

# **ITU-D Regional Development Forum for the Asia Pacific Region**

**“NGN and Broadband, Opportunities and Challenges”  
Yogyakarta, Indonesia, 27 – 29 July 2009**

## **ICT Developmental Initiatives**

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Deputy Director General for Telecommunications  
DG Postel,  
Ministry of Communications  
and Information Technology**

Yogyakarta, Indonesia, 27-29 July 2009

## **AGENDA**

- Present Status of Info-Communication Infrastructure
- Indonesia ICT Strategy Toward Bridging The Digital Gap
- Government plan to drive of the Indonesian growth
- Indonesia National Backbone Palapa Ring Project

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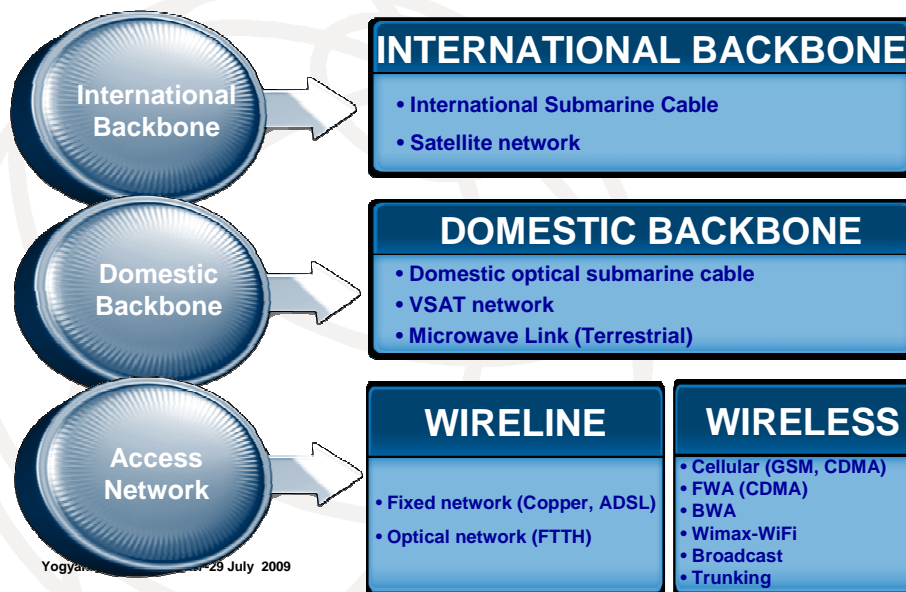
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# PRESENT STATUS OF INDONESIA INFO-COMMUNICATION INFRASTRUCTURE

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## HIERARCHY OF INFRASTRUCTURE





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# INTERNATIONAL BACKBONE


## SATELLITE International

 indosat using INTELSAT

 Access to INTELSAT  
Using ground segment in  
Cibinong

## SUBMARINE CABLE NETWORK International

 indosat Sea-Me-We 3, Sea-Me-We 2, APCN, TPC, JS  
Total capacity: 1,73 TBps


 DMCS, TIS, Sea-Me-We 4  
Total capacity: 320 GBps

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# DOMESTIC BACKBONE [1]

