

Indonesia Telecom Brief

By Ken Zita



Indonesia passed a watershed telecommunications law in 1999 that set in motion a sweeping array of reforms and enlivened competition policy, private investment and long term industry direction. The new legislative era, part of a national reawakening following the fall of former president Suharto, ended the traditional state monopolies and intricate array of prohibitions on direct private investment in communications infrastructure.

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Following the economic downturn of 2001, a wave of consolidation and M&A activity swept the market. Telecom powerhouses from Singapore took advantage of the newly liberalized investment environment and acquired significant positions in PT Telkom and PT Indosat, respective leaders in domestic and international services. More recently Malaysian investors have made huge financial commitments in Indonesian mobile. The new climate for equity investment is a welcome departure from a disastrous experiment with build-operate-transfer agreements in the 1990s that collectively absorbed an estimated \$10 billion from Blue Chip foreign operating partners in ventures that have almost all failed.

While Telekom has lopsided market power, new entrants are challenging its stand, primarily in mobile services. The mobile market is forecast to double from 30 million subscribers today to 60 million by 2007. Opportunities are also emerging in wireless local loop, primarily through CDMA initiatives, but entry barriers remain high as Telkom's shadow falls heavily on the last mile. Indonesia was slow to create an independent Telecom Regulatory Agency, and the new BRTI, which began operation in early 2004, is still finding its way as a neutral referee for the sector to promote effective competition.

Despite rapid expansion of mobile services, net teledensity remains low (4 percent for fixed, and 13.4 percent for mobile), and the government is rightly concerned that lack of access will negatively impact economic and social progress. Persistent universal

service shortcomings have

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Key Indicators

Indonesia	
Population	220 million
GDP	\$232.5 billion
GDP real growth*	5.1 percent
GDP per capita	\$116
Literacy	87.9 percent
Phone lines	9.61 million
Telephone density	4.0
Mobile phones	30 million
Mobile density	13.4

Sources: CIA Factbook, US Department of State, Network Dynamics Associates



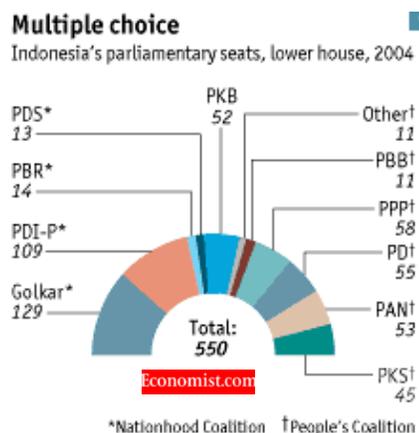
prompted the state to return to direct investments in telecom for the first time since 1985 with an ambitious \$900 million submarine fiber optic ring. The Palapa O2R project is intended to establish a national backbone that can in turn stimulate innovation and investment in the last mile. While country risk remains high, Indonesia has finally settled on a stable policy course that should continue to spur growth.

Political and Economic Brief

Over the past six years, Indonesia has undergone a remarkable transformation from near-dictatorship to vigorous democracy. Following a military coup in 1965 until 1998, Indonesia's political establishment was a closely controlled edifice led by former president Suharto. In mid-1997, Indonesia was badly afflicted by the Asian financial and economic crisis, accompanied by the worst drought in 50 years and falling prices for oil, gas, and other commodity exports. The rupiah plummeted, inflation soared, and capital flight accelerated. Demonstrators, initially led by students, called for Suharto's resignation. Amidst widespread civil unrest, Suharto resigned on May 21, 1998.¹ Indonesia's first elections in 44 years were held for the national, provincial, and sub-provincial parliaments on June 7, 1999. The new legislature grappled with the responsibilities of power. Unlike the old parliament, which elected Suharto unopposed seven times, the newly assertive body nominated and retired three different presidents in the three years following Suharto's resignation²: B.J. Habibie (1998), Abdurrahman Wahid (1999) and Megawati Soekarnoputri (2001).

Indonesians directly elected their President and Vice President for the first time in 2004. Five tickets competed in a July 2004 first-round election and a runoff election between the top two candidates – President Megawati Soekarnoputri and retired General Susilo Bambang Yudhoyono – was held in September. Yudhoyono won slightly over 60 percent of the national vote and was inaugurated President in October 2004.

