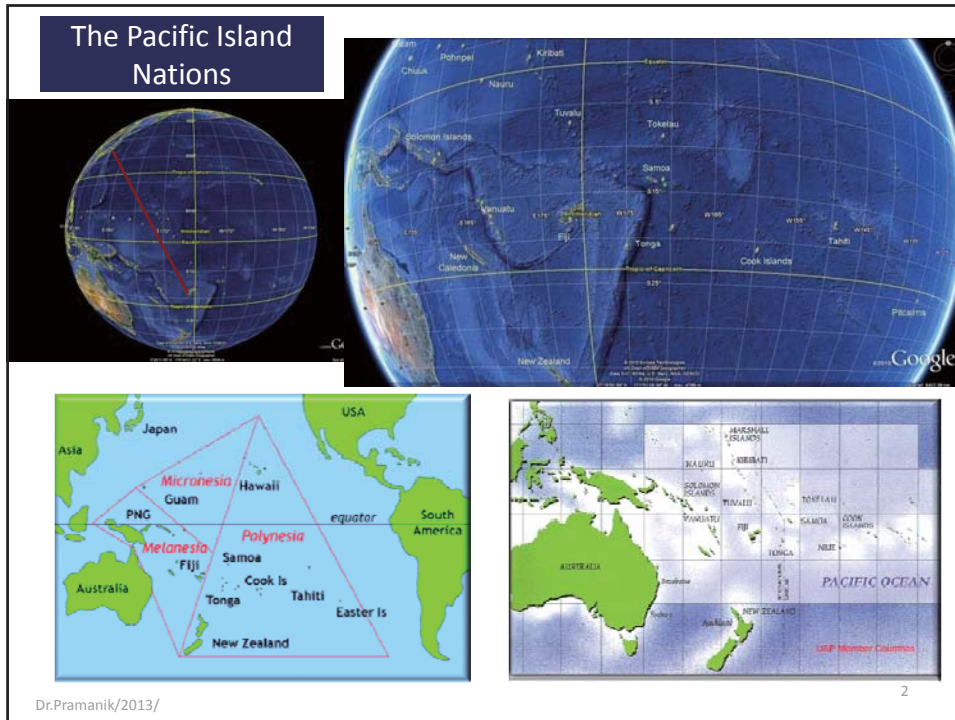


A Model Telecenter for ICT Applications in Rural Communities of Palau



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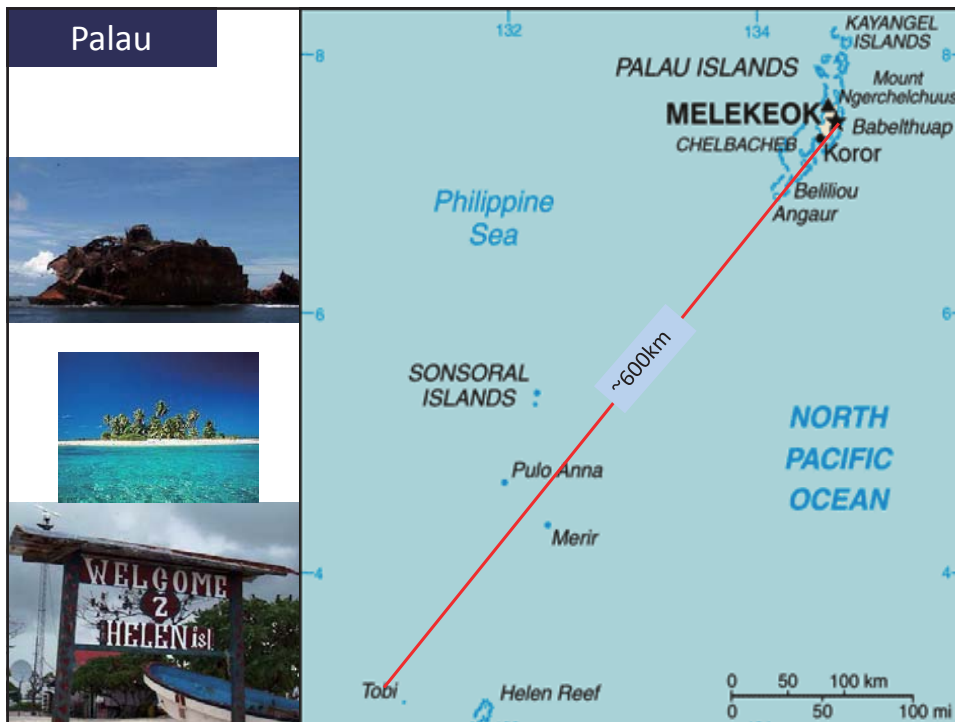
**10th Asia-Pacific Telecommunication and ICT Development Forum (ADF-10)
20-22 August, 2013, Dhaka, Bangladesh**




