	46%	44%
Birth rate	2.9%	2.7%	3.5%	3.3%
Total fertility rate	3.7	4.2	5.6	4.3
Infant Mortality rate	3.9%	4.9%	5.3%	4.2%
Child mortality rate	1.2%	1.7%	1.8%	1.3%
Life Expectancy at birth	67	65	64	66.5
% of children fully immunized at 2 years of age (1997)	95%	95%	65%	72%
% of children fully immunized at 2 years of age (1999)	80%	95%	60%	60%

Figures taken from FSM 1994 census, PIHOA Data Matrix 1997, 1999. Immunization rates taken from the Childhood Immunization Program, FSM-DOH.

Table B: Major Causes of Death, by Percentage, 1991 – 1996

		Yap	Kosrae	Chuuk	Pohnpei
Adults	Diabetes	6%	24%	9%	7%
	Hypertension/Heart/disease	12%	20%	26%	30%
	Stroke	10%	12%	7%	11%
	Chronic Lung Disease	15%		7%	12%
	Cancer	23%	16%	15%	13%
	Suicide/Homicide	5%		5%	5%
	Accidents/Injuries	6%		7%	6%
Children	Prematurely	25%	38%	23%	27%
	Pneumonia/Other infections	23%	22%	18%	24%
	Malnutrition			23%	9%
	Accidents/Injuries	9%	6%	8%	8%

Figures for Yap, 1991 to 1995 only, other states 1991-1996. From the DSM-DOH Health Statistics Office figures for Marshall Is., 1994 to 1997

I.4. Primary Health Care in FSM

Health Assistants deliver most primary health care services (PHC) in rural areas through dispensaries, which are operated on land leased by the state government or municipalities from private landowners. In some states there are considerable problems with possession of the dispensaries and responsibility for their maintenance and support. In the urban state centers, PHC is provided through outpatient clinics at the state hospital, usually by nurses or doctors.

A field (mobile) team from the public health division at the DHS usually provides public health services to municipalities and communities using the dispensaries and HA's as the nexus of activities. These teams are supposed to visit each dispensary on a regular schedule, but have seldom done so in the last few years because of funding constraints, poor management and supervision and lack of supplies.

Secondary and in some states tertiary care is supposedly provided at the state hospital. However, in recent years, lack of preparation for the FYFY1997 step-down in Compact funds, shortages in supplies, medicine and equipment have caused severe rationing of services and provision of lower quality and level of care.

The importance of recording and reporting, and the use of health information, is not fully appreciated by all health care providers in the FSM. Despite some problems with data collection and processing at all levels of the health statistics system, the major problem with health statistics is the lack of use of such statistics for planning and decisions making at almost all levels. There is virtually no data/information-based decision making at the state level, and little more at the national level.

Delivery of PHC and public health (PH) services in recent years has faltered due to lack of medicines, supplies, equipment and inadequate management. The HA's at the dispensaries have been frequently without supplies, medicines and equipment, and supervision and training have been irregular and unpredictable. The PH field teams have also not made regularly scheduled visits to rural areas and OI for some of the same reasons. However, at the PH team level, senior management decisions remain at the core of the decreases in essential PH services, including MCH, immunization, family planning, mental health, communicable diseases and non-communicable diseases prevention and control. In fact, the cause of deterioration of services in both PHC and PH is not lack of funds per se, as much as lack of planning and inappropriate and non-prioritized use of such funds.

Lack of medicine, supplies and equipment has lead to rationing of services and medicines at the state hospitals and increasing dissatisfaction among patients as to the quality and quantity of services. This in turn has led to increased demand for out-of-country referrals by patients, including use of political influence to ensure such referral. The cost of referrals has further compounded funding deficiencies, leading to greater shortages and poorer services at the dispensaries and state hospitals.

The people of the FSM view free health care as entitlement. The constitution and its bylaws clearly state that "no one in need of medical care shall be denied such care because of inability to pay all or any part of any fee established." The quantity and nature of this medical care is not defined; however, in the past when the FSM was part of the Trust Territories of the Pacific Islands (TTPI), primary, secondary and even some tertiary care was provided mostly free by the TTPI administration. The quality of health services is of major interest to almost all peoples of the FSM. Most people, in a recent quality of care survey by Jeff Benjamin, indicated that the overall quality of care and services received were poor; very few people interviewed thought that the state hospitals had qualified personnel, treated patients well, or expected that the hospital would even be clean. The high demand and use of out-of-country referrals even for rather routine medical services reflect this opinion to a great extent. Most people are still unwilling to pay for health services as they are now, as demonstrated by the poor collection rates of user fees in all states. However, In a recent survey of dispensary services undertaken by the Micronesian Seminar, many people indicated that they might be willing to pay for improved services.

The policy of the FSM health sector is one of limited and decreasing funds, worsening health services, state autonomy, economic uncertainty and geographical separation between and within states which compounds the costs of doing business. Nevertheless, the National (FSM) government remains committed to some level of quality health care for all. They hope to accomplish this through prioritization of health care services with a focus on community based primary and preventive health care service, innovative and sustainable health care financing and careful and imaginative health workforce planning. Careful consideration will be needed for infrastructure investments as well in the coming years.

Each state - Chuuk, Kosrae, Pohnpei and Yap - has two or three divisions, generally corresponding to public health, curative (hospital) care and in some cases administration. Prior to the health sector reform effects which began in 1997 and is still ongoing, most DHSs had many more divisions. These divisions have been consolidated into the two or three remaining divisions to improve efficiency and decrease costs. Each state has their own health department, hospital, clinics and public health programs, which in each is called the Department of Health Services (DHS). Each state DHS has its own director who is appointed by and responsible to the governor of the state. A new governor, following his/her election, often appoints a new Director of Health; thus the Director of Health's position is highly political. The governor of the state can appoint health personnel to other positions within the DHS as well. Most states do not have clearly defined job descriptions for the Director of Health or other senior positions, so it is possible that unqualified or inappropriate persons could be appointed to such positions. The Director of Health Services and the Assistant Director of Health Services of most states are contract employees, while most other employees of the DHS (except in Yap) are public servants. Only contract employees can be easily terminated for poor performance; civil servants are almost impossible to terminate under any circumstances. In Yap, all members of the DHS, except physicians, are contract employees, making the Yap health system the only one that is truly responsive to the performance of its health workers.

The DHS in each state is typically responsible for running state curative, preventive and public health services, including the main hospital, peripheral health centers, and primary care centers, generally called "dispensaries". The center of each state's health system is its hospital. Each hospital contains an outpatient department, inpatient wards, public health clinics, a dental clinic, and health administration offices. The central hospitals are located on the island of Weno in Chuuk State, in the municipality of Lelu in Kosrae State, in Kolonia on the island of Pohnpei, and in Colonia on the island of Yap Proper. These hospitals are directly accessible only to residents of the urban (state) centers. For residents who live on the lagoon islands or the outer islands, access is more difficult due to the lack of public transportation between the islands. The hospital for each state generally has inpatient, outpatient and emergency service capability, as well as a laboratory, pharmacy and radiology unit. Inpatient care generally includes surgery, obstetrics/gynecology (including surgical obstetrics), medical and pediatrics cases, but not specialty care. The hospitals are supposed to provide the highest and most complete level of health care in each state. The hospitals typically employ most of the health personnel in the state; particularly the better trained and more qualified ones. The hospitals also consume most of the states' budgets for health.

Primary health care workers called health assistants (HA) deliver most health care outside the major urban areas in small health care centers called dispensaries. Dispensaries are typically located in island municipalities, with location based on population, need and political considerations. They can be free standing buildings or merely a room or a cabinet in the HA's house. Dispensaries usually have one HA, occasionally two. The HA is more often a man than a woman.

Most states are considering or have already established “super dispensaries”; to be staffed by a physician or physician equivalent, nurses and other health personnel. These super dispensaries will have a pharmacy; a small laboratory and some may have an X-ray unit, as well as a means of communicating with the DHS and the main hospital. The government of Chuuk and Yap have provided airfields and "super" dispensaries with electricity to the more populated outer islands of Satawan (Chuuk State), and Ulithi and Woleai Atolls (Yap State). The super dispensaries provide basic medical services (laboratory, physicians, nurses, inpatient care, pharmacy, and radio communication systems) to deal with most emergencies in the field. Still, many patients are transferred via air transport to the hospital on the main island. The plan is to utilize these super dispensaries as permanent outreach sites for immunization and other public health programs. This will provide for some decentralization of immunization/PH activities, and increased access to on-schedule immunization/MCH services for infants and children. There are three newly opened "super" dispensaries on Pohnpei proper in Pohnpei State, with 4 more to be opened. The Outer Islands (OI) dispensaries of Pohnpei will continue being staffed by HA’s.

I.5. Private Sector, Community and NGO Participation in Health

The private health sector in the FSM is quite small and poorly developed. It consists of one general practice physician in Pohnpei, with another one to start soon in Pohnpei and a third to start in Yap early in 2000. There are no physicians in private practice in Kosrae or Chuuk. There are several dentists in private practice in Pohnpei and one in Yap. Traditional birth attendants (TBAs) are found in most states, especially in the rural areas and outer islands. The TBAs have often received some modern training from the state DHS. There are three privately owned for-profit pharmacies in Pohnpei with a broad range of drugs, and several home pharmacies run by doctors in Chuuk to make up for the usual lack of drugs at the CSH pharmacy. These pharmacies are unofficial, are sporadically out of drugs, and reportedly have very minimal formulae.

Although every state in the FSM has an ever-changing potpourri of NGOs and community groups, there are very few local NGOs and community groups that are involved to any extent in health. The Chuuk Red Cross provides training in first aid, nutrition classes and home visits, as does the FSM Red Cross. The Micronesian Seminar, a pastoral institute of the Catholic Church, has functioned as a think tank for local social issues and problems over the past 30 years and has been strongly involved in health and education in recent years. Numerous religiously affiliated and community groups provide fund-raisers for various purposes which include health, but few of them are actively involved in health.

There are some international NGOs working in the FSM. PMI has a base in the FSM and provides air service to the outer islands of Yap, including free medical evacuations. Additionally they provide, via their own ships, periodic health and medical care to the OI of Chuuk and Yap. The Archstone Foundation, formerly FHP, was important in stimulating PHC development in Yap in the early to mid 1990s and later supported health research and education programs through the Micronesian Seminar. Numerous

groups and individuals, some with religious affiliations, provide specialty medical care on a regular basis in the various states. This includes large and organized groups like Canvasback Missions, which sends regular medical and dental teams to the OI and rural areas of the FSM, and donor-supported eye teams from Japan and Australia. More than 10 medical groups per year visit Pohnpei to provide free medical specialty assistance. The other states receive a similar amount of assistance, and often the same group will visit more than one state.

I.6. Outer Island Medical Ship/Aviation Program for Primary Health [2]

The "Sea Haven", a Medical Ship serving the outer islands of FSM, has been operated by Pacific Missionary Aviation (PMA) since 1992. The Infrastructure Development Plan has identified that a 2nd similar vessel (at a slightly larger size) would be the most appropriate solution to meet the primary health care needs of outer islanders in the FSM. The estimated cost of funding a second such vessel would be at approx. $1.2 million. The maintenance and operating cost of the "Sea Haven" is presently $532,250 annually, which would bring the annual total for 2 vessels at over $1 million. Below is a snapshot of the existing medical ship's background, activities, operational cost breakdown (to be duplicated by a second vessel) and sample scheduled island visits. The primary objective of this recommended proposal is enable the operations of PMA to provide full coverage primary and emergency medical services/care to all outer islanders on a more frequent basis.

PMA began serving in Micronesia in 1975. Most hospitals serving the outer islands are 100 to 550 miles away. Very often, when reaching the hospitals some of the patients died. PMA identified the use of aircraft's to more effectively help the outer island people. They set out to meet the most urgent needs of the outer island people including medical evacuations to Guam.

This new organization, Pacific Missionary Aviation (PMA), was incorporated in Guam under the Organic Act of Guam under Section 501C (3) of the Guam Income Tax Law as a non-profit nondenominational body in 1975.

The first 9 seat twin-engine factory new aircraft arrived in Yap in 1974, one year prior to PMA being incorporated. There were different sources of funding but mainly through a few individuals who had a great interest for this project. Soon thereafter, the first flight was initiated to Ulithi 106 miles away from Yap proper, utilizing a WWII runway reconditioned by U.S.T.T. Government.

Not long after this privately initiated air service, calls came from other Micronesian islands to provide similar medical services at no cost to the government or to the patients including one attendant. In 1976 the second twin-engine aircraft was added to the service for Yap.

[2] Information regarding the PMA operations was provided by Edmund and Norbert Kalau of PMA.

PMA's services have affected many areas of Micronesians' lives. Outer island students trying to return during summer vacation to be with their families, would be frustrated to travel all the way back from U.S., Hawaii, or Guam to Yap, only to find no boat to take them to their home island. Few were fortunate to have relatives or friends in Yap where they would be taken care of. Others became an unwelcome burden to someone. At the end of the vacation, the student returned to school frustrated and unhappy without having seen their loved ones. The whole situation changed when the air service began to the outer islands.

Following the call from Pohnpei and Kosrae (Kosrae then being, one of the outer islands of Pohnpei) PMA in 1977, supported by its constituency, purchased the third twin-engine aircraft to fly between Pohnpei and Kosrae. Two years later, due to the islands demand for more medical and passenger service, a bigger aircraft, the Beech 18 was purchased. In 1985 a Beech QueenAir, a much-needed aircraft was added to the fleet in Pohnpei. PMA continued flying between Pohnpei and Kosrae for nearly 20 years until a new runway was built on Kosrae to accommodate Continental's Boeing 727. It was between Pohnpei and Kosrae that PMA under agreement with US Postal Services initiated the first Air Mail Service between the islands. In order to carry U.S. mail, PMA had to upgrade the proficiency of its pilots, aircraft mechanics and the maintenance of the aircraft to qualify to fly under FAR Part 135. It was a very costly, but much needed for safety purposes. An Aircraft Carrier Certificate was issued by the FAA in 1977 and until this date has not been revoked because of PMA's compliance with all its rules and regulations.

