Telecom Regulatory and Policy Environment in Indonesia

Results and Analysis of the 2008 TRE Survey

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List of Abbreviations

ACEs:	PT ACEs – Indonesian Telco operator (satellite)
ABWINDO:	Asosiasi Wireless Broadband Indonesia (Indonesia Wireless Broadband Association)
Antara:	Kantor Berita Antara (Indonesian National News Office)
APJII:	Asosiasi Penyelenggara Jasa Internet Indonesia (Indonesian Association of Internet Providers)
ASEAN:	South East Asian Countries' Organization
Axis:	PT Natrindo Telepon Seluler – Indonesian telco operator (cellular)
BKPM:	Badan Koordinasi Penanaman Modal (Indonesia Investment Coordinating Board)
BOT:	Build-Operate-Transfer
BPS:	Biro Pusat Statistik (National Statistic Agency)
BRTI:	Badan Regulasi Telekomunikasi Indonesia (Indonesian Telecommunications Regulatory Body)
BTel:	PT Bakrie Telekomunikasi – Indonesian telco operator (fixed)
BTIP:	Balai Telekomunikasi dan Informatika Perdesaan (Authority for Rural Telecommunication and Information Technology)
BTS:	Base Transmitter Station
BWA:	Broadband Wireless Access
DGPT:	Directorate General of Post and Telecommunication (Direktorat Jenderal Pos dan Telekomunikasi)
FTP:	Fundamental Technical Plan (Rencana Teknis Fundamental)
GDP:	Gross Domestic Product
ICT:	Information Communication Technology
ID-SIRTII:	Indonesia Security Incident Response Team for Information Infrastructure
IMF:	International Monetary Fund
Indosat:	PT Indosat Tbk – Indonesian telco operator (fixed and cellular)
ITU:	International Telecommunications Union
KPPU:	Komisi Pengawas Persaingan Usaha (Committee for Anti-Monopoly and Unfair Business Practice)
KRTI:	Komite Regulasi Telekomunikasi Indonesia (Commissioner of Indonesian Telecommunication Authority)
KSO:	Kerja Sama Operasi (Joint Operation)

MASTEL:	Masyarakat Telematika Indonesia (The Indonesian Infocom Society)
Mobile-8:	PT Mobile-8 – Indonesian telco operator (cellular)
NTT:	Provinsi Nusa Tenggara Timur (Eastern Tenggara Islands Province)
QoS:	Quality of Service
Palapa:	Satelit Palapa (name of several Indonesian Satellites)
Palapa Ring Consortium:	Indonesian cyber optic network in Eastern Indonesian done by a consortium of telco operators
PBH:	Pola Bagi Hasil (Joint Venture)
Papua:	Propinsi Papua (Papua Province)
PSN:	PT Pacific Nusantara – Indonesian telco operator (satellite)
PT:	Perseroan Terbatas (Private Limited)
Sampoerna:	PT Sampoerna Telekom – Indonesian telco operator (cellular)
Satelindo:	PT Satelindo (a former and later absorbed subsidiary company of Indosat)
SMART:	PT SMART Telkom – Indonesian telco operator (cellular and fixed)
ST Telemedia:	Singapore Technologies Telemedia
STT:	Singapore Technologies Telemedia
Telkom:	PT Telkom Indonesia – Indonesian telco operator (fixed)
Telkomsel:	PT Telkomsel Indonesia – Indonesian telco operator (cellular)
USO:	Universal Service Obligation
VAT:	Value Added Tax
Warnet:	Warung Internet (Internet Café)
XL:	PT Excelcomindo Pratama – Indonesian telco operator (cellular)

1.0 Executive Summary

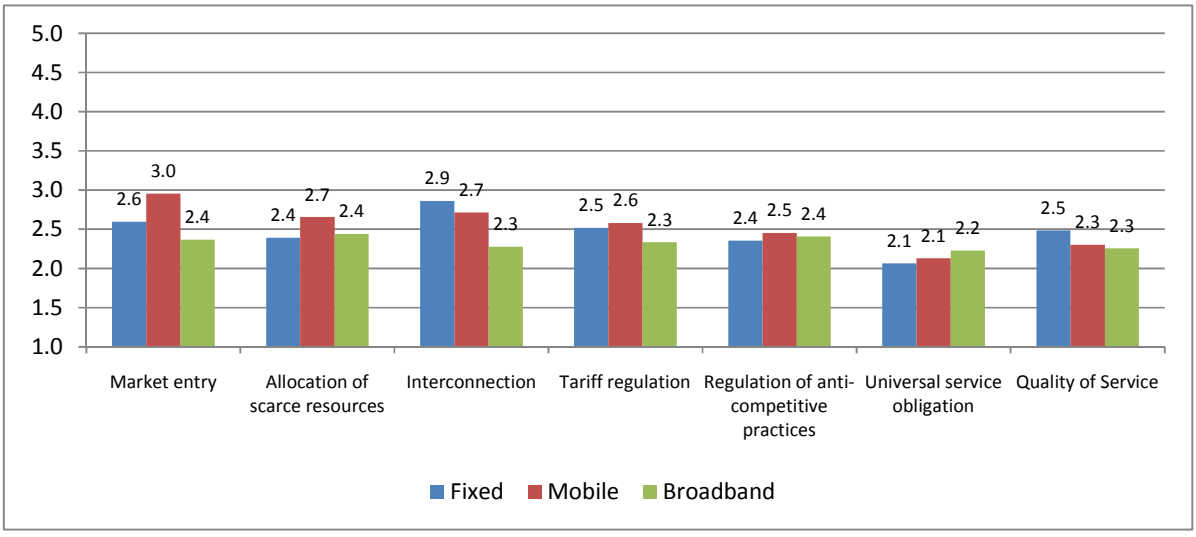
With its economy has largely recovered from the Asian financial crisis of the 1990s, Indonesia's telecom markets are growing, but at a slower rate compared to most of its South East Asian neighbors.

The growth is best seen in the mobile sector, with a 5 year compound annual growth rated (CAGR) of 34 percent. Competition exists. Nine national level operators had issued 82 million SIMs by 2007 end (35 SIMs per every 100 people). The fixed sector lags behind in growth (12 percent CAGR for the last five years) as well as in competition. Five vendors offer fixed wireless service while the wire-line market remains a virtual monopoly of the incumbent. Number of fixed connections in 2007 was only 15 million, and penetration was 6.5 phones per 100 people. Wire-line has not grown since 2004; fixed wireless is growing at a rate lower than that of mobile growth.

Given the size of its population, Indonesia has a significantly low broadband user base than countries in the region. According to ITU statistics Indonesia has more than 13 million Internet users, but the vast majority use narrowband. The growth of broadband has been hindered by the lack of adequate infrastructure.

Following a similar exercise in 2006, the 2008 Telecom Regulatory Environment (TRE) survey asked informed direct and indirect stakeholders in the Indonesian telecom sector to assess the regulatory and policy environment along seven dimensions (market entry, access to scarce resources, tariff regulation, universal service obligations, regulation of anti-competitive practices and quality of service), on a Likert scale of 1 to 5 (1 being highly unsatisfactory, 5 being highly satisfactory, with 3 being considered average). The respondents are selected from 3 categories: those directly impacted by the sector's performance (operators, equipment vendors), those who broadly follow the sector (consultants, lawyers), those who represent the public interest in the telecom sector (consumer groups, other government officials, journalists, etc). The study analyses the results in the light of recent regulatory incidents. TRE scores by sector and by dimension are shown below:

Figure 1: Sector scores - Summary



Below-average scores received in all sectors and across dimensions reflect general dissatisfaction. Most scores have also declined (albeit slightly) from 2006. However, this does not mean the respondents have ignored recent developments. The relatively healthy growth in mobile sector is reflected in the higher TRE scores received by the sector for most dimensions, when compared to the fixed sector. On average, the mobile sector scores best, with fixed and broadband following.

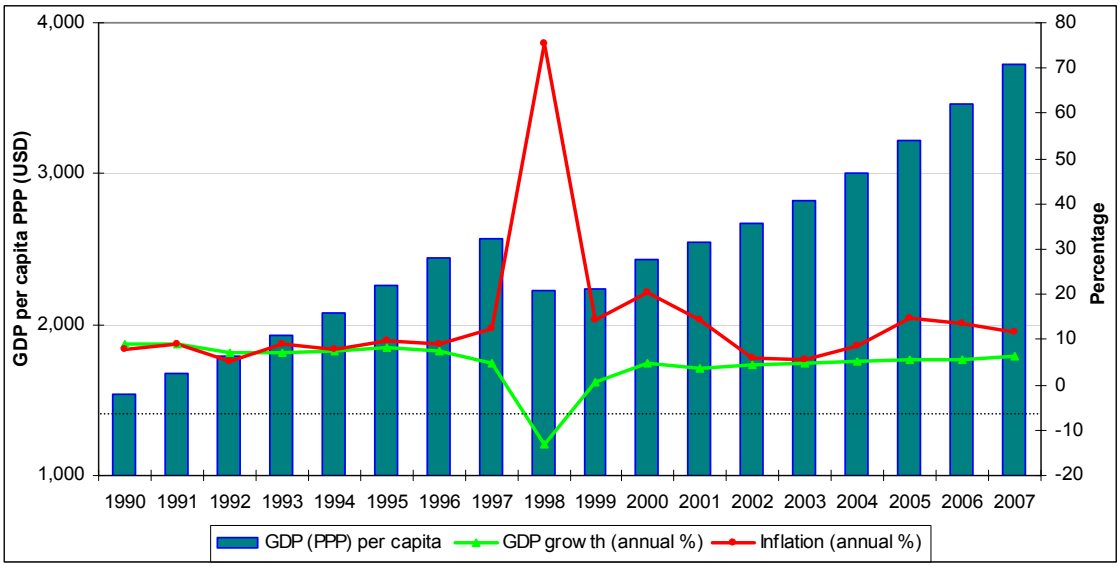
The results call for action from the regulatory authorities and the government. Backbone infrastructure especially outside the key cities should take priority. Access to resources must be improved with greater transparency. Interconnection requires review as the separation between fixed and mobile no longer seriously matters. Repeated unsuccessful USO initiatives raise the question of its efficacy as a means of bridging urban-rural gaps. Finally better communication among agencies involved in telecom regulation will surely help.

2.0 Introduction

Indonesia, a South East Asian archipelago of nearly 17,500 islands, has the fourth largest population in the world. However, the Indonesian telecom market, even with recent advancements, does not adequately serve its vast population.