Pacific Island Nations Basic Data Ref: CIA World Fact book


Island Nations	Land Area (sq.km)	Population (2009-10)	Location		Highest Point(m)	Remarks
			Latitude	Longitude		
Cook Islands	236	11,870	21.14 S	159.46 W	652	
Fiji	18,274	875,983	18.00 S	175.00 E	1,324	
Kiribati	811	12,850	1.25 N	173.00 E	81	
Marshall Islands	236	64,522	7.50N	171.20E	652	
Micronesia (FSM)	702	107,434	6.55 N	158.15 E	791	
Nauru	21	14,019	0.32 S	166.55 E	61	
New Caledonia	18,575	27,436	21.30 S	165.30 E	1,628	
Niue	260	1,398	19.02 S	169.52 W	68	
Palau	459	20,796	7.30 N	134.30 E	242	
Samoa	2,831	192,998	13.35 S	172.20 W	1,857	
Solomon Islands	28,896	95,613	8.00 S	159.00 E	2,310	
Tokelau	12	1,416	9.00 S	172.00 W	5	
Tonga	747	120,898	20.00 S	175.00 W	1,033	
Tuvalu	26	12,373	8.00 S	178.00 E	5	
Vanuatu	2,189	218,519	16.00 S	167.00 E	1,877	Volcano
Total	74,275	1,778,125				
Papua New Guinea	462,840	6,187,591	6.00S	147.00E	4,509	Highest
American Samoa	199	65,628	14.20 S	170.00 W	964	
Guam	544	180,865	13.28 N	144.47 E	406	
Northern Mariana Islands [Saipan]	464	51,484	15.12 N	145.45 E	965	
Total	1,207	297,977				
French Polynesia	236	287,032	21.14 S	159.46 W	652	
New Caledonia	18,575	27,436	21.30 S	165.30 E	1,628	
Walis+Futuna	142	15,398	13.18 S	176.12 W	765	
Total	18,953	329,866				
Grand Total	94,435	2,405,968				

Compiled by: Dr. Pramanik



Palau: Profile






Government:
The Republic of Palau includes 16 states, two of which contain the urban core population (Koror & Airai with a total of 3,898 households) and 14 others with small rural populations of 14 - 152 households.

Economy:
Tourism, subsistence agriculture and fishing.

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Palau: Profile

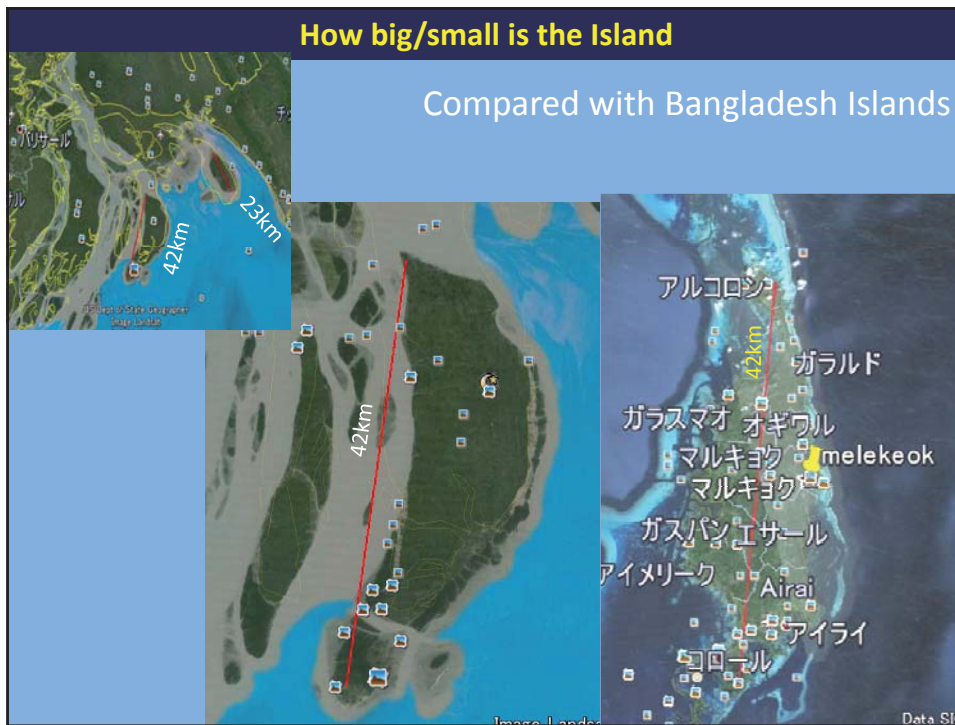


Geographic Profile				
Land area (in square kilometres)		444		
Number of islands		300+		
Number of principal islands		8		
Latitude		7° 30' North		
Longitude		133° 30' East		