A request small atolls challenged PMA to initiate building runways from coral in the shallow parts of the lagoon near the land. Together with the local population such runways were built in Pingelap, Mokil and Ngatik. These runways are 1000' long, 100' wide and not less than 3feet above the highest high tide level. Perfect for operating STOL aircraft, having no obstacles to clear like trees on either end. In 1982, a third aircraft was purchased to initiate the service on the completed coral runway on Pingelap.

However, the small number of runways were not enough to reach the bulk of the atoll population. For this reason, the administration of Pohnpei State Hospital, approached PMA and requested if they could provide medical boats so that all islands could be reached with medical care. PMA accepted the Hospital's Proposal and the first boat, the "Sea Haven", arrived from Long beach California in 1987. After major rebuild and outfitting in Manila, for medical work, it began service to the remotely dispersed islands of the States of Pohnpei and Yap.

In 1992 typhoon Yuri drove the Sea Haven aground in Pohnpei. A new boat was needed. Some of the loss was compensated by FEMA, which encouraged PMA to seek other financial help. Two other organizations contributed enough for the purchase and conversion of the new boat "M/V Sea Haven II" The loss of the first Sea Haven was a blessing in disguise. PMA now has a 189 ton steel boat, 120 feet long, having enough fuel and water capacity to make longer voyages.

This vessel was also outfitted for medical service and contains an examination room, operating room with operating microscope, eye clinic for doing refractions, and a dental operatory. This Sea Haven II is still very much in use and is performing well in rough seas.

The only real problem encountered, is that it is impossible for one vessel to traverse these distances and visit the islands at least two or three times a year. This minimizes the effectiveness of the healthcare. Therefore, in order to greatly improve medical care a second vessel is urgently needed. With two vessels and a compliment of good volunteer doctors and dentists, the whole medical care of the outer islands of FSM could reach the level of desirable and sustained effectiveness.

Objectives of the Current Operations:

Provide free services to all Micronesians regardless of social status or religion.

Services include:

1. Primary health care
2. Medical examination
3. Minor surgery
4. Dentistry
5. Eye examinations and treatment, refractions, and eyeglass dispensary. Also cataract surgery when eye specialist is available
6. Assisting the National Medical Officers and local dispensaries in their service to the outer islands, providing medicines and medical supplies
7. Providing logistics for the national medical officers for their periodic visits to the outer islands for immunizations and public health education
8. Disaster relief and rescue operations.
9. Training of Nationals in primary health and dental care, sanitation, nutrition, personal hygiene, alcohol abuse, aids prevention.
10. Providing emergency medivacs, and airdrops of needed medical and food supplies.

Sea Haven Primary Health Care Annual Expenses:

VESSEL:

▪ Fuel: 35,000 gal. X 4 x $2.00 a gallon	$280,000
▪ Oils 2 drums x 6 x $301	$3612
▪ Maintenance & Repair/ Parts	$15,000
▪ Insurance	$19,528
▪ FSM Documentation & Inspection Fees & Survey	$1,200
▪ Port Fees and Expenses	$2,000
▪ Crew/labor & wages/ Health insurance 5 crew;	$254,400
▪ Dock Lease/Rent Exp.	$7,500
▪ Building/Grounds Maintenance and Repair Ins.	$4,500
▪ Security	$3,600

- Utilities: water/power $3,000
- Automotive/Maintenance/Repair/Insurance $2,500
- Small tools and Equipment Galley & Maintenance $1,000

GENERAL OFFICE EXPENSE:

- Professional Fees $500
- ship sat com $240 x 12 $2,880
- land HF, Fax, Phone, Email $200 x 12 $2,400
- Fund Raising/ Photography/Promotional $1,500
- Shipping costs/taxes $500
- Housing crew family 5 x $500 $2,500
- Travel $2,100
- Depreciation expenses 10%/Year
- Miscellaneous Expense $1,000
- Dry Docking $140,000 every 3 years $46,666
- Maintenance and Repair $50 x 12 $600
- Fuel 2 drums x 12 $1,320
- Oil $144
- Meds/Supplies $50,000
- Room & Board (food) $100 / month x 12 /person x12 $14,400
- Travel Costs/Medical Volunteers $600 x 4 $2,400
- Medical Equipment $2,500
- FSM Medical License Fee's $400

Total yearly expenses: $532,250

Sea Haven 2000 Schedule:

- June 5 Depart Pohnpei Is.
- June 6 Anchor at Lukunor Is.
- June 7-10 Clinic (4 days)
- June 11 Sunday
- June 12 Clinic or Depart
- June 13 Anchor at Oniap Is.
- June 14-17 Clinic (4 days)
- June 18 Sunday
- June 19 Clinic or Depart
- June 20 Depart Oniap
- June 21 Arrive at Weno Is. (Chuuk Commercial Dock)
- June 22 Anchor at Weno Is.
- June 23-28 Anchor Tol Is.
- June 24 Clinic
- June 25 Sunday
- June 26 - 28 Clinic (3 days)
- June 29 Depart Tol
- June 30 Anchor at Moch Is.
- July 1 Clinic
- July 2 Sunday
- July 3-5 Clinic
- July 6 Anchor at Ta Atoll

- July 7-8 Clinic
- July 9 Sunday
- July 10 Clinic or Depart
- July 11 Anchor at Satawan Atoll
- July 11-15 Clinic (5 days)
- July 16 Sunday
- July Return to Pohnpei
- June 21 Anchor at Satawan Atoll
- June 21-24 Clinic
- June 25 Sunday
- June 26 Clinic
- June 27 Anchor at Ta Atoll
- June 28-30 Clinic
- July 1 Anchor at Moch Is.
- July 2 Sunday
- July 3-6 Clinic
- July 6 or 7 Depart Moch Is.
- July 8 or 9 Anchor at Weno Is.Depending on flight
- July Tol Is.
- July Oroluk
- July Return to Pohnpei
- August 7 Depart Pohnpei
- Aug 9 Weno Is. Chuuk Lagoon
- Aug 10 Depart Weno
- Aug 11 Anchor at Pulap Atoll
- Aug 12 Clinic
- Aug 13 Sunday
- Aug 14 -18 Clinic
- Aug 19 Clinic for Tamatam Atoll on Pulap Atoll - Depart for Weno
- Aug 20 Sunday
- Aug 21 Puluwatt Atoll or Weno
- Aug 22 Puluwatt -- Pike Atoll
- Aug 27-Sep 5 Guam (provisioning, cargo transfer)
- Sept 7 Yap
- Sept 12 - 19 Ulithi – Fadari (Fassarai) – Mogmog
- Sept 21 Woleai
- Sept 22- Oct Yap – Neighboring Islands

SEA HAVEN Specifications:

- 1000 BHP TWIN SCREW MEDICAL/EMERGENCY STAND-BY VESSEL
- Official Number 989594
- Call Sign FSM V6CP
- Classification Medical emergency vessel
- Flag FSM
- Port of Registry Yap, FSM
- Year Built 1968
- Where Built Sidney, N.S.W.
- Number of Decks 3
- Registered Length 109.7 ft.
- Breadth 29.1 ft.

- Depth 13.0 ft.
- Gross Tonnage 189
- Net Tonnage 100
- Fuel Capacity 37,000 Gal.
- Fresh Water Capacity 37,000 Gal.
- Holding Tank 500 Gal.
- Free Deck Area 400 sq. ft. / 2x 20 ft. containers
- Accommodation 2 X 1 Birth, 5 X 2 Birth, 1 X 4 Birth
- Fully Air Conditioned

MACHINERY AND EQUIPMENT:

- Main Engines Two Detroit Diesels 16V-71 500 BHP each at 1800 rpm
- Propellers Two with fixed blades in kort steering nozzle
- Generators Two 440/220 80 KVA 60 HZ alternators driven by Detroit 4-71 diesel, One Northern Lights M445D 40KW
- Gearboxes Two Twin Disc MG-527 reverse ration 5.17:1
- Steering Sperry Vickers electrohydraulic
- Crane 3 Ton capacity
- Nav. Aids & Com HF/VHF/SSB, Radar, Echo Sounder, GPS, Auto Pilot/Sextant

I.7. Human Resources (staffing, qualifications & workforce needs)

Ratios for FSM are based on census projections for 1998 from the 1994 Census. The number of physicians of health workers for each state is based on 1998 calculations from the Health Statistics Office, Division of Health, DHESA.
For the FSM and Marshall Islands, "Health Assistants" category includes Medexes.

Table C: FSM Health Personnel and Size of Hospital (# of beds) -1999

	Chuuk	Kosrae	Pohnpei	Yap	FSM*
Doctor	21	8	23	14	66
Medex	1	0	0	0	1
Graduate Nurse (Hospital)	59	22	32	14	127
Graduate Nurse (PH)	4	10	10	7	31
Health Assistant (PH)	7	0	20		41
Health Assistant (PHC)	91		14	23	128
Practical Nurse (Hospital)	49	1	26	14	96
Practical Nurse (PH)	8	0	12	4	24
Health Educator	6	1	1	0	8
Support Staff	178	57	81	63	379
Total	**24**	**99**	**219**	**139**	**901**
Size of Hospital (# of beds)	125	35	96	37	326

Source: Health Statistics Office, Division of Health, DHESA

I.8. FSM Health Infrastructure [3]

Although all hospitals in FSM are behind in maintenance, repair and renovation activities, their physical condition and design are generally adequate for provision of secondary and low level tertiary care. The design of Kosrae State Hospital (KSH) is the only exception to this observation. KSH seems not to have been designed but built by accretion over the 20 plus years since its initial construction. All hospitals in the FSM, although potentially capable of providing secondary and low level tertiary care, are not providing even a full range of secondary care. Major operational problems in all hospitals exist within important hospital units such as laboratory, x-ray, pharmacy, housekeeping and supply. Some hospitals face problems in their clinical care divisions and some departments of health services in the public health and units. These difficulties stem from use of inappropriate personnel or poor management practices, often both. This in turn renders them unable to deliver a full range of secondary services.

The biggest barrier to service delivery in all FSM hospitals (and also in primary health care) is lack of supplies, drugs and equipment. This is not due per se to insufficient funds, but to poor management systems. All hospitals are under utilized for their size and have bed capacity in access of their needs. All are inappropriately utilized as well and people are frequently admitted for social or other reasons rather than medical need. Thus, if the basic hospital units were working properly and utilization was appropriate; all hospitals could provide a much higher level of care and there would be no need for a national referral hospital. All hospitals need a holding unit for dangerous or violent psychiatric patients.

Part of the management system problem facing all FSM hospitals and health services is the lack of standardization in equipment and supplies. Laboratory, x-ray and other medical equipment are different in every state. There is no communality of parts or supplies and most equipment requires separate maintenance contracts from their particular manufacturer. Thus, most laboratories, as well as other hospital units, are incompletely functioning because of equipment problems. If laboratories were function to their full capability and to that of their technicians, then they would be capable of providing fairly high-level laboratory services. The state laboratories could then use each other as reference laboratories, with a very much decreased need for specimen referral out of country for comparative analysis and quality assurance purposes.

Several states have identified transportation problems, especially lack of ambulances, as major causes of patient dissatisfaction and poor health outcomes. This is a problem in the large islands, such as Pohnpei and Kosrae where public transportation is weak or non-existent away from the government centers.
Strategies

[3] The following section on Health Infrastructure was edited and updated from the FSM Strategic Plan prepared by the EMPAT Team.

Each state should have a master plan for maintenance and renovation of their health facilities, with a clear cost center for needed works. Where necessary, the national government could help in obtaining appropriate technical assistance for renovation, repairs or maintenance. Maintenance, repair and renovations are essential on a regular basis in all FSM hospital to ensure quality health services.

Once basic maintenance, repair and renovation services were instituted and up-to date, the physical plants and design of all state hospitals are capable of providing secondary and perhaps low tertiary care services. The actually delivery of such care awaits improvement in management systems, and subsequent improvement in the operation of the laboratory, x-ray, pharmacy, sterilization and other critical units. Number and training of personnel is actually the most minor problem associated with improving care, as most personnel are under utilized due to misfunctioning of the various support units and adequately trained to higher levels of service than they can practice in the present setting. Once state hospitals start functioning at their full capabilities, there would likely be no necessity for a national referral hospital. Each hospital could focus on maintain certain select specialties which services could be shared with other states in FSM.

Laboratory equipment and supplies must be standardized. New equipment should be bought according to existing standards only and with long term fully funded maintenance contracts. Once the laboratories are fully functional, then a quality assurance program should be institute between laboratories using each other as reference laboratories, and sending specimens out-of-country only for tertiary quality control purposes.

Each state should have a holding unit for dangerous or violent mental health patients. This should be attached to the hospital complex and in a location where regular and periodic checks can be made day and night.
Although transport of serious ill patients to the hospital is a problem in several states, this problem should be dealt with by the private sector. In the rural parts of the larger islands, no matter where an ambulance is placed, it will likely be in the wrong place. .

I.9. Economic Implications

Maintenance, repairs and renovation of health facilities need to be taken care of in a regular and systematic fashion. Major renovations should be planned and funded systematically. The master plan for facilities development for each state should carefully spell out estimate costs and funds should be sought well in advance to insure timely implementation. A revolving fund allocated only for maintenance, renovation and repairs might be set up at the national level to insure that such work is not delayed.

The physical plants of all FSM hospitals are sound. The design of Chuuk, Pohnpei and Yap hospital is appropriate for the services they provide and the size of their constituency. Kosrae hospital is very poorly designed, but functional and sound in structure. If hospitals were functioning to their reasonable capabilities, a national referral hospital would not be necessary as state hospitals could provide most of the needed

services in a cost efficient manner. The challenge facing FSM is to make their state hospitals functional and efficient and their primary health care systems timely and appropriate. This could likely be done at less cost than the establishment of a national referral hospital.