Indonesia was considered an Asian tiger of the second wave till its economy was badly hit by the Asian crisis in late 1990s. Weaknesses in the legal structure hidden by high economic growth from the mid 1980s to the mid 1990s were fully exposed during hard times. After unsuccessful moves to float the Rupiah, Indonesia finally sought the assistance of the International Monetary Fund (IMF) to ensure macroeconomic stabilization. The economy has been gradually recovering since then. (Figure 2)

Figure 2: Selected Economic Indicators of Indonesia



Sources: World Bank, World Development Indicators database[1] and IMF World Economic Outlook database[2]

[1] http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers
[2] http://www.imf.org/external/pubs/ft/weo/2008/02/weodata/index.aspx

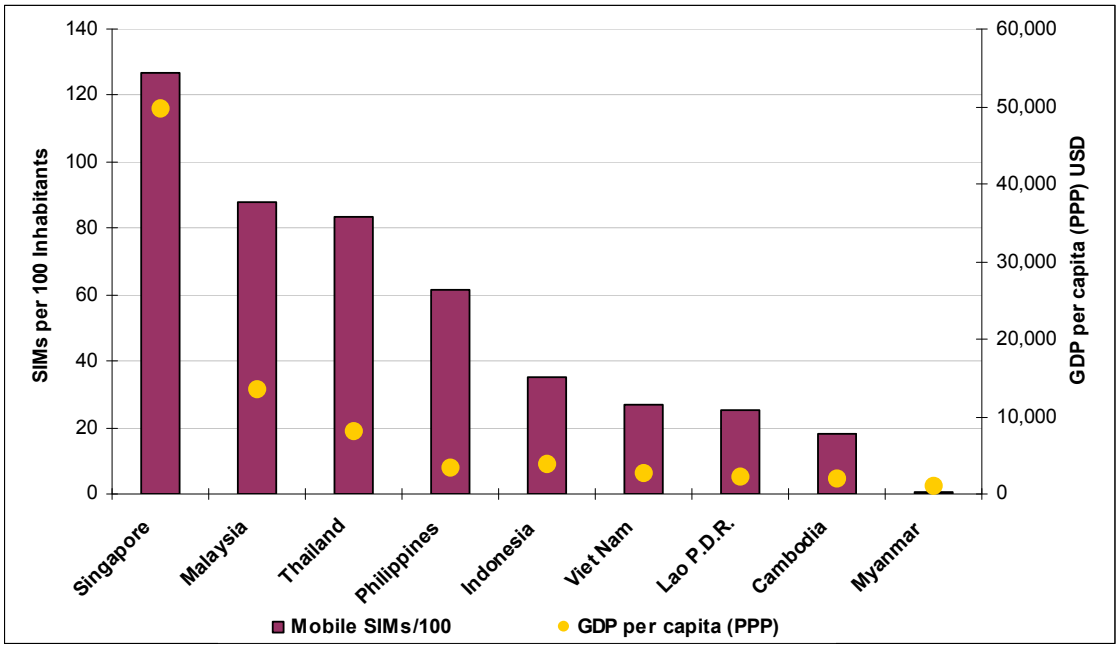
In recent years Indonesia has suffered from a range of problems caused by terrorist activity, regional unrest and natural disasters.

In this context, the growth rates in all sub sectors of the telecom industry are impressive. But when compared with the growth rates of peers they are less impressive.

2.1 Mobile sector

Of the fixed, mobile and broadband subsectors, mobile demonstrates the healthiest growth, with five-year CAGR of 34 percent. However, this pales when compared with South East Asian neighbors. (Figure 3)

Figure 3: SEA Mobile penetration, 2007,



Source: ITU, 2007, Asian ICT indicators Database and IMF World Economic Outlook database[3]

SIM cards per 100 persons have increased to 35 by 2007 (Figure 3) with a total of 81.8 million SIM cards issued. Voice services still dominate, but non-voice services, particularly SMS based ones, are catching up. 3G services have been introduced recently.

The reason for the expansion of mobile industry was the introduction of competition.

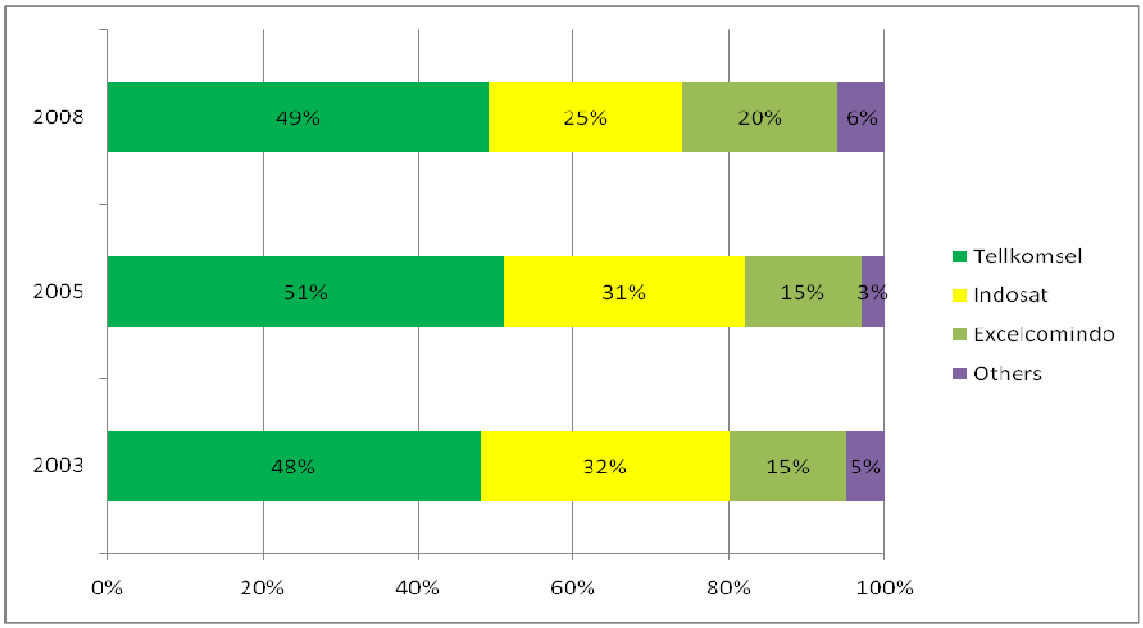
There are three dominant players in the market. Telecomsel, the mobile arm of the fixed incumbent PT Telkom is the largest with 58 million SIMs issued (49 percent) It claims to be the only operator that provides services to all of Indonesia's 440 local regencies. Next is Indosat with 30 million SIMs (25 percent). Excelcomindo comes third with 23 million (17

[3] http://www.imf.org/external/pubs/ft/weo/2008/02/weodata/index.aspx

percent). Together these three account for 110 million mobile SIMs[4] with a combined market share of about 94 percent. Other players account only for 6 percent. (Bisnis Indonesia, 2008)

The market shares have not shown any significant changes since 2003, except for the six percent decrease in Indosat and five percent increase in Excelcomindo. Other players have failed to expand market shares (Figure 4).

Figure 4: Mobile market shares, 2003 to 2008



Source: Zita, 2005, Goswami, 2006b and Bisnis Indonesia, 2008

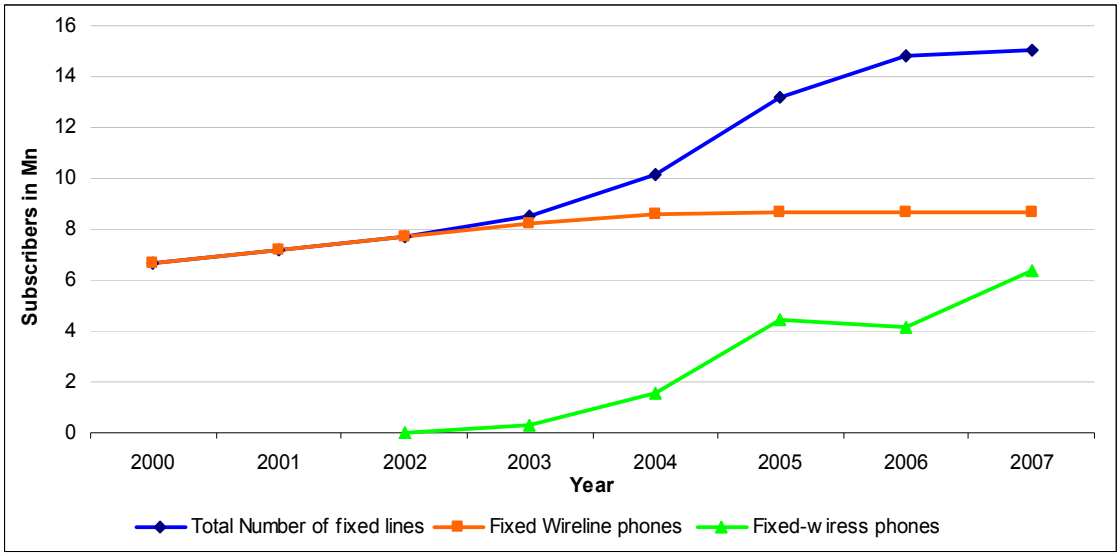
Despite the growth however, mobile services are still largely concentrated around major cities.

2.2 Fixed sector

The size and growth in the fixed sector, as a whole, were significantly lower than in the mobile sector. (Figure 5) Total fixed connections in 2007 were only 15.04 million, and penetration was 6.5 phones per 100 people. The number of wire-line connections has not shown any noticeable change since 2004. Five year CARG for fixed wire line is 11% while for fixed wireless it is 82%.

[4] This is the mid 2008 figure which is a significant improvement from the ITU figure of 81 million. Not officially confirmed by the regulator.

Figure 5: Growth of fixed access paths from 2000-2007



Source: ITU 2007, Asian ICT indicators database

2.3 Broadband

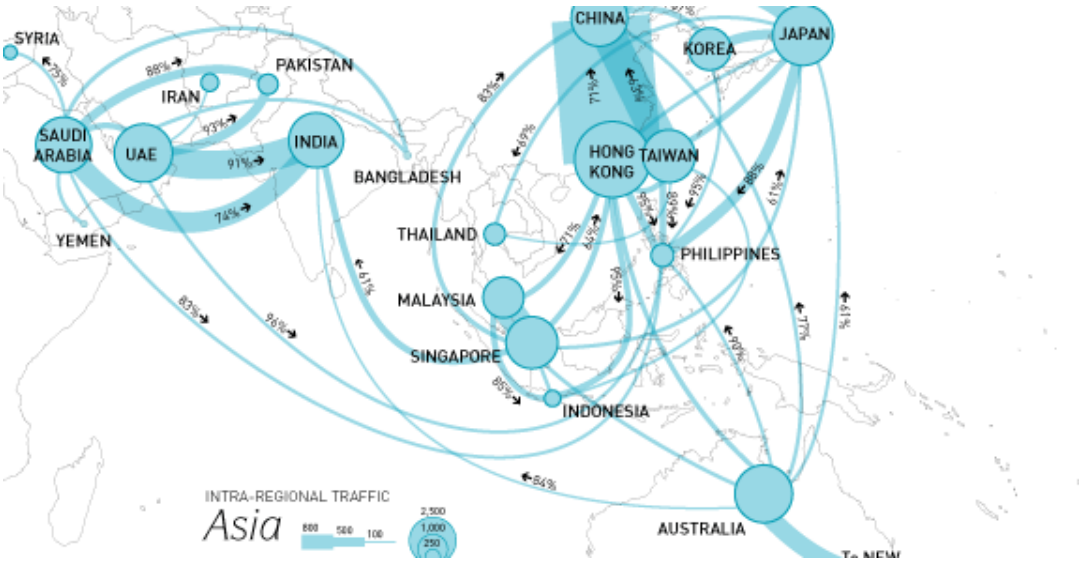
Prices have significantly come down since 2005 (when a 2MBps 2km dedicated line cost was 48 times that what it cost in India), they still remain high. For example, according to 2008 data made available to authors by BTRI the price for a leased line of 2km remains about USD 250 per month in Java, while in India it is less than four times that.