Country Profile				
Political Status		Compact of Free Association with USA		
Official Languages		Palauan and English		
	Units	2010	2011	2012
Year ending 31 December				
Population	Residents	18,116	17,777	17,445
	Visitors	81,934	103,080	116,856
Population density	inhabitants/km ²	41	40	39

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This location Dhaka: N 23° 44' 29" / E 90° 23'48"



ICT Status

Project Background: ICT Challenge. Due to high cost of infrastructure and small, isolated populations, most rural areas of Palau have telephones, cellular and digital TV but no high-speed Internet access (only dial-up).

Fiber Optic Cable and Landings

The map shows the Republic of Palau's National Communications Network. It highlights fiber optic cable routes and landings at Babeldaob, Koror, and Peleliu. A legend identifies symbols for existing fiber optic lines, proposed fiber optic lines, cable routes, fiber optic landings, fiber optic cables, and fiber optic landings. A photo shows fiber optic cable being laid on a boat.

Republic of Palau
National Communications Network

Babeldaob

Angaur

Kayangel

Koror

Peleliu

Legend

- Existing Cellular Core
- Proposed Cellular Core
- Optical Fiber
- Microwave Connection
- Fiber Data Cable
- Compass Rose

Microwave Connections

- Kayangel
- Angaur

ICT Status

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PalauCel
Molekol—Enjoy the Freedom

Legend

- Cell Site
- New Cell Site
- Satellite Antenna Site
- Compass Rose

Cellular Network

- GSM-900
- Nationwide service coverage including outlying islands of Kayangel and Angaur
- 21 cell sites, with 4 in Rock Islands (UNESCO Heritage Site)
- International roaming
- Future plan for data services

ICT Status

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Aims of The Pilot Project:

sustainable community-centered Internet capabilities

The pilot project aims to create a model for affordable, sustainable community-centered Internet capabilities that supports economic and social development, including:

- Economic development opportunities through **aquaculture and agriculture** projects (*PCC Cooperative Research & Extension's Marine Hatchery, PCC Research & Development Station*)
- e-learning (*Ministry of Education / Ngeremlengui Elementary School*)
- e-government, disaster management and tourism promotion (*Ngeremlengui State*)
- *Government/NEMO/Palau Visitors Authority*
- e-health (*Ministry of Health – Ngeremlengui Health Center*)
- Cultural preservation (*Ministry of Community & Cultural Affairs/Ngeremlengui State Old Age Center*)

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Project Objectives

1. Establish Palau's first-ever model community Telecenter to utilize broadband Internet access to achieve goals of economic and social development in rural communities;
2. Eco-friendly and sustainable power source for the Telecenter using solar power;
3. Use wireless technology as a cost-effective and sustainable way to bring high-speed broadband service to remote rural areas; and provide Telecenter users with low-cost, affordable prepaid card access to secure sustainable operation.

Palau's APT J3 Pilot Project is designed to contribute to implementation of the Bali Statement and Plan of Action of the Asia-Pacific Ministers (2009), as well as the Republic of Palau's 22 National ICT Policy 2011-2014.

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Design Objectives

- The APT J3 pilot project was designed to provide a prototype model of how ICT applications can be promoted through high-speed Internet in rural communities, with the goal to implement economic and social development goals, including e-Health, eLearning, e-Government/ economic development, public safety/disaster management, and cultural preservation.
- **Ngeremlengui State** was selected due to the proximity of existing critical community services:
 - a rural community health dispensary an elementary school the Marine Hatchery / Research & Development Station of Palau Community College and the Ngeremlengui State Government Office (which handles public safety functions since the closest police substation is far away on the northern side of the island).
- According to our survey of community members and leaders, there are several needs in the community that will be addressed by this project, including lack of educational and job opportunities, lack of adequate health care, needs for economic development and research (e.g. by PCC), and improved public safety.

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PROJECT SITE

- Largest landmass of Palau's archipelago, covering about 68 square miles of central Babeldaob
- Longest river in Palau, called Nermeskang River
- Ngeremduu Bay is a breeding site for marine life, and a national protected area.
- Ngeremlengui has established Noni plantations, which utilize the medicinal properties of the abundant Noni plant and its fruits.
- Ngeremlengui is famous in Palau for its sea cucumber (cheremrum), a local delicacy

The Community Ngeremlengui State, the location of Palau's APT-J3 Pilot Project, has 86 households (2009 Survey). Ngeremlengui State was selected due to the proximity of existing critical community services:

- a rural community health dispensary
- an elementary school
- the Marine Hatchery / Research & Development Center of Palau Community College
- the Ngeremlengui State Government Office
(handles public safety functions since the closest police substation is far away on the northern side of the island).