Indonesia also elected a new 550 member House of Representatives (DPR) in the 2004 election as well as a 128-member House of Regional Representatives (DPD). (Lawmaking authority rests solely in the DPR while the DPD has a consultative role.) Unlike the political uniformity of the past, when only three (captive) parties participated in elections, twenty-four political parties vied for roles in 2004. The Golkar party, closely identified with Suharto-era governance, regained a plurality in the DPR, winning approximately 23 percent of the vote and 128 DPR seats. Then-President Megawati's Indonesian Democratic Party of Struggle lost its plurality, receiving less than 20 percent of the vote and 109 DPR seats. Five other parties won at least 45 DPR seats, while eight



¹ This section excerpted from the State Department Background Note on Indonesia:

<http://www.state.gov/r/pa/ei/bgn/2748.htm> and the Department of Commerce Country Commercial Guide 2004 (draft).

² The Economist, SURVEY: INDONESIA. Time to deliver. Dec 9th 2004

smaller parties also have representation in the DPR. The figure from *The Economist* shows the breakdown of seats by party.

All members of the DPR are now directly elected whereas in the past institutional representatives of the Armed Forces and the Police were allocated seats in the parliament. In January 2001, the Government began an ambitious decentralization of political and economic authority to the districts. Direct election of provincial governors, regents (county level executives) and mayors, who are now indirectly elected by local assemblies, will begin in 2005.



The Government faces great challenges in consolidating Indonesia's democratic transition, restoring the country's economic momentum, and in bringing the benefits of development to all Indonesia's citizens. Among the key political issues with economic implications are periodic outbreaks of communal violence around the country, particularly in the Moluccas; an armed separatist insurgency in Aceh and demands for greater autonomy or independence in Papua. The presence of the regional terrorist organization Jemaah Islamiyah (JI); and deep-seated weaknesses in the rule of law at all levels throughout the country are other significant concerns. In 1999 the Indonesian Government enabled East Timor to secede, and it became a sovereign country on May 20, 2002. The transition process, monitored by the UN, was plagued by widespread violence. Separately, a bomb that killed 200 people in Bali in October 2002 was the deadliest terrorist attack the world had seen since September 11th 2001. On December 26, 2004, a massive earthquake and tsunami hit Aceh and North Sumatra, leaving over 200,000 people dead or missing. After the disaster, the government and the separatist Free Aceh Movement (GAM) began negotiations to find a settlement to the armed separatist struggle in Aceh that has been ongoing for almost three decades. The Indonesian government is now playing a leading role in the planning for a region Indian Ocean warning system.

Economy

The Indonesian economy grew by an estimated 4.8 percent in 2004 and is expected to post a similar return, or about 5 percent, in 2005. This growth is not enough to absorb the estimated 2.5 million new job seekers entering the market every year, according to US Department of State estimates. With a population of 220 million, Indonesia is the fourth most populous nation in the world and the largest by far in Southeast Asia. Its labor demands are acute. The tsunami disaster in December 2004 is projected to have only a modest knock-on effect on economic growth. The World Bank forecasts that the disaster is only expected to dip GDP by 0.4 percent in 2005 – still in line with the government's own forecast. The Bank estimates the cost of rebuilding at about \$5.0 billion.



Key indicators suggest that Indonesia's economy is faring reasonably well. Conservative fiscal and monetary policies reduced inflation, lowered interest rates, and prompted a modest appreciation in the value of the rupiah. Regrettably the good macroeconomic performance has not translated into exceptional annual growth. Investors remain wary about the Indonesian market as the government has yet to follow through on the difficult structural reforms needed to improve the legal system, reduce corruption, and encourage investors to return.³ Direct foreign investment is down, with net capital outflow leading inflows in the recent period (see figure). But the rupiah has appreciated dramatically, improving fiscal conditions. With the updraft of currency stability, and with the government steadily selling down assets, public debt has been reduced from almost 100% of GDP in 2000 to less than 60 percent in 2004. Inflation now hovers at around 6 percent. Real interest rates have reached their lowest point in Indonesian history, and consumer credit – and consumer spending – is fueling the current period of relative economic optimism and stability.

