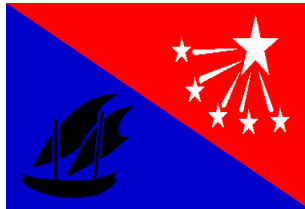


Change the digital divide society to the digital opportunity society

# International Cooperation Forum on Telecommunications & Broadcasting

October 6th 2006  
Tokyo Japan

Japan Radio Co., Ltd



# TELEHAUSLINE

## APT ICT Development Program for Supporting ICT Pilot Project in Rural Area



# Outline of APT ICT Development Programme for Supporting ICT Pilot Projects in Rural Areas

- EXAMPLE OF PILOT PROJECTS
- Under the pilot projects supported by this programme, **demonstration experiments** on such topics as those below should be conducted for verification of its effectiveness and validity toward ensuring ICT access in **rural areas**.
- Establishment and operation of **multi-purpose telecenters in rural areas**
- Introduction of **wireless LAN systems in rural areas**
- Other topics for contributing to **ICT development in rural areas** employing emerging technologies.
  
- APT : Asia Pacific Tele-community
- ICT: Information Communication technology

## GENERAL PROJECT OBJECTIVE

The general objective of the project was to introduce in a rural town or village broadband-capable and IP based technology preferably utilizing wireless LAN as a means of promoting ICT at those location in order to provoke the interest of the local users and community leaders in its general use (web browsing and email, video phone and voice over IP) and later lead to more specialized uses such as e-applications and e-services.



### KUNDIAWA ICT PILOT SITE

Kundiawa is a semi-urban town in the Simbu Province. Though there are limited flights to Kundiawa which takes about 1 hour from Port Moresby, most people take a 1 hour flight from Port Moresby to Mt. Hagen and then drive 2 hours from Mt. Hagen to Kundiawa.

The Kundiawa Site brings the unique experience of the diverse cultures of the Highlands of Papua New Guinea.

The Kundiawa network comprises of a IP Base Station (Access Point) and 4 remote sites.

1. Kundiawa District Community Centre
2. Kundiawa General Hospital
3. Kundiawa Police Station
4. Kundiawa Lutheran Day High School



### BENEFITS OF THE PROJECT

There are two main benefits realized by the project and they can be understood to be direct and indirect:

1. The Direct benefit is that the rural project sites now have a local access point to Information Communication technology (ICT) for example the Internet and its associated applications, that would realistically have taken few more years before implementation by the local Administrations or the private enterprise given the high cost of wireless LAN equipment and the unprofitability of the locations.
2. The Indirect benefit is that there now exists an avenue for the local Administration to minimise the computer illiteracy rate of its rural population by opening up the Community center to all and running of awareness programs thus promoting the use of ICT in the rural setting.

### STRATEGY

The general strategy of the project was to involve the local administrations, Telikom PNG, PANGTEL (PNG Partners) and Japan Radio Company in a partnership arrangement such that the PNG partners were to contribute funds and or kind to the project as appropriate towards meeting the objective of the project. Also more specifically, build the network first and make it available for general use by members of the community at the Telecenters (community centers) and by the schools, health center and police station in to order acquaint and convince the benefits and encourage further partnerships to formalize a business case for usage and finally introduce e-applications and e-services for specific sectors of the community.

Additionally, it was envisaged to use the experiences of the pilot project to consider introducing similar technology and services to other rural centers and in the process provide useful information to avoid problems experienced in this project.

Finally, by having two sites in distinctly different cultural and ethnic settings students and workers can be encouraged to share knowledge and experiences via e-mail, video-chat etc.



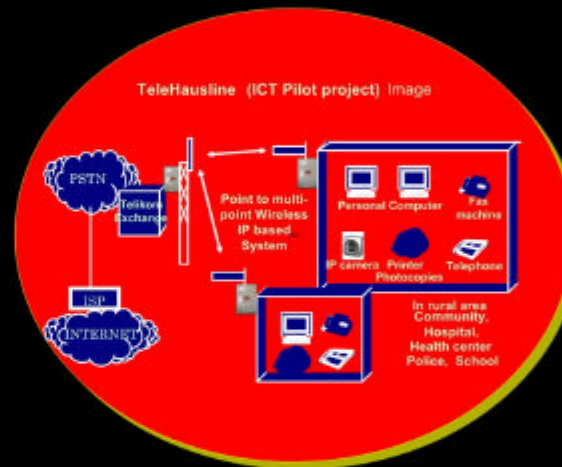
### KUPIANO ICT PILOT SITE

Kupiano is a rural district station in the Central Province. Kupiano is 4 hours drive due east of Port Moresby.

The Kupiano Site brings the challenges of a remote station as well as experiences in typical coastal culture to assess the impact of ICT in such cultures.

The network comprises of a IP Base Station (Access Point) and 2 remote sites.

1. Abau District Community Centre
2. Kupiano High School



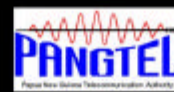
### CHALLENGES

There are notable challenges in rolling out the project. Some of these challenges are:

1. Shortage of time to meticulously plan the project before applying for the ICT project funding from APT. This consequently lead to an under estimation on PANGTEL's budget.
2. Slow progress of the project even into the installation phase as per the schedule because of the lack of enthusiasm and cooperation given by the project site owners in their preparedness.
3. Challenge of overcoming the conflict of interest between the incumbent Telco as Service provider involved in R&D and PANGTEL as Regulator which fortunately lead to both parties finally agreeing to an Interconnection arrangement to the PSTN and Internet for the pilot period.
4. Lack of local technical expertise in installing and setting up the wireless LAN system and the VOIP phone system which are considered to be new technology by the country's industry standard.
5. Technical and financial maintenance of the system until the conclusion of the pilot period and beyond.



### PROJECT PARTNERS



PAPUA NEW GUINEA RADIOCOMMUNICATIONS AND  
TELECOMMUNICATIONS TECHNICAL AUTHORITY  
PO Box 444 Boroko, National Capital District, Papua New Guinea  
Ph: +675 325 8633 Fax: +675 325 4866  
Web: www.pangtel.gov.pg