## Fiber Optic

 indosat Sumatera, Jawa, Bali, Kalimantan, Sulawesi

 Jawa, Sumatera, Batam, Sulsel, Kalsel

 Jawa, Sumatera, Batam, Babel, Bali, NTB, Sulawesi, Kalimantan


 Jawa, Bali


## Microwave Link


 TELKOM

Trans  
Sumatera  
Batam Babel  
Jawa Bali NTB  
NTT  
Kalimantan  
Sulawesi

## Satellite

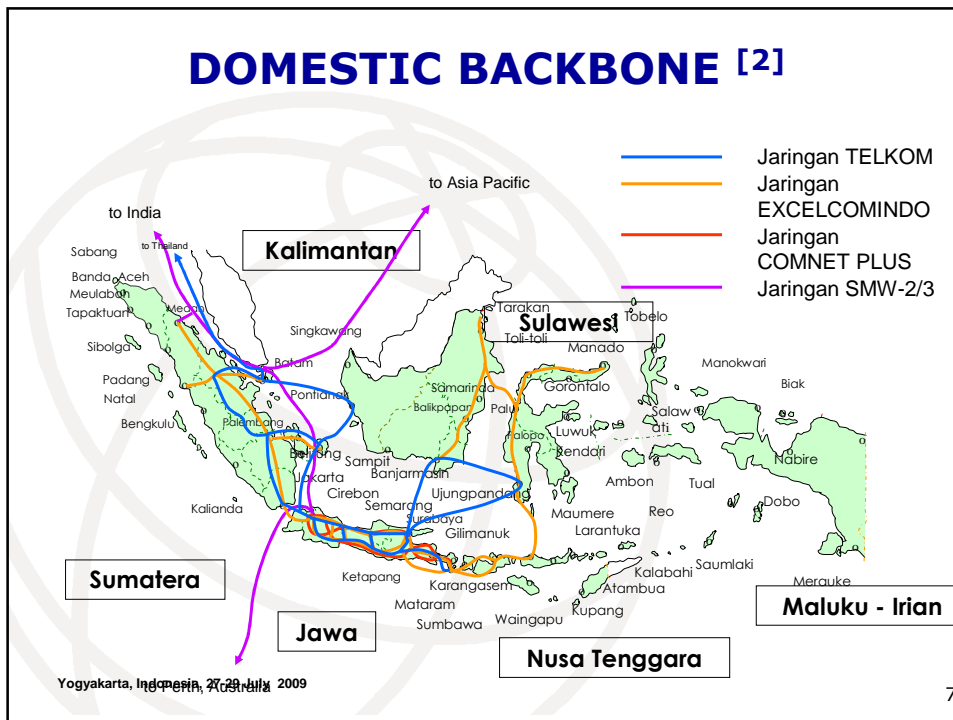
 indosat Palapa C2,  
24.transponder  
C-Band dan 4  
transpdr Ku Band

 TELKOM-1:  
kapasitas 24 trspdr  
C-Band dan 12 trspdr  
extended C-Band.  
Palapa B4: kapasitas  
24 trspdr C-Band  
TELKOM-2 (sudah  
dिलuncurkan th 2005)  
menggantikan Palapa  
B4, kapasitas 24  
trspdr C Band  
TELKOM-3 (rencana  
peluncuran 2006),  
kapasitas 48 trspdr  
C-Band

 Palapa C2,  
extended  
C-Band

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## DOMESTIC BACKBONE [2]



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## DOMESTIC BACKBONE [3]

### Existing Domestic Optical Network

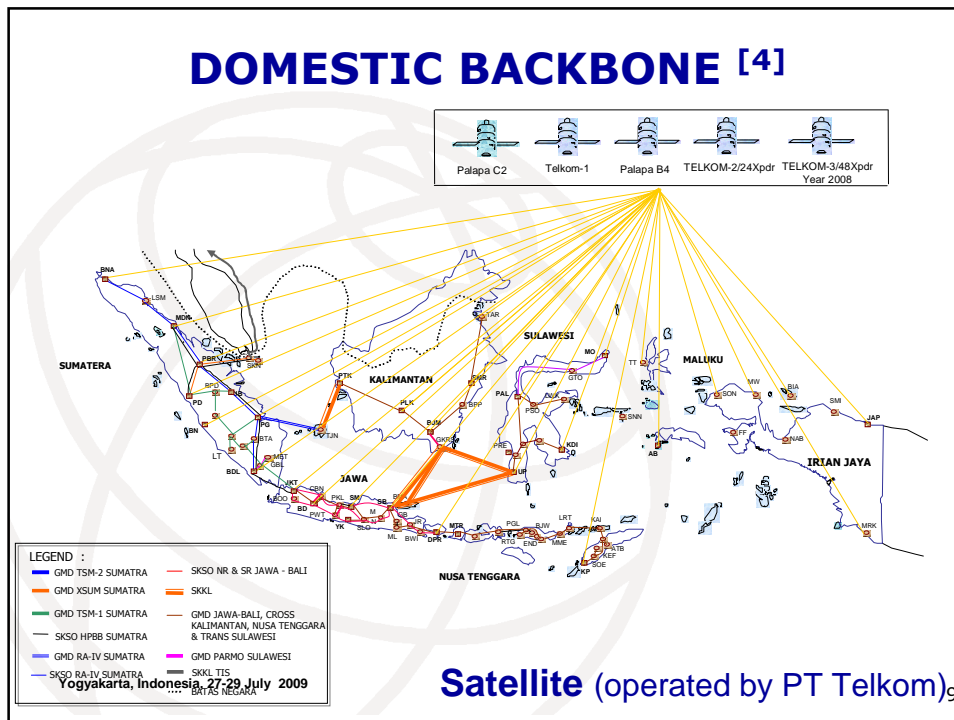
(2000) Surabaya-Banjarmasin-Makassar	2.088 Km
(2000) Trans Java	2.605 Km
(2004) Jakarta-Medan-Batam	2.990 Km
(2004) Batam-Singapore-Bangkok	1.043 Km
(2005) Dumai-Malaka	161 Km
(2005) Banjarmasin-Balikpapan	955 Km
(2005) Makasar-Palu	974 Km