New equipment is needed for laboratory, x-ray and other units at most departments of health services in most states. This equipment should be standardized. Purchase should include long term life-of-equipment maintenance contracts. Supplies should be bought in bulk when possible. Significant cost saving and longevity of equipment could be obtained with this approach.

Laboratories, once they begin functioning properly, will probably require additional operating funds. A present, due to lack of equipment and supplies, they are functioning very much under capacity. It is essential that each states' laboratory can provide basic public health laboratory services to capacity, in addition to various hospital uses. They could also act as reference laboratories for each other, at reduced costs compared to sending specimens out of country, except for the occasionally specimen referral for quality assurance purposes.

A holding room for dangerous and violent mental health patients is needed in every state. Specially trained personnel and treatment/observation protocols for handling such patients are also necessary.

Transport, both emergency and routine, should become a municipal or private sector responsibility. The department of health services should get out of the patient transport business. If access to health services remains a problems in some areas due to poverty or lack of public transportation, then the director of health services, other senior health staff and state officials should work with local municipalities and the private sector to develop local resources and self sufficiency to address this issue. Start up grants to stimulate private sector interest may be needed in some cases.

I.10. Critical Issues

Funding for support of maintenance, renovation and repairs remain problematic. Sources of funding for such need to identified, either from external funds or from with the national budget.

States must agree to standardization of hospital equipment, especially laboratory and x-ray. All new equipment should have fully paid maintenance contracts. This could be accomplished through the establishment of a national working group with a secretariat at the national level. Such an approach, to be effective, must be timely and responsive to states needs.

Continued discussion with the police and the justice department is needed on handling of violent and dangerous patients. Situations often occur where such patients will need police supervision as well as mental health support.

Privatizing of transport, especially ambulance services, is likely politically unpopular, especially in remote rural areas. A great deal of social preparation might be necessary before this is implemented.

I.11. Summary

Because of possible decreases of upcoming compact funding, health services in FSM may face economic hardship and shortages in the coming years. Health services should be prioritized as to their importance so that essential health services can be maintained. Given the level of disability and death caused by non-communicable diseases related to lifestyle choices, prevention of lifestyles and behaviors leading to these diseases should be a priority. Consequently, community based primary and preventive health measures should be encouraged, along with public-private multi-agency partnerships in control and treatment of these diseases. High among possible projects for these partnerships is the encouragement of healthy lifestyle and healthy environment approaches at the village and municipalities. This could include improved sidewalks to encourage walking and sports facilities to encourage sports.

If fiscal shortfalls occur as expect, alternative funding must be sought from other sources, including user fees, insurance, and increased efficiencies in service delivery. Many non-essential services may be privatized, and corporatization of secondary health services in some states may bring about improvement in both service delivery and revenues. Human resources needs for the health services remain high, especially among mid-level health workers such as nurses. Continuing education programs are a necessity for all level workers. State hospitals are functioning well below their capabilities because of poor maintenance, repair and renovations programs, inadequate medicines, supplies and equipment and inefficient and ineffective management systems in many states.

Social Sector:

PART II: HEALTH

Facilities Inventory Study: Costings, Maintenance and Recommendations

September 2001

Facilities Inventory Study: Costings, Maintenance and Recommendations

The Social Sector Perspective and Methodology

The purpose of the study is to institutionalize sustainable improvements to Health facility infrastructures by undertaking rehabilitation projects that will improve each physical facilities and by recommending community participation strategies and other initiatives for dispensaries. The study identified the following: Physical condition of the facility infrastructure; Preventative maintenance and; Expansion needs of Health Facilities.
The Project Scope involved the examination of existing physical conditions of infrastructure (buildings, systems, equipment) including corrosion, deterioration, and general upkeep. Review of adequacy and capacity of the buildings, systems, and equipment to serve current needs and any future or projected needs and the identification of rehabilitation projects to repair, improve, and upgrade the facilities.

Established liaison with government officials from selected agencies and departments on each island to inform them of the upcoming site visits:

- FSM Department of Health, Education, and Social Affairs (HESA)
- Office of the Governor (Kosrae, Pohnpei, Chuuk, and Yap States)
- State Departments of Health Services
- State Departments of Education
- State Departments of Public Works
- College of Micronesia - all state campuses

Dates of Site/Field Visits:

Kosrae	2 - 10 July 2001
Pohnpei	Field work performed on and off between June-August 2001
Chuuk	15 - 24 July 2001
Yap	18 - 24 August 2001

State Visit Activities: In-briefings meeting upon arrival at each state with the Governor and key state government department representatives to discuss assessment process; arrange individual follow-on meetings; and request relevant data (reports, statistics, data, studies as-built drawings, etc.).

Conducted comprehensive site inspections of Health facilities for the Social Planning Specialist), During the site visits the Social Planning Specialist and Civil Engineer II (Corinna Ocampo) took detailed notes and recorded the physical conditions utilizing a digital camera. These images are located in the Annex. Conducted follow-up interviews with the Director of Health Services and other related specialist.

Interviewed key personnel from various government departments, agencies, and programs involved in education and vocational training, as well as those providing related services to the hospitals, to determine existing training resources and level of expertise on-island:

Conducted daily meetings attended by all assessment team members every evening to review the day's activities; share findings, data, and information; and discuss concerns, issues, recommendations, solutions, and alternatives.

Directed out-briefing meetings with the Governor and key state government department representatives at the end of each island site visit to discuss initial findings and possible recommendations for education and hospital facility repair, renovation and expansion.

Prepared and distributed draft reports for each State. Requested review comments and feedback from various government officials and other interested parties. Concurred comments were incorporated into the final state reports.

The Social Planning Specialist made observations and noted key issues that contributed to building deterioration:

- Conditions affecting building life and upkeep are the harsh (rain, humidity, salt) climate conditions, hard use of buildings and inadequate maintenance due to poor planning policies and economic limitations.

- Galvanized steel sheet, components, fixtures and equipment corrode rapidly and are not suitable. Aluminum is the preferred metal.

- Buildings constructed on concrete slabs with Concrete Masonry Unit (CMU) walls are more durable and suitable than wood frame buildings.

Methodology for maintenance of health facilities:

The Social Planning Specialist proposed a total budget amount annually for the maintenance of health facilities, which was approx. 20% of the cost estimates to renovation buildings. The maintenance budget should allocate 40% to ongoing work and 60% to special repair projects. The Plan recommends the following section composition of Health Servics (below are the minimum operations recommended) to be responsible for Health facilities maintenance:

1 fully qualified full time Facilities Engineer
1 full time Field Service Coordinator
3 full time assistants.
1 full time Plumber
1 full time Electrician
1 full time Secretary
8 Total

II.1. FSM State Hospital's Maintenance Program

In June 2000, the U.S. Department of the Interior (DOI) Office of Insular Affairs, through its Operations and Maintenance Improvement Program (OMIP)[4], offered to assist the FSM in improving the overall conditions of the hospital infrastructure in the four states: Kosrae, Pohnpei, Chuuk, and Yap. President Falcam accepted the DOI offer.

Due to substantial overlaps in the FSM Infrastructure Development Plan and the aforementioned study/program, we received permission to include the OMIP Hospital Maintenance Program in this report. Comments/conclusions regarding the DOI/OMIP proposed projects will be reviewed by the Infrastructure Plan following this section.

The DOI proposal included the following: A U.S. team of experts to conduct needs assessments for each hospital. One assessment to identify the hospitals' high priority physical needs and another assessment to identify the training needs required to improve hospital maintenance; A $2 million grant, subject to equal matching by the FSM National Government, to pay for the physical improvements to the four hospitals (who bears the cost of design for these projects is to be determined); and a one-year hospital maintenance training program fully funded by DOI (no match required).

The FSM is currently awaiting approval of a $7.1 million loan request from the Asian Development Bank (ADB) for a Basic Social Services Project to assist the country in designing and introducing essential reforms in the health and education sectors. President Falcam introduced legislation in November 2000 seeking Congressional consent to borrow the funds. The project was submitted to the ADB Board for approval, with implementation scheduled for 2002.

The ADB project is designed to develop a health service delivery system that is accountable to the public and can provide quality and cost-effective medical services. The project is expected to take place over a 6-year period in two phases: phase 1 (4 years) will undertake organizational changes and reforms at the state health department level; and phase 2 (2 years) will provide structured programs for facilities improvement including the implementation of systematic maintenance programs, for those States who have demonstrated success in Phase 1. The ADB is aware of the DOI initiative, having reviewed its scope of services. It is the opinion of ADB Senior Project Specialist Mr. Tilek Sen that there does not seem to be any overlap (redundancy) with the scope of the ADB project.

The primary purpose of the DOI program is to institutionalize sustainable improvements to the operations and maintenance of the hospitals' infrastructure by undertaking rehabilitation projects that will improve each hospital's overall physical

[4] Persons primarily responsible for the study were: Joe Barboo, P.E., OMIP Specialist, U.S. Army Corps of Engineers, Honolulu Engineer District, Honolulu, Hawaii and Meril Dobrin Fujiki, Manager, Education and Training Program, Pacific International Center for High Technology Research, Honolulu, Hawaii (others involved in the study are cited in the bibliography). The Social Planning Specialist received permission to use their findings and recommendations.

facilities and by organizing training and other initiatives. The program was designed in two phases: Phase I - Needs Assessments and Phase II - Implementation. This report details the findings and recommendations developed under Phase I. An important consideration for Phase I was the identification of areas where hospital operations and maintenance activities have not been regularly conducted, leading to premature deterioration of the facilities, the systems, and equipment. The following were of particular interest to the DOI Assessment Team: Physical condition of the hospital infrastructure; Budget allocations for regular and ongoing O&M activities (personnel, materials, supplies, equipment, tools, training); Preventative maintenance strategies and schedules; Expertise (basic and technical skills, managerial and supervisory experience) of current O&M personnel; and on-island vocational education and technical training resources.

FSM Hospital Infrastructure Assessment

Since the initial construction of the four state hospital facilities in FSM, there has been a serious lack of proper operation and maintenance (O&M) of the buildings, systems, and medical equipment. The premature deteriorating conditions of the hospitals' infrastructure over this period of time, exacerbated in recent years by severe budget cutbacks, have greatly impacted the delivery of quality health services and contributed to the increased demand by local patients for off-island referrals, even for basic medical care. The marked decline in all maintenance areas - leaking roofs, unsanitary conditions (i.e. broken toilets, rat-infestations), a plethora of non-serviceable, faulty and/or obsolete medical equipment, and critical shortages of medical supplies, medicines, and new equipment- has undermined the general population's confidence in the country's health care delivery system.

The cost of off-island referrals has placed a heavy burden on the already insufficient funds available for health services in the states, as it annually drains a large percentage of the budgets for the Departments of Health Services. This cost, coupled with the decrease of compact funds flowing into the FSM and the subsequent reduction in allocations for health services, has resulted in substantial cuts in monies for hospital maintenance, repairs, and renovations.

Most of the states are attempting to address their health budget shortfalls by (1) instituting policies to restrict the number of off-island referrals; (2) reviewing their cost-recovery policies (i.e. more active pursuit of outstanding fees owed and increased/extended fees for hospital services); and (3) privatizing basic support services (house/grounds keeping, laundry, security, ambulance, kitchen, mortuary). While these measures are important to improving the states' inadequate health budgets, there is a critical need to review current planning, programming, and budgetary policies and priorities in the area of hospital infrastructure maintenance to ensure that there are sufficient funds set aside each year for preventative maintenance activities (i.e. proper tools, spare parts, O&M personnel training), and building and systems repair and renovation as required.

The hospitals are the core of the islands' health delivery systems. They were designed to provide primary health care as well as secondary, and in some cases, low level tertiary care. To provide these services effectively, however, the hospital infrastructure must be maintained with sanitary, well-equipped, and functioning facilities: laboratory, radiology, emergency room, operating room, labor/delivery unit, patient wards, dental and public health clinics, pharmacy, outpatient department, maintenance shop, and administration (medical records, supplies).

The high number of off-island referrals and the low collection of hospital fees are linked directly to the physical conditions and operation of the states' hospitals. As long as the local population views the hospitals as unsanitary, ill-equipped, and ineffective, they will be unwilling to utilize and pay for local medical services.

II.1.1. Kosrae State Hospital

The Team found long-term neglect in all areas of the hospital. Overall, the facilities are grim, unsanitary and lacking in basic supplies and equipment. The small O&M staff is unable to keep pace with the deteriorating conditions and has very little resources available to undertake any preventative maintenance, repair and renovation work. There are no funds in the budget of the State Department of Health Services specifically earmarked for O&M activities for hospital infrastructure.

Kosrae State Hospital was constructed in 1971. It is a 40-bed facility of approximately 29,300 square feet. It is located on a hillside and the steep access road is unpaved. There is also a steep stairway that provides access from the foot of the hill. It appears to be well protected from flooding. The main building is a one-story masonry structure with wooden studs and roof frame. The building's roof is corrugated galvanized steel. There are two smaller structures on the property that are similarly constructed: (a) a maintenance shop which also provides for medical storage; and (b) a public health building which houses a dental clinic, mental ward, environmental sanitation, and drug and alcohol abuse unit. A sketch showing the hospital's floor plan layout can be found in the Appendix.

The hospital's ground drainage is poor. Visually, the building structures appear to be sound, although there are some minor roof leaks, pipe leaks or condensation-induced wall and ceiling damages. The parking lot is not paved, and the hospital lacks proper outside signage. The grounds of the hospital are littered with abandoned equipment, and the grass and plantings are overgrown.

Since the hospital's original construction, many rooms have been added. The most recent addition is an administration wing that was built in the mid-1990's. The functional-spatial layout and relationships of the hospital units should be changed to make the facility more efficient and effective. Also, many departments in the hospital require renovation and upgrading in order to have a complete and usable facility. It is

apparent that the size of the hospital is adequate and appropriate for the population that it serves. The hospital was 80% occupied at the time of the assessment visit.

During the design of the proposed renovation work described below, a detailed survey of the existing electrical, plumbing (hot, cold, and wastewater), fire alarm/suppression systems, etc. should be conducted. The domestic hot water system needs to be re-designed and constructed. A simple and basic solar domestic water system, supplemented by electricity, could possibly be provided throughout the hospital. The study should include a careful evaluation to insure that backflow preventers are properly installed. The hospital has a new emergency generator.