# Papua New Guinea

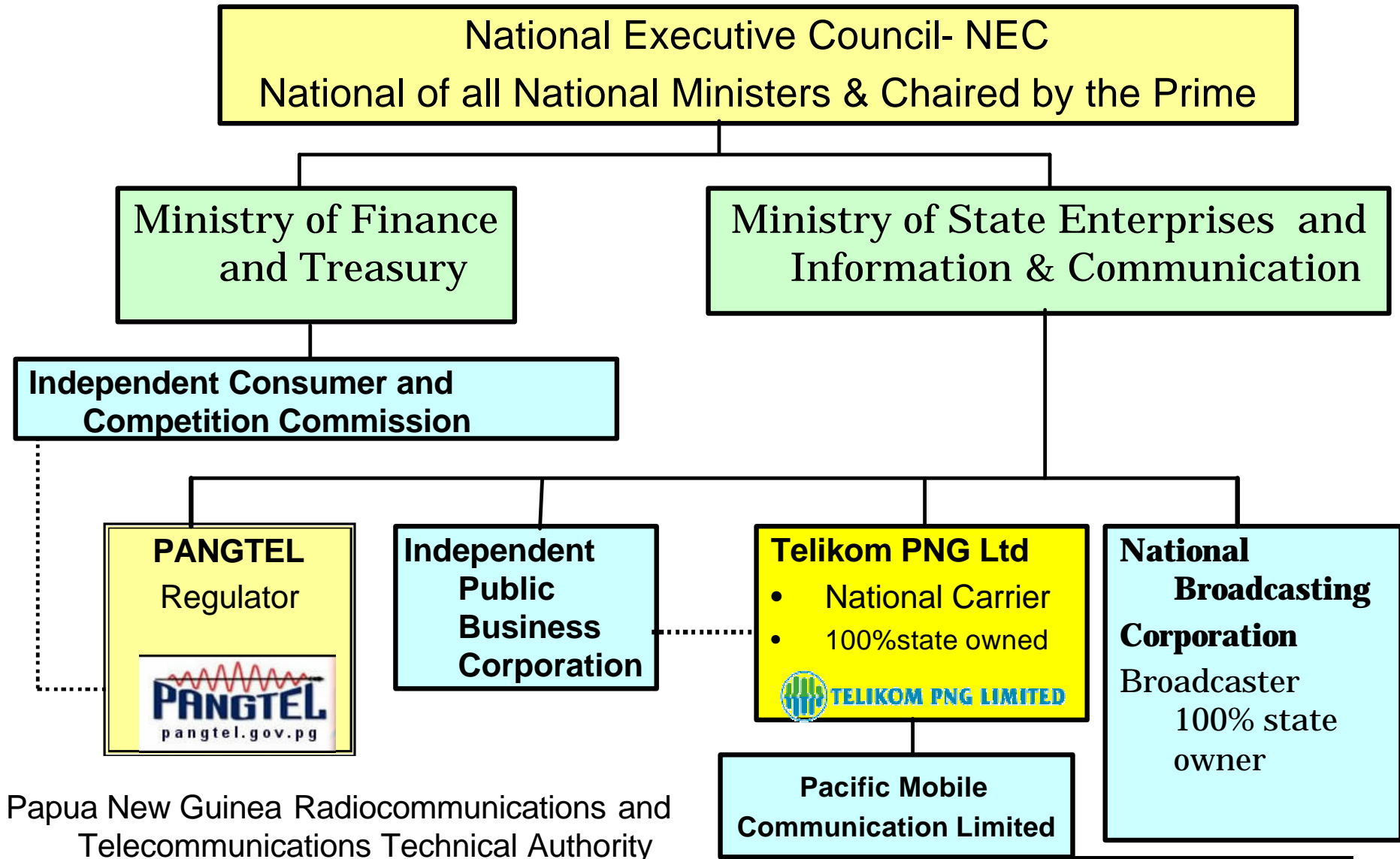


## • Country Profile

- Capital Port Moresby
- Area 462,840 sq km
- Population 5.1 million
- Urban Population 13%
- GDP US\$ 2.82 billion
- GDP per capita US\$ 515
- Currency Kina
- Main Telephone line 70,000
- Telephone Density  
Overall 1.3%  
Rural 0.05%
- Waiting List for 3,000  
telephones
- Cellular Subscribers 80,000
- International 20 million  
Outgoing Traffic minutes
- Network Digitization;  
Switching 95%  
Transmission 95%



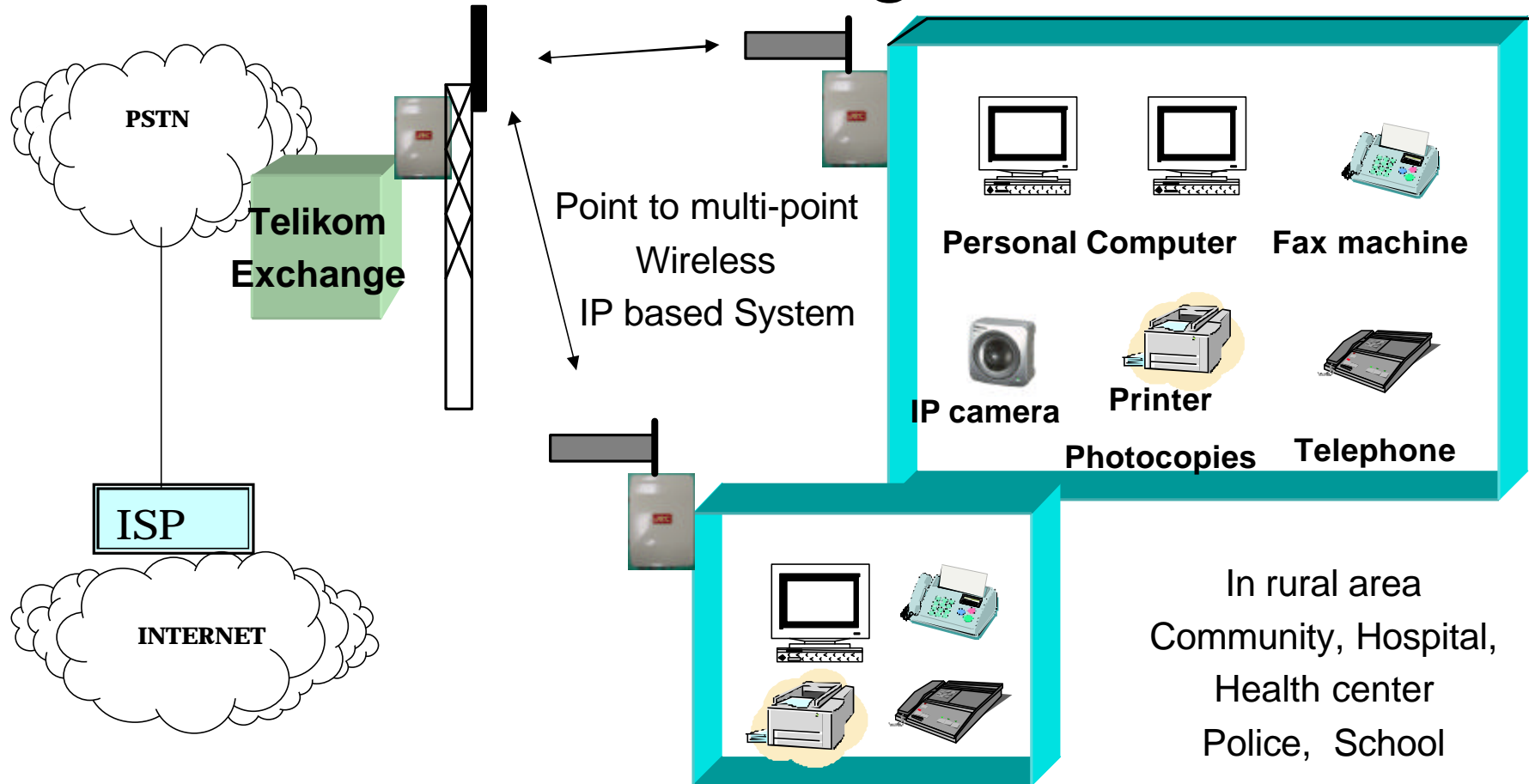
# Telecommunication in PNG(1)