The poverty rate still weighs down overall growth and economic optimism. While an inexact science, Statistics Indonesia (BPS) estimates that as many as 47 million people, or 23.7 percent of the population, live below the poverty line in 1999. This estimate is revised from an initial government study that placed the level of destitute at 39.7 percent. The number of Indonesians subsisting on less than \$2 a day, according to the World Bank and NGOs, remains about 50 percent -- slightly above the Bank's poverty line, and a percentage that remains where it was in 1996. Estimated per capita income was \$867 in 2004, though purchasing power parity was about \$3230, according to UNDP. With such a large discrepancy between macro and micro numbers, it is not surprising that consumer demand was the leading force driving economic growth, supported by a substantial rise in property prices.

The Indonesian Chamber of Commerce and Industry (Kadin) and the Coordinating Ministry for Economic Affairs (BAPPENAS) co-hosted Indonesia's first "Infrastructure Summit" in January 2005. The goal, according to government sponsors, was to jump-start spending on infrastructure, which slumped from approximately 5.34 percent of GDP in 1993/1994. Some 45 percent of Indonesian households do not have access to electricity. President Yudhoyono has made infrastructure development a pillar of his five-year economic development strategy, under which he hopes to raise GDP growth from 4.5 to 7.2 percent by 2009, reduce unemployment from 9 to 5.1 percent, and lower income poverty rates from 16.6 to 8.2 percent of Indonesia's population.⁴

Telecom Policy Environment

The unfolding and reform of Indonesia's recent telecom policy can be best understood in two broad phases:

Phase 1: 1989-1999:

- Adoption of Telecommunications Law No. 3 (1989)
- Partial privatization of the state-owned network enterprises, Telkom and Indosat

³ 2004 Country Commercial Guide: Indonesia. U.S. Commercial Service and the U.S. Department of State, 2003.

⁴ <http://www.usembassyjakarta.org/econ/infra-summit05/infrastructure-summit.html>



- Introduction in 1995 of ‘KSO’ build, operate, transfer (BOT) investment arrangements with foreigners
- Fundamental policy review as part of the recovery from the 1997-1998 Asian financial crisis

Phase 2: 1999 – present

- Adoption of Telecommunications Law No. 36 (1999)
- Creation of an independent regulator
- Lifting of the respective monopolies for Telkom and Indosat, allowing limiting competition in local, long distance and international services
- Gradual introduction of competition in all services
- Formal offer to the WTO for telecommunications services.

The first stage of market opening came in 1989 with Law Number 3 allowing nine local companies to enter into build-transfer agreements known as PBH (*Pola Bagi Hasil*) with state-monopoly Telkom, a prelude to the familiar KSOs that came later. After building out networks under concession, companies transferred ownership to Telkom in return for a share of the service revenues.

In the early 1990s it became clear that the government did not have the investment capital needed to raise network teledensity even to world emerging market average (about 2.5 in 1992). Foreigners were for the first time allowed to make direct equity investments in value-added services such as paging and email in 1993. In 1994, a watershed initiative was passed (Decree Number 39) that established the KSO joint operating schemes (from the Bahasa *Kerja Sama Operasi*). The KSOs invited foreign operating companies to bid for regional Build-Operate-Transfer (BOT) arrangements with Telkom for up to 2 million lines each. The plan was meant to be the ‘big bang’ for the sector, an ambitious spawning of quasi ‘baby bells’ with serious backers and the financial resources and energy to exploit Indonesia’s growth potential.

Many of the premier global operators jumped in. Cable & Wireless, France Telecom, NTT, Singapore Telecom, US West and Telstra all placed their bets. Foreign partners typically committed up to 95 percent of the capital while sharing 70 percent of revenues. In addition to putting Indonesia on the global telecoms map, earning unprecedented market credibility for Indonesia worldwide, the KSO structure had a more tangible impact: paving the way for a stratospheric valuation for Telkom’s IPO in New York. At one stage after listing the company’s worth rose to a heady \$18 billion. Unlike Thailand’s BTO schemes, where the leading partners were local Thai companies, in Indonesia the principal partners were all overseas companies:

The high hopes of the KSO period fell spectacularly. With the exception of SingTel all the foreign KSO partners either exited their position – or have gone to court. An estimated \$10 billion was lost through the arrangements. Hardly anyone involved can spare a positive word about the experience. The most common complaint is that Telkom’s bureaucracy resisted the



nominal break-up plan from the start. Political upheaval within the government – power changed hands four times in three years – dramatically increased risk and investment exposure. The financial crisis and devaluation of the rupiah ruined financial models. Allegations of corruption were rife. With no ready equity exit the BOT structure also became less desirable relative to potential investments in other countries. By the time the full impact of the financial crisis set in, foreign partners were keen to quit the market. State-owned SingTel’s perseverance appears to be a reflection of the importance of the strategic relationship between Singapore and Indonesia.