**TOTAL 10.816 Km**

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## DOMESTIC BACKBONE [4]



## EXISTING NATIONAL CAPACITY

**Telkom:** 17,537 E1

**Excelcom:** Inland 3,271 E1  
(Java & Inner Ring Road) &  
Submarine cable: 293 E1

**Indosat:** 753 E1

**Comnet+:** 2.5 GBps (STM-16)  
equals to 1.250 E1

## ACCESS NETWORK

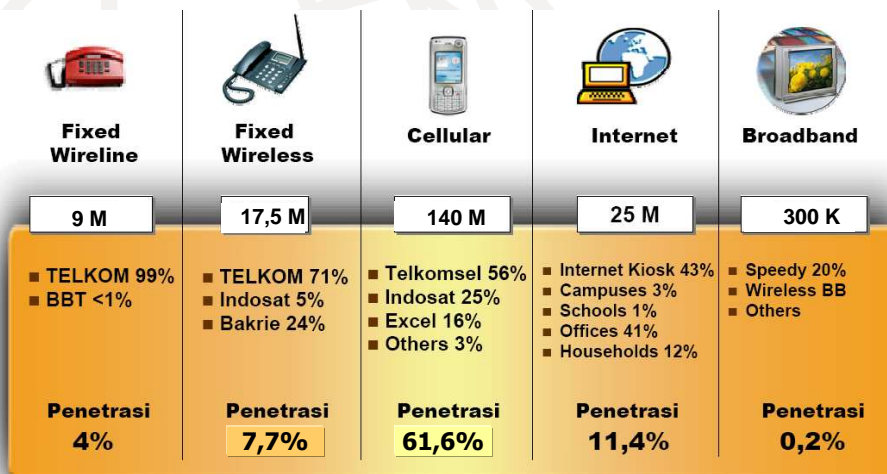
	<b>Operators</b>	<b>Technology</b>	<b>Coverage</b>	<b>Total Subscriber (Dec 2007)</b>
<b>PSTN</b>	Telkom, Indosat, BatamBintan	Copper	National, Regional	~ 9 mio
<b>Seluler</b>	Telkomsel; Indosat; Excelcomindo; Sampoerna Tel; Mobile8; Natrindo; HCI; Smart Telekom	GSM, CDMA450, cdma20001x, WCDMA	National	~ 140 mio
<b>FWA</b>	Bakrie(Esia); Telkom (Flexy); Indosat (Starone)	cdma20001x	National per area code;	~ 17,5 mio
<b>Satelit</b>	PSN (ACeS), Satelit Garuda-1	Digital	Asia Pacific	
<b>FTTH</b>	BizNet, Powertel, CBN, First Media	Fiber Optic	Jakarta, Bandung, Surabaya, Denpasar	

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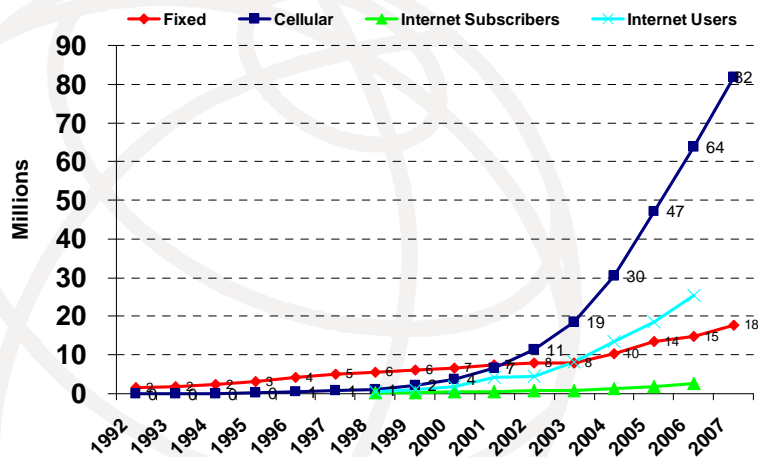
## ICT INDUSTRY