Papua New Guinea Radiocommunications and  
Telecommunications Technical Authority

# TELEHAUSLINE (ICT Pilot project)

## Image



- Hausline in neo-Pidgin English means clusters of village under a Chief or Councilor. With the prefix “tele” it mean linking these clusters of village through telecommunication applications. The name is chosen basically to here the locals appreciate that the concept is local yet universal.

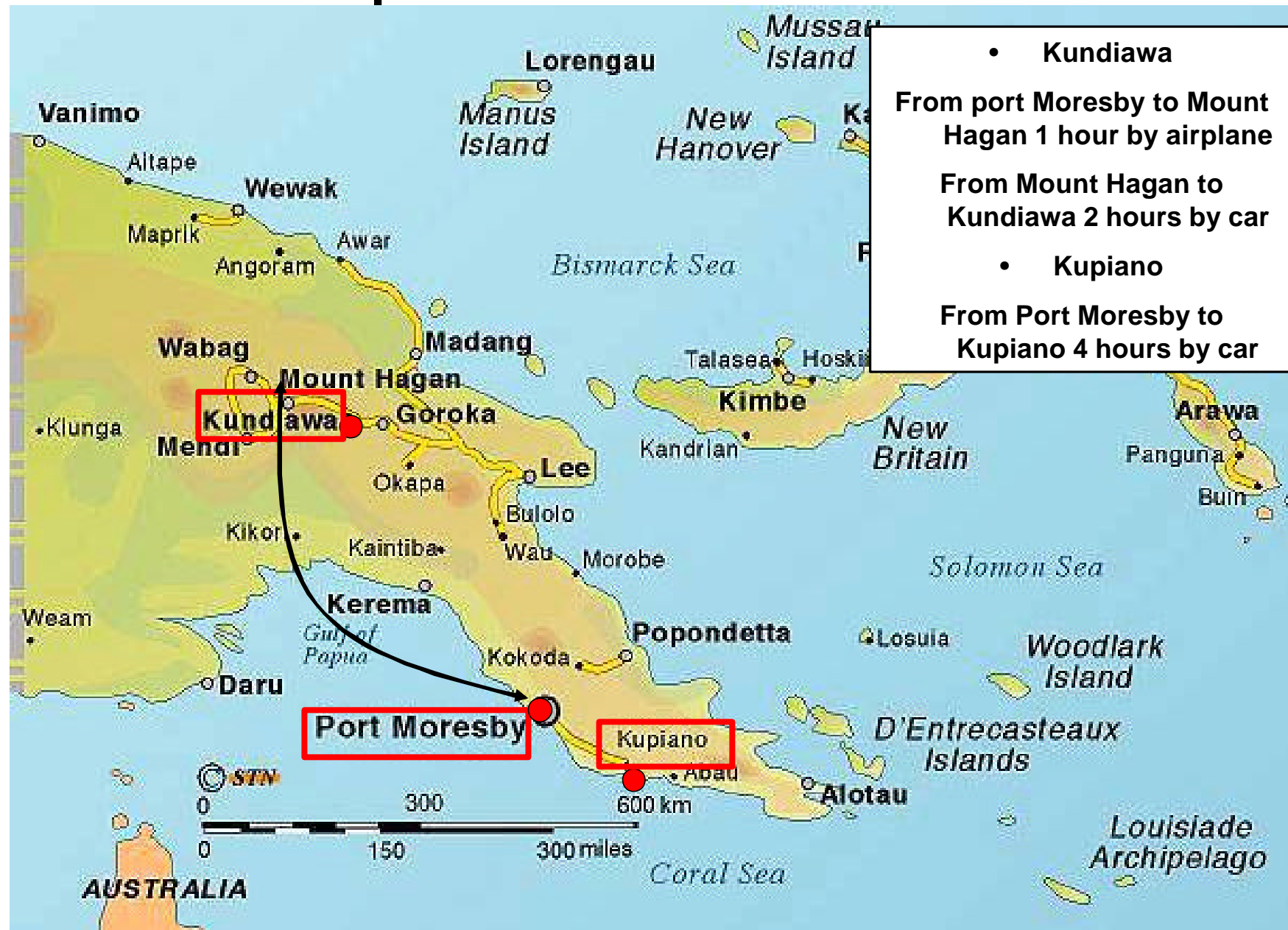
# TELEHAUSLINE (ICT Pilot Project)

## Target

- **Application**
- e- health care
- e- education
- e- agriculture
- e- security
- e- bank
- Public telephone
- Public Internet cafe
- **Service facility**
- VoIP telephone
- Fax machine
- IP camera
- Personal computer
- Internet E-mail ,Web
- Printer
- Photocopier
- (ECG Holder) option
- (Blood Pressure Device) option



