



Planning of Broadband Wireless Access for Rural & Remote Areas using Public-Private Partnership (PPP) Scheme: Case in Indonesia

Alexander Rusli, PhD

Ministry of Communication and
Information Technology
rusli@depkominfo.go.id

Losoj Judijanto

Ministry of Communication and
Information Technology
losoj@depkominfo.go.id
losoj@indo.net.id

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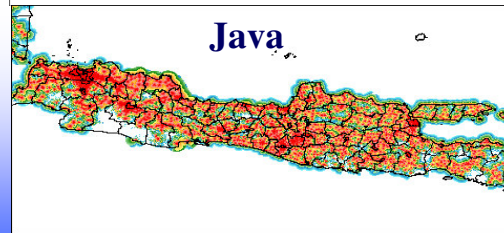
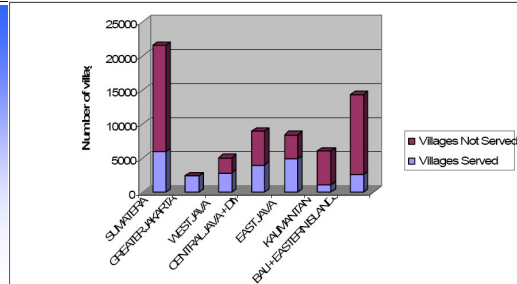
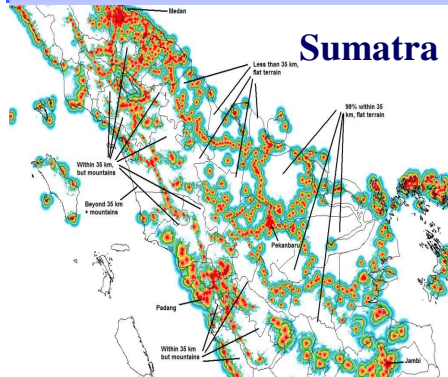


Profile of Indonesia – an Overview

- Indonesia is an **archipelagic** country made of approximately **17,000 islands** with population about 230 million living in **70,135 villages**
- A study in the year **2000** indicated that **43,000 villages** having no access to **basic telecommunications**
- At the moment, **teledensity** (fixed and mobile combined) is less than **15%** (more than 25% in cities but less than 1% in remote areas)
- A more recent study made by the National Statistics Bureau indicated that in **2005** still **30,000 villages** having no telecommunications access
- The 30,000 villages above consist of villages having no **access at all** and villages having **'weak signal'** from nearby villages with wireless telecommunications access (mobile and/or fixed wireless access)
- Surprisingly, it is estimated that actually about **60% of the villages** or **80-90% the population** (176-200 million Indonesians) are **technically within reach of mobile and fixed networks**



Villages Covered by Telecommunications Services



Telecommunications coverage (technically) image in Sumatra and Java islands (Rees-World Bank, 2006)



From "Ringing Village" to "Smart Village" Program

- The Ministry of Communication and Information Technology, through the DG for Post and Telecommunications initiates the "Ringing Village" program funded under **USO (Universal Service Obligation)**.
- The target of the "Ringing Village" Program is to ensure that by the year of **2010 all villages** in Indonesia will **at least have 1 (one) telephone access** mainly for voice service and then it will be extended to become "Smart Village" with **internet connectivity** as part of **information society** goals by the year of 2015.
- Current government regulation still mandates that the priority of the USO program is "voice" connectivity
- To accelerate achievement of "smart village" goals, there are **two main models**:
 - **Government-managed USO Scheme** (as currently conducted)
 - **Public-Private Partnership Scheme** (as currently piloted and reported in this session)



I. Government-Managed USO Scheme

- **Key source of funding** is from the contribution of **0.75% of operator Annual Gross Revenue- about \$ 70 million annually** (The rate will be increased to **1.00% this year**)
- Previous USO program were won and conducted as turn-key project by satellite operators. As they are not **existing operators in the targeted area**, it creates various problems on the sustainability of access (“**install and forget approach!**”).
- Currently, the government is **proposing significant changes** to the regulation to allow **the least-cost subsidy** or **smart subsidy** to existing operators to build in USO areas.
- The key assumption is that existing operators would be able to build **with the least cost** – as this is inline with their core competence in the targeted area hence allowing them to provide connectivity at the most efficient costs. (Indeed the process still will follow through **the open auction** for smart subsidy for existing operators in the targeted area **to ensure only the most efficient operator in the targeted area to win**)