Much of the basic operational equipment in the kitchen, laundry, medical laboratory, and dental clinic is out of service. While the Department of Public Works (DPW) has the expertise to fix some of the non-medical equipment, there are no funds for spare parts. The DPW's annual budget allocation of $3,000 for maintenance materials and parts is earmarked for all government buildings in Kosrae, not just for the hospital. Clearly, this amount is totally inadequate to service all O&M needs in the State of Kosrae.

Many of the departments throughout the hospital require additional ventilation and lighting, plumbing repair, replacement of window screens, and proper storage. The VCT flooring in the operating room, minor surgery, and emergency room is difficult to keep clean and therefore susceptible to bacteria growth. It does not meet current asepsis (sterilized) practice and should be replaced with a seamless vinyl floor. There is little or no furniture for patients, staff, and visitors. The patient dining room had no furniture and patients must eat in the wards. Families often bring food, which has resulted in a vermin problem.

The hospital's basic electric and air conditioning systems are minimally functional and inefficient. Sincere efforts have been made in the past year to conserve energy in the hospital. Electricity usage has been reduced by 50% (from $4,000 to $2,000 per month) by: (a) installation of energy-efficient lights and fixtures; (b) limiting use of air conditioning; and (c) signage reminding the staff to turn off equipment when it is not in use.

The hospital's maintenance support building lacks adequate space and is functionally disorganized.

It should be noted here that the Department of Health Services has recently submitted a request to the Kosrae State Governor for Japanese Government funding to build a new hospital. In discussions with FSM National Government officials and the Japanese Embassy in Pohnpei, there is a possibility that funds may be available for this purpose within the next 5-10 years.

The hospital currently employs one maintenance worker to operate and maintain all hospital facilities and systems. The hospital also employs three custodians who are responsible for housekeeping and grounds. There is no systematic approach to

preventative and routine maintenance. The maintenance shop is in complete disarray (chaotic), with no inventory control. There are insufficient supplies and materials available to provide even the most basic maintenance.

There is no expertise on-island to maintain and repair sophisticated medical equipment (x-ray machines, autoclaves, dental drill compressors, sterilizers, newborn incubators, etc.). Compounding this problem, much of the hospital's biomedical and facilities equipment- donated by international governments and aid organizations- lacks instruction and service manuals, spare parts (no longer manufactured) incompatible voltage and cycles, and/or is too costly to convert or repair.

The overall sanitary conditions in the hospital are unsatisfactory. The patient wards, bathrooms, kitchen, and laundry are dirty. The women's bathroom was flooded due to a plumbing leak on the day of the team's visit. The main medical units of the hospital are grimy, cluttered, and disorganized. Broken and useless equipment sits abandoned throughout the hospital, taking up valuable space and creating obstacles for cleaning and organizing the areas. Better management, supervision, and training of custodial staff is sorely needed.

The hospital has a close working relationship with the DPW, and as much as possible, the DPW assists the hospital's maintenance staff with repairs. The DPW building maintenance group includes 2 reefer mechanics, 1 carpenter, 1 mason, 2 plumbers, 1 electrician, and 1 welder. This group is responsible for O&M activities at all state government buildings. Training is needed to upgrade the DPW personnel, especially in the areas of carpentry, welding, plumbing, air conditioning, refrigeration, and electrical. In addition, there is an urgent need for O&M manuals and/or parts books for the maintenance and repair of wheel chairs, x-ray machines, washing machines and dryers.

At the present time, only the hospital's embalming service is privatized, contracted to a local individual who uses the hospital facility to run his service.

II.1.2. Kosrae State Hospital Priority Rehabilitation Construction Projects

The estimated cost for the following highest priority rehabilitation projects is $1 million:

1. Demolish the existing physical therapy room.
2. Construct a room in the footprint of the physical therapy room that will be used as a swing space throughout the construction described below.
3. Utilize the swing space as a temporary emergency room.
4. Convert the emergency room into a temporary operating suite.
5. Renovate the operating room.
6. Utilize the newly renovated operating room as a temporary maternity delivery room.
7. Renovate the maternity delivery room.
8. Refurbish and repair the emergency room.
9. Utilize the swing space as temporary office space for a doctor and a surgeon. Convert the doctors' offices into a new pharmacy.

10. Remodel the old pharmacy into new offices for the doctor and surgeon upon completion of the new pharmacy.
11. Repair and upgrade one ward at a time while the above projects are ongoing.
12. Renovate and upgrade the isolation rooms, temporarily moving them to the swing space.
13. When the above construction is completed, the swing space will be converted into a new physical therapy room.
14. Renovate and upgrade the existing kitchen and the unused dining room space.
15. Install two new commercial washers and dryers in the laundry.
16. Rehabilitate the fire alarm system.
17. Repair all roof leaks.
18. Provide a reliable source of domestic hot water in the hospital.

The estimated cost for other rehabilitation listed below is $100,000:

1. Install door hardware to eliminate the locking from the inside of the east side ward exit doors. These doors are currently locked from the inside to prevent visitors from entering the hospital.
2. Eliminate the dead end area between the sterile corridor and pharmacy waiting area, by unblocking the doors, thus allowing egress in case of fire.
3. Place all autoclaves in a central place in the hospital and use one boiler. (Train staff to disburse sterilized equipment and materials under sanitary conditions to proper areas of the hospital.)
4. Convert an existing open space in the administration area into a training room. Replace single pane windows in the administration area with double hung vinyl insulated glass windows.
5. Clean and repair all existing insect and bird screens.
6. Provide two 3-cubic foot under-the-counter refrigerators for the clinic spaces.
7. Provide a negative air pressure relationship in the TB isolation rooms with reference to the corridor with exhaust fans.
8. Provide proper drainage for the parking area and pave the parking area.
9. Properly chain and secure all oxygen cylinders to the wall. Store cylinders in safe and secured areas.
10. Clean up and organize the dental clinic. Create a storage area for materials and supplies. Assess and refurbish, where possible, dental equipment (drills, sterilizer).
11. Conduct a complete inventory/assessment of all hospital equipment. This effort should include equipment description, make, model, serial number, manufacturer, and service history, as well as location of each item within the hospital facility. The CAT may be willing to perform this inventory and tag the equipment for disposal, repair, etc. All non-serviceable equipment should be removed. The DPW could perform this task. The T-3 program workers may be able to repair some of the hospital's basic equipment.
12. Purchase an industrial pressure washer, gas-powered sand blaster, and airless paint sprayer (and supplies and spare parts) for the hospital. Train staff to operate and maintain this equipment by requesting the assistance of CAT to clean the interior and exterior of the hospital and paint the facility inside and out.
13. Undertake an assessment of all hospital systems (air conditioning, plumbing, electrical). The CAT may be willing to perform this service and submit a brief report on conditions and remedies.
14. Enter into a service contract with Kosrae Utilities Authority (KUA) for the proper operation and maintenance of the emergency generator.
15. Provide furniture (benches, chairs, etc.) for hospital staff, dining room, and visitors.

16. Continue energy conservation efforts and work with the KUA to study the feasibility of installing a co-generation system to provide air conditioning for the hospital.
17. Clean and sanitize bathroom areas thoroughly on a routine (daily) basis.

Technical Training – Kosrae State Hospital:

1. Provide short-term technical training to hospital O&M staff in: basic building wiring methods, reading blueprints, solar, electrical and water heating systems, air conditioning, refrigeration, water supply and filter maintenance, and emergency generator operation, carpentry, and safety procedures
2. Provide short-term technical training to hospital O&M and DPW staff in arc welding of different metals (stainless steel, aluminum, cast iron).
3. Draw on the CAT Team to assist hospital O&M staff in organizing and renovating the maintenance shop and in conducting an inventory of tools, equipment, and supplies. New carpentry tools, grounds keeping equipment, shelving, cabinets, and work benches may be needed. Follow up these activities with a comprehensive training program in inventory control.
4. Utilize the CAT Team to train O&M staff in basic preventative maintenance scheduling (standard operating procedures). Follow up this exercise with a comprehensive training program in preventative maintenance. Develop preventative O&M manuals and materials..
5. Take advantage of the CAT Team to train hospital staff in supply inventory, and materials, equipment, and supplies ordering procedures (specifications).
6. Utilize T-3 instructors to train O&M staff in small appliance and basic plumbing and electrical systems repair.

II.1.3. New Kosrae Hospital Proposal

The 1999 ADB – FSM Health and Education Report stated: “Although all hospitals in FSM are behind in maintenance, repair and renovation activities, their physical condition and design are generally adequate for provision of secondary and low level tertiary care. The design of Kosrae State Hospital (KSH) is the only exception to this observation. KSH seems not to have been designed but built by accretion over the 20 plus years since its initial construction”.

There is a $15 Million grant proposal by the Japanese Government to assist Kosrae with a new hospital. The Infrastructure Development Plan Study would recommend that Kosrae State seriously entertain this option if the State Government vigorously pursues a priority bid to have a COM Nursing School located in Kosrae. In this event, the existing hospital would be an ideal site a could easily be converted for Nursing School’s needs, i.e. classrooms, dorm rooms, older hospital equipment left behind for training purposes, etc. Moreover, there are 3 suitable sites identified by the Grant Study for the Hospital’s relocation that is on State Government land.

Kosrae Health Centers

All health centers on Kosrae are operated by the Municipalities and funded by the Department of Health. The primary function is to provide immunizations, pre-natial care and general referals. No prescription drugs are on hand. A regularly scheduled Doctor and Denist make weekly rounds for on site care.

All Health Centers in Kosrae are housed and facilitated with in Municipal buildings except Walung (to renovate a separate building previously owned by the school) and upgrade to a full-time Dispensary and Tafunsak Health Center, which is recommended by this study to be demolished because of the incompatibility with the Elementary school. (see Tafunsak Elementary School priorities).

II.1.4. Pohnpei State Hospital

While overall, the hospital facilities are in less than satisfactory condition, the OMIP team found a sincere and industrious effort on the part of the maintenance staff to keep the hospital systems functioning. The O&M staff, is unable to keep up with the deteriorating conditions and has little resources to undertake adequate preventative maintenance, repair, or renovation work. There are insufficient funds in the budget for the State Department of Health Services specifically earmarked for O&M activities for hospital infrastructure (the pending ADB loan includes assistance for improving financial planning in the health sector and should address this issue by establishing a line item for maintenance.

Pohnpei State Hospital was constructed in 1978. It was designed for 104 beds, but currently is utilized as a 91-bed facility. In the past, bed spaces were converted to other health care uses. At the present time, the size of the hospital is adequate and appropriate for the population that it serves. The functional/spatial layout/relationships of hospital rooms are adequate. A sketch showing the hospital's floor plan layout can be found in the Appendix.

The main hospital building (49,500 square feet) is a one-story pre-cast concrete structure with a concrete panel roof, concrete floor covered with vinyl tile, interior wood and gypsum board partitions, and suspended acoustical ceilings. There is an ancillary dental facility adjacent to the main structure (2,736 square feet). There are two smaller structures: (1) a pre-engineered metal building (723 square feet) with loft space which houses a maintenance and tool shop and medical/bulk storage rooms which is located to one side of the main hospital building; and (2) a one-story public health building (formerly the University of Hawaii's medical officers training facility), which is located across the street from the main hospital (2,500 square feet). Only minor construction projects have been added to the hospital's original structure (recently a women's latrine facility was built for OB/GYN patients). In addition, one ward is being remodeled for use as an isolation ward as well as a place for violent mental patients. While the

workmanship of this new construction appears to be good, the three-month old paint on the new galvanized roof of the latrine is already peeling off.

The exterior of the hospital is moldy. This significantly detracts from the physical appearance of the hospital. The problem is partly due to the fact that the hospital's exterior walls should never have been painted. The hospital's ground drainage is poor in some areas. Visually, the building structures appear to be sound, although there are roof leaks and leaks around the window frames that have caused considerable damage to the inside of the exterior corridor walls. This leaking is due to the separation of the rubber gaskets from the glazing and the window frames.

The main building's roof surface area is approximately 60,000 square feet. It appears that the roof was not constructed as designed or properly sealed, numerous and severe cracks have developed over time that have caused substantial leakage into the building. (The roof's construction might have been changed during construction as a result of budgetary constraints.) To alleviate roof leaks, tin roofing was installed over the concrete roof. The tin roof also leaks.

The interior of the hospital is bright, airy, and relatively clean and organized. The floors are routinely washed and the open wards are kept clean. Front and back parking lots are paved. The hospital grounds are well kept and groomed. Some of the equipment in the laundry, x-ray laboratory, boiler room, and maintenance/storage facility is unserviceable and should be removed from the hospital premises. The signage in the hospital should be expanded and upgraded. There is a sense of positive morale among the hospital staff. A bulletin board in one main corridor announced an award for the best-kept ward.

In addition to the design of the proposed work described below, a detailed survey of the existing electrical, plumbing (hot (boilers), cold, and wastewater), fire alarm/suppression systems, etc. should be conducted. Plumbing problems are prevalent throughout the hospital. At the present time, there is no hot water. Further, the water pressure is too low to provide water service. There is inadequate water available for fire fighting. A domestic hot water system and the existing solar water system should be repaired. The hospital's 500 Kw diesel emergency generator is manually operated and does not meet current practices.

The hospital's central air conditioning system has been deemed beyond economical repair, because: (a) the filter ranks are corroded and missing; (b) there are multiple leaks in the chiller units; (c) the condenser shows signs of being clogged from lack of water treatment; and (d) the tube bundles are clogged. Further, there are no filters in the air handlers; the coils are full of dirt and debris; and there is little to no airflow at the registers. While there are window units in some areas of the hospital, the operating and x-ray rooms do not have adequate air conditioning.

There are no fire extinguishers in the hospital. While the maintenance staff has some expertise to fix equipment, there are limited funds for supplies and spare parts. The

Department of Health Services allocates approximately $20,000 annually for supplies and materials to maintain the hospital.