# Map for Site Location

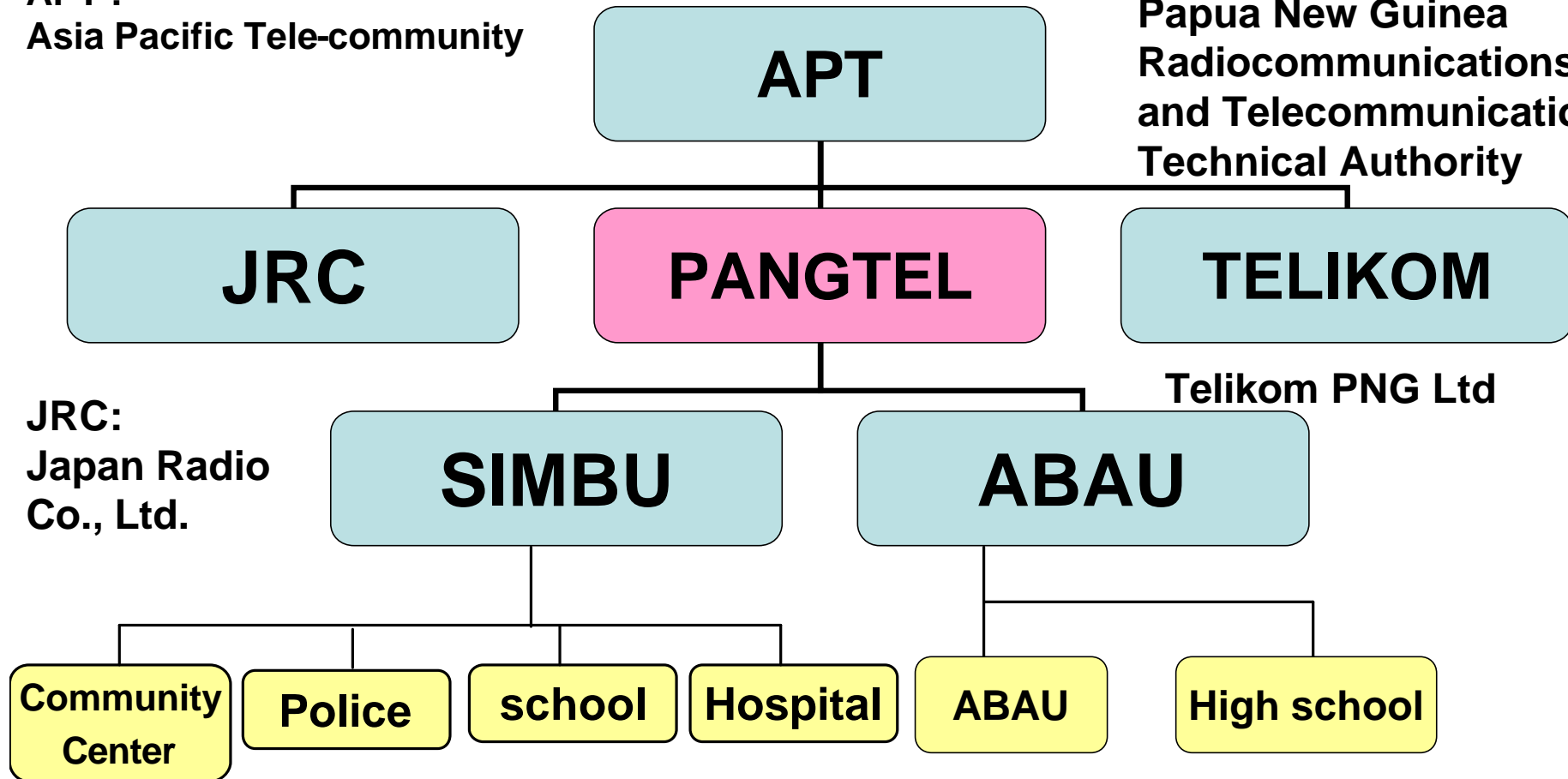


# TELEHAUSLINE

## Organization chart

APT :  
Asia Pacific Tele-community

PANGTEL:  
Papua New Guinea  
Radiocommunications  
and Telecommunications  
Technical Authority



JRC:  
Japan Radio  
Co., Ltd.

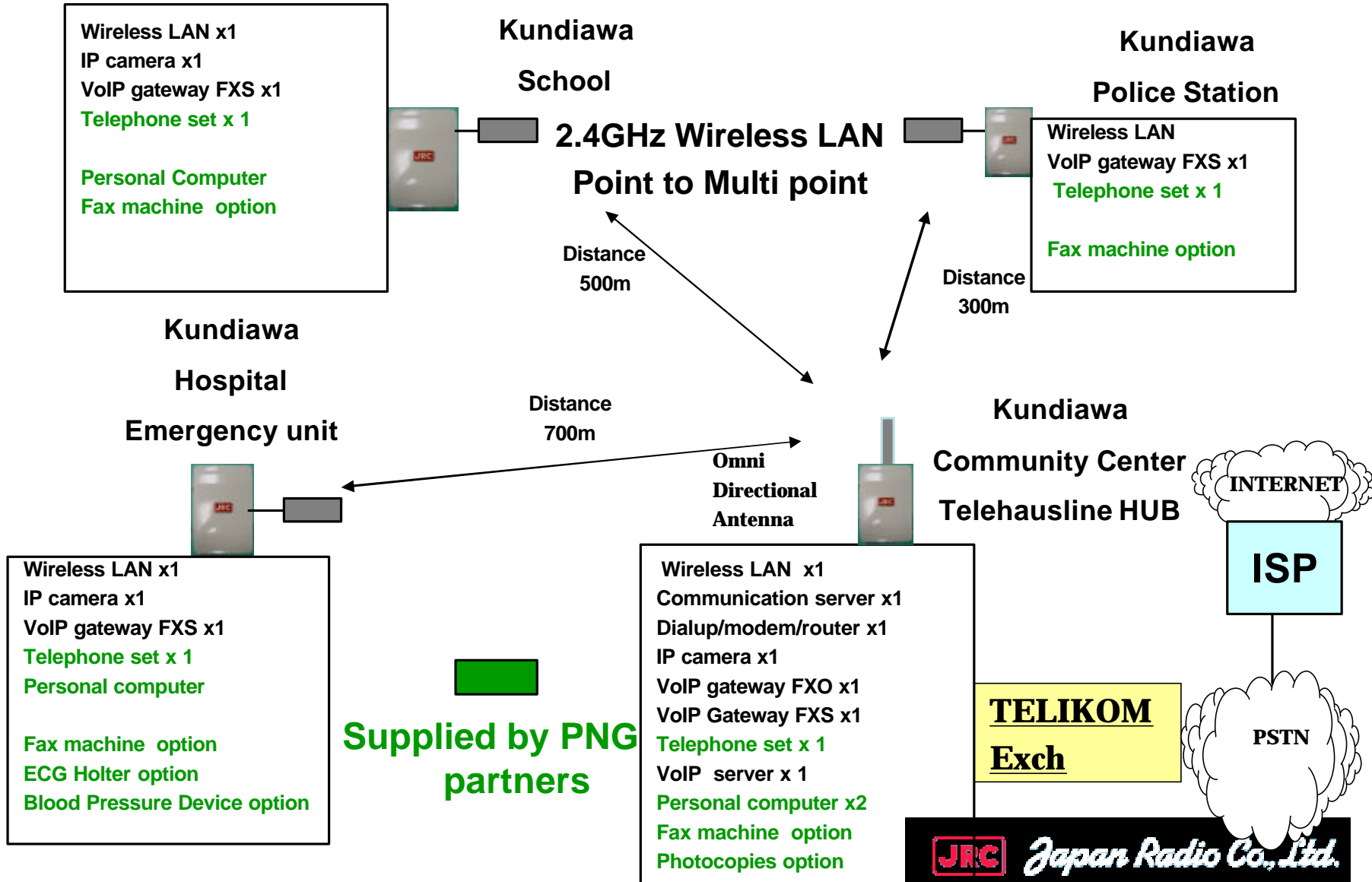
Telikom PNG Ltd

# PANGTEL at Port Moresby



# TELEHAUSLINE (ICT PILOT PROJECT) FOR KUNDIAWA

## 2.4 GHz Wireless LAN SYSTEM CONFIGURATION



**Kundiawa School**

- Wireless LAN x1
- IP camera x1
- VoIP gateway FXS x1
- Telephone set x 1
- Personal Computer
- Fax machine option