Frequencies for Broadband Wireless Access (BWA) are yet to be assigned, resulting in a delay in provision of WiMax services. Fearing interference to its satellite communications, PT Telekom opposes awarding the 3.5 GHz band for BWA. Meanwhile Indonesia The Wireless Broadband Association (ABWINDO) and prospective WiMax operators demand the 3.5 GHz Band, because the alternative 5.8 GHz (used in the USA) is more expensive. WiMax has a reach of up to 50 km and expected to substitute for ADSL.

Allocation of the 3.5 GHz band both for satellite and WiMax communications is being considered. If not, 3.5 GHz band will be reserved for satellite communications, while another will be given for BWA. In this event, BWA operators expect the government to cover part of their investments in infrastructure building. (Donny & Mudiardjo, 2007)

Dearth of International bandwidth is a serious problem for Indonesia. Traffic maps of telegeography.com proportionately depict the amount of traffic by the thickness of the links. (Figure 6)

Figure 6: Comparative Internet traffic from selected Asia-Pacific countries



Source: www.telegeography.com

2.4 Internet

Internet development in Indonesia, as in many other Asian countries, was initiated by the academic and research community in the early 1990s. Initial access was limited to a small circle of scholars and 'techies' based at universities connected to UniNet, the first Indonesian inter-university network. The Internet became 'public' only after the launch of Indonesia's first commercial Internet service provider (ISP), IndoNet in 1995, and the subsequent spread of public Internet access points, commonly known as warnet. (Iqbal & Purbo, 2008)

Figure 7: Indonesia Internet developments 1995-2007 (Estimated)

Error! Not a valid link. *Source: Iqbal & Purbo, 2008*

Table 1: Indonesia Internet developments 1995-2007

	1990	1995	2000	2005	2007
1. Internet Subscribers	0	31,000 (1996)	384,000	1,500,000	2,543,600[5]
2. ISPs	0	2	74[6]	132[7]	176[8]
3. Internet hosts	0	2,351	26,727	112,630	
4. Internet users		50,000	1900,000	10,000,000	13,000,000[9]
5. Internet users per 100 inhabitants	0	0.01	0.19	0.69	5.61[10]
6. PC penetration		0.50	1.05	3.68	2.0[11]

[5] ITU, 2007 http://www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx
[6] Historical data amended according to data from APJII http://www.apjii.or.id/dokumentasi/statistik.php?lang=eng
[7] Historical data amended according to data from APJII http://www.apjii.or.id/dokumentasi/statistik.php?lang=eng
[8] APJII Accessed on http://www.apjii.or.id/dokumentasi/statistik.php?lang=eng
[9] ITU, 2007 http://www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx
[10] ITU, 2007 http://www.itu.int/ITU-D/icteye/DisplayCountry.aspx?countryId=114
[11] Computers per 100 inhab. (2006) http://www.itu.int/ITU-D/icteye/DisplayCountry.aspx?countryId=114

	(2006)

Source: Iqbal & Purbo, 2008

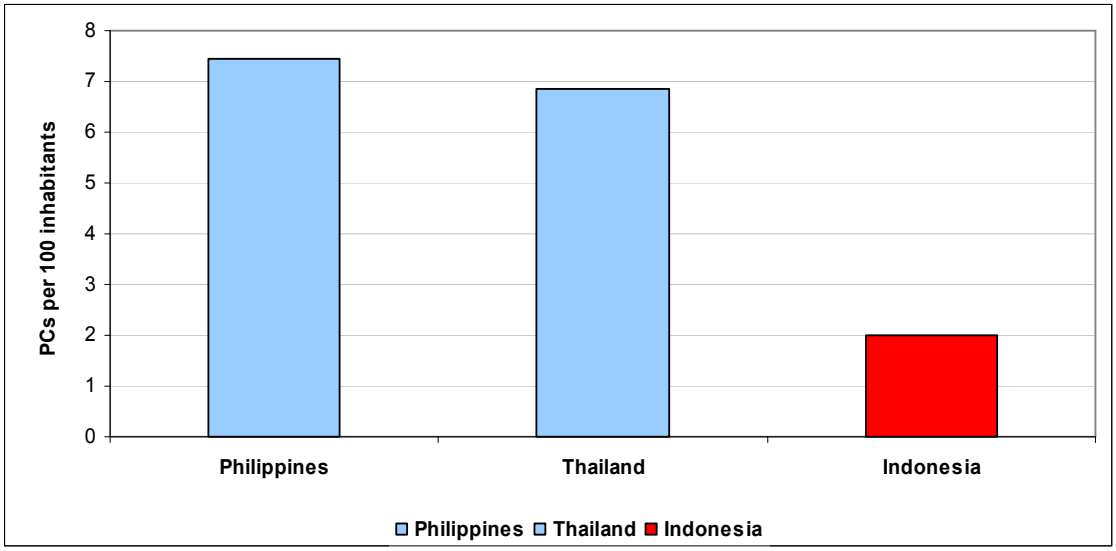
Though not shown in the table above, there are mismatches in the Internet related statistics in Indonesia it is possible that different agencies make their own estimates in the absence of a single reliable source.[12]

Gaps become evident particularly when the ITU data are compared with data from local sources such as APJII and even the regulator. For example, instead of the 13 million estimate by ITU for Internet users in 2007, APJII offers a figure of 25 million. The highest is from BRTI, which puts it at 30 million.

There can be multiple reasons for relatively low Internet penetration. Iqbal and Purbo (2008) attribute it to the lack of adequate infrastructure which was a direct result of restrictive government policy and ineffective regulation by DGPT and BRTI. Fixed infrastructure, on which Internet services depend, is dominated by the state owned incumbent, PT Telkom, who along with PT Indosat, another state owned operator, control international gateways. Telephone and computer penetration have gradually increased over the years, but these figures still remain low in comparison with the Philippines and Thailand – two peers in the region. (Figure 8)

Figure 8: PC use in Indonesia compared with two peers - 2007

[12] Whenever there are different sets of data, the paper will present them all. However we try to indicate what could be the most realistic figure based on the relative credibility of the sources and other related information.



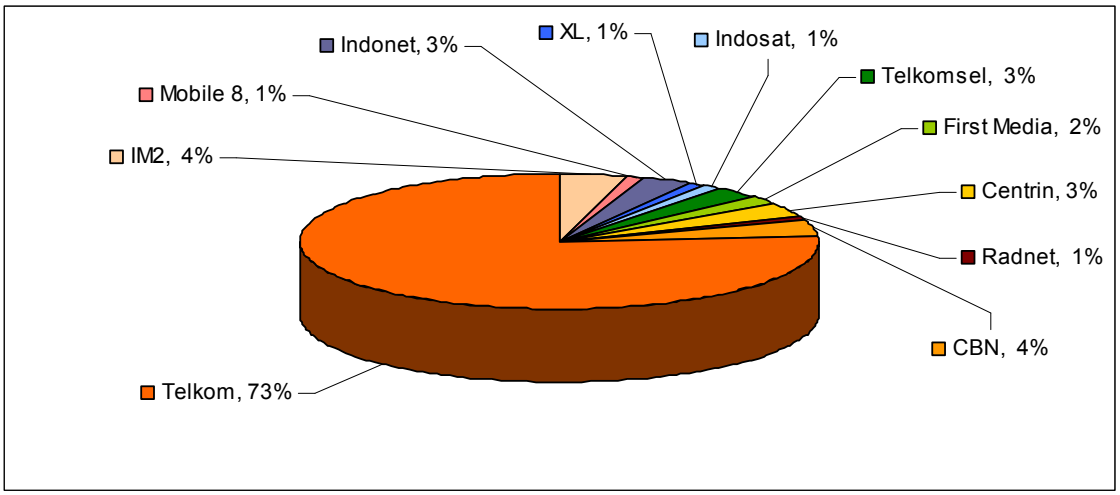
Source: ITU, Database, 2007

Another factor contributing to low use of ICTs is limited knowledge and use of English in Indonesia. The national language of Indonesia, Bahasa Indonesia, is used in education, government, and business; other local languages are still very important in the relevant regions. As such the ability to use the Internet is limited. (Iqbal & Purbo, 2008)

Meanwhile Goswami points out that Indonesia's geographical structure and license conditions, which permit only a handful of large network operators, not all ISPs to build infrastructure, ICT development has been concentrated in the metropolis (in urban centers like Jakarta, Bandung, Bali, and Surabaya) while rural areas lack access to even the most basic telecom infrastructure. (Goswami, 2008)

One of the biggest barriers to Internet development has been the high cost of connectivity to the international backbone. The infrastructure expenses constitute 60 to 80 percent of an ISP's total monthly cost. Heru Nugroho, former Secretary General of Indonesia's ISP Association – APJII, estimated that on an average, ISPs spent about USD 50,000 for international Internet bandwidth per year before the Internet Exchange was established (Bisnis Indonesia, 2004). According to him, bandwidth and networking costs typically represent 25 percent of the total costs of ISPs in other countries. (Goswami, 2008). At present, Telkom accounts for nearly 75 percent of the ISP market share (Susatyo, 2008).

Figure 9: ISP market share in Indonesia - 2007



Source: Susatyo, 2008

Purbo (2004) attributes most of the limited Internet developments to the civil society and private sector rather than the government. Around 2004 he noted that 60-70 of Indonesian users accessing the net using cyber cafes (warnets) instead of individual connections. This percentage might have probably dropped by now; but the role of the warnets cannot be ignored.