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Project Partners

- Palau National Communications Corporation (PNCC)
- Palau Community College (PCC)
- Ngeremlengui State (Office of the Governor)
- JTEC : Japan Telecommunications Engineering and Consulting Service, Japan

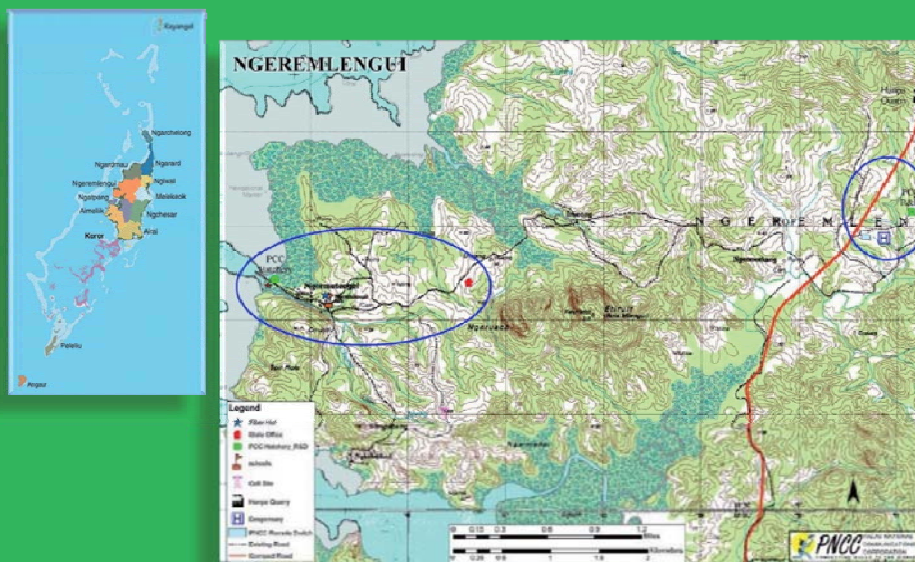
National Stakeholders

- Ministry of Education (Ngeremlengui Elementary School)
- Ministry of Health (Ngeremlengui Community Health Center)
- Ministry of Justice (MOJ)
- National Emergency Management Office (NEMO)
- Ministry of Cultural and Community Affairs (MCCA)
- Palau Visitors Authority (PVA)