**Kundiawa Police Station**

- Wireless LAN
- VoIP gateway FXS x1
- Telephone set x 1
- Fax machine option

**Kundiawa Hospital Emergency unit**

- Wireless LAN x1
- IP camera x1
- VoIP gateway FXS x1
- Telephone set x 1
- Personal computer
- Fax machine option
- ECG Holter option
- Blood Pressure Device option

**Kundiawa Community Center Telehausline HUB**

- Wireless LAN x1
- Communication server x1
- Dialup/modem/router x1
- IP camera x1
- VoIP gateway FXO x1
- VoIP Gateway FXS x1
- Telephone set x 1
- VoIP server x 1
- Personal computer x2
- Fax machine option
- Photocopies option

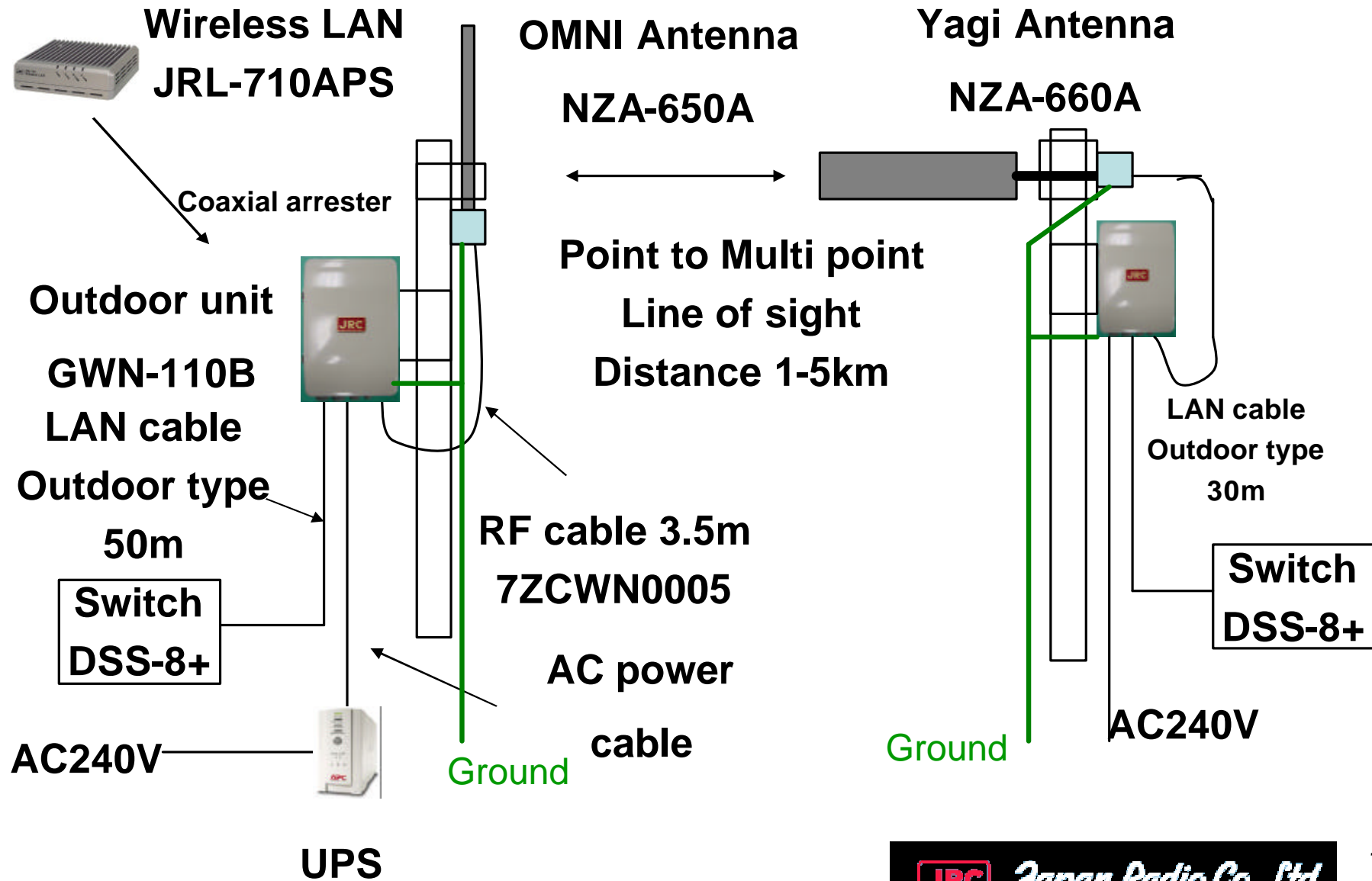
**INTERNET**

**ISP**

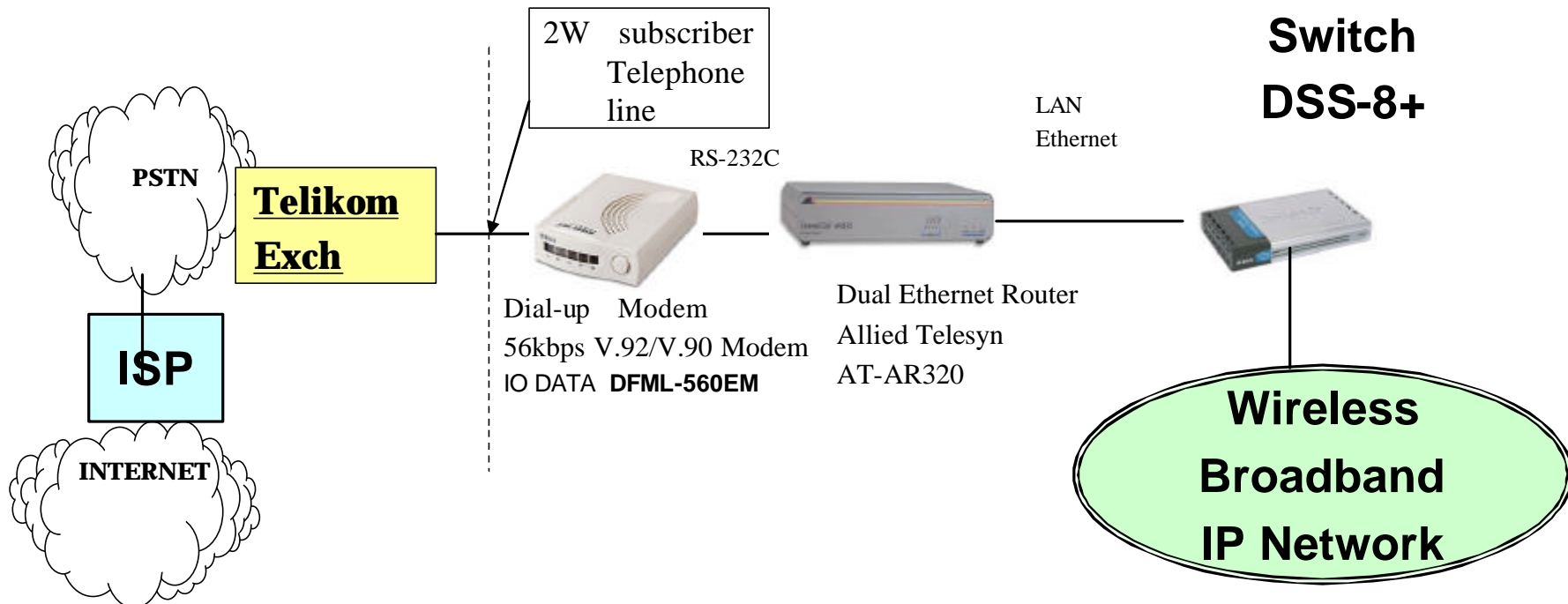
**PSTN**

**TELKOM Exch**

# 2.4GHz Wireless LAN system (IEEE802.11b+g)



# Connect to/from ISP by Dialup MODEM/Router



ISP Dial-up Internet	ISP Telephone:	TELIKOM Teari
Telephone Line (PSTN)	1 lines Telephone	TELIKOM
Dial-up Modem	<b>DFML-560EM</b>	JRC supply
Dual Ethernet Router	Allied Telesyn AT-AR320	JRC supply