The kitchen facilities are clean and well maintained. Fresh bread is baked daily. Kitchen staff is professional and business-like. The vermin problem has been contained due to a policy banning outside food in the hospital.

There are scattered areas throughout the hospital for maintenance equipment and supplies. Some areas are locked with no keys available. The maintenance building behind the hospital is quite adequate but disorganized. Many years ago, an inventory system was established for tools and spare parts. While remnants of this system are still visible, most of the tools and spare parts are stored haphazardly.

There is clearly an effort on the part of the hospital staff to provide comfortable surroundings to hospital visitors and patients. For example, there are televisions in the general public areas of the hospital such as the main waiting room, dialysis room, and in the waiting of the dental clinic.

Due to a government-wide reduction in staff, the hospital currently employs five maintenance workers. This number is inadequate to operate and maintain all hospital facilities and systems. The Pohnpei State Government recently approved a match to an OMIP grant to hire two to three additional maintenance workers. These additional workers should provide a stronger base for routine maintenance activities. It should be noted, however, that the Hospital Administrator is also the Director of Public Health Services. The considerable responsibilities of this dual-job assignment have unfortunately impacted the Department's ability to effectively oversee the operations and maintenance of the hospital facilities.

The current maintenance staff lacks expertise in the following areas: air conditioning, electrical, carpentry, and bio-medical equipment operation and repair. A qualified plumber lacks tools, parts, and supplies. One night maintenance worker is assigned to monitor the electrical supply. In case of an electrical outage, he is responsible for turning on the standby generator.

There is no expertise on-island to maintain and repair sophisticated medical equipment (e.g., x-ray machines, autoclaves, dental drill compressors, and sterilizers). Compounding this problem, some of the hospital's biomedical and facilities equipment is donated by international governments and aid organizations. This equipment lacks instruction and service manuals, spare parts (no longer manufactured), incompatible voltage and cycles, and/or is too costly to convert or repair.

The hospital has recently privatized several services including: janitorial, grounds, security, laundry, infectious waste disposal, and maintenance/repair of ambulances and other hospital vehicles. Privatization of these services has had a very positive impact on the physical upkeep of the hospital facilities as well lessening the burden on the hospital staff that can now concentrate on providing health care for patients.

Privatization has also lessened the burden on the maintenance staff who can now concentrate on the upkeep of the physical plant.

The hospital administration has acknowledged the financial benefits of privatization and is considering the privatizing of pharmacy and ambulance services in the future. One issue that should be clarified when privatizing services is the ownership, procurement, and maintenance of equipment, materials, and supplies.

A hospital maintenance specialist provided the assessment team with a series of comprehensive preventative maintenance schedules for various facilities. These schedules are contained in several binders and stored on a bookshelf in the maintenance office. The team learned that the schedules were developed in the early 1990's under a grant from the U.S. DOI OMIP. At present, the schedules are not being utilized due to the lack of trained personnel with expertise to systematically implement a preventative maintenance program.

II.1.5. Pohnpei State Hospital Priority Rehabilitation Construction Projects

The estimated cost for the following highest priority rehabilitation projects is $1.2 million:

1. Prepare the concrete roof structure by sand blasting, washing, and degreasing. Remove the existing galvanized sheet roofing. Repair all roof cracks with cloth material and an elastromeric sealant. Install a light colored (white) elastromeric sealant over the entire roof structure.
2. Sandblast the exterior walls of the hospital and seal the walls with elastromeric sealant.
3. Provide adequate domestic hot water for the hospital, especially in the operating rooms and delivery room.
4. Install window awnings (overhangs) for all windows in the hospital's exterior corridors. This will prevent water leaking into the building.
5. Remove and replace the hospital's central air conditioning system.
6. Repair/replace louvers throughout patient wards.
7. Install proper ventilation for the interior bathrooms and exterior wall louvers in the dry transformer rooms in the wards.
8. Construct 2,000-square feet of new administrative space by enclosing the outside area between the hospital and dental wings. Expand the record room into the existing administrative area.
9. Unchain the locked exit door in the public corridor outside the kitchen area. Replace the door's hardware with hardware that cannot be opened from the outside (life safety issue).
10. Install an auto transfer switch for the emergency standby generator.

The estimated cost for other rehabilitation listed below is approx $50,000.

1. Conduct a complete inventory/assessment of all hospital equipment. This effort should include equipment description, make, model, serial number, manufacturer, and service history, as well as location of each item within the hospital facility. The CAT Team may be willing to perform this inventory and tag this equipment for disposal, repair, etc. All

non-serviceable equipment should be removed. The T-3 Program workers may be able to repair some of the hospital's basic equipment.
2. Undertake an assessment of the plumbing and electrical systems. The CAT Team and instructors from the COM program on construction electricity may be willing to perform this service and submit a brief report on conditions and remedies.
3. Enter into a service contract with the Pohnpei Utilities Corporation for operating and maintaining the emergency generator.
4. Remove and discard all the abandoned equipment and all associated piping in the Mechanical Room or on the premises.
5. Investigate the abandoned transformer located on the hospital grounds and properly remove the transformer from the premises.
6. Conduct an air tightness test on the fuel oil lines. Clean and remove sludge from the bottom of the fuel oil tanks.
7. Properly chain and secure all oxygen tanks to the wall.
8. Purchase an industrial pressure washer, gas-powered sand blaster, and airless paint sprayer (with supplies and spare parts) for the hospital. Train staff to operate and maintain this equipment by requesting the assistance of CAT to clean the exterior and interior of the hospital.

Technical Training - Pohnpei State Hospital:

1. Provide operational and service maintenance training on donated equipment.
2. Encourage cross training of the maintenance staff.
3. Draw on the CAT Program to assist hospital O&M staff in organizing the maintenance shop and in conducting an inventory of tools, equipment, and supplies. Follow up these activities with a comprehensive training program in inventory control and procurement.
4. Utilize T-3 instructors to train O&M staff in small appliance and basic plumbing and electrical systems repair.
5. Establish a resource library in maintenance area with electrical and electronic product catalogues, building materials, etc.

II.1.6. Chuuk State Hospital

The OMIP team found long-term neglect in most areas of the hospital. Overall, many of the facilities are grim, unsanitary, and lacking in basic supplies and equipment. Off-island referrals are consuming a huge percent of Chuuk State's health budget, contributing to major shortages in supplies, drugs, equipment and materials. This situation impacts directly on the hospital's inability to conduct essential maintenance, repair, and renovation projects.

The O&M staff is unable to keep pace with the deteriorating conditions. This is due to lack of resources (tools, supplies, materials, and equipment) and training necessary to undertake preventative maintenance and repair. There are no funds in the budget of the State Department of Health Services specifically earmarked for O&M activities for hospital infrastructure (the pending ADB loan includes assistance for improving financial planning in the health sector and should address this issue by establishing a line item for maintenance, see footnote 2).

Chuuk State Hospital was constructed in 1971. It is a 140-bed facility of approximately 52,000 square feet. It appears that the size of the hospital is adequate and appropriate for the population that it serves. Built on a plateau, the hospital is well protected from flooding. There is adequate parking at the facility.

The main building is a one-story wood and concrete structure comprising a total of 27,456 square feet, including a laundry/mechanical space of 3,432 square feet located under the hospital's kitchen and cafeteria. A 21,120 square foot two-story structure behind the main building contains the in-patient wards. The wards are interconnected to the main building with covered walkways and ramps. There is a small vacant building in back of the in-patient wards. There is also a pre-engineered metal building of about 800 square feet adjacent to the main building that is used for housing a non-functional decompression chamber and bulk storage. Its physical condition appears to be good. A 4,840 square foot public health building is located across the parking lot from the main entrance to the hospital. A sketch showing the hospital's floor plan layout can be found in the Appendix. The existing functional/spatial layout/relationships in the hospital are adequate.

The roof is approximately 51,000 square feet. The original roof was tongue and groove 2x6 cedar decking with cedar wood shake shingles. The wood shakes were replaced in the early 1990s with metal roof panels similar to Granutile by ATAS International, Inc. The leaking roof has caused serious water damage. The affected areas are located directly under the "valley" of the roof where the sterilization, operating, laboratory, labor and deliver rooms are located. It appears that the roof design is inappropriate for Chuuk, as the average rainfall is 140 inches per year. The roof requires immediate attention to prevent further damage.

Recent renovations within the hospital's original structure have been completed (i.e., the main reception area and the pediatrics ward). This work indicates a good step forward in meeting the deteriorating conditions in the facility, however the renovations have not addressed the serious underlying problems of roof leaks, electrical wiring, and hot water distribution. Some of the newly renovated areas are already showing signs of water damage from roof leaks.

The interior of the hospital is unsanitary. It is not properly cleaned. The operating room is infested with rats. There are no working scrub sinks available to surgical staff. There is no incinerator for proper infectious waste disposal. Most of the toilet and shower rooms in the patient wards have broken and/or missing fixtures. Wall tiles need major repair. Window screens are missing, louvers are broken and filthy. The attic areas are not properly vented and the hot ceiling radiates heat to the spaces below. In some cases, recent renovations have resulted in lowered ceilings with less air circulation and higher temperatures. The floor of the staff toilet in the emergency room was flooded due to water leaks. There is no working fire alarm or fire fighting equipment.

The hospital's hot water boiler system is totally inoperable. This has resulted in a lack of hot water throughout the hospital. Water service to the hospital is unreliable. The

water tanks leak. Intermittent low water pressure requires hospital staff to fill large (30 gallon) plastic garbage cans with stored water for use in flushing toilets, etc. In addition, there are numerous water leaks that waste significant amounts of water. Water for the surgery ward comes from catchment tanks and is not sterile.

The facility's central air conditioning system is inoperable. At present, split units are providing partial cooling for the x-ray and operating rooms only. The 600kW emergency generator is also inoperable. The hospital administration and maintenance staff both agree that the maintenance priorities are hot water, incinerator, central air conditioning, and steam system for sterilization.

Non-serviceable equipment and furniture (e.g. air conditioning units, beds and mattresses, doors, autoclaves, x-ray machines, fans, dental lights, dishwasher, sinks, carts, refrigerators, storage cabinets) are piled up throughout the facility. These items are not only taking up valuable space in the mechanical room, laundry, kitchen, x-ray laboratory, and wards, but are also blocking passages in the corridors. The outside grounds are littered with abandoned boilers and a large back-up generator. Further, the hospital grounds are full of windblown trash and debris. There are feral cats and rats, weeds, and overgrown plantings.

During the design of the proposed renovation work described below, a detailed survey of the existing electrical, plumbing (hot, cold, and wastewater), fire alarm/suppression systems, etc. should be conducted. The domestic hot water system needs to be re-designed and constructed. A simple and basic solar domestic water system, supplemented by electricity, could possibly be provided throughout the hospital. The study should include a careful evaluation to insure that backflow preventers are properly installed.

Some of the basic operational equipment in the x-ray, operating room, and medical laboratory is in need of repair and/or replacement. There is little or no furniture for patients. For example, there are no mattresses for the cribs in the newly renovated pediatrics ward.

An area specifically set aside for maintenance staff, equipment, materials, and supplies is non-existent. While hospital administrators identified scattered spaces for maintenance activities, the maintenance supervisor claims that he does not have an office or tool/supply room. Some of the maintenance rooms pointed out by an administrator were locked and no keys were available (there is no organized system for accounting for keys).

The hospital currently employs 23 workers to operate and maintain all hospital facilities, systems, housekeeping, and grounds. While this appears to be an adequate number of personnel, there is no managed or systematic approach to preventative and routine maintenance (although there is a maintenance supervisor). There is no maintenance shop. There are insufficient supplies and materials available to provide even the most

basic maintenance. The maintenance supervisor and staff use their own tools as all hospital tools are missing (the staff's personal tools often disappear as well).

There is no maintenance budget. While there is a $50.00 petty cash account set up for the purchase of small items, the account is usually broke. The maintenance supervisor often uses his own funds to purchase emergency supplies such as teflon tape to seal pipes. He is generally not reimbursed for these out-of-pocket expenses due to lack of funds. In addition, the procurement system is ineffective. For example, the chief surgeon reported that he has been waiting three months to get a check from the State Government for $200.00 to fix the scrub sinks outside of the operating room.

There is no current expertise on-island to maintain and repair sophisticated medical equipment (x-ray machines, autoclaves, dental drill compressors, sterilizers, newborn incubators, etc.). Compounding this problem, much of the hospital's biomedical and facilities equipment (some of it donated by international governments and aid organizations) lacks instruction and service manuals, and spare parts (no longer manufactured.) The maintenance supervisor, while a certified medical technician, requires re-certification training to bring his skills up to date.

The maintenance staff does include a qualified plumber and several carpenters, but they lack tools, parts, and supplies. There is one automobile mechanic who is also a welder. There is no qualified electrician. The maintenance staff, overall, needs cross training in basic electricity, troubleshooting, and air conditioning service and repair.

The hospital has a working relationship with the Chuuk State Public Utilities Corporation and calls upon them to assist in electrical and water operations. The hospital does not depend upon the Department of Public Works for maintenance activities, primarily because the DPW does not have its own budget for materials, spare parts, equipment, tools, and supplies to support O&M activities. While the DPW might offer skilled labor (electricians, carpenters, plumbers), the hospital would have to provide the funds.

There are no privatized services at the hospital. Planning is underway, however, to privatize housekeeping, laundry, and grounds keeping services. A budget request for $180,000 to fund these services has been submitted to the Legislature for approval. Future plans include privatization of ambulance, pharmacy, mortuary, kitchen, and outpatient functions. There has also been discussion regarding the establishment of a private clinic to be operated inside of the hospital for a fee.

II.1.7. Chuuk State Hospital Priority Rehabilitation Construction Projects

The estimated cost for the following highest priority rehabilitation projects is $1.2 M:

1. Redesign the existing roof of the main hospital and patient wards to a coated standing seam metal roof that eliminates the "valley" in the middle.
2. Remove the existing "Granutile" metal roof. Examine, remove and replace any water damaged wood decking.