Total of Subscriber and Penetration in Indonesia



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## Cellular, Fixed and Internet Growth



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## IMPORTANT ISSUES & OPPORTUNITIES

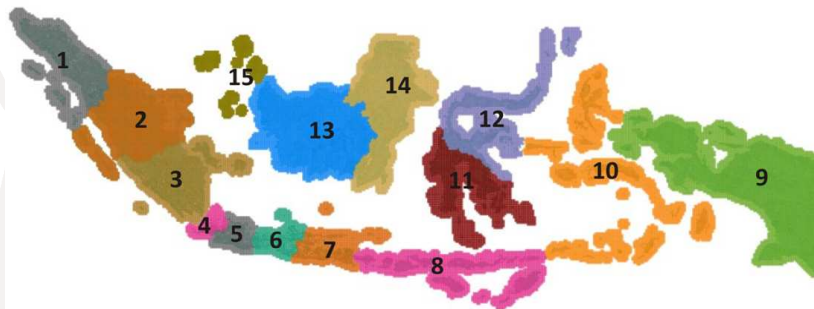
- Strong growth in **mobile telephony**
- Slow growth of **fixed-line** while faster growth in **fixed wireless access telephony**
- **Basic mobile data user** is growing
- Slow growth of **internet** and bandwidth unavailability
- Another trends shows:
  - **mobile voice and data services** request is growing
  - **advanced data communications** request is growing as well

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## BWA TENDER PROCESS (1)

- Government choose auction method for 2.3 GHz WiMax spectrum frequency
- The auction object consist of 2 frequency block, using each 15 MHz bandwidth (2360-2375 MHz and 2375-2390 MHz) in 15 zone as being illustrated in the picture below:



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## BWA TENDER PROCESS (2)

- The winner of auction will get packet switched based local fixed network provider and 2.3 GHz frequency licensed appropriate to the frequency block and to the winning zone.
- The validity period of 2.3 GHz frequency is 10 years, and can be extended 1 times after evaluation process.
- Tender process starting on April 27, 2009 and will be finish on July 27, 2009.

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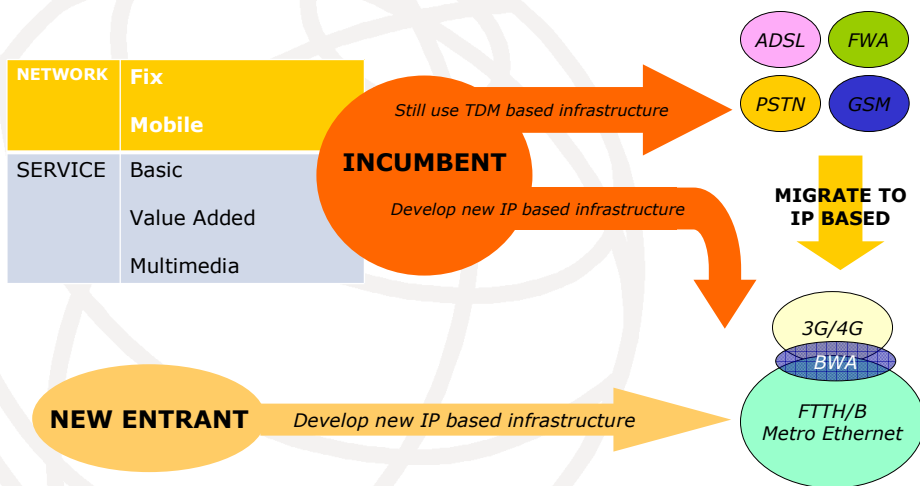


# INDONESIA ICT STRATEGY TOWARD BRIDGING THE DIGITAL GAP

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## INCUMBENT & NEW ENTRANT DOING



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## REGULATORY CHALLENGE (1)

### ■ What if government not involved in Telecommunication development?

- The broadband development will be concentrated in high demand area.
- Potential investment flow not proper
- National industry will get left behind
- Technical problem

