

ITU - GSR 2011 DISCUSSION PAPER:

SETTING NATIONAL BROADBAND POLICIES, STRATEGIES AND PLANS

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Mini-Case Studies

The reference materials used to prepare this chapter are complemented by a number of mini-Case Studies dealing with Fiji, Papua New Guinea, Argentina, Brazil, and Hong Kong China. Each of these Case Studies is fascinating in its own right. The experiences of these countries with broadband implementation and regulation offers valuable insight into the task of broadband rollout and should be of interest to many other countries in similar circumstances.

2.5.2 Case Study 2: Papua New Guinea – A bountiful land

As reported by Holmesⁱ, Papua New Guinea (PNG), with an estimated population of 6,732,000 in 2009 and a land area of 463,000 square kilometres, is the largest of the Pacific Island countries. The capital, Port Moresby, has a population of over 250,000 people, and the extent of urbanization is less than elsewhere in the Pacific. Natural resources are an important part of the economy.

Access to telecommunication infrastructure and services in PNG is, despite recent improvements, among the lowest in the world. Currently, teledensityⁱⁱ is about 16 per cent. Growth in teledensity has been constrained by several factors: a hitherto monopolistic market structure; limited investment and maintenance; high costs; limited access to credit, particularly in rural areas; a dualistic economy (natural resource “enclaves” versus subsistence living); a highly dispersed population (85 per cent rural); and a challenging topography/ physical environment.

Access to basic telephony has improved significantly since introduction of competition in mobile telecommunications in October 2007. The regulator, NICTA reports that the number of mobile subscribers has increased to about 1,800,000, bringing mobile teledensity to an estimated 26 per cent as of January 2011, while prices for calls have fallen by 60 per cent.

NICTA also reports that in 2011, Internet penetration (mostly dial-up, at speeds below 9600bit/s in some areas) remains extremely limited: there are only about 15,000 subscribers, primarily in Port Moresby. Ten Internet Service Providers are currently operating. Constraints include Telikom's wholesale monopoly (Tiare gateway) and the availability and cost of electricity and computers. Deployment of broadband is minimal and costs high relative to countries with similar incomes; other than WiFi at the access level, broadband wireless services are in the very early stages of development. Public access facilities, both to telephony (e.g. "village phones") and the Internet (e.g., public kiosks/telecentres), are very limited.

2.5.2.1 The Enigma that is Papua New Guinea

Papua New Guinea ranks last among the Asian Development Bank's Pacific member countries on the UN index of human development and human poverty, and is struggling to meet the UN Millennium Development Goals. Yet there is a silver lining emanating from the resources sector.

In 2010, the go ahead was given for a USD15 billion liquefied natural gas development by Exxon Mobil.ⁱⁱⁱ First exports are scheduled for 2014, and the project has the potential to lift the GDP (almost USD8 billion in 2009) by up to 50 per cent. This project is complemented by other unrelated resource projects that are either in prospect or under way. However, one very important spin-off is a backbone fibre infrastructure project along the pipeline route (see below).

Given the appropriate application, the resources sector could be the catalyst for immense changes in PNG brought about by public/private development and to be of benefit to the broader fields of health, education, human capacity, business and social development. These are the prospects that excite many people involved with PNG.

2.5.2.2 National ICT Policy

ICT has a fundamental role to play in the social and commercial future of Papua New Guinea. The Government's recently implemented National ICT Policy and the emergence of a new ICT regulatory body in October 2010 are designed to encourage commercial investment and competitive activity in the ICT sector in order to promote broader social and economic benefits in PNG. A key objective is that:

Papua New Guinea must have an efficient ICT infrastructure as the backbone of ICT policy with the use of technology appropriate to the circumstances of PNG. This will require substantial investment to refurbish the existing network, extend its availability across the country, allow new networks to develop and increase technical capabilities to support high-speed broadband.^{iv}

In accordance with the National ICT Policy, substantial changes have recently been made to the legal framework and institutional structures that regulate the ICT sector. A new National Information and Communications Technology Act (the Act) incorporating these reforms was approved by Parliament in November 2009. These reforms include the establishment of a new sector regulator, the National Information and Communication Technology Authority (NICTA), with regulatory responsibility for the ICT industry.

NICTA is a fully integrated, independent regulator with responsibility for licensing, technical regulation, competition regulation (a function merged from the Independent Competition and Consumer Commission), consumer regulation, and spectrum regulation. NICTA took up its remit in October 2010, and its Board met for the first time in March 2011.

NICTA's formative challenges are to create the appropriate and responsive organization structure and to acquire and develop the capacity and skills to successfully manage the regulatory tasks at hand.

The Act also introduced a Universal Access Scheme in PNG that provides for the establishment of a Universal Service Fund (USAF) that replicates successful experiences in other developing countries. The Fund will finance competitive, one-time capital subsidies to create incentives for operators to cover commercially unattractive areas. The National ICT Policy acknowledges that despite the "community service" obligations of licensed mobile operators to provide service in 229 communities, a significant access gap is likely to persist in PNG due to the operational constraints noted below. To address this, the Policy established a more wide-ranging incentive program

in line with international best practices: the Universal Access Scheme that has more ambitious targets including always-on broadband access and voice access outside the mandatory rollout areas.