Faced with the collapse of the KSOs, plus keen pressure from the IMF for aggressive fiscal reform, the government issued a *Telecommunications Blueprint* in 1999. Together with Law 36, the two documents set the stage for sector liberalization.⁵ According to US Trade Representative (USTR), the law, which went into force in 2000, “lays out goals that exceed many of the modest commitments Indonesia agreed to under the *WTO Basic Telecommunications Agreement* (maximum foreign investment limit of 35 percent for telecommunications services companies) and the *WTO Pro-Competition Annex in 1997* (transparent regulatory procedures, nondiscriminatory licensing, and competitive safeguards for companies operating in Indonesian markets).”⁶ The Law lifted Telkom’s and Indosat’s respective monopolies over domestic and international services in 2002 as a first step towards the expectation of full competition this year, a target moved forward from 2010. It also terminated the right to exclusive provision of services.

An important byproduct of the restructuring period involved the unwinding of Byzantine cross-ownership arrangements between Telkom and Indosat, a veritable boon to both Indonesian and international lawyers. Under an MOU signed in 2001, Telkom acquired Indosat’s 35 percent shareholding in cellular operator Telkomsel, and Indosat acquired Telkom’s 22.5 percent shareholding in Satelindo. The ownership of Telkomsel and Satelindo was further streamlined when KPN (The Netherlands) and Sedco sold their combined 22.3 percent share in Telkomsel to Singtel Mobile, raising its total shareholding to 35 percent, while Bima Graha and Deutsche Telekom sold their 70 percent combined stake in Satelindo to Indosat.

In 2002 the Government also further privatized Telkom and Indosat, selling down the state share in Telkom from 64 to 51 percent through private placements, mostly to overseas investors. Significantly, the position in Indosat was reduced to 15 percent through a competitive sale of 42 percent to Singapore Technologies Telemedia (STT), a subsidiary company of Temasek, the Singapore Government’s investment arm. STT is the major shareholder of Starhub Cable Vision, a merger of mobile operator Starhub and Singapore’s broadband cable TV service. Temasek owns 100 percent of STT and 65 percent of Singtel. This means the Singapore Government directly and indirectly owns large stakes in Indonesia’s two leading communications services providers.

The pace of inter-regional investment linkages among Southeast Asian operators is accelerating. Telekom Malaysia bought 27 percent of Indonesia’s third mobile cellular network, Excelcomindo, Maxis of Malaysia bought a controlling stake in mobile operator Natrindo (Lippo

⁵ An unofficial English translation by Mastel (Indonesian Telecommunication Society) can be found at <http://www.trp.hku.hk/infofile/indonesia/2002/mastel.pdf>

⁶ http://www.ustr.gov/assets/Document_Library/Reports_Publications/2004/2004_National_Trade_Estimate/2004_NTE_Report/asset_upload_file322_4774.pdf



Telecom), Thailand's Charoen Pokphand Group won a 3G cellular license for a start-up company, PT. Cyber Access Communications and Korea Telecom and Qualcomm are joint investors in the CDMA 1x play, Mobile 8. All this activity underscores the degree to which Indonesia has shifted towards accepting foreign ownership and foreign capital, as well as the strategic importance attached to regional expansion by both Singapore and Malaysia.

The net impact is steep consolidation into a small number of operators for such a large country. There is a policy mandated duopoly in fixed services until 2005 with just two operators (Telkom and Indosat), an effective triopoly for international (Indosat/Satelindo and Telkom), and four nationwide providers of mobile (Telkomsel, Indosat, Excelcomindo, Natrindo/Maxis, which until now is a greenfield startup).