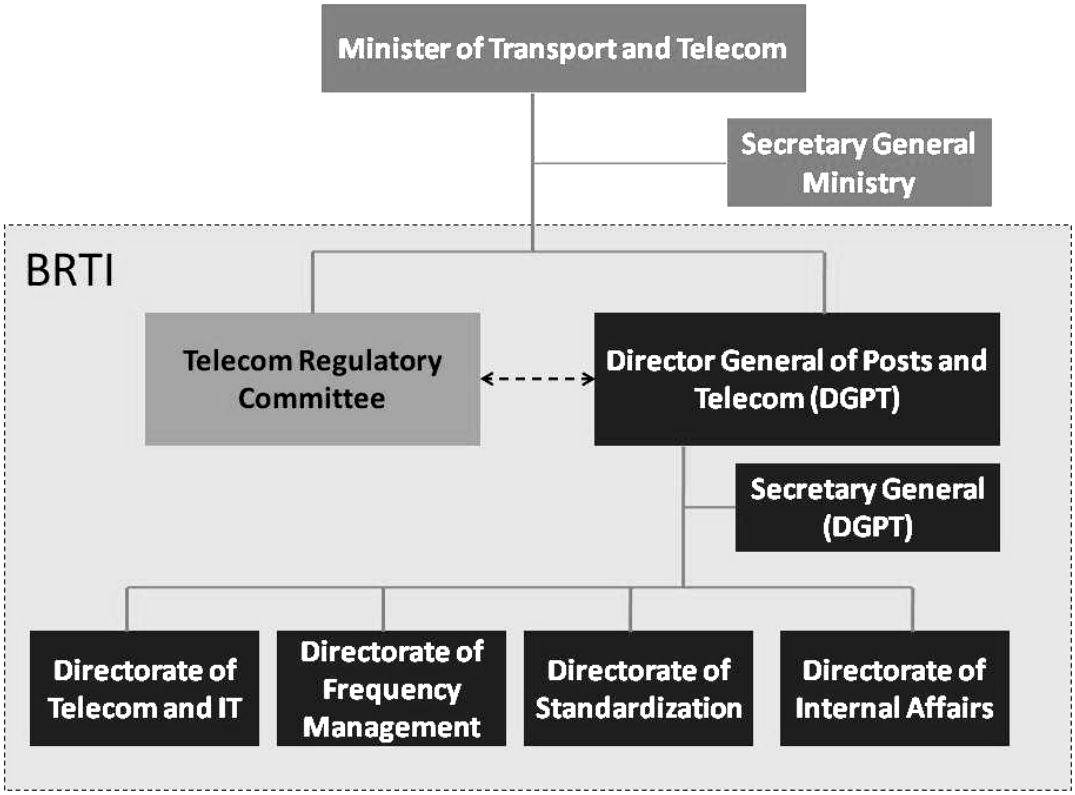
Establishment of national Internet exchanges in Jakarta has partially addressed the problem of local Internet traffic. They provide passage for local traffic among ISPs without any charge. This resolves the problem of local Internet traffic unnecessarily burdening the international links. Similar Internet Exchanges were planned for cities like Surabaya, Bandung and Yogyakarta. (Purbo, 2005) However, the issue is still not fully resolved as many ISPs find it difficult to purchase leased lines to connect to the Internet Exchange due to their high price or unavailability.

3.0 Indonesia Regulatory Environment

Although the Telecommunication Law of 1999 provided the government the option to create an independent regulatory agency that was not exercised until 2003. A ministerial decree established the Indonesian Telecommunications Regulatory Body or Badan Regulasi Telekomunikasi Indonesia (BRTI) to be effective starting January 2004. The stated objective was to ensure transparency, independency, and fairness in telecommunication network and service operations. However, since its inception, BRTI was seen as a 'transitional' body that would become fully independent only at some undetermined time (Malik & Goswami, 2006).

Unlike in many countries where the setting up of a National Regulatory Authority (NRA) preceded the opening up of the market, in Indonesia, there was a reversal of sequence - the NRA came into being nearly 10 years after GSM licenses were issued.

Figure 10: Organisational structure of the key telecom policy and regulatory bodies in Indonesia



Source: Adiwiyoto, 2004

As Figure 10 shows, the 'broader' BRTI comprises of both the office of Director General of Posts and Telecom and the Telecom Regulatory Committee. The default BRTI Chairman is the Director General of Posts and Telecommunication. The other four members have to be professionals with Telecommunication & Information Technology, Legal, Economics, and Social Science backgrounds who are selected by an 'independent' team for three years, which can be extended for another term if necessary.

Regulatory committee members are expected to take decisions based on consensus, but if they cannot reach one, there will be a vote with everyone enjoying same voting rights. Theoretically the decisions should be taken after considering the alternative opinions and members should act sans any external pressure. Once arrived, the decisions are announced as a form of a Director General decree.

The stated role of the regulator is to:

1. Regulate:

- Granting licenses
- Monitoring performance of operations
- Monitoring quality of service

- Deciding interconnection tariff and
- Approving telecommunication tools and equipments

2. Supervise:

- Monitoring performance of operations
- Ensuring Competition
- Monitoring the utilization of telecommunication tools and equipment

3. Control:

- Settling disputes among operators
- Enforcing quality services

However, it is questionable how far BRTI is empowered and equipped to play this role as an independent body. Criticism has come from both insiders and outsiders. Adiwiyoto does a comprehensive analysis by listing out its possible strengths and weaknesses. (Adiwiyoto, 2004).

Strengths:

- BRTI can use professionals from various fields of expertise and sectors (public, private, academics, and practitioners) in the board
- Decisions are expected to be taken 'collegially'
- It is possible to continue the work initiated by DGPT so start from scratch is not needed
- BRTI is claimed to be an independent agency

Weaknesses:

- BRTI does not have a strong legal basis
- BRTI's budget comes from treasury as a part of DGPT allocations which seriously questions its independency
- BRTI Chairman is the Director General of Post and Telecommunication
- DGPT still have to endorse some regulatory decisions

Komisi Pengawas Persaingan Usaha (KPPU) is the competition authority with jurisdiction over many industries including telecommunication. The responsibility of KPPU is to ensure competitive behavior in any industry. It is supposed to take ex-post regulatory action based on competition law, after determining that there has been anti-competitive behavior in the market.

Meanwhile, the DGPT was moved from the Ministry of Tourism, Post and Telecommunication to the Ministry of Transportation in 1998. In 2005 it was moved to the Ministry of Communication and Information (Kominfo). The move was seen as creating a one-stop-for-all converged Ministry.

The most recent reforms started in 2005 under the government of Yudhoyono. However the impact was not as good as expected. Informal interviews with industry players revealed their

fear that the government not recognizing the strategic importance of the telecommunications sector.

Three operators were granted licenses to provide 3G services in February 2006, in a competitive bidding process. This is in addition to the two 3G licenses awarded in 2003 to PT Natrindo and Hutchison CP Telecommunications (formerly Cyber Access Communications). Telkomsel and Excelcomindo have already built 3G infrastructure to cover several cities, with investments of USD 300 million and USD 50-100 respectively. PT Indosat plans to spend USD 200-300 million. (Donny & Mudiardjo, 2007)

Indonesian government in July 2007issued a new presidential instruction that limits foreign ownership in new cellular phone companies to a maximum of 65 percent, reduced from the previous 95%. Foreign ownership of new fixed operators was reduced to a maximum of 49%. However, this ruling did not apply to existing players. Thus,it will not affect investments like Maxis' 95% ownership of PT Natrindo. This protectionist move was perceived negatively by some international analysts. (The Brunei Times, 2007)

The USO tender was cancelled in December 2007. Eleven Indonesian telecom companies submitted their bids and two were declared eligible (PT Telkom and PT ACES). At the last minute both were declared ineligible. The tender process was halted indefinitely. PT ACES took legal action against DGPT but was not successful. BRTI claims the USO plan will be implemented before end 2009. (Antara News, 2007, BRTI, 2008)

In April 2008, the Minister of Communication and Information signed new regulations on Telecom towers. Only 100% locally owned companies can own and manage towers. Telecom companies with foreign investment such as PT Telkom, PT Indosat, PT Hutchison Indonesia and PT Excelcomindo Pratama were affected by this ministerial decree as they have built and managed their towers since the beginning of their operations. However, as a compromise, companies publicly listed in Indonesian Stock Exchange were to be considered locally owned.

PT Hutchison Indonesian sold its towers to an Indonesian company the day after the effective date of Ministerial regulation.

4.0 Analysis of TRE scores

The TRE instrument was developed by LIRNEasia and documented in detail in Samarajiva et al 2007. It asks informed stakeholders to rate (on a Likert scale of 1 to 5, 1 being highly unsatisfactory, 5 being highly satisfactory) the Telecom Regulatory and Policy Environment in a country along 7 dimensions. 5 of the 7 dimensions are based on the GATS fourth protocol on telecom services. QoS and Tariff Regulation dimensions have been included, given their importance.

Potential respondents come from 3 different categories:

- Category 1: those directly involved in the sector such as operators, equipment vendors.
- Category 2: those indirectly impacted by the sector or those studying/observing the sector with broader interest such as consultants and lawyers.

- Category 3: those who represent the broader public interest such as media personnel, other government officials, retired regulators, civil society organizations.

Though multiple modes were available including an online survey, the two methods used in Indonesia were e-mail and face-to-face interviews. The numbers of responses received from the categories were 16, 17 and 17 respectively.

The methodology specifies that each category should contribute equally to the final TRE score. Therefore, weights are used to equalize the contributions made per category. Anyway, with the 2008 data the differences were not significant because the sample sizes were almost same across categories.

A similar survey was conducted in Indonesia in 2006 but only with six dimensions (without QoS) and in two sectors (fixed and mobile) only. The 2008 TRE scores are compared with 2006 ones wherever possible.

4.1. Market Entry

There are nine mobile operators, with seven of them active at the national level.[13] The HHI in 2008 was 0.13, lower than what it was three years ago (0.18), indicating moderate competition.

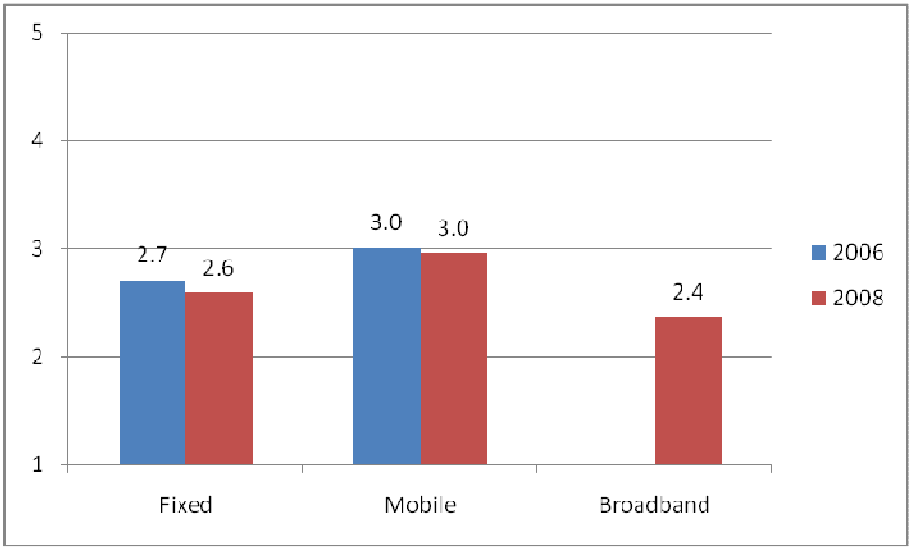
The scenario in the fixed sector is somewhat different. Fixed wireless is partially competitive with 5 licensees providing services. Two are PT Telkom and PT Indosat. The other two are locally-owned operators who only operate in specific regions. Wire-line remains a virtual monopoly of the incumbent. Under the current set-up, changes are unlikely.

Competition in the broadband sector depends on how one looks at it. There are no restrictions to providing Internet services. This had created a large number of ISPs.[14] However, they have to purchase international bandwidth from the monopoly provider PT Indosat and local infrastructure from PT Telkom, both being competitors in the broadband market. As a result, the market is dominated by PT Indosat and PT Telkom.[15]

Figure 11 shows the TRE scores for market entry for 2006 and 2008. Both mobile and fixed sector remain essentially unchanged 2006. One may argue the slightly higher score for mobile sector reflects the competition and relatively easier market entry while lower scores for fixed and broadband reflect the perception about entry barriers.

[13] Not all of them are active. There are three dominant players as highlighted in the introduction.
[14] According to APJII, 202 ISPs are registered with at least 169 of them are still operational.
[15] Almost all ISPs depend on PT Telkom's extensive infrastructure. Though it is theoretically possible for them to have their own infrastructure, they do not normally take that option because it is easier to purchase already built facilities than creating one's own.