2.5.2.3 Industry Structure

The telecommunication market is presently served by Telikom PNG Limited (Telikom), the incumbent general carrier, which is licensed to provide national fixed and international services. There is competition in the public mobile services market between BeMobile and Digicel PNG Limited (Digicel) using GSM at 900 MHz and 1800 MHz. In addition, Telikom has commenced a CDMA network, initially for fixed wireless access in Port Moresby, and is currently testing mobile functionalities. There are approximately ten licensees in the value added services market.

On a broader canvass, the Independent Public Business Corporation (IPBC) is a statutory corporation that holds a number of State-owned enterprises (SOEs) for the Independent State of Papua New Guinea (the State). One such SOE is Telikom, which previously held a monopoly over fixed and mobile telecommunications services in PNG.

Key issues and recent developments concerning Telikom include the following:

- (a) Prior to 2007, corporatization reforms were undertaken in order to improve Telikom's ability to participate and perform in the prevailing commercial context.
- (b) In 2007, competition was introduced to the mobile telecommunication market. This ended Telikom's monopoly in mobile telecommunications.
- (c) At the end of 2008, Telikom's mobile telephony operations were separated from its remaining operations and partially privatized as BeMobile. Telikom remains a shareholder of BeMobile, owning a 50 per cent stake in the company.
- (d) Telikom has accumulated 370,000 subscribers overall and 80,000 fixed line subscribers. However, Telikom's fixed line and data infrastructures are aged and inflexible, and require significant investment. In addition, Telikom's workforce is not well-equipped for the deployment of new technology.
- (e) Telikom faces a number of challenges, including:
 - limited capacity in major trunk routes;
 - operational difficulties due to geographic and management limitations;
 - below-standard levels of service quality and reliability, partly because of the aged network infrastructure;
 - extensive bypass by licensed and in some cases currently unlicensed VSAT operators;
 - an under-developed wholesale business model;
 - serious under-utilisation of certain assets, particularly international cables;
 - high prices for bandwidth; and
 - some duplication of infrastructure in the deployment of microwave capacity by other major operators.

2.5.2.4 The Outlook for Broadband

The PNG National Executive Council (NEC) has directed the Minister for Public Enterprises, responsible for the IPBC and Telikom, to:

- liaise with both the Minister for National Planning and the Minister for Communications and their respective departments, to formulate an appropriate telecommunication Broadband Policy to complement the National ICT policy; and

- commission a detailed Broadband Implementation Study^v for the ownership and operation of broadband backbone assets in PNG, including future network rollout, in collaboration with the Minister for National Planning and the Minister for Communication and their respective departments; and
- report to the NEC on the conclusions and recommendations of the Broadband Implementation Study.

These initiatives aim to:

- significantly increase the capacity and coverage of the domestic backbone or backhaul transmission infrastructure;
- significantly increase utilization of international capacity; and
- promote the creation of an efficient wholesale market.

Additionally, NICTA has reformed the spectrum in the 900 MHz band and has reassigned this spectrum to existing mobile operators in a way that will provide for additional wireless broadband services within the spectrum available in this band.

2.5.2.5 PNG LNG Fibre and National Broadband Project

In order to advance the development of national broadband capability, as well as to restructure and revitalize Telikom's business, the State (through the IPBC) has agreed to acquire certain rights in respect of 50 per cent of the capacity of an optical fibre link. This link is to be constructed in connection with the PNG LNG project (the PNG LNG fibre cable). The agreement formalizing these arrangements was executed in late January 2011. The PNG LNG fibre cable link will be laid over 750km from the Hides gas field to the LNG plant near Port Moresby.

The IPBC considers that investment in the PNG LNG fibre cable link should be part of a nationwide high-capacity backbone network. This network should seek to:

- improve PNG's national telecommunication infrastructure, including the development of capabilities to support high-speed broadband, and
- ensure that valuable state ICT assets are held by PNG entities capable of efficiently using and developing those assets.

2.5.2.6 Summary

In summary, PNG is poised to create a broadly considered Plan for broadband implementation. This Plan will rely on assistance from its resource wealth for funding and should create lasting benefits that will be widespread throughout the economy and society. Regulatory solutions are in place, and these are open to competitive infrastructures being created without undue restraints on technology.

ⁱ ITU, *Interconnection and Cost Modelling in the Pacific*. By Jim Holmes, April 2010.

ⁱⁱ That is, percentage of population with access to a fixed line or mobile phone.

ⁱⁱⁱ PNG Resources. Issue 4, 2010.

^{iv} PNG, PNG LNG Fibre and National Broadband Project. Documentation – Expressions of Interest, Independent Public Business Corporation, February 2011.

^v PNG, PNG LNG Fibre and National Broadband Project. Documentation – Expressions of Interest, Independent Public Business Corporation, February 2011.

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