3. Install the newly designed roof.
4. Replace the roof on the public health building.
5. During the construction of the new roofs, install wind turbine mechanical attic fans. These fans do not require any electricity to operate, and will allow hot humid air to escape from the attic areas. This will significantly cool the hospital and public health building with no energy cost.
6. The newly installed acoustical ceiling system in the patient wards traps the heat above the ceiling. To alleviate this problem, remove some of the wood panels above the windows and install new anodized aluminum louvers to provide proper ventilation.
7. Design and install additional cisterns to collect rainwater from the newly constructed roofs to supplement city water and provide an uninterrupted water supply.
8. Replace the hot and cold-water plumbing systems in the hospital. Repair or replace bathroom plumbing fixtures (toilets, sinks, showers, and drains).
9. Install solar domestic hot water heating systems.

The estimated cost for other rehabilitation activities listed below is approx $500,000:

1. Clean and sanitize the hospital thoroughly on a routine basis (daily).
2. Clean all hospital facility grounds of debris, trash, weeds, etc. Take steps to reduce the feral cat and rat population.
3. Procure and install an incinerator to properly dispose of infectious wastes.
4. Renovate the x-ray room (dark room included).
5. Remove and discard all the abandoned mechanical and electrical equipment and all associated piping in the Mechanical Room or on the premises.
6. Purchase an industrial pressure washer, gas-powered sand blaster, and airless paint sprayer (and supplies and spare parts) for the hospital. Train staff to operate and maintain this equipment by requesting the assistance of CAT to clean the interior and exterior of the hospital and paint the facility inside and out.
7. Repair by replacement the hospital's central air conditioning systems.
8. Rehabilitate the fire alarm system and train staff on evacuation procedures (fire drills). At present, all hospital fire warning and fighting equipment has either been removed from the facilities or is not in working order.
9. Procure an emergency generator and enter into a service contract with Chuuk State Public Utilities Corporation (CSPUC) for the proper operation and maintenance of the emergency generator.
10. Clean and repair all existing insect and bird screens.

Technical Training - Chuuk State Hospital:

1. Utilize the CAT Team to assist hospital O&M staff in organizing a maintenance shop and in procuring required tools, equipment, and supplies. New carpentry tools, grounds keeping equipment, shelving, cabinets, and workbenches will be needed. Follow up these activities with a comprehensive training program in inventory control, and materials, equipment, and supplies ordering procedures (specifications).
2. Take advantage of the CAT Team to train O&M staff in basic preventative maintenance scheduling (standard operating procedures). Follow up this exercise with a comprehensive training program in preventative maintenance. Develop preventative O&M manuals and materials (tailor manuals prepared for Pohnpei Hospital).

II.1.8. Yap State Hospital

The OMIP team was impressed with the overall appearance of cleanliness and the business-like operation of the hospital. The buildings and grounds were clean and neat. While the O&M staff has some basic job skills and most tools and supplies necessary to keep the hospital systems functioning, they are under-utilized. The maintenance foreman desires management training to direct and supervise the staff, as well as training in developing preventive maintenance plans and strategies. There are funds in the FY2000 Yap State Department of Health Services budget specifically earmarked for hospital maintenance ($50,820.) Yap State is the only FSM state that has a line item allocation for maintenance of the hospital facility (the pending ADB loan includes assistance for improving financial planning in the health sector and should address this issue by establishing a line item for maintenance).

Yap State Hospital was constructed in 1979. It is a 43-bed facility of approximately 29,233 square feet. It appears that the size of the hospital is adequate and appropriate for the population that it serves. The U.S. Department of the Interior, OMIP, funded a maintenance and capital improvement assessment for the hospital in August 1999. See Appendix J for a copy of the assessment report. The team validates the findings and recommendations of this assessment.

The hospital is located on a slope and is not subject to flooding. There is adequate paved parking at the facility's entrance. The main hospital buildings (administration, public health, operating suites, patient wards, examination rooms, etc.) are reinforced concrete structures, interconnected with flat-roofed, concrete-covered open walkways and waiting areas. Visually, the building structures appear to be sound. Each building has a pitched roof of wood frame and plywood sheathing. The pitched roofs are covered with asphalt shingles that are about six years old and show signs of curling. The existing roof flashings were partially removed during the last re-roofing, causing water damage. The flat concrete roofs drain poorly. The roofs' waterproofing has failed. As a result of these factors, the roofs leak. In addition, the attics do not appear to be adequately ventilated and are difficult to access. The pitched roof areas and covered walkways comprise approximately 41,000 square feet.

There are two smaller separate structures on the property: a concrete maintenance shop; and a wooden structure utilized for nurses' quarters. The grounds adjacent to the maintenance building are littered with abandoned equipment. The functional-spatial layout and relationships of the hospital units appear to be efficient and effective. A sketch showing the hospital's floor plan lay out can be found in the Appendix.

The waiting area of the hospital is pleasant, with health information signs and posters on the walls. The ceiling light fixtures in this area require replacement. All medical rooms (operating room, emergency room, x-ray, laboratory) are clean and organized. The doctors' offices appear to have adequate furniture, medical equipment, and supplies. The labor and delivery rooms, however, need cleaning and painting. The window screens in the patient wards are deteriorated. In one of the ward areas, there

is a significant infestation of ground termites. Eradication of the termites needs immediate attention. The air conditioning systems appear to be adequately sized but are old. Non-serviceable equipment and furniture (e.g. chiller, refrigerators, telephone switching panels, beds, washing machine and dryer, steamer, dish washer, air conditioning units) are lying around in various areas of the hospital.

The maintenance shop is in disarray. There is no organized workspace, and no systems for storing tools or inventory control. The grounds adjacent to the maintenance building are littered with abandoned equipment.

A new incinerator is not working due to improper installation, although the hospital is working to resolve the problem with the construction contractor. There is no working fire alarm or fire fighting equipment in the facility. The kitchen fire suppression system is inoperable.

Many of the departments throughout the hospital require plumbing repairs. Most of the sink faucets leak, causing significant water wastage. The bathrooms in the patient wards are being renovated, with new tiling and fixtures. Some of the interior walls and ceilings appeared to be covered with mold and mildew due to inadequate air circulation or excessive infiltration of outside air. There are signs of water damage to the acoustical ceilings due to water condensation in the attics.

During the design of the proposed renovation work, a detailed survey of the existing electrical, plumbing (hot, cold, and wastewater), fire alarm/suppression systems, etc. should be conducted. At present, hot water is available only in parts of the hospital. A simple and basic solar water system, supplemented by electricity, could possibly provide hot water throughout the facility. The study should include a careful evaluation to insure that backflow preventers are properly installed. The hospital has a 200 KW emergency generator, and it appears to have adequate capacity.

The hospital currently employs three O&M workers (including a maintenance supervisor) with capabilities in air conditioning and electrical, and diesel mechanics. There are no plumbers or carpenters on the maintenance staff. As mentioned above, it appears that the maintenance staff, although adequate in number, is under-utilized. The maintenance foreman lacks supervisory training. There is no managed or systematic approach to preventative and routine maintenance, and most efforts are directed toward installation of new equipment and repair on emergency basis. The maintenance staff, overall, needs cross training in basic plumbing repairs.

There is lack of expertise on-island to maintain and repair sophisticated medical equipment (x-ray machines, autoclaves, dental drill compressors, sterilizers, newborn incubators, etc.). Compounding this problem, much of the hospital's biomedical and facilities equipment (some of it donated by international governments and aid organizations) lacks instruction and service manuals, and spare parts (no longer manufactured.) Laboratory equipment is maintained through a contract with the manufacturer.

The Yap State Public Utilities Corporation sometimes assists the hospital with major or complex electrical problems, as well as provides information on water issues. The Department of Public Works has contracted with the private sector to provide basic plumbing (e.g. toilets, sinks), electrical, and air conditioning repair services for the government infrastructure (including the hospital who must pay for such services). The DPW recently hired an electrical engineer and would consider sharing the function and cost of this position with the Department of Health Services. (Once the sports complex is completed, there may not be sufficient funds available to the DPW to keep the engineer full-time.) The DPW has a machine shop for parts fabrication, an in-house welder, and an adequate parts inventory. The DPW could assist the hospital's maintenance staff with an assessment of existing equipment and removal of unserviceable items from the facility.

There are several privatized services at the hospital: morgue, ambulance, kitchen, laundry, dentures, and janitorial. Future plans call for privatizing the pharmacy as well. Prisoners currently carry out grounds keeping and landscaping activities. One contractor provides both the laundry and kitchen services. The agreement with the hospital allows the contractor to also offer laundry and food services to the public using hospital facilities and equipment. While the agreement requires that the contractor be responsible for repairing and replacing all equipment, the contractor repeatedly asks the hospital O&M staff to undertake these tasks. While the laundry area is clean and organized, the sink faucet had a major leak when the team visited. The kitchen area is unsanitary and disorganized, with unserviceable equipment taking up valuable space in the cramped room.

II.1.9. Yap State Hospital Priority Rehabilitation Construction Projects

The estimated cost for the following highest priority rehabilitation projects is $1.0 m:

1. Remedy the ground termite infestation in the patient ward.
2. Sand blast all concrete roof areas and apply a light colored electrometric coating. Where the roof is cracked, reinforce the coating with fiberglass mesh.
3. Identify all areas on the flat concrete roof where rain water ponds. In these areas, properly pitch the roof with lightweight concrete and install new drains at low points where properly pitching the roof is difficult to accomplish.
4. Connect the roof drainage to a new water cistern system. The water collected can be used to supplement the cities water system.
5. Examine, remove, and replace any water damaged plywood roof decking. Replace missing roof metal flashing on the roof.
6. Install wind turbine mechanical attic fans on the roof. These fans do not require electricity to operate. The fans will significantly cool the hospital with no energy cost.
7. Replace the existing doors on the roof with lockable louvered doors. This will allow access by the maintenance staff to attic spaces.
8. Design and install a solar domestic hot water system to supplement the existing electric hot water heaters.
9. Remove the mold on the exterior walls and repaint with mold resistant paint.

10. Clean and repair all existing insect and bird screens in the patient wards.
11. Upgrade the existing air conditioning system.
12. Replace all non-serviceable plumbing fixtures throughout the hospital.
13. Rehabilitate the fire alarm system.

The estimated cost for the other rehabilitation activities listed below is approx $150,000:

1. Replace ceiling light fixtures in the waiting area.
2. Resolve the contract issues with the installation of the incinerator.
3. Purchase an industrial pressure washer, gas-powered sand blaster, and airless paint sprayer (and supplies and spare parts) for the hospital. Train staff to operate and maintain this equipment.
4. Replace ceiling and floor tiles throughout the hospital.
5. Enter into a service contract with Yap State Public Service Corporation (YSPSC) for the proper operation and maintenance of the emergency generator.
6. Continue to clean and sanitize the hospital thoroughly on a routine basis (daily).

Technical Training - Yap State Hospital:

1. Replace computer in the pharmacy and train the workers to use an inventory database.
2. Draw on the in-house expertise at the Department of Education's distance learning center to advise on upgrading and installing new computer networks and programs to increase effectiveness and efficiency in hospital operations (including telemedicine). The center may also be able to provide technical assistance in troubleshooting and repair of existing computer hardware and training on software.
3. Take advantage of the Fisheries and Maritime Institute resources to conduct training activities (possible venue for short-term training as well as for workshops, conferences, etc.).

II.1.10. Recommendations (General) by OMIP

Long-Term:

1. Evaluate all new equipment for O&M impact.
2. Privatize all maintenance-related hospital services.
3. Establish energy conservation measures (conduct energy audits).
4. Increase capacity of COM campus to offer quality vocational education training (classroom and hands-on) for students entering the workforce as well as for hospital workers already on-the-job.
5. Develop COM-FSM certificate programs in basic building maintenance, construction electricity, plumbing, masonry, refrigeration and air conditioning, and electronic engineering technology.
6. Support the regional vocational education association Pacific Association of Vocational Education (PAVE) to share curriculum, training strategies, resources, and ideas.

Short Term:

1. Implement priority rehabilitation projects.
2. Set standard (formula) for annual hospital maintenance expenditures.

3. Establish a state-based hospital maintenance fund (budget line item) for personnel, tools, equipment, supplies, materials, spare parts, and training. (Note: Yap State Hospital already has implemented this recommendation.)
4. Implement preventative maintenance strategies and planning. (e.g., shift responsibility for Kosrae State Hospital O&M functions to the DPW).
5. Organize a dedicated maintenance area, with an inventory of tools, equipment, materials, parts, and supplies.
6. Prepare a privatization plan for all hospital maintenance services.
7. Privatize custodial/janitorial/laundry, and grounds keeping services. (Note: Pohnpei and Yap State Hospitals have already implemented this recommendation.) Work with WIA to encourage local business start-ups.
8. Develop procedures for all hospital maintenance privatization contracts.
9. Undertake an assessment of all hospital systems (air conditioning, plumbing, electrical). Note: the CAT Team has already conducted an assessment of the air conditioning system in the Pohnpei State Hospital.
10. Undertake an inventory/assessment of all hospital equipment. This effort should include equipment description, make, model, serial number, manufacturer, and service history, as well as location of each item within the hospital facility. All non-serviceable equipment should be removed. Note: Chuuk State Hospital has made significant progress in removing non-serviceable equipment from the hospital.
11. Evaluate signage throughout the hospital and make appropriate changes.
12. Prepare and practice a fire evacuation plan.
13. Establish or maintain a policy of no outside food in the hospital.
14. Establish an in-house workplace training program for O&M staff.
15. Develop and implement a training program for Facilities Maintenance Managers.
16. Utilize CAT, T-3, WIA, and DOE training resources where appropriate.
17. Assign individual CAT members to the hospitals to advise on implementing and institutionalizing preventative maintenance plans, and to provide training in operations and maintenance procedures. (Note: In Pohnpei, utilize expertise in the COM-FSM national campus to train hospital O&M staff.)
18. Provide support to the COM-FSM State campuses to enhance, upgrade and/or create new vocational education programs.
19. Provide technical assistance to COM-FSM to establish a certificate program in Facilities Maintenance Management (classroom and hands-on).
20. Deliver job-specific technical and basic skills training.