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## REGULATORY CHALLENGE (2)

### ■ Technical problem

- Routing: inefficient routing and making a high tariff
- NNI & UNI: interfacing cost will be high for network to network and user to network.
- Resources: numbering, IP (IPv4/IPv6), Spectrum, not efficient

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## **REGULATORY CHALLENGE (3)**

### **■ Need Government involved**

- License regulation: *Unified Licensing*
- Resource Management: Spectrum, Numbering, IP
- QoS and Network Security Regulation to protect customer
- USO regulation, to develop telecommunication infrastructure in unprofitable area
- Interconnection regulation, to get proper fee and efficient routing
- Domestic industry protection

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## **GOVERNMENT PLAN TO DRIVE OF THE INDONESIAN GROWTH**

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## WORK PLAN (REGULATORY)<sup>[1]</sup>

2008	2009	2010	2011	2012	2013	2014
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### Building convergence regulation

Drafting



Fulfillment

### Structure Industry

Arrange revision existing regulation that support the convergence industry  
 Separate regulation of network, service content  
 Build broadcasting regulation



Ordinance that support convergence industry

### Rule of Competition

arrange rule to guarantee healthy competition on transition era



arrange rule to guarantee healthy competition on convergence era

Source ICT infrastructure convergence roadmap – BRTI\_DG Post and Telecommunication

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## WORK PLAN (REGULATORY) <sup>[2]</sup>

2008	2009	2010	2011	2012	2013	2014
------	------	------	------	------	------	------

### Interconnection and tariff

Recalculate interconnection tariff with cost based



Recalculate interconnection tariff with cost based

Fulfill interconnection regulation based on IP and guarantee any to any connection  
 Fulfill rule of retail tariff through market mechanism  
 Fulfill network rent tariff and its interconnection tariff

### Numbering

National numbering reform

Test bed and translation mapping IP and TDM (eg. Enum)

Implement of IP number and its management  
 Number portability management

Source ICT infrastructure convergence roadmap – BRTI\_DG Post and Telecommunication

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## WORK PLAN (REGULATORY) [3]

2008	2009	2010	2011	2012	2013	2014
<b>Spectrum</b>						
	Reframing Freq management	Reframing freq fee	Spectrum management and Spectrum policy reform			
<b>National Industry Supporting Program</b>						
	Fulfill Convergence Network Equipment standards		National industry research supporting program			
<b>Customer protection</b>						
	QoS	Network Security				
	Manage basic service and added value on convergence network environment Management about security and comfortable of customer					

Source ICT infrastructure convergence roadmap - BRTI \_DG Post and Telecommunication

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## WORK PLAN (REGULATORY) [4]

2008	2009	2010	2011	2012	2013	2014
<b>USO</b>						
USO Programs (from voice service to multimedia service on un-profit area)						
<b>Socialization and Law Enforcement</b>						
Monitoring and law enforcement						
<b>Internet resources</b>						
	Arrange Management of Internet Exchange DNS management	Complete Management of IP address				
Migration of IPv4 to IPv6						

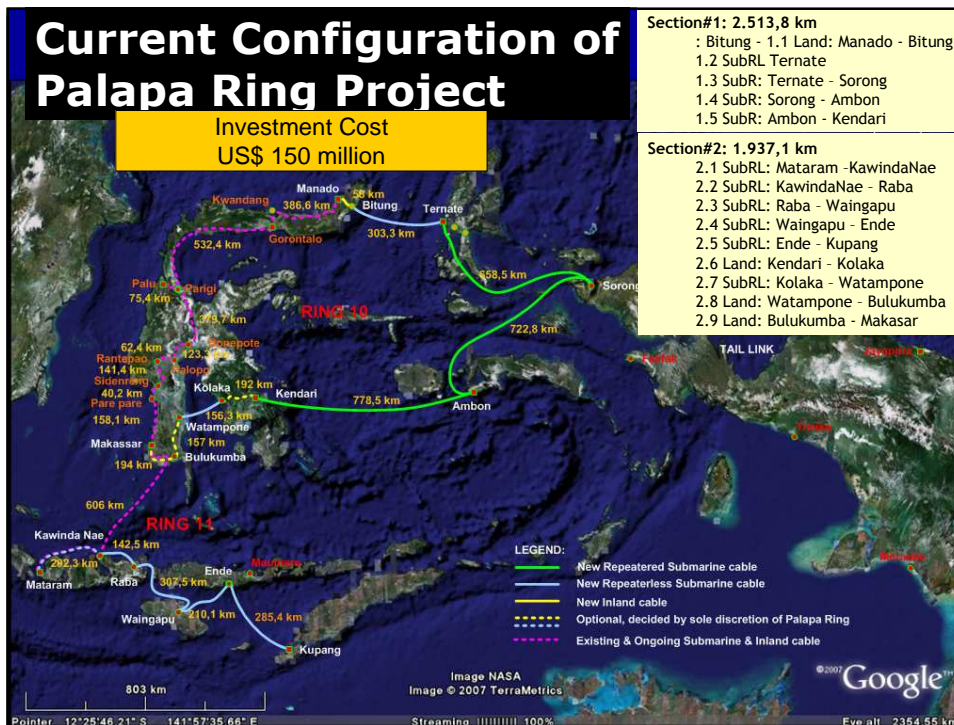
Source ICT infrastructure convergence roadmap - BRTI \_DG Post and Telecommunication