Figure 11: TRE scores for Market Entry 2006 and 2008



4.2. Access to Scarce Resources:

At least one observer has noted that DGPT gives high priority to spectrum management (Zita, 2005). What the researchers found in interviewing stakeholders was a different opinion. According to them frequency allocation is getting more and more confusing.

Lack of a framework, let alone firm coordination by the Government has made spectrum refarming difficult. A Ministerial team for creating a telecommunication infrastructure blue-print was created in 2008.

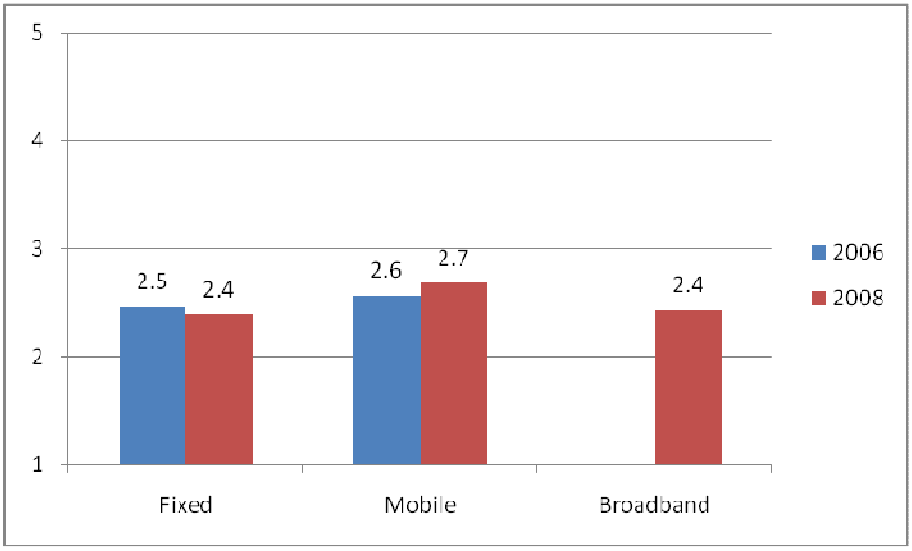
Though the 1999 law envisaged a methodical spectrum assignment process, what initially occurred was case-by-case assignment. The regulator increased market risk by not specifying its future plans for frequency allocation. A good example is about 3G. Initially, in 2003, 3G blocks were awarded to PT Cyber Access (Later Hutchison) and PT Natrindo, both 'greenfield' operators. Due to public outcry about their failure to rollout networks for 3 years, DGPT called tenders for the next block. PT Telkomsel, PT Excelcomindo and PT Indosat were granted licenses in 2006. (Zita, 2005)

Infrastructure sharing is another key concern. According to a new government ruling, all wireless operators are encouraged to share their infrastructure. Only 'domestic' companies can build their own towers, others should lease from third parties. The 'foreign' companies are expected to remove their existing towers. Discontent is brewing because of this uncoordinated regulation.

Both these issues impact mobile and fixed wireless but not wireline. However that does not explain why satisfaction level is lower in fixed, compared to mobile. (Figure 12)

The reason for the low scores in broadband may reflect the difficulties they face in using the incumbent's infrastructure.

Figure 12: TRE scores: Access to Resources 2006 and 2008



The marginal improvement seen in the mobile sector since 2006 may be because of the award of new 3G licenses.

4.3. Interconnection

The law requires the incumbent operator to propose interconnection terms that are non-discriminatory and transparent. That proposal requires the regulator's approval. Once approved, incumbent published it.

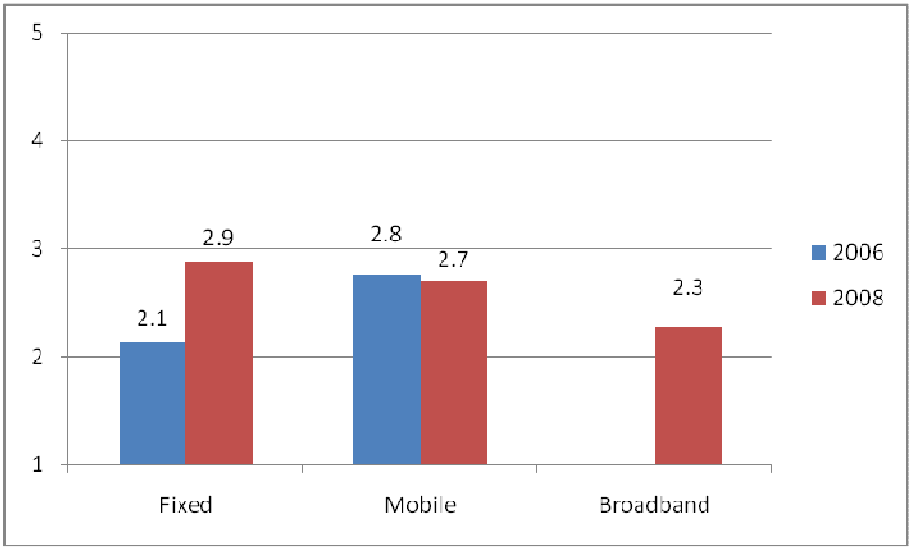
Interconnection costs are divided into three categories: originating cost, transit costs and termination costs. Origination cost is what the originator keeps for itself; the termination fee is paid by the originating network to the terminating party. Transit costs are applicable when an intermediate operator carries a call over its infrastructure to a terminating operator. The calculation of interconnection costs is based on a formula set out in the ministerial decree.

As explained in Annex I, the new interconnection regime introduced in April 2008 has reduced domestic interconnection charges but not international charges.

Still the dissatisfaction is clear with all scores lower than the average. (Figure 13)

Compared to 2006 values, the mobile score stays almost the same, while there is a clear improvement in the fixed sector, although the score is still below average. This can be the impact of the new regime, which benefits both, but is more favorable for fixed than mobile operators in many cases.

Figure 13: TRE scores: Interconnection 2006 and 2008



4.4. Tariff Regulation

There is no strict tariff regulation in any sector, but neither is there forbearance from tariff regulation. The environment is complicated.

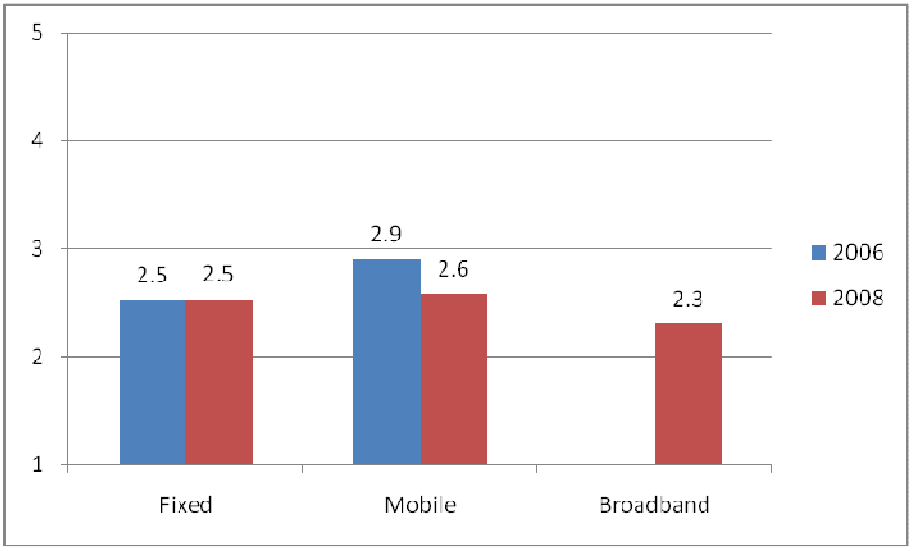
The formula by which PT Telkom is supposed to calculate prices was decided by DGPT in 2002 and approved by Parliament. PT Telkom's initial plan was to increase its charges in stages. However subsequent price increases were vehemently objected to by the public. On the other hand, Parliament wanted Telekom to follow its original plan. After 2004, the public outcry has subsided, but Telkom prices still remain lower than what it should have been had the original plan be followed.

Mobile, as well as fixed wireline/wireless sectors now set their prices largely based on the interconnection charges stipulated by BRTI / DGPT. While broadband is still not regulated, industry expects Internet tariffs to be regulated in near future.

There were several instances wherein the regulator(s) thought intervention necessary to modify the prices of telecom services either directly or indirectly. The most significant recent intervention by KPPU alleged that six mobile operators constituted a SMS cartel. The judicial process is still underway because one of the operators took KPPU to Civil Court – a lengthy process that may take years.

The survey participants have responded to this complicated situation. The response is near 2.5 (Figure 14) in fixed and mobile and 2.3 in broadband with all three sectors below average. Interestingly the sub-sector that has no regulation gets the lowest score.

Figure 14: TRE scores: Tariff regulation 2006 and 2008



The decline from 2006 in case of the mobile sector is a curiosity that has to be explored further.

4.5. Anti Competitive practices

Two major interventions of KPPU, Indonesia's Business Competition Commission, happened within the last two years.

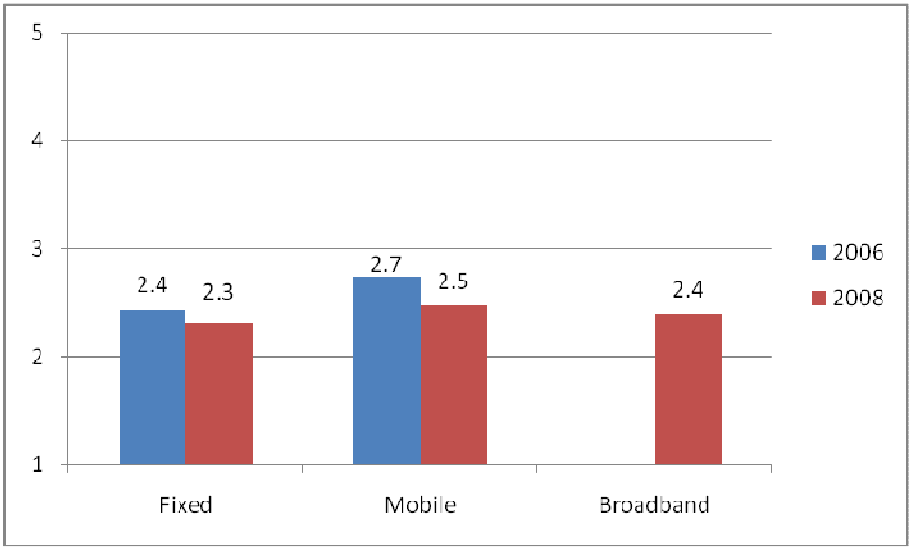
In June 2007 Singapore Telecommunications came under the scrutiny of KPPU over allegations of monopolistic practices. SingTel Mobile Pte Ltd and SingTel were called before KPPU. Temasek Holdings Pte Ltd, a Singapore's investment company was alleged to have engaged in overpricing. Temasek's lawyers pointed out that PT Telkom is majority owned and controlled by the Indonesian government, which also continues to have shares in Indosat, so there is no question of monopolistic behavior. They also claimed non involvement of Temasek in operational decisions of the companies they invest in. Business Competition Agency assetrted that majority is not the foundation for any anti-monopolistic allegation, but that influence is. (SIIA online 2007 & SingTel 2008)

Then in mid 2008, KPPU alleged cartel practices related to Short Message Service (SMS) by six mobile operators namely PT Excelcomindo Pratama Tbk (XL), PT Telkomsel, PT Telkom, PT Bakrie Telecom Tbk, PT Mobile-8 Telecom Tbk and PT Smart Telecom. KPPU claimed using the results of its studies that this practice had caused an estimated loss of about USD 3 billion during the 2004 - April 2008 period to consumers.[16]

The KPPU interventions could be the reason for lower scores compared to those of 2006. Particularly the industry is dissatisfied over KPPU's approach, as revealed in informal interviews with authors. The dissatisfaction in the fixed sector can be the reflection of general resentment toward the largely monopolistic nature of the market. (Figure 15)

[16] According to KPPU, a clause in a joint agreement of the cellular phone operators prohibited the imposition of a lower tariff than the US cents 2.5 – 3.5 rate, while former's calculations show it can be as low as US cents 1. This competitive rate referred to the original interconnection SMS service rate at USD 0.004 plus a 40 % of the retail service activities cost (RSAC) and a 10 % profit margin.(Reference)

Figure 15: TRE scores: Anti-competitive practices 2006 and 2008



4.6. Universal Service Obligations

Government funds were rarely made available for provision of universal services. Even though the telecom sector generates significant income for the state, the Ministry of Finance, not the DGPT, has always had the power to allocate funds for the provision of universal service.