II.1.11. Recommendations/All States: Training Initiatives:

1. Establish an in-house workplace training program for hospital personnel. Hire a full-time Facilities Maintenance Manager to: (a) develop and deliver O&M job-specific training; (b) facilitate and coordinate training efforts through the College of Micronesia where applicable; and (c) collect and maintain worker training and job performance data. Obtain OMIP funding for this position (to be matched 50% by the FSM Government).
2. Make the Facilities Maintenance Manager responsible for supervising and motivating hospital maintenance staff and troubleshooting the facility's plumbing and electrical system operation, maintenance, and repair. The Facilities Maintenance Manager should be provided with training in supervisory skills, office management, record keeping, efficient procurement procedures, inventory control, and preventative maintenance planning and scheduling.

3. Hire a qualified medical technician to serve all four FSM hospitals on a rotating basis to maintain and repair medical equipment and to train O&M staff. Obtain OMIP funding for this position (to be matched 50% by the FSM Government).
4. Conduct a regional privatization workshop (FSM-wide) for state government officials, hospital administrators, and representatives from each state's health, finance, and public works departments to discuss privatization procedures, issues, methods, and contract writing, management, and administration.
5. Provide the Facilities Maintenance Manager with cross training in basic building systems operation, maintenance, and repair to prepare him to effectively manage and monitor private contractors.
6. Provide short-term technical training to hospital O&M staff in: basic building wiring methods, reading blueprints, solar, electrical and water heating systems, air conditioning, refrigeration, water supply and filter maintenance, and emergency generator operation, carpentry, and safety procedures.
7. Organize the maintenance shop and inventory all tools, equipment, and supplies. Follow up these activities with a comprehensive training program in inventory control, and materials, equipment, and supplies ordering procedures (specifications). (Consider using high school vocational education students to assist in these activities.)
8. Train O&M staff in basic preventative maintenance scheduling (standard operating procedures). Develop preventative O&M manuals and materials (tailor manuals prepared for Pohnpei Hospital).
9. Utilize the OMIP Buddy System Program to promote exchanges between the hospitals in the FSM and in the region to obtain best practices information and share problems and solutions in the area of facilities maintenance.
10. Utilize the RESULTS Pacific Islands Management Training Program (TWI) to train a hospital maintenance foreman/Facilities Maintenance Manager in supervisory and management-by-objective skills.
11. Initiate and facilitate regular partnering meetings with hospital maintenance staff and medical personnel (doctors, nurses, technicians, etc.) to raise awareness of maintenance-related needs and requirements and to discuss issues and concerns about ways to keep the hospital clean, functional, and organized.
12. Utilize the COM-FSM computer labs on each State campus to train hospital O&M staff as needed.

II.2. Total Cost Estimate for FSM State Hospital Rehabilitation

State	Priority Renovation	Other Renovation	Total
Kosrae	$1,000,000	$100,000	$1,100,000
Pohnpei	$1,200,000	$50,000	$1,250,000
Chuuk	$1,200,000	$500,000	$1,700,000
Yap	$1,000,000	$150,000	$1,150,000
Total	**$4,400,000**	**$800,000**	**$5,200,000**

II.3. Delivery of Health Services in FSM (Dispensaries/Health Centers) [5]

II.3.1. Chuuk Primary Health Care

Chuuk's 71 rural dispensaries are generally staffed by one Health Assistant, except in the Outer Islands where there are often two, a male and a female. However, it was impossible to collect information on exactly how many of theses were actually in operation. Most dispensaries are operated out of private homes because of the delima of land disputes. A representative from the Public Health Office in Chuuk stated that almost ½ of these were not really legitimate, but people supposedly running them were collecting drugs and paychecks on a regular bases. Chuuk is also considering the use of super dispensaries in 5 municipalities outside of Weno, including two Outer Islands (OI). They are presently constructing two, one on Faichuk and another on Tonwias. However, the construction material is pre-fab type (from Korea) of very poor quality – the kind of structures, which are meant for short-term uses. The study strongly recommends against constructing these type structures. Some Municipalities have also built these pre-fab type temporary structures as school building, which should be forbidden, i.e. Polle Elementary School. These super dispensaries would be staffed by a physician/nursing team and would provide preventive and curative services once established. The responsibility for maintenance, support and upkeep of the dispensaries is unclear. Although technically the responsibility for the dispensaries lies with the municipality in which the dispensary is located, or, in some case the community, in actuality the CDHS has been paying rent to landowners of the dispensary as well as providing building maintenance and repair for years. Land lease problems have been a continual problem, with landowners demanding higher rent, taking over the dispensaries for their own use, or damaging the dispensaries when displeased with dispensary services or the HAs. In a recent survey of dispensaries in the Chuuk lagoon, conducted by the Micronesian Seminar, three of 14 dispensaries were found to be abandoned due to land lease disputes, with no sign of the HA. These dispensaries were still on the DHS's "active" list, despite being obviously abandoned for years. The Public Health Office stated they were planning 14 Super Dispensaries (SP), but the Social Specialist could find nothing in writing to support the future expansion of these SP, nor could he find any budgeting of funds to support this. Therefore, the total costing of these SP are not examined within this study. Furthermore, the study is already recommending $1.2 million to support another Medical Ship that can provide total FSM outer island coverage.

*The estimated cost to upgrade existing dispensaries (assuming the disputes are resolved) including new super dispensaries is **$763,420.00**. Dispensaries run out of private homes are not included in this estimate.*

In the same survey, almost all dispensaries reported frequent stock outages and irregular provision of drugs and materials. Indeed, most dispensaries obtained drugs and supplies from many sources, including the national congressman for the district, the

[5] Some of the background material was edited/updated from the 1999 ADB Social Sector Study.

municipality and private individuals, finding the CDHS unreliable. Unfortunately, almost all other sources are unreliable and irregular as well, so many dispensaries were without drugs or supplies for long periods within the past few years, as well as at present. The Chuuk Hospital pharmacy at the time of the dispensary survey was noted to be almost completely out of medicines and supplies and had resorted to rationing and the use of expired drugs. Although the public health program (MCH, immunization, FP, TB, mental health, preventive medicine, etc) offers the greatest opportunity for improving morbidity and mortality, this is difficult for the general population to understand and appreciate. It is usually the curative PHC functions, including provision of medicines that is most popular with the people. When drugs are not available there is widespread dissatisfaction with the dispensaries and with the DHS.

The public health team on Chuuk, despite separate and independent funding from the rest of the CDHS, also has been unable to meet schedules and insure implementation of necessary public health programs (immunization, MCH/FP, preventive medicine, TB, mental health, etc.). These programs are being ineffectively implemented in the lagoon of Chuuk, as demonstrated by the falling immunization rates (80% in 1998, 60% in 1999). It seems also unlikely that training and support to dispensaries, a function often attributed to the field teams, is working either. In fact, in the report of the Micronesian Seminar survey noted earlier, HA's report that training is almost never received from the field team. Most public health (PH) programs report that the HAs are not much help to their programs, especially in the lagoon islands. The exception to this is the immunization program, where it is reported that the HA's at the dispensaries are extremely useful in alerting the community to the arrival of the immunization team and organizing immunizations.

Both PHC and PH programs seem to be doing somewhat better in the OI of Chuuk. Land lease problems are reported rarely, and some drugs and supplies have been reaching the dispensaries. Additionally, the field team has been going to the OI, albeit irregularly. The OI communities are reportedly more cohesive and also more willing to collaborate to insure delivery of services than the more fragmented lagoon island communities. Although they have the same problems as Yap in terms of traditional problems associated with male HA's treating women, most dispensaries in the OI are reportedly composed of mixed teams of one male HA and one female HA so it is not so much of a problem.

Although a PHC system is in place, and is functioning in Chuuk, it is functioning with great difficulty. Absenteeism is high, and public health functions are poorly performed: only basic FP, MCH, and SAMH services are performed, if at all, and community-based preventive services are often not performed. This seems to be a reflection of the general malaise and management difficulties found throughout the CDHS. Opportunities for supervision and training are often missed: for example, although most HAs on the lagoon island dispensaries in Chuuk come to the CDHS every two weeks for pay and to pick up medicines, very little use is made of this opportunity for training, supervision or problem solving.

II.3.2. Kosrae Primary Health Care

Kosrae is implementing a slightly different approach to PHC. Although it is the second largest island in the FSM, Kosrae is a relatively small island and its villages are less than an hour from the Kosrae Dept. of Health Services (KDHS) and KSH by car or car and boat. In the past, Kosrae has tried establishing dispensaries staffed by personnel, varying from medical officers to nurses. Most of these attempts have proved ineffective due to shortage of drugs, erratic availability of medical officers and nurses and lack of community participation and support. Nevertheless, because of its small size, compact populations who live mostly in villages and general cohesiveness, its health indices, such as immunization rates (95% in 1999), have generally been among the highest in the FSM.

The present approach, aimed to improve health services and reduce morbidity and mortality through preventive health approaches, is not to have dedicated dispensaries but to use space at existing community centers, which are located centrally in 4 of the 5 villages on the island.[6] These clinics will at minimum provide immunization and sanitation services and municipalities can negotiate with KDHS for delivery of other services. A PHC/PH team consisting of an experienced nurse supervisor, two NCD community workers, two breast-feeding community workers and 1-2 other health workers will provide basic immunization and sanitation services plus other public health, preventive and curative services four days per week (The KDHS works 4 days per week, 7 hour days as part of budget cutting due to the step down in funding associated with the decrease in Compact funding). A medical officer will be in attendance 1-2 days per week both to support PH programs and to make available a high level of curative services as needed. In the case of the village accessible only by boat, a mobile (field) team will visit the village once per month to provide a full array of public health, prevention and curative services. At other times, it is expected that the people of that village will avail themselves of the services at the nearest village.

Despite fairly effective delivery of PHC and PH services aimed at childhood and infective diseases, Kosrae still has potential problems in obtaining a steady stock of drugs and supplies and in ensuring that comprehensive services, especially for the so-called lifestyle diseases, are efficiently delivered. Implementing effective and appropriate PHC and PH programs in an environment of budget and personnel deficiencies will continue to be a challenge for the next few years.

*The estimated cost to renovate the structure chosen by the Walung Community for a fully operational dispensary is **$53,300.00**. The existing Health Center located at Tafunsak Elementary School should be demolished and relocated. It is not compatible with school activities. Its location also restricts the main entrance to the school presenting a safety hazard. The estimated cost to relocate Tafunsak Health Center is **$45,000.00 totaling $98,300.00**.*

[6] Walung is the exception, a fully operating dispensary is planned their this year. The community has provided a building at the old school site.

II.3.3. Pohnpei Primary Health Care

Pohnpei's PHC system uses Health assistants (HAs) in the five Outer Island (OI) dispensaries. PHC on Pohnpei proper was delivered through a varying number of dispensaries irregularly staffed by HAs, nurse and medical officers, in recent years.

Pohnpei Proper presently has 7 dispensaries. The Colonia Dispensaries is the worse condition. Pohnlangas, Wone and Lukopw Dispensaries have been maintained by the CAT Team and are in good condition except for minor repairs/painting needed. Sokehs Dispensary is a new wooden structure and in good condition. Madolenihmw Dispensary, near PATS is also in good condition except for painting and replacement of some termite damaged wood. Most of these Dispensaries see between 5-10 persons/day, except for Pohnlangas who sees more than 20/day.

The dispensaries often lacked drugs and equipment, absenteeism was high and community satisfaction low. Often if no drugs were available the dispensary team was called back to work in Pohnpei State Hospital (PSH), further reinforcing the community's view that if you want health care, you need to go to the hospital. Although the municipality is supposed to be responsible for maintenance, security and support of the dispensaries, in fact the PDHS or the state government has usually performed this function in the past. At present, public health services, such at MCH/FP, immunizations, TB control, SAMH, and preventive programs are penetrating poorly to the rural areas of Pohnpei, and only somewhat better to the OI. Immunization rates, prenatal visits, and other indices of public health function remain low.

Currently, the PDHS is in the process of initiating a new system for implementing PHC for Pohnpei proper. Under this system, funding for drugs and supplies will be available when the municipalities or communities sign an agreement with the PDHS. In this agreement, the municipality promises to provide maintenance, repair, security and support to the dispensaries in return for PDHS providing improved staffing, medicines and supplies. Basically, the PDHS will build or renovate the dispensary, hands it over to the community and supply a team consisting of a medical officer, two nurses (one from public health), a health assistant and a clerk to staff the dispensary full time. At present, 7 dispensaries on Pohnpei Proper have been built, agreement's have been signed and the dispensaries have been turned over to the municipalities for management. Two more dispensaries are planned for the year 2003. The Outer Island dispensaries, for the time being, will continue to be staffed by a HA and supported through field team visits. Teams have been assigned to each dispensary, and adequate drugs and supplies have been allocated to support the dispensaries. **The Study is recommending demolition of all Outer Island Dispensaries to be rebuilt 30'x30' @ $50.00/ sq. ft. at approx. $45,000.00/Dispensary.**

Each dispensary on Pohnpei proper, once staffed, is expected to provide high level PHC curative and preventive/public health care, including basic public health laboratory. The dispensaries will be supported from the PSH via daily courier service to pick up

laboratory specimens requiring more complicated tests, provide supplies and medicines and if necessary, transport for staff or patients. The physicians/medical officers (MO) have all had special community medicine/public health training, as have one or more of the nurses. The dispensaries are expected to send public health teams into the community to provide health promotion and prevention activities, track down difficult public health cases and insure effective implementation of public health programs (MCH, immunization, FP, SAMH, TB, preventive programs--nutrition, diabetes, hypertension, etc). It is also expected that the team, including the medical officer, will cultivate and develop excellent relationships with community leaders, both modern and traditional.