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# INDONESIA NATIONAL BACKBONE PALAPA RING PROJECT

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## **PROJECT DESCRIPTION**

- Palapa Ring is the project to design, build, self finance and operate the national fiber optic backbone network in Indonesia.
  - Consisting of several groups of fiber optic around specific islands/groups of islands ,1 national ring connecting all rings, reaching 440 districts and cities.
  - Main backbone for all telecommunications operators
- Phase I : Build in the eastern part of Indonesia
- Phase II : Integrated with the existing western backbone network and build new extension network to reach unserved cities

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## **OBJECTIVE**

- Connecting Indonesia from west to east
- To reduce digital gap between societies in smaller cities with no broadband network;
- To offer further opportunities for competitiveness and further business prospects in under developed regions in Indonesia;
- To increase the number of access points to the broadband network.
- To provide more efficient, secure and far reaching communication to public and government sectors.
- To reduce the cost of communication within the covered areas and encourage the use of broadband access within a shorter period.
- To meet current and future telecommunication needs which are likely to rely on broadband networks.

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## GOVERNMENT ROLE IN FACILITATING PALAPA RING PROGRAM

- As Palapa Ring initiator in developing a nation-wide high capacity backbone network
- As facilitator of the establishment of a consortium to construct the Palapa Ring
- To guarantee the *competition safeguard* in the consortium business model
- As facilitator to avoid deadlock in negotiations
- As facilitator in communicating with the other institutions and local governments
- Ensuring the necessary regulatory framework for supporting the finalization of the whole Palapa Ring project, including possible implementation using USO fund.

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## SUGGESTION ON CONSORTIUM MODEL

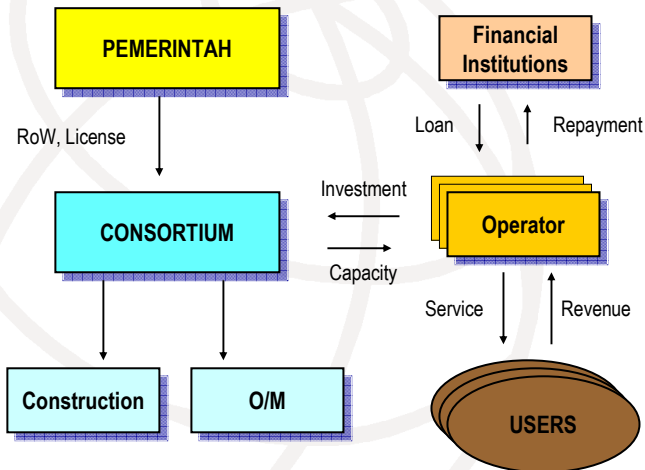
- Inputs from major investor candidates :
  - CAPEX efficiency ...
  - OPEX efficiency ...
  - Lower PRICE ...
  - Risk sharing

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## CONSORTIUM BUSINESS MODEL



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## CURRENT OPTICAL NETWORK STATUS

### WEST AREA

- Most capital cities have been connected by fiber network.
- All infrastructures are built

- High CAPEX and OPEX
- Most of the configuration, only utilize 2 cores fibers – **NOT OPTIMUM**

### EAST AREA

- Most of the areas are isolated, and only supported by VSAT as the transport system to carry telecommunication and information technology.