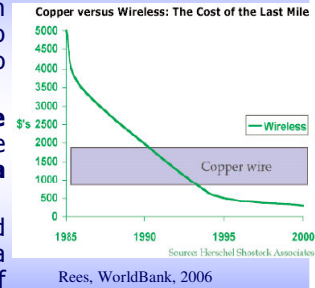
II. PPP Scheme for Universal Access/Service

- The new initiative to accelerate telecommunications access is through **PPP scheme based on voluntary but coordinated efforts**
- Many of companies, including **telcos and telcos vendors**, spend 1-2% of their annual sales for **corporate social responsibility activities (CSR)**, among others for community development
- The essence of the PPP scheme is to facilitate **various stakeholders from private sectors** to collaborate in order for operators to ‘**push forward**’ their **roll-out plan** to areas which currently are not economically viable (under-served and un-served areas)
- The scheme **creates a corridor for the private sector** (technology companies, telecommunication-products manufacturers, information system companies, internet service provider, etc.) to contribute their **CSR programs**, i.e. by initial funding, equipment contribution, **technical supports, training, etc.**



Voice and Data Accessibility

- The demand as stipulated by the WSIS Declaration in moving towards an Information Society creates a need to have **data (i.e. internet) connectivity** in addition to voice accessibility
- With the current broadband technology development **the provision of data services** can be done at the same time with **the provision of voice services** with a **marginal cost addition**
- It would not be cost effective to merely build telecommunication infrastructure with no sufficient data capability, hence creating an critical advantage of **broadband connectivity**
- The government is currently going through modifications in the regulations **to extend the definition of USO provision to include internet access** (i.e. broadband) as part of the solution



Universal Access/Service Components: Comparison of Government-Managed and PPP Scheme

USO Component	Government-managed Scheme	PPP Scheme
Network Operations	Government (through USO contribution from operators)	Operator (direct spending)
Network Equipments	Government Procurement	Vendor/Technology Provider (through CSR)
Premises, Equipment –Telephone	Government Procurement or subsidized Ownership Program	Subsidized or Micro Credit Scheme with Micro Credit Companies
Computer Laboratory	Not included/ N/A	Micro Credit Scheme with Micro Credit Companies or Operator CSR programs
Land Acquisition and Permits	Not included/ N/A	Contributed by Government/Local Government



PPP Scheme: Pilot Projects



- There have been 2 pilot projects of universal access conducted through PPP scheme:

(1) Way Kanan in Lampung
Province (Island of Sumatra)
[March 2006]



(2) East and Central Java Provinces
(Island of Java) [April 2006]



PPP Scheme: The Case of Way Kanan, Lampung (i)



- The project is initiated by **Qualcomm** to contribute in the development of rural telecommunications in Indonesia with their **CDMA 2000-1X EV-DO** operating on the **450 MHz** frequency band
- **Way Kanan, Lampung** is chosen by the **Ministry of Disadvantaged Areas**. The ministry defines the 'disadvantaged' areas using criteria, among others, lack of infrastructure and under-developed economical activities. Such areas are typically areas having no telecommunications access, hence also classified as **USO target areas**.
- Some critical reasons for choosing the area:
 - **the local government leaders** have clear vision and will to be actively involved in this project. This commitment is a critical factor as the local government will also have to facilitate and make contribution
 - **the availability of the existing operator** on the 450 MHz frequency band within the chosen area (the project extends upon the existing coverage)



PPP Scheme: The Case of Way Kanan, Lampung (ii)

- **Operator:** PT Sampoerna Telecommunications Indonesia
- **Coverage:** **5 sub-regions** (kecamatan) covering more than **70 villages**
- **Technology:** CDMA 2000-1x EV-DO on 450MHz band
- **Technology Contributor is Qualcomm; including:**
 - Handsets, antennas and other relevant equipment (for **phone kiosks**) – one for each village (as a kiosk) and another for the head of the village
 - **Broadband module** for BTS
 - **Computer laboratory (one for each Public Senior High School of the sub-regions)**
 - **Community Access Points** (for **the three sub-regions**)
 - **Support for Internet** for a limited period of time
- **Government Contribution:**
 - Coordination with other ministries (Ministry of Education, Ministry of Disadvantaged Areas and local governments)
 - Coordination with local villagers through **regional cooperatives** operating in the areas, particularly **for managing the phone kiosks**



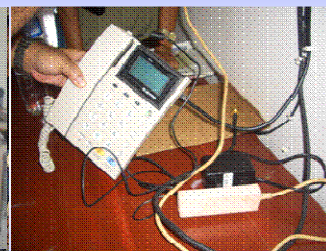
PPP Scheme: The Case of Way Kanan, Lampung (iii)