Until the early 1990s the incumbent was expected to make a minimum of 20% investment to cover rural/remote areas. However this did not happen as anticipated following the collapse of the KSO schemes and the failure to implement tariff rebalancing. (Zita, 2005)

In the early days of market liberalization, government attempted to take this forward by matching the incremental costs as a subsidy in the last mile. The technologies supported under this were Portable Fixed satellite, VSAT, Radio, Terrestrial, Cellular, and IP-based. The objective was to provide a minimum of one telephone per village. (Sura, 2007)

In 2003, Government built telephone units in about 3,000 villages using satellite technology, at a cost of of approximately USD 4.77 million. In 2004, Government had built 2,620 SSTs for 2,341 villages.

However, by 2004 only 15% of the target was achieved. There were many reasons why the scheme was unsuccessful. Most significant were the unavailability of funds and lack of skilled human resources for maintenance, and difficulties in revenue collection. These factors made the project non-sustainable. Adverse operator incentives arising from low demand and high operational costs made matters worse.

There were unsuccessful proposals to provide subsidies based on operational costs rather than capital expenditure. They were supposed to be performance-based rather than one-time payments (Sura, 2007).

The USO Master Plan of 2005 proposed a Universal Services Fund to which each operator was supposed to contribute 0.75% of its Gross Revenue. Subsidies for operational costs (and not capital expenditure – the operators were supposed to build the infrastructure) were

to be offered through the USF for providing telecom access and services in areas where the demand was too low to be addressed by the market. The solutions had to be technology neutral and the contracts based on the performance of the operators.

Balai Telekomunikasi dan Informatika Perdesaan (BTIP) or the Authority for Rural Telecommunication and Information Technology, a nonprofit public service institution has been established to manage the USO Fund. Monies were collected by State Treasury through Non-Tax State Revenue collection mechanism to be disbursed to operators though the state budget mechanism.

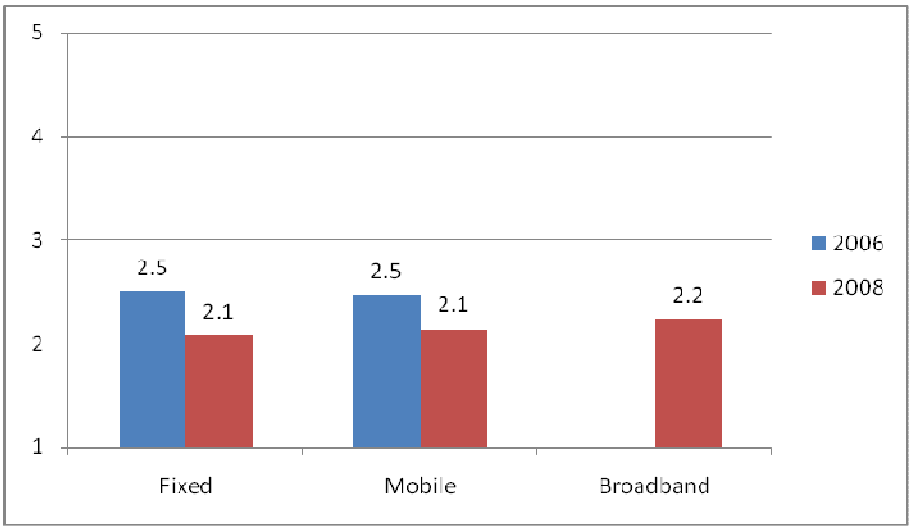
The operators were supposed to provide 24 hour public phone services on non-exclusive basis, and according to the contract they were to be rewarded on performance. The expected Average Revenue per User (ARPU) was approximately USD 5.3. Operators were expected to make 15% return on investment. The other incentives were the licenses to provide fixed and wireless services continuously in the said areas.

The new services were meant to cover about 40,000 villages.

USO tenders were called in December 2007. Out of 11 bidders, two were declared eligible. However, it was a dead end as the tender was cancelled and one party took legal action against DGPT. The judgment was issued later to the advantage of the government (BRTI, 2008). Still the operators contribute 0.75% of its revenue to the government, but none of those monies are being used to provide Universal Service Access/Services.

Perhaps this is the dissatisfaction shown by the survey participants. The average responses for all categories were around 2. (Figure 16)

Figure 16: TRE scores: Universal Service Obligations 2006 and 2008



The drops from respective 2006 scores indicate increasing dissatisfaction.

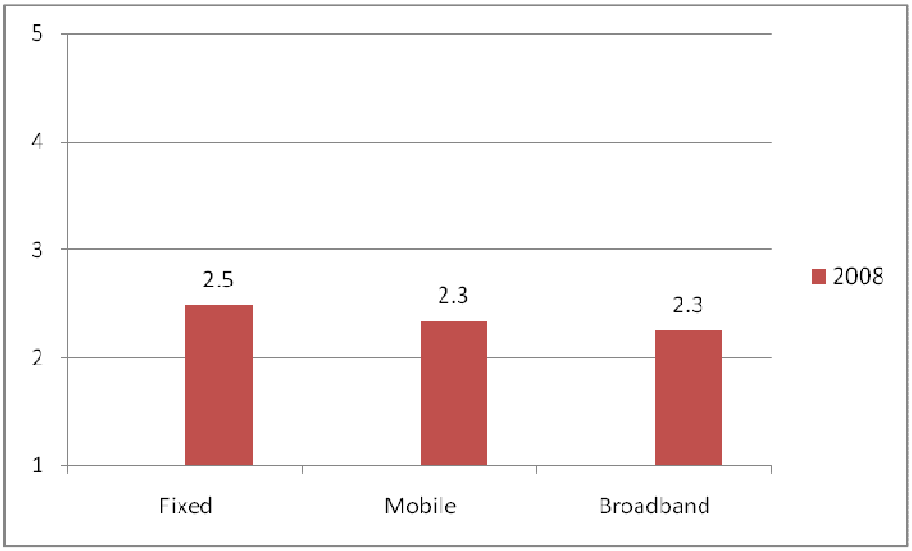
4.7. Quality of Service

Government had issued guidelines on the minimum requirement for the Quality of Service for basic telephony services for fixed wire-line – for local, domestic long distance and international, mobile and fixed wireless. (BRTI, 2008) However these are still not

strictly enforced. QoS is increasingly becoming an issue in the fixed and mobile sectors after tariff reductions due to lower interconnection charges, and expansion of the subscriber base.

Among the three categories only the score for fixed was average; the other two were below average. This can be a reflection of general dissatisfaction over regulation – or in this case lack of it. The dissatisfaction is highest in case of broadband where obviously the quality is lowest, compared to the other two.

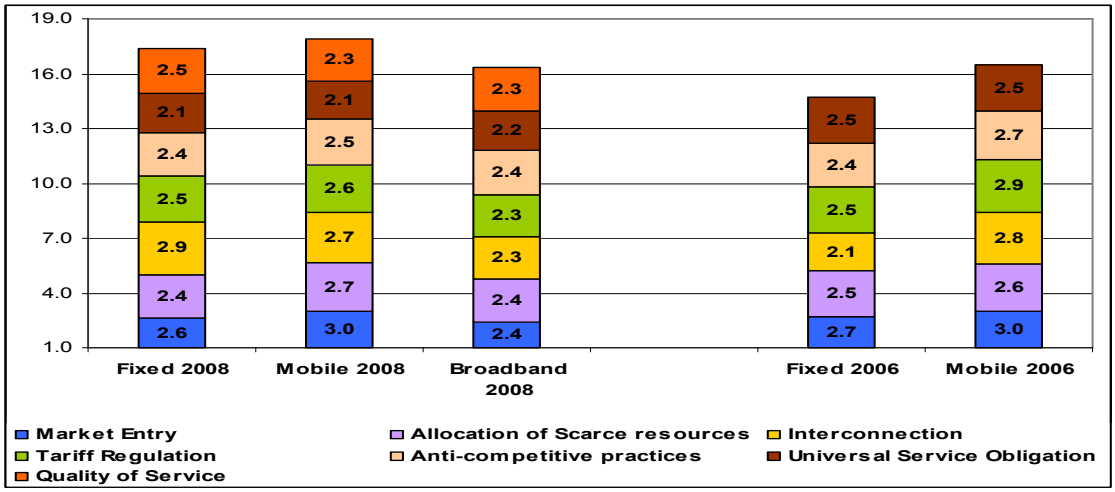
Figure 17: TRE scores: Quality of Service in 2008



4.8 Sector Summary

A summary of scores (Figure 18) shows the perception of industry and non industry players about the telecom regulatory environment is below average, without the score for even a single sub category above average. Interestingly, there is no visible difference between the total scores of 2006 and 2008. (Note the additional dimension in 2006).

Figure 18: Sector scores – Comparison 2006 and 2008



5.0 Conclusion

All TRE scores are sub-average. This might be the most salient feature of survey results. On a scale of 1 to 5, the averages changed from 2.3 (in broadband) to 2.6 (in mobile). Only one sector within a dimension (Fixed – interconnection) has shown significant improvement since 2006. One dimension (USO) has shown a significant decline from 2006 scores in both sectors that allow comparison while others remained more or less same (less than 0.3 changes). This shows a clear and possibly increasing dissatisfaction with the regulatory environment, in spite of the relatively higher telecom growth in recent years.

That does not mean the respondents have ignored progress. For example, where the mobile sector shows a healthy growth under a moderately competitive environment the score for market entry is just below 3.0, the highest in the survey. Overall, the scores for mobile have been relatively better, except for USO and QoS.