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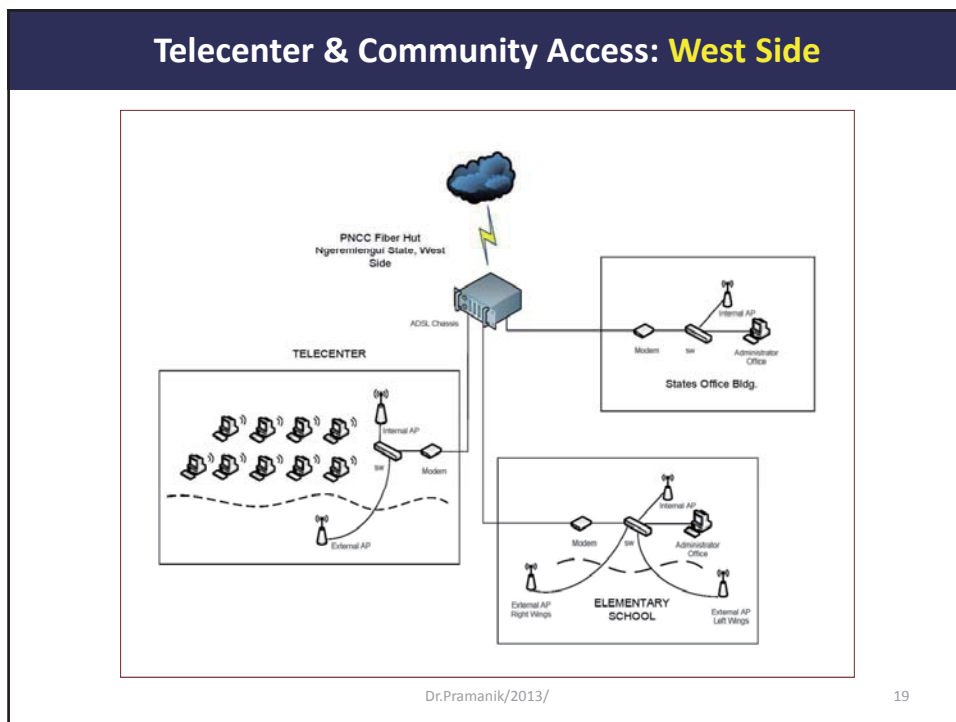
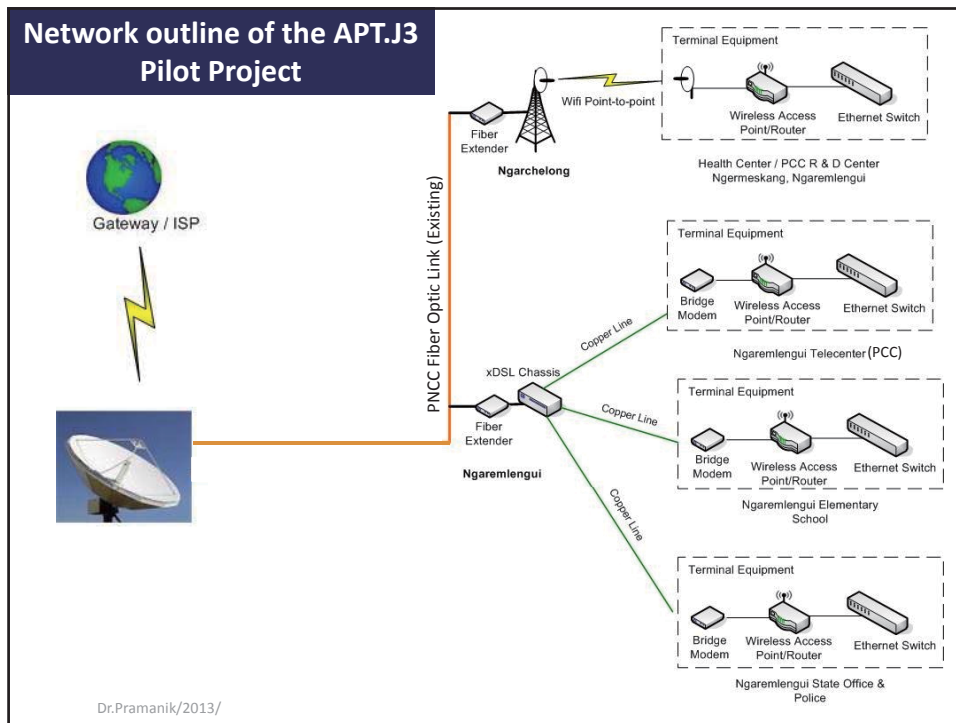
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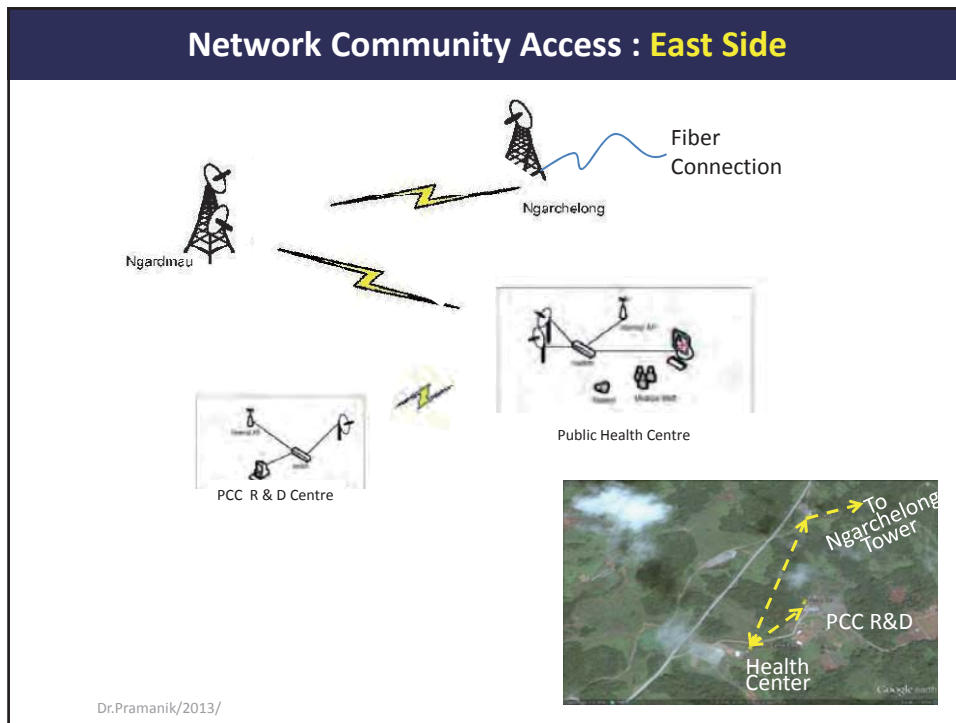
PILOT PROJECT LOCATION