# INSTALLATION AT KUNDIAWA



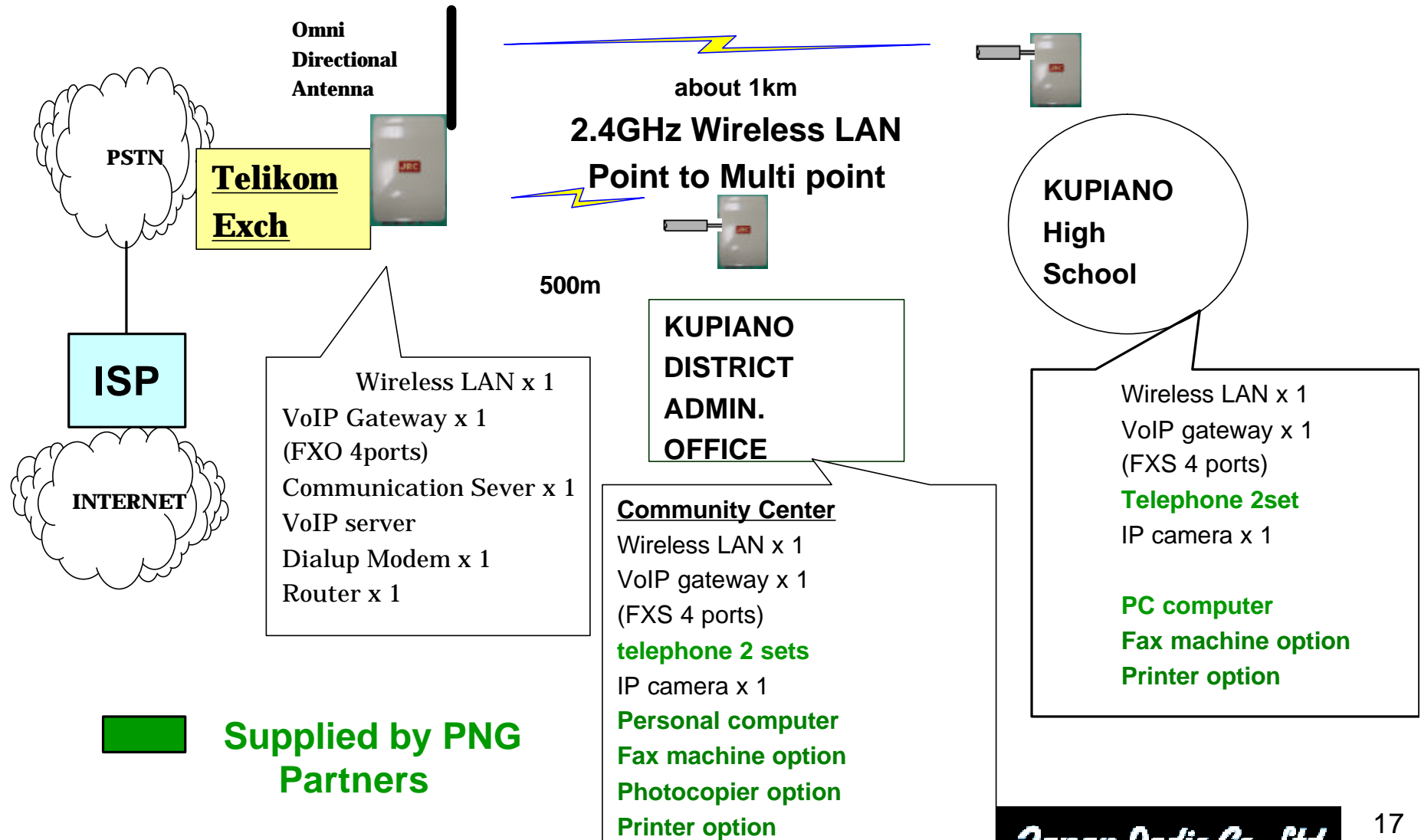
# INSTALLATION AT KUNDIAWA





# TeleHausline (ICT PILOT PROJECT) FOR KUPIANO

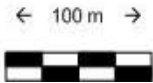
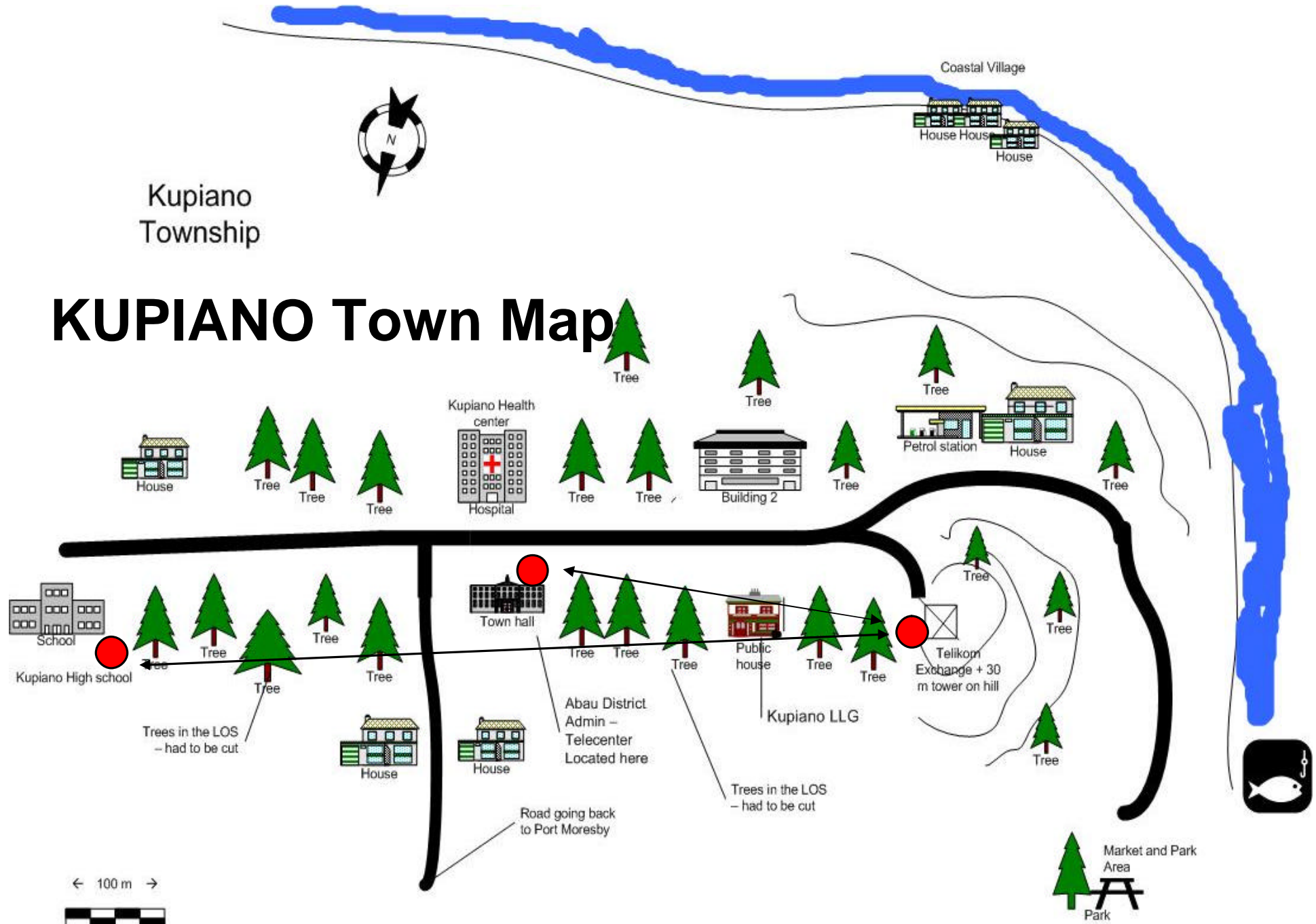
## 2.4 GHz Wireless LAN SYSTEM CONFIGURATION



Kupiano Township



# KUPIANO Town Map



# INSTALLATION AT KUPIANO



# INSTALLATION