Taken together low scores in QoS and access to scarce resources indicates a need for better infrastructure provision, including new infrastructure being called for in some cases. Multiple previous studies have emphasised the need to build infrastructure capacity. Infrastructure limitations have become the single most critical barrier to broadband development – even in cities, where mobile and fixed penetration is relatively satisfactory. In rural areas, lack of infrastructure hampers growth in all three sectors.

Infrastructure and demand is a chicken and egg problem. A significant demand for broadband still goes unmet. One reason could be strict regulatory practices that create no incentives for broadband service providers to build their own infrastructure. A key expectation of the regulator is that the right environment for building infrastructure would be created.

The general perception is that utilisation of resources is suboptimal. The master register of frequency assignments is not available in the public domain. Given the ad hoc manner by which frequencies have been assigned (sometimes, but not always through a process of auctions) there is hardly anything to suggest otherwise. Spectrum allocation should be a transparent process. The auction for 3G frequencies is a model that should be followed.

Interconnection stands out, because except for QoS, it is the only dimension where the fixed sector has scored higher than mobile. A casual look at the new interconnection regime explains why: it is more beneficial for the fixed players. This anomaly adds to prices differences as the telecom prices are to affected by interconnection charges. It is strange that mobile is treated differently from fixed, particularly when the former is key to telecom growth. It would have been more rational to have a simplified interconnection charges chart that would reduce differences between the two sectors.

Not surprisingly, lowest scores in the survey across all sectors were received for USO. The cause of dissatisfaction could be the 0.75% contribution to the fund, which goes unused, while the the urban-rural gap still remain significantly wide. Having experimented with multiple models of USO provision with no success, this is the time for Indonesia to seriously appraise the value of pursuing an unsuccessful USO plan for the sake of having one, against not having any. There can be other regulatory measures like developing competitive market environment and stimulating investment that could bring the same or better results.

Finally, intra-government communication can improve. The negative impact of most regulatory actions like the new rules of tower sharing etc could have been minimized if the

relevant agencies had been fully consulted. Close communication will enhance industry confidence.

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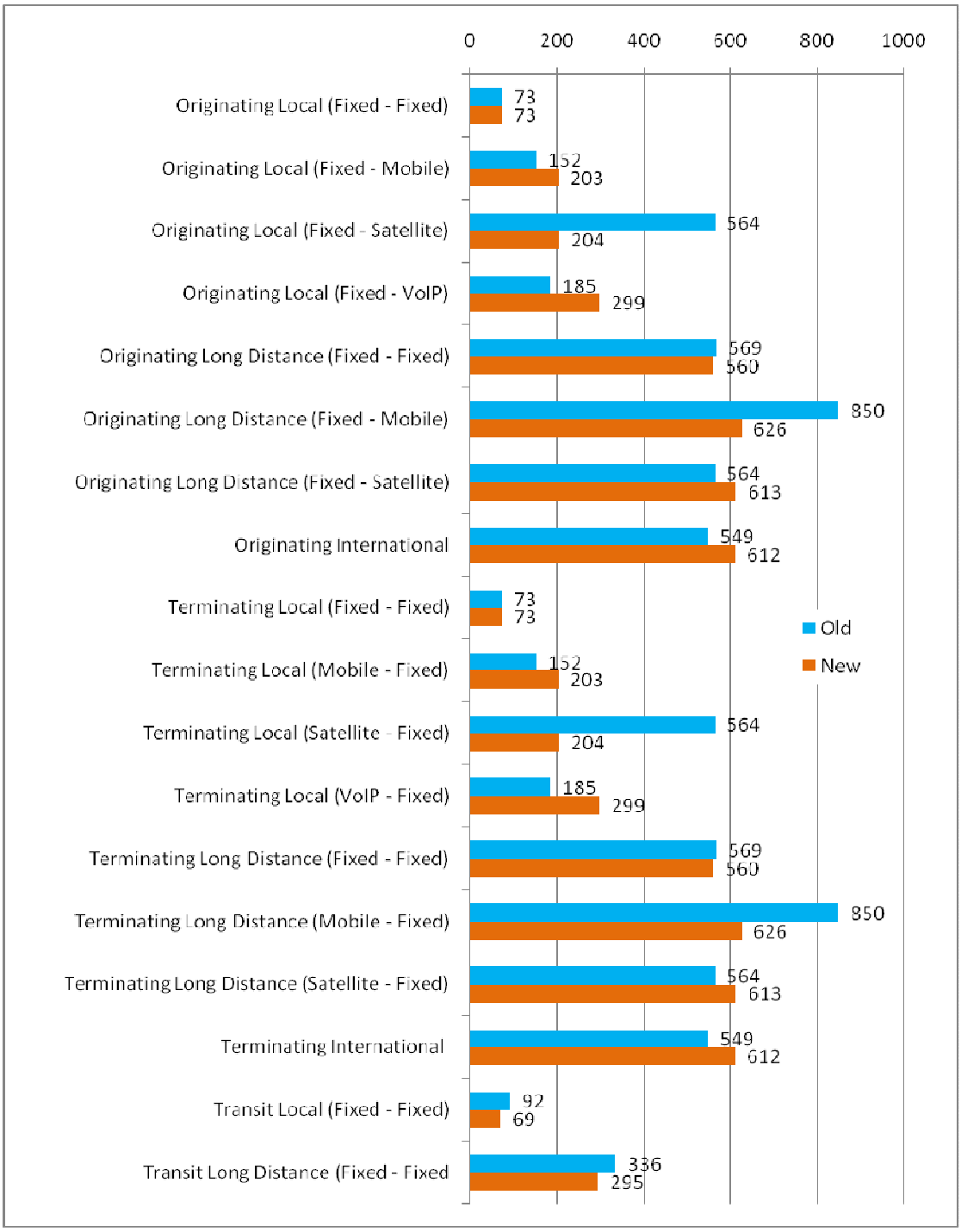
Annex I: Interconnection

A new interconnection regime was introduced in 2008 April. This has generally lowered the interconnection charges by 20-40%, except in few cases in long distance and international where it has actually increased.

Figure 19: Interconnection fees applied for fixed operators (both wire-line and wireless) in Rupiah (IDR) per minute

(1 USD = 9,425 IDR)[17]

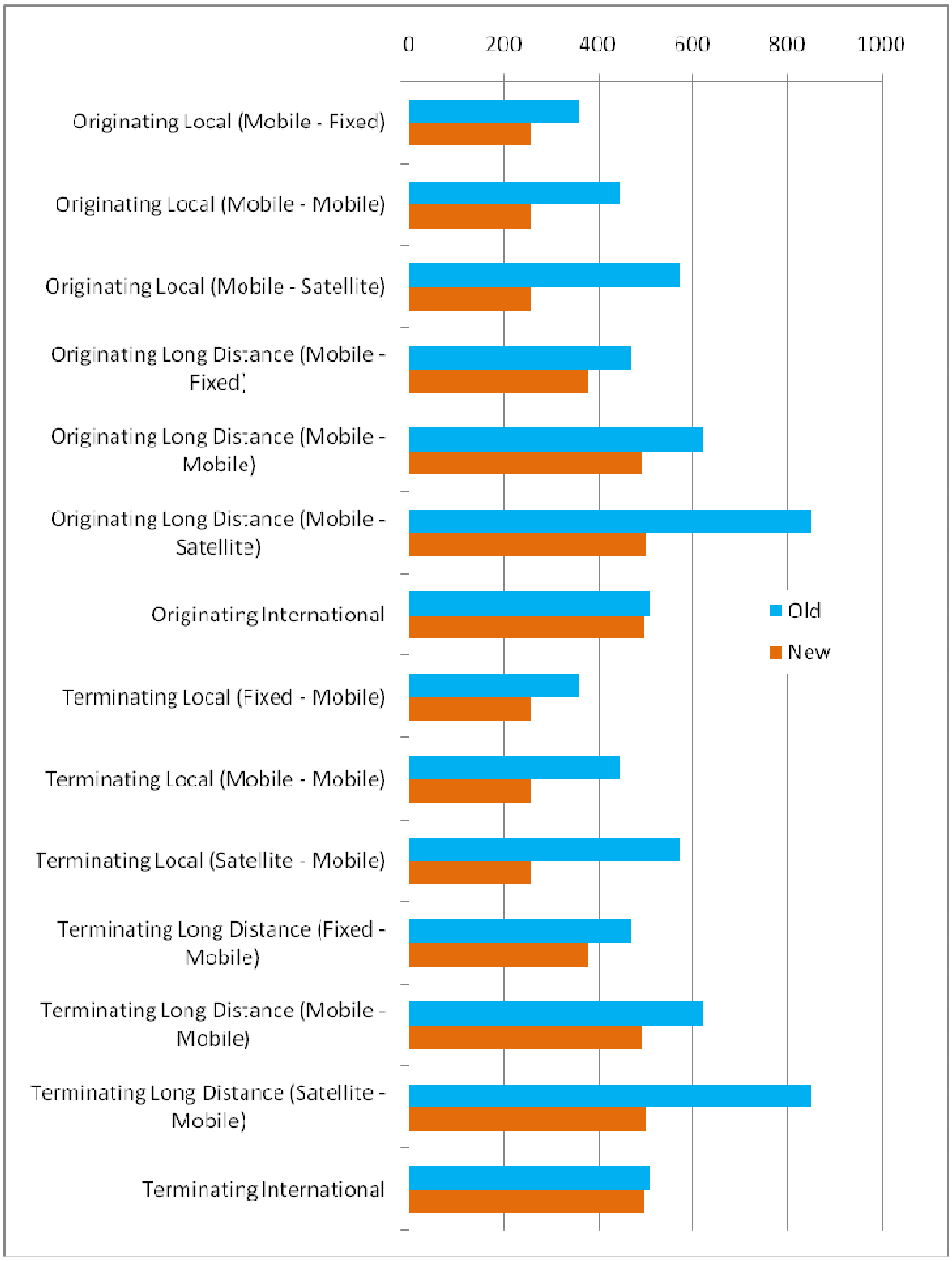


Source: BRTI data

[17] Conversion rate as of 17/09/2008, obtained from http://www.xe.com/ucc/convert.cgi

Figure 20: Interconnection charges applied for mobile operators in Rupiah (IDR) per minute

(1 USD = 9,425 IDR)[18]



Source: BRTI data

The rationale offered by BRTI for this modification of interconnection charges is the decrease in the cost of providing telecom services. BRTI has noted the investment per a

[18] Conversion rate as of 17/09/2008, obtained from http://www.xe.com/ucc/convert.cgi

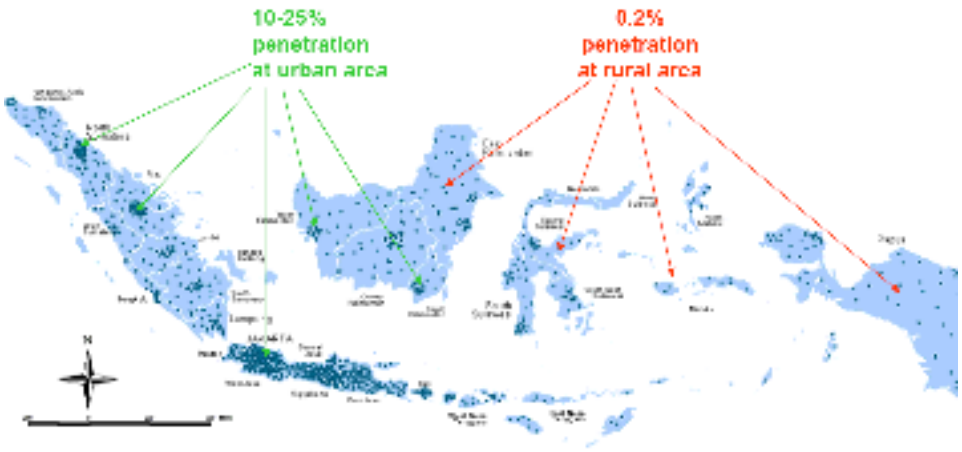
subscriber has dropped from USD 100 in 2003 to USD 35 in 2008. This was the combined impact of the expansion of mobile user base which subsequently led to more efficient network utilization and reduced overhead costs as a result of better business strategies. The regulator's implied intention is to pass the benefits to the end user.