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Project Phases: Technical Planning, Design & Procurement

1st Mission of Japanese Experts to Palau

- Meetings with stakeholders
- Site surveys
- Telecenter groundbreaking

Technical Implementation by Palau (PNCC)

Advise from Japan via Electronic media during implementation

- Wireless broadband system to Village Area
- Provisioning of the Telecenter with 10 computers and internet connectivity via WAP/ PNCC Wi-Fi Hotspot; plus computers for community centers
- Solar power system for Telecenter

2nd Mission of Japanese Experts

- Confirmation of implementation
- Network parameters confirmation
- Data check ups and verification
- Telecenter applications User Training
- Ribbon-cutting
- Assessment meeting - Japanese experts with national stakeholders

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Project Team: Palauan Govt. and Japanese Experts



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1st Mission of Japanese Experts to Palau: Meetings with stakeholders

1st Meeting at PNCC

MOE

Visitor's Bureau

MOH

PNCC

PCC Hatchery

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- Site surveys

Telecenter Groundbreaking

Telecenter Groundbreaking Ceremony July 6, 2012. *Left to Right:* PNCC GM Misech, PCC President Tellei, Minister of Education Emesiochl, Ngeremlengui Elementary Principal Franz, PCC Board of Trustees Student Member, Dr. Pramanik (JTEC), Second Secretary Matsumura (Embassy of Japan), Ngeremlengui Traditional Chief Malsol, Minister of State Dr. Yano, PNCC Board of Directors Chairperson Espangel

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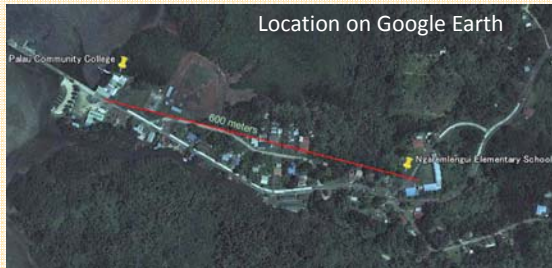
Sites :Continued



Ngeremlengui Elementary School



Students' IT room



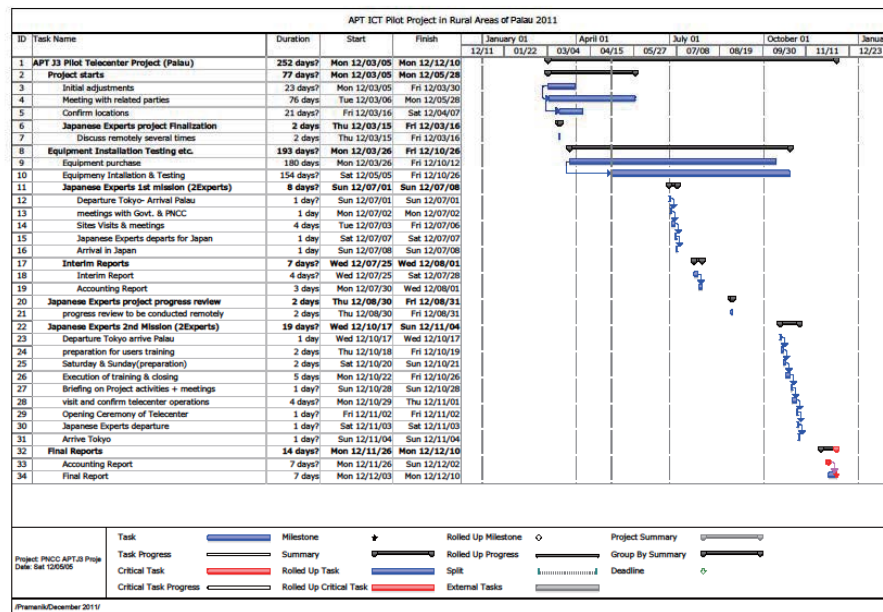
Location on Google Earth



Old Age Center

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The Timeline



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Training for Users

Ver. 3: January 27, 2013

Training Program (Tentative) : Palau APT J3 (PCC/PNCC)