AT KUPIANO



# Web Site TELEHAUSLINE

<http://telehausline.wirelessip.info>

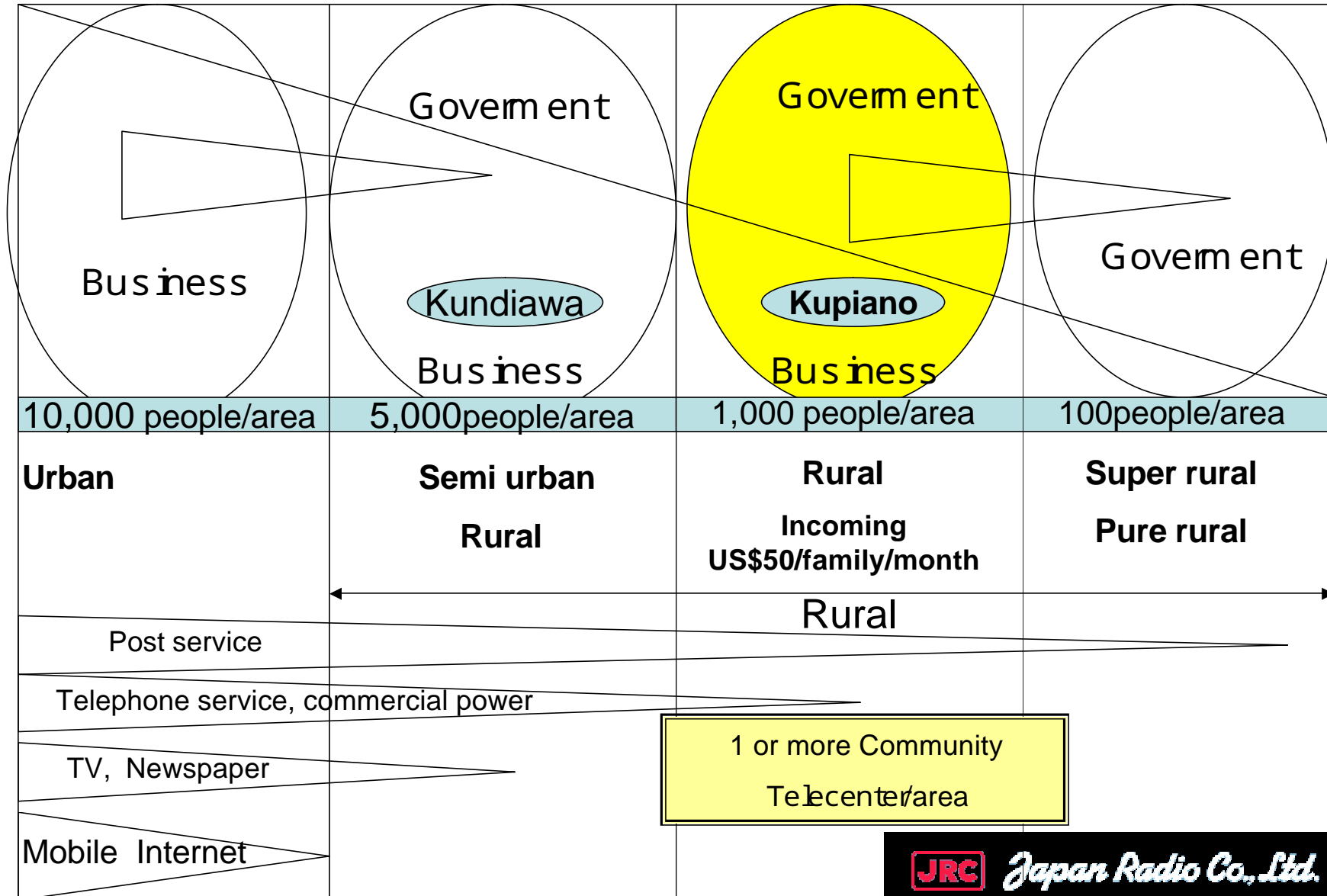
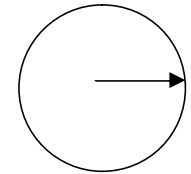
The screenshot shows a web browser window displaying the TeleHausline website. The page title is "Welcome to TeleHausline" and the URL is "http://telehausline.wirelessip.info". The website content includes:

- Welcome to TeleHausline** (Since Feb. 2006)
- Members Page** link
- PANGTEL** logo and text: "APT ICT Development Programme for Supporting ICT Pilot Project in Rural Area"
- PANGTEL** logo and text: "PNG Radiocommunications and Telecommunications Technical Authority Papua New Guinea (PNG)"
- Project Site** section with links for:
  - Kundiawa District** (Simbu Province) - [Installation and Test\(1\)](#) [\(2\)](#)
  - Kupiano Town** (Abau District, Central Province) - [Installation and Test\(1\)](#) [\(2\)](#)
- TeleHausline** section with text: "•Hausline in neo-Pidgin English means clusters of village under a Chief or Councilor. With the prefix 'tele' it mean linking these clusters of village through telecommunication applications. The name is chosen basically to here the locals appreciate that the concept is local yet universal."
- Remote Maintenance for TeleHausline at KUNDIAWA in PNG** section with three sub-images:
  - Community**: Picture Update Time 2006/09/18-13:07
  - Hospital**: Picture Update Time 2006/09/01-08:07
  - School**: Picture Update Time 2006/09/01-08:08



# Image for Rural Area

Area size: 3km



# Sustainability (Plan)

## 1. Offline service

Copy, Printout, Word processing, photo

## 2. Basic Communication service

Post, Telephone, Newspaper, Cable Broadcast, Radio, TV

E-mail, IP-phone ,E - Newspaper、 E-broadcast( speaker)

IP - Radio、 Wireless-CATV (real time, strange )

## 3. Information

Collecting Information 、 Transmission of information for Web

## 4. Operation and maintenance

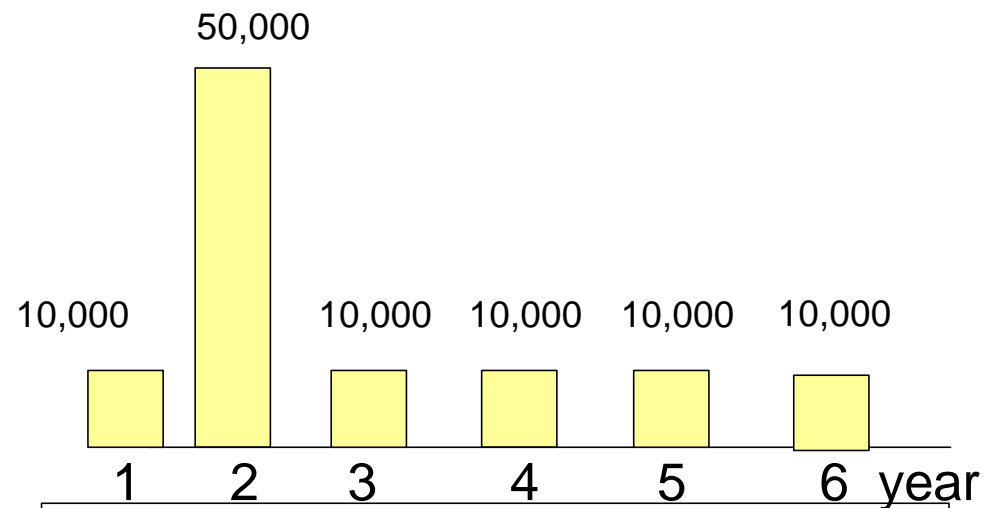
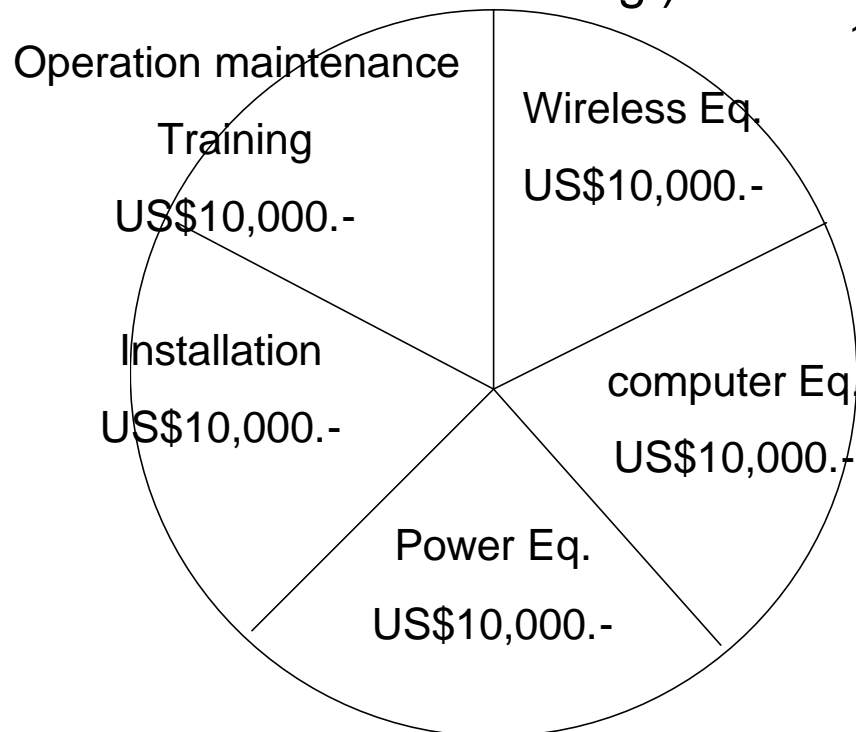
Remote Maintenance ICT Expert Engineer

The people Pay Money

 *Japan Radio Co., Ltd.*

# Cost Plan for Tele-center (Plan)

- Total Cost / tele-center
- US\$10,000.- 1st Year Marketing Planning
- US\$50,000.- 2<sup>nd</sup> Year
- US\$10,000.-  
after 2nd Year (Operation  
Maintenance Training )



After 2<sup>nd</sup> Year

People pay operation maintenance cost  
US\$5.- /house/month

US\$5 x 200house x 12month  
=US\$12,000.-