Annex II: Urban Rural Disparities

Urban rural disparities are evident in telecom services penetration. According to the National Statistics Bureau's National Socio Economic Survey of 2005, 7.7 million (13%) own a fixed and 11.7 million (20%) own a mobile phone out of 58.8 million households. Out of the households with fixed phones 86% (6.6 million) are in urban areas. Mobile phone penetration looks marginally better with only 77% (9 million) households with a mobile phone in urban areas. (Donny & Mudiardjo, 2007)

Figure iii paints a general picture about the urban-rural disparities of telecom services penetration. It shows serious imbalances between the two sectors.

Figure 21: Telecom penetration in urban and rural Indonesia



Source: Sura, 2007

According to the National Statistics Bureau's National Socio Economic Survey of 2005, 2.2 million houses (or 3.68%) of the 58.8 million households had a computer, with 2 million of those are in the city. 27% of the computers were found to have Internet connection of some sort. (Donny & Mudiardjo, 2007)

Annex III: Satellite and fiber backbones

Given its geographical constrains, no doubt Indonesia needs to look for different solutions than most of its neighbours. Pure terrestrial networking will not work in an archipelago. It has to be complimented with networks such as satellite networking. PT Telekom launched the Telkom-2 satellite in November 2005. This adds capacity to an already established satellite communication channel previously established with the assistance of NASA[19]. However this too is hardly adequate to cover the entire nation, especially its sprawling 17,508 islands, with 43,000 villages. It is estimated that 3-6 more satellites with 24-transponder capacity are required to provide full coverage with 64k connections to every village. The third satellite is planned in 2009. (Donny & Mudiardjo, 2007)

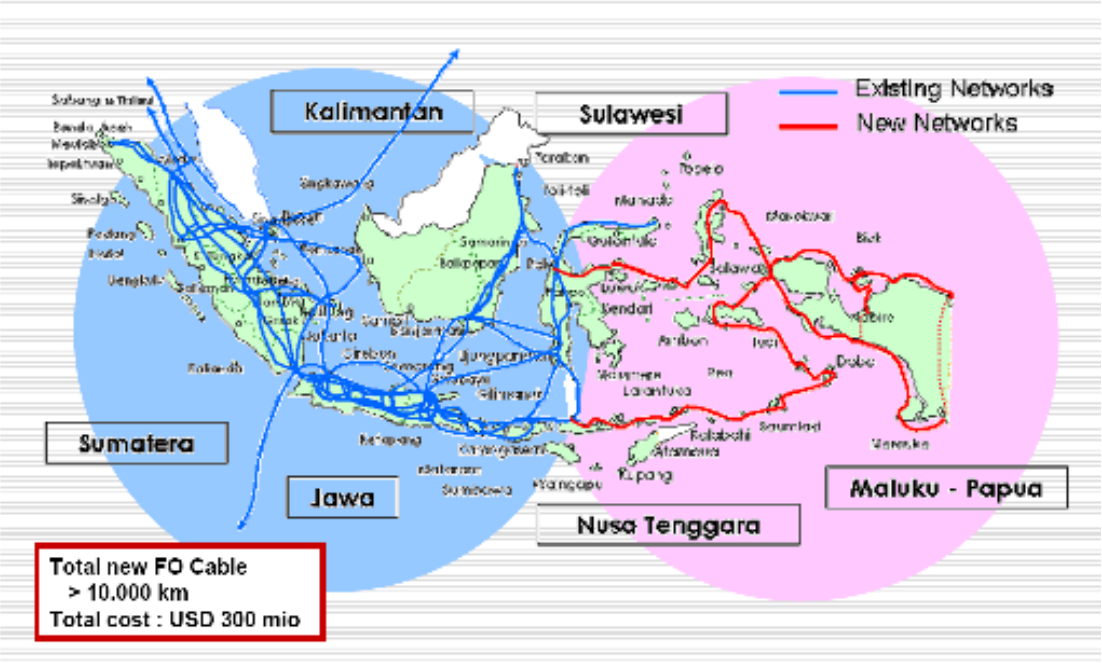
PT Indosat too awarded a contract to Thales Alenia Space to build and launch the Palapa-D communications satellite to replace its Palapa-C2 which is scheduled to end its operations in 2011. Doubts about its operation beyond 2009 have been expressed. This has most probably forced PT Indosat investing USD 200 – 300 million in a new satellite immediately to retain its current license. Palapa-D, scheduled to be placed in orbit in 2009, will offer more capacity than its predecessor with 24 standard C-band, 11 extended C-Band and five Ku-band transponders covering Asia, the Middle East and Australia. (Antara, 2008 & Satellite Today, 2007)

The estimated aggregate length of fiber optic backbone was 12,000 km in 2006. This is about 35,000 km less than required to serve the entire nation. The proposed solution is 'Palapa Ring' – a USD 500 million to 1 billion investment on building fiber. This too will not serve the needs completely, but link at least 25,000 km as an undersea cable network in an integrated ring shape extending from Sumatra to West Papua. The capacities of rings will vary from 300 - 10,000 Gbps. (Donny & Mudiardjo, 2007)

However, Palapa ring operation Eastern Indonesia, perhaps where it is needed the most, is planned to begin only in 2013. The eastern section of the backbone will be as long as 10,000 km, crossing Nusa Tenggara, Maluku, Papua through to the Celebes. Seven companies initially joined the Palapa Consortium project (PT Telkom as the coordinator, PT Bakrie Telecom, PT Excelcomindo Pratama, PT Macca System Infocom, PT Indosat, PT Infocom Elektrindo - a network provider of PT Mobile-8 and PT Powertek Nusantara) but before signing, PT Powertek Nusantara withdrew. Total estimated investment will be USD 325 million. Its backbone cable will stretch 11,000 km in Eastern Indonesian archipelago. (Indotel)

[19] In March 1997, NASA launched 'Palapa B2P', a communication satellite to be used by Indonesia and five other nations in Southwest Pacific. Indonesia spent $50 million on this. (New York Times, 1987)

Figure 22: Palapa Ring Development – Existing and Planned



Source: BRTI

Annex IV:

TRE Summary of Regulatory Events

Key Regulatory Events for Indonesia; 2007 May -2008 April

2007	
May 16	Cellular operator PT Mobile-8 Telecom gets principle permit for wireless fix network operation. Its shareholders are PT Telekomindo Selular Raya (Telesera), PT Metro Selular Nusantara (Metrosel) and PT Komunikasi Selular Indonesia. It is a public listed company.
May 25	BRTI sends a letter to PT Telkom to unblock IDD access code 001 and 008 (owned by PT Indosat) by their retail kiosks selling telecom facilities. BRTI considers PT Telkom's blocking as breaching the Law of Anti Monopoly Practice and Unfair Business Competition.
June 29	Singapore Telecommunications is under scrutiny by Indonesia's business competition commission over allegations on monopolistic practices. SingTel Mobile Pte Ltd and SingTel are called before KPPU. Temasek Holdings Pte Ltd, a Singapore's investment company is alleged for overpricing.
July	House of Representative's Commission I which oversees telecommunications tells government to provide public cheap telecom service through industry reforms. The Minister of Communication and Information responds by asking cellular operators to disclose their cost structure.

September	KPPU claims tariff-fixing practices among telecom operators. KPPU orders PT Telkomsel to lower tariff and considers Temasek holding monopoly over Indonesian telecommunications sector through its shares in PT Indosat and PT Telkomsel. Temasek and nine other parties (sub-companies) are fined Rp 250 billion (USD 27 million).
September 19	PT Bakrie Telecom wins new international license tender by beating PT Excelcomindo Pratama and PT Natrindo. Bakrie is obliged to develop SGI. Bakrie says it will invest Rp 184 billion (USD 20 million) in 2008 to develop international network line infrastructure.
November	Palapa Ring Consortium – a mega broadband project initiated by government plans to develop telecommunications in Eastern Indonesia. It uses submarine cable for backbone. Last mile will be provided by the operators. Seven companies initially joined the Palapa Consortium project (PT Telkom (coordinator), PT Bakrie Telecom, PT Excelcomindo Pratama, PT Macca System Infocom, PT Indosat, PT Infocom Elektrindo - a network provider of PT Mobile-8 and PT Powertek Nusantara) but before signing, PT Powertek Nusantara withdrew. Total estimated investment will be Rp 3 trillion (USD 325 million). Its backbone cable will stretch 11,000 km in Eastern Indonesian archipelago.
November 1	ID-SIRTII begins its operations after two years of preparation. It is under DGPT and set up Telecommunications Law. Its key task is to maintain an internet monitoring and security system database. It also acts as contact point for domestic and international agencies on internet security.
November 5	BRTI disseminates their findings on the requirement to amend Indonesian telecommunications law.
December	Cancellation of USO tender. Eleven Indonesian telecom companies have submitted their bids and two are declared eligible (PT Telkom and PT ACES). Last minute decision declares both ineligible. Tender process is halted indefinitely. PT ACES takes legal action against DGPT.
2008	
March 25	Indonesia introduces cyberlaws. Electronic Information and Transaction Act provide additional legal foundation for ID-SIRTII.
April 4	BRTI is successful in having PT Telkom and PT Indosat opening their access codes. This comes under fourth Amendment to FTP.
April 7	Minister of Communication and Information orders APJII to block sites that hosts ‘Fitna’ - a video movie made by a Dutch MP and considered offensive to Moslem majority. YouTube is blocked for 7 days. Minister also requests YouTube to drop ‘Fitna’.

April 9	Minister of Communication and Information signs new regulations on Telecom towers. Now only 100% locally owned companies can own and manage towers. Industry asks for clarifications as BKPM's negative list allows foreign companies to own and manage buildings/towers. Telco companies with foreign investment such as PT Telkom, PT Indosat, PT Hutchison Indonesia and PT Excelcomindo Pratama are affected by this ministerial decree as they have built and manage their towers since the beginning of their operation. However as a compromise, BKPM allows telco companies publicly listed in Indonesian Stock Exchange can be considered local owned.
April 9	To avoid consumer confusion, BRTI sends letters to all operators requesting them to be clear in advertising tariffs/packages. This comes after a BRTI's public hearing.
April 14	BRTI releases set of rules regarding leased lines. Point to point interconnection charges are expected to decrease by these new rules.