Date/Day	AM	PM	Materials and Handouts
Feb25 MON	Opening session, APT Project outline & goal	What is Internet? Discussions	Assessment Questionnaires, What is
Feb26 TUE	Brief Timeline of the Internet, ICT & Network in Education in other countries	Internet Ethics, Introducing some academic software, Children's software	Brief Timeline of the Internet, Internet Ethics
Feb27 WED	Webpage basics with Homepage building	Internet structure, IPV4,IPV6	Homepage Creation online
Feb28 THU	Photo enhance and editing, Video edit, media transform, web applications,	Group Workshop, and individual activities on WWW applications	PhotoScape, or Adobe Photoshop, AVS, Other software
Mar 1 FRI	Workshop on Social Network System (SNS):	Facebook, Internet Society, ICANN	Hands on Practice
Mar 4 MON	ICT in Cultural preservation and Eco-Tourism E-commerce, E Government fundamentals	ICT uses in Elementary school education.	Handouts & Internet online materials
Mar 5 TUE	Meetings with stakeholders, Courtesy calls	Hands on Practice	Internet online materials
Mar 6 WED	Internet use in Society, Govt. Offices	Disaster reporting and message exchange.	Offline & Online materials
Mar 7 THU	Overview of Network and Cloud Computing	Merits and Demerits of Network Computing	
Mar 8 FRI	11 AM: Telecenter ribbon cutting, and Closing Ceremony		

- ① All training program will be conducted by Dr. Pramanik. Day 6 (Mar 4) program will be conducted by Prof. Saga
- ② Training 10-12 staff for 10 days .
- ③ Courseware will be made available at the time of training.
- ④ Trainees with basic computer skill preferred

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Palau APT J3 Internet Training Program (PCC/PNCC)

Location:	ICT Resource Center (Telecenter) at PCC Hatchery, Ngeremlengui State, Palau	
Dates:	February 25 – March 8, 2013	
Date/Day	AM	PM
Feb25 MON	Opening session, APT Project outline & goals	What is Internet? Discussions
Feb26 TUE	Brief Timeline of the Internet, ICT & Network in Education in other countries	Internet Ethics, Introducing Children's academic software,
Feb27 WED	Webpage basics with Homepage building	Internet structure, IPV4,IPV6
Feb28 THU	Photo enhance and editing, Video edit, media transform, web applications,	Group Workshop, and individual activities on WWW applications
Mar 1 FRI	Workshop on Social Network System (SNS):	Facebook, Internet Society, ICANN
Mar 4 MON	ICT in Cultural preservation and Eco-Tourism E-commerce, E Government fundamentals	ICT uses in Elementary school education.
Mar 5 TUE	Internet use in Society, Govt. Offices	Overview of Network and Cloud Computing
Mar 6 WED	PNCC sales staff presentation to trainees/Hands on Practice	Disaster Reporting and message exchange (including State representatives, PNCC & NEMO)
Mar 7 THU	Hands on Practice (Independent) [Dr. Pramanik & Prof. Saga to attend stakeholder meeting at PNCC HQ]	FINAL SESSION: Merits and Demerits of Network Computing & Training Recap
Mar 8 FRI 11 AM (Start)	Telecenter Ribbon cutting, and Closing Ceremony	

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Group Photo: Training



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Equipment Provided



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?!?!?!?

Video

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Ribbon cut ceremony

ICT RESOURCE CENTER
RURAL TELECENTER
FUNDED BY APT J3 (JAPAN)
PROJECT PARTNERS:
NGARELENGUI STATE, PCC, PNCC



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Opening Ceremony & Graduation



With Palau Vice President



Palau J3: Trainees are in Blue

Computers Donated to Key Community Centers



PALAU COMMUNITY COLLEGE R&D



HEALTH CENTER






Palau APT-J3 Project Output

- All citizens of Ngaremlengui State now have access to high-speed Internet using Prepaid Internet Cards at the Telecenter;
- Telecenter operations are self-sustaining with solar power and prepaid Internet access.
- Four key community centers (PCC, school, health center, and state government) each have WiFi hotspots and the capability to subscribe to broadband access (PNCC DSL tariff) with highspeed, affordable VLAN connectivity to national networks.
- Key personnel of the four community centers have been trained in Internet applications.
- Businesses/offices that before the APT J3 project could only get dial-up services are now able to subscribe to high-speed DSL.
- Residential customers are subscribing to HomeNet (prepaid DSL).
- The establishment of more public Wi-Fi Hotspots has begun with one of the village stores (Bigman's Store)

Sustainability

The long-term sustainability will be through subscriber access fees for broadband services, including Prepaid Internet which is an affordable access strategy developed by PNCC in 2009-2010 through expansion of Wi-Fi Hotspots in the Koror-Airai urban core, the national capital district in Melekeok State, and the southern island of Peleliu. Currently there are over 65 hotspots in these areas, so the affordable high-speed access they provide to both visitors and residents has already been proven to be very popular and successful as a long-range sustainability strategy. Sales of prepaid Internet cards increased more than four times the amount sold in one year, clearly satisfying an important need. In 2011, PNCC successfully tested and implemented a new prepaid service for residential customers call HomeNet using DSL +2 technology. PNCC's existing long distance prepaid platform was converted to enable dual use of the long distance PIN# for xDSL prepaid access. When broadband capability is implemented in Ngaremlengui State, we will also be able to offer HomeNet service there as another sustainability strategy.