- Bandwidth Limitation
- High OPEX for Satellite BW leasing
- Slow in term of Telecommunication and Information Technology penetration

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## **PALAPA-RING CONSORTIUM MEMBER**

-  ▪ PT Telekomunikasi Indonesia, Tbk
-  ▪ PT Indosat Tbk
-  ▪ PT Bakrie Telecom Tbk

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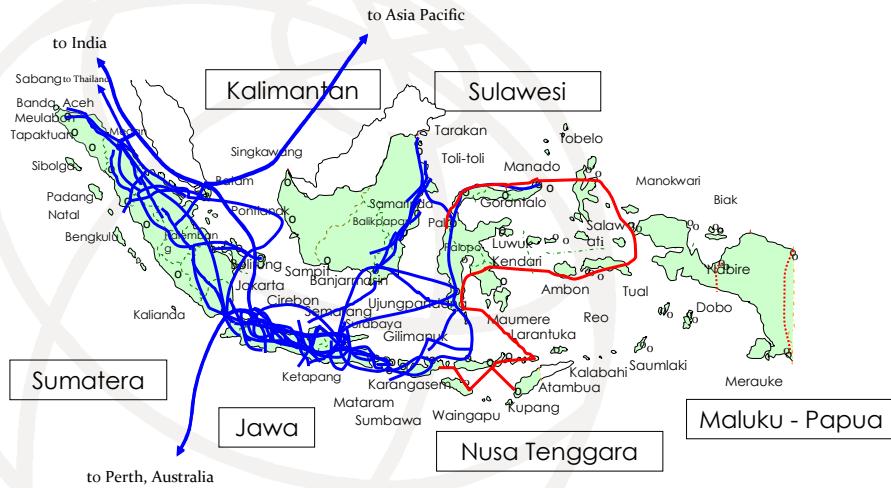
## **BASIC DESIGN**

- Ring Configuration
- Landing Point : 15 Terminal Stations through 21 of District
- Length Cable : 4,450 Km
  - Inland Cable 3.850 km
  - Submarines Cable 600 km
- Cable system
  - 2 pairs for Repeater system
  - 12 pairs for inland and Repeaterless system
- Capacity : 7λ (~ 70 Gbps)
  - Upgradeable to 16 λ (~ 160 Gbps)

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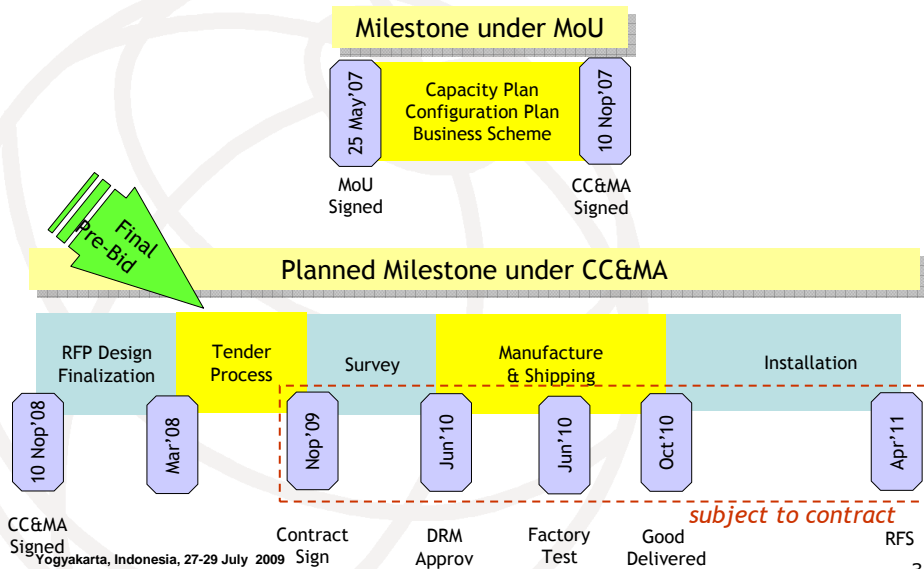
# INTEGRATION PLAN OF WESTERN AND EASTERN BACKBONE



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# PROJECT SCHEDULE / MILESTONE



CC&MA Signed  
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**Thank you**

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