The Chief of the PHC Division, based at PSH, will oversee the dispensaries, arrange for backup support and ensure that the system is running well. The standing PHC support staff will be small, basically a statistics technician, but the division will be able to call upon expertise from the newly deployed staff in the dispensaries for assistance. Each MO, in addition to being responsible for the dispensary to which s/he is assigned, is also responsible for particular public health areas such as immunization, MCH, etc. The MO will provide technical assistance to other dispensaries if problems arise in their specialty public health area and arrange for ongoing program review and continuing education.

The estimated cost to renovate the existing 7 dispensaries on ***Pohnpei and the 5 Outer Island dispensaries is $387,300.00****.*

II.3.4. Yap Primary Health Care

All dispensaries on Yap Proper were closed in 1996 in an attempt to cut back government overhead. Only one, Tomil reopened at the request of the community. While the Department of education renovated the Dispensary, the community pays for supplies and the Health Aid's salary, all totaling about $200/month. Outer Island dispensaries are staffed by a Health Assistant or occasionally a practical nurse. Only 4 of 19 dispensaries have two health assistants, in which case the additional health worker is often a woman. Yap is planning super dispensaries on Ulithi and Woleai, both of which are large atolls distant from Yap Proper, with multiple densely populated islands. The two super dispensaries, staffed by a physician, two nurses and several health assistants, will supervise and back up a total of 11 of the 19 dispensaries in the Outer Island and will hopefully improve not only curative but public health services in these atoll islands. Additionally, several municipalities on Yap Proper are negotiating with the Department of Health Services (DHS) to re-open dispensaries at their own cost, including salary of the Health Assistant if DHS will provide support and supervise the Health Assistant.

Public Health Services (PHC) services delivered through the dispensary system in Yap have deteriorated in the past several years due mainly to the step down of the Compact funding FY1997. This included early retirement of key personnel, poor management and planning practices, and an attempt to economize on apparent non-essential and

expensive services. As a result, dispensaries on Yap proper were closed and insufficient funds were allocated to purchase of drugs, supplies and support of the OI dispensaries (drug shortages are common both at the hospital and in OI dispensaries). Public health team visits to the Outer Islands and rural Yap were discontinued or delayed, most maintenance and repair work was discontinued and immunization rates have fallen to 80% (1999). On the positive side, many surplus and poor performing employees were eliminated, all health personnel except doctors were put on contract (removal of poor performers), and the health department was generally streamlined.

At present, Yap has increased funding for drugs and supplies, increased fee collection at the hospital for all services (including pharmacy), and is pursuing bad debts. Out-of-island referrals are made only by adherence to strict referral criteria developed by the medical staff. Yap is re-instituting frequent field trips by the public health and PHC team both to the OI and to rural Yap proper. It hopes to increase field supervision and training of the health assistants through at least yearly extended visits to each OI dispensary, as well as increasing preventive and public health services, training, and community support. Additionally, it hopes that the two new super dispensaries will be better able to supply and support the other dispensaries in each atoll group in public health and PHC services and supplies, and for support and training functions. In general, Yap seems to be in the recovery stage from the previous two years and poised to deliver improved PHC and public health services in a lean, focused and more comprehensive manner. However, given the customs and tradition of the OI toward the use of male HAs for women's illnesses, it will be necessary to recruit more female HA's to seriously improve MCH and FP in the outer islands. Additionally, increased supervision and support of the OI HA's is needed by both PHC and the PH field team during their occasional visits to ensure improvement in quality of care.

Yap Proper Planned Community Health Centers[7]

Four dispensaries will be re-opened in Yap Proper: Tomil/Gagil (1600 persons); Kanifay (1150 persons in Gilman, Kanifay and south Rull); Maap (550 persons); and Fanif (460 persons in Fanif and West Weloy). These locations were chosen because they include the largest population centers and address the most problematic transportation access for the rural population on Yap Proper. The current outpatient department at the Yap State Hospital in the capital Colonia will continue to serve east Weloy (1200 persons) and north Rull (1500 persons). A new Community Health Center (CHC) facility is planned for Colonia once this first phase of a statewide CHC system is successfully established over the next three years. An additional four dispensaries on YMI, located at Rumung, Gagil, south Rull, and west Weloy, are planned for the future to further reduce travel time and cost for these populations. In the interim these patients will be able to use the four relatively near Yap Proper CHC-dispensaries to be re-opened under this proposal. This will substantially cut down on the current travel costs and access problems to reach Yap State Hospital (YSH).

[7] Information obtained from Dr. Victor A. Ngaden, Director of Yap Health Care Services in August 2001.

Two primary care health centers have been built in Falalop Ulithi and Falalop Woleai. They will replace the two existing dispensaries on these two islands. Each serves a population base of about 1,000 persons. These two locations were chosen because they are accessible from the other islands by small motorboat and from Colonia by ship and airplane. They were also chosen because they have a reliable source of electricity and water. Two-way radio communication is available but no telephones. Each of the other 15 populated islands also has a dispensary staffed by one or two health assistants. All of these health assistants and the health services provided will be under the supervision of the physician assigned to the Health Center. Remote atoll health assistants will come to the Yap Outer Island (YOI) Health Centers for training when the physicians make their monthly scheduled visits to the YOI-CHCs.

YAP OUTER ISLAND DISPENSARIES	Construc-tion Type	Size L'x W'	SQ Ft	Status	Cost Estimate
Faia Dispensary	CF/CW/TR	42x20	840	Poor	21,000
Falalis Dispensary	CF/CW/TR	46x20	920	Poor	23,000
Tegailap Dispensary	CF/CW/TR	45x20	900	Poor	22,500
Fechaulap Dispensary	CF/CW/CR	40x20	800	Poor	20,000
Asor Dispensary	CF/CW/CR	40x20	800	Poor	20,000
Eauripik Dispensary	CF/CW/TR	48x13	624	Poor	15,600
Elato Dispensary	CF/TW/TR	55x15	825	Poor	20,625
Seliap Dispensary	CF/TW/TR	47x21	987	Poor	24,675
Fadaray Dispensary	CF/TW/TR	45x21	945	Poor	23,625
Satawal Dispensary	CF/CW/CR	45X25	1125	Poor	28,125
Lamotrek Dispensary	CF/CW/CR	76x18	1368	Poor	34,200
Wottogai Dispensary	CF/CW/TR	35x16	560	Poor	14,000
Ifalik Dispensary	CF/CW/CR	45x25	1125	Poor	28,125
Piig Dispensary	CF/CW/TR	32x20	640	Poor	16,000
Mogmog Dispensary	CF/CW/TR	30x21	630	Poor	15,750
Falalop Ulith Dispensary	CF/CW/TR	38x26	988	Poor	24,700
Falalop Woleai Dispensary	CF/CW/TR	48x30	1440	Poor	36,000
Ngulu Dispensary	CF/CW/TR	26x12	312	Poor	7,800
TOTAL			**15829**		**$395,725**

The total cost estimate to renovate Outer Island Dispensaries is $395,725 and the cost estimate to reopen Yap Proper Dispensaries is $103,300.00 totaling $499,025.00.

Description of Typical Outer Island Dispensary[8]

The Yap Health Services plans to upgrade all existing dispensaries in Yap State including those that are currently in disuse. Since most of the dispensaries and aidposts are constructed with corrugated tin and wood the problems of termites infestation coupled with rusting as a result of salt spray in the islands have always been a burden to Yap State. The facilities require continued repair and renovation. In view of the above mentioned, the Health Services Department is interested in undertaking measures to improve the dispensary system facilities by initiating some re-engineering of the reconstruction of some selected ones. The process will be in two phases:

- All dispensaries must have at least a concrete floor and walls.

[8] Prepared by Yap Health Services Department

- Dispensaries with concrete roofs must be covered by roofing tins so portable rain water can be collected for drinking and use by dispensaries.
- Dispensaries with concrete floor and walls and tin roofs will only have repair done on them at this time. Should additional funds be available the option of converting a tin roof to a concrete top can be considered.
- All dispensaries for reconstruction should have a toilet and septic tank included in the projects.
- The size of all dispensaries for reconstruction should not exceed 900 sq. feet floor space (Being approx. $45,000/dispensary). It is estimated that any space in excess of this size is not necessary and will add more problems on maintenance.

The Health Services have come up with a plan to rebuild the dispensaries using the same design. A community may choose to change the design but should not exceed the recommended facility size. The plan will have a facility with floor size of at least 770 sq. ft. working area including a lavatory facility. It will have complete concrete structure with a tin roof constructed on top for purpose of collecting safe drinking water and keeping the concrete top cool and prevent leaking. The facility will have 3 rooms (examination room, observation room, and delivery room) and a restroom with one toilet for both sexes. It will have two windows on each of the four sides and two doors.

Table A: Dispensaries in FSM States

STATE	No. of Dispensaries	Super Dispensaries	Services provided by
Chuuk	71-mostly private homes	13 (planned)	HA*
Kosrae	1 (Planned for Walung)	0	Team
Pohnpei	7 (5 Outer Island)	9	Team with MO** (OI dispensaries. HA only)
Yap	19	2/ 4 (planned)	HA
Total/FSM	97	19	

*HA = health assistant
**MO = medical officer/physician

II.3.5. Total Cost Estimate for FSM Dispensaries/Medical Ship

Cost Estimates for State Dispensary Renovation/New Construction (Includes Outer Island Medical Ship)	
Chuuk	$763,420.00
Kosrae	$98,300.00
Pohnpei	$387,300.00
Yap	$499,025.00.
***Outer Island Medical Ship**	$1,200,000.00
TOTAL	**$2,948,045.00**

** See the Section II.6 on the PMA Medical Ship/Aircraft operations/activities/*

II.5. Health Financing and Cost Recovery

The following information on Health Financing and Cost Recovery was extracted from the 1999 ADB Report on the Social Sector. While some of the figures are dated, the information is sound and offers a good overview as to the main issues/concerns.

Health services, including preventive and public health services, are financed through a mixture of funds associated with the Compact of Free Association, other categorical program grants from the U.S. independent of the Compact, hospital and other fees, and grants from bilateral and multilateral donors and non government organizations (NGOs). The composition and mixture of funding varies according to the state.

All FSM states are interested in cost recovery and all have instituted various fees to recover costs of health services. Collection of fees in all states remains problematic, however. As the right to health care is enshrined in the constitution, it is commonly felt that health services can not be refused if the clients refuse to pay or cannot pay. This is true even for those who are known to have the means to pay. Some states seem more efficient than others at collecting fees. For instance, Yap, with a population of approximately 11,000, collected about $100,000 in the first 11 months of FY 1999, excluding capitation fees from the FSM-NIP, according to both the Yap Department of Economic Planning and the Yap Department of Health Services (YDHS). Chuuk, on the other hand, with a population of about 56,000 collected only $19,000, excluding capitation payments, according to the Department of Treasury, Division of Revenue and Taxation. Pohnpei, with a population of about 36,000 people, collected about $104,000 according to the PDHS, excluding capitation fees, while Kosrae with a population of 7500 collected $15,261, excluding capitation fees, according to the KDHS

In both Kosrae and Pohnpei, the DHSs are allowed to keep whatever funds are collected through user and capitation fees. Up to $165,000 of revenue derived from user and capitation fees can be returned to the Yap DHS from general revenues once the initial medical supply allotment is expended, with Yap state government approval. Funds obtained from such fees can only be used for medicines and supplies in Kosrae, Pohnpei and Yap, not for personnel, travel, training or similar items. In Chuuk, all fees collected are turned over to general revenue. Kosrae and Pohnpei also get to keep the capitation fees received from those insured under the FSM Health Insurance Plan health insurance program. Despite the relatively small amounts of revenue from user fees obtained in Yap and Pohnpei, this represents a significant amount of additional funds for use in purchasing medicines and supplies, which are always in short supply.

Typically outpatient fees run from $2.00 (Yap) to $5.00 (Pohnpei). Kosrae and Chuuk charge for medicines, not for outpatient visits. Most states officially charge for inpatient services and for x-ray and laboratory, but these services are also undercharged compared to their real costs, and fees for such services are poorly collected. Medicines are charged on a sliding scale, with more than 10 categories in most hospitals. The sliding scales represent, to some extent, the cost of the medicines, but do not actually

cover the true costs of medicines in any state. The current charges for medicines and services in many states are supposedly based on a fee schedule developed in the late 1980's or early 1990's. Pohnpei and Yap seem to have had some success in collecting fees for these services, and they are successful in collecting from less than 50% of patients.

Most states do not charge for public health visits, whether at the hospital or the dispensaries. Primary health care visits at dispensaries are also free, whether or not a physician sees the patient. Pohnpei is planning to place physicians at all dispensaries on Pohnpei proper and is planning to charge for both physician and other health worker visits. Most dispensaries, regardless of the state, do not officially charge for medicines. However, the dispensary study done by the Micronesian Seminar revealed that some dispensaries in Chuuk do charge for medicines, apparently using the revenue to buy additional medicines.

Thus, in all states of the FSM, user fees for health services are theoretically charged but rarely actually collected (even in part). Most DHSs have no system in place to follow up with defaulters. Yap, for instance, could not identify what service was received, what medicine was given, or type of provider was seen without extensive and time consuming chart review. Yap and Pohnpei seem serious about collecting fees, Kosrae less so. Chuuk collects almost no fees, for reasons as yet unclear. In a recent thesis study by Jeff Benjamin, patients at Chuuk State Hospital almost universally indicated extremely high dissatisfaction levels and lack of confidence in services and personnel at CSH, perhaps their reason for not paying for such.

Table B: Health Cost Recovery Details in FSM States

	Chuuk	Kosrae	Pohnpei	Yap
User Fees	Yes	Yes	Yes	Yes
Amount collected In 1999 (excluding capitation fees)	$19,000	$15,000*	$104,000*	$100,000*
DHS can keep?	No	Yes	Yes	Up to $165,000 if approved**
Monthly Capitation fee from FSM-NHI	$15,000	$7,500*	$15,000*	$4,000+*
DHS can keep?	No	Yes	Yes	Yes, if approved**

* Can only be used for drugs and supplies.
** If approved by the Yap State Government