The new high-speed Internet access in Ngaremlengui State made possible through the APT J3 2011 program is now on this strategy to enable more Wi-Fi hotspots to be added. The revenue from prepaid card sales for the Wi-Fi hotspots, as well as other kinds of broadband service subscriptions such as corporate DSL and HomeNet prepaid xDSL, will support the ongoing operations, and also assist the growth of economic and tourism infrastructure in rural areas.



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Complication & Challenges

APT Recommends and WE do act on ICT Applications on :
 eLearning, e-Health, e-Disaster Management, Economic Development
 Cultural Preservation , and more..... with J3 in rural communities.

BUT Who will bell the CAT (s) ?

eLearning	MOE
e.Health, eMedicine	MOH
Disaster Management	NEMO/DEMO/Home affairs
Economic Development	MOF / Planning
Cultural Preservation	MOE / Cultural Affairs
Public Safety	Home affairs, and others
Coordination	Regulators, Telecom, Mobile operators...
Authority	Ministry of Telecom., Ministry of ICT, Customs & Excise, Ministry of Transport, and Executive Office of a country.

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Where is the Bell ?

How to catch the cat(s)
Timing to catch the Cat(s)

The decision and choice is yours'

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Summing up

- Aims
- Objectives
- Funds
- Resources
- Administration
- Cooperation
- Collaboration
- Sustainability
- Expansion to
other communities/Countries

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Sulang ra Temiu!
Thank You Very Much!

<http://www.palaunet.com/>

Contact point:
pramanik@jtec.or.jp

Dr.Pramanik/2013/

<http://www.jtec.or.jp>

JTEC is a unique public organization in Japan. Based on over 30 years of experience and activities, we have made a contribution to the growth of telecommunication as we meet the demands of developing countries and lead Japanese companies to expand their overseas business.

Business of JTEC

- Promotion of international mutual understanding
- Seminars & trainings about telecommunication
- International cooperation to lead telecommunication projects
- Consulting about telecommunication
- Support for overseas expansion of ICT industry

Career of Pramanik

Dr. Kader Hiroshi Pramanik

Special Advisor to the President, Japan Telecommunications Engineering and Consulting Service (JTEC), Tokyo Japan

Japanese Citizen

Academic Career:

Ph.D. Degree in Electrical and Communication Engineering, Tohoku University Japan (1977).

License:

- Specialized Maritime Radiocommunication Operator
- Specialized Terrestrial Radiocommunication Operator

Awards:

- Received 'ICT Accomplishment Award 2013' from the Ministry of Internal Affairs and Communications (MIC) Japan (executed by the ITU Association Japan) .
- Received "The International Cooperation Award 2007" from the Ministry of Internal Affairs and Communications, Japan (executed by the ITU association of Japan).
- Received Letter of Appreciation from the President of the Federated States of Micronesia on the successful Planning and Implementation of Telecenters under APT Program.

Professional Career in brief

1. OKI Electric Ind. Ltd: Senior Engineer, Engineering Services Division; Engineer, Telecom Engineering Division Tokyo, Japan. [Asia, Africa, Latin America etc]
2. ITU: Technical Cooperation Dept (then), early retirement in 1988.
3. JICA (Japan International Cooperation Agency): JICA Expert., "ICT Capacity building at the University of the South Pacific" a grant aid project under the Japanese Govt.
4. Recruit Co. Ltd, Tokyo, Japan: Executive Engineer, Information & Network Department; General Manager, Information & Networks Department; General Manager, Information Systems Department and; Project Director, LAN/WAN Refurbishment and Expansion Project; General Manager, Technical Development Division; General Manager, Satellite Communication Department and, Project Director, New Telecom Network Development and Implementation Project.
5. APT Research project (2006), Network Expert in Expert Mission (2007), and execution of Telecenter Project(2008); Federated States of Micronesia (FSM).
6. Japan International Cooperation Agency (JICA): Expert in Satellite Communication Systems, and Curriculum Advisor (Net-Centric Computing); in the project USP-JICA ICT for Human Development and Human Security (2010-2013), (@The University of the South Pacific, Fiji).