The road to the location – dirt road, remote location



One of the five computer laboratory in the school receiving Computer Laboratory and Broadband Access Contribution



Phone equipment installed to the Head of the Village residence



PPP Scheme: The Case of Way Kanan, Lampung (iv)

Key Sustainability Issues

- **Phone equipment** (for **Phone Kiosks**) are currently managed by **prominent villagers** (to be managed as part of “commercial-use”) and hence the sustainability of the phone equipment and its services (maintenance, pulses refilling, etc.) will depend on the **revenue generated** by the phone kiosk
- The internet access of computer laboratories in the 5 (five) schools will depend on **the ability of the schools to pay the access subscription**. At the moment internet access is paid by Qualcomm for 1 (one) year with the hope that a business model can be established and sustained.
- Appropriate business models are on the trial to get the most appropriate one to ensure that after one year the equipment will still be available for use and services.
- The most important issue is how to lure people to use the facilities for business-oriented purposes (so it will be their **part of their investment** to improve wealth, instead of merely expenses)



PPP Scheme:

The Case of East Java and Central Java (i)

- The project is initiated by **Qualcomm** and **Huawei** by contributing **20 BTS** and **1 MSC** (CDMA 2000-1X in the frequency band of 450 MHz) to the Government of Indonesia, in which 2 (two) of them have **EV-DO** capabilities.
- The area selected are as follows: Trenggalek, Bondowoso, Madiun, Situbondo, Wonogiri, Banjarnegara and Rembang regions (districts)
- The areas are chosen together by Ministry of Communication and Information Technology, the Ministry of Disadvantaged Areas, and the operator
- The area(s) selected using criteria:
 - Having no coverage for both mobile nor fixed line (around the area of installation)
 - Within the vicinity of the CDMA 2000-1x operator
 - Ensuring interconnection to existing systems and other operators
 - Within the reach of support for the BTS and MSC installations



PPP Scheme:

The Case of East Java and Central Java (ii)

- **Operator:** PT Sampoerna Telecommunications Indonesia
- **Coverage:** **8 regions** covering approximately **800 villages**
- **Technology:** **CDMA 2000-1x operating at the frequency band of 450MHz**
- **Technology Contributors:**
 - **Huawei** (1 MSC and 20 BTS for CDMA2000-1x 450 MHz)
 - **Qualcomm** (Computer laboratories/Community Access Point and initial support for Internet access)
 - **Microsoft** (software and training)
 - **Indonet** (Internet Service Provider for initial internet access)
- **Government Contribution:**
 - Coordination with other ministries (**Ministry of Education, Ministry of Disadvantaged Areas** and **local governments**)
 - **Land acquisition** and **facilitation with TV tower owners** to install the BTS in some areas



PPP Scheme:

The Case of East Java and Central Java (iii)



The antenna installed in the roof of the building, both for voice and broadband



The CAP/Computer Laboratory at Pondok Tremas, Pacitan



The President of Indonesia inaugurating the Project at Pondok Tremas, Pacitan



PPP Scheme: The Case of East Java and Central Java (iv)

Key Sustainability Issues

- The access covers approximately **800** villages previously lacked of affordability of telephones. It is on the trial to make it available through the **Micro-Credit** schemes. [To some extent it will adopt scheme like of **grameen-phone**]
- To support the sustainability, **pre-paid pulse refills** must be available within the accessible areas. This is a challenge as locations of some of the villages are very remote hence the logistic for refills must be done smartly and creatively (i.e. through **cigarette retail distribution networks**).
- The internet access of computer laboratories and CAP (Community Access Points), will depend strongly on **the school ability to subscribe for the access and to finance the maintenance** after the initial contribution ends.
- Again, it will depend on the business model(s currently under the trial.



Concluding Remarks:

- The growth of wireless technology has allowed for rapid development of network deployment and hence allow **the achievement of provision of communication (voice and data) accessibility in all villages** throughout Indonesia.
- Broadband capabilities must be planned as **an integral part of network development plan**, and the advancement of technology allowing concurrent planning of broadband and voice development
- Internet capabilities are basically well-accepted by villagers living nearby CAP (Community Access Point) or nearby school computer laboratories, hence it may develop the prospect of ICT '**commercial-use**' by community
- Numerous initiatives of PPP are from and by **different private sector parties**, generally based on a convergence of voice and data services
- **Long-term sustainability** is now under study for **the replication and scaling-up to replace or complement the conventional USO provision.**



Thank You

Loso Judijanto

Ministry of Communication and Information Technology

Republic of Indonesia

los@depkominfo.go.id

losoj@indo.net.id