Regulatory Authority

The Indonesian Telecom Regulatory Agency, BRTI (*Badan Regulasi Telekomunikasi Indonesia*), was approved in 2003 and began its formal role in January 2004. The 1999 Telecommunications Act is somewhat vague about the degree of autonomy the BRTI is actually meant to have, raising doubts about how impartial or how independent the BRTI can be in handling disputes. The DGT chairs the five-member Telecommunications Regulation Commission (KRTI) of BRTI. BRTI is widely considered to be under-resourced, leaving room for confusion as to where real regulatory authority resides. The first tests of the BRTI's mandate are expected to relate to competition with Telkom, and specifically regarding interconnection, unbundling, VoIP and PSTN licensing.

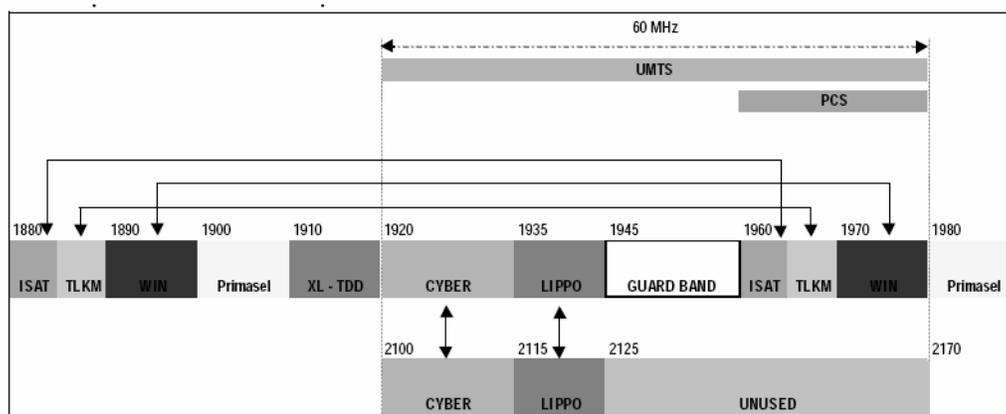
The 1999 Law requires a move towards cost-based interconnection charges based on the long run incremental cost model (LRIC). However, the World Bank notes that 'the DGPT has acknowledged that it is poorly equipped to deal with the emerging problems in this area.' The 1999 Act empowers the DGPT to impose interconnection arrangements if commercial parties cannot agree terms. The consultancy firm Ovum was engaged to recommend an interconnection reference model starting 2005 even as Telkom and Indosat have negotiated their own arrangements based on revenue-sharing. The DGT also appointed a company to run a centralized Telecommunication Traffic Clearing System (SKTT) to create a common Call Data Record (CDR) independent of the operators, a move resisted by the major GSM mobile service providers who have been negotiating their own interconnection of traffic for voice, short message services (SMS) and multimedia messaging services (MMS). Naturally, Telkomsel and Indosat, with 85 percent of the market between them, favor a sender-keeps-all arrangement. According to the *Jakarta Post*, 30 October 2004, interconnect accounted for over 17 percent of Telkom revenue.

Efforts to rebalance tariffs in light of the 1999 reform package have been difficult. Initial efforts in 2002 to raise the price of local calls about 20 percent failed when the government retreated on utility price hikes. The government backed off its plan to raise telephone tariffs in 2002 due to public outcry but managed a 28 percent increase in 2004. Part of the resistance to raising local call charges has come from cellular operators. The mobile-fixed interconnection charge is set at 50 percent of the local call charge: in 2004 users of cellphones making calls to the PSTN. While Indonesia's PSTN charges are among the lowest in Asia, mobile cellular charges remain among the highest.



One of DGPT's priorities has been to improve the management of radio spectrum but the jury is out on its success. Although the 1999 Act does allow for the use of auctions in spectrum assignment, none has yet been used. Direct allocations have been applied instead. The regulator has created the perception of increased market risk by not clearly indicating its strategy for future frequency assignments. To date 3G blocks have been awarded to Cyber Access and Natrindo, both Greenfield operators. Telkomsel, Satelindo and Excelcomindo, the three big mobile operators, are so far out of the running. Potential frequency overlap will need to be resolved between fixed wireless systems, largely built around CDMA technology, and the UMTS band plan. Telkom's Flexi service and Indosat's Star One service occupy frequencies that may conflict with ITU recommendations. Telkom Flexi occupies 1885-1890 MHz (uplink) and 1965-1970 (downlink). StarOne occupies frequencies at 1880-1885 MHz (uplink) and 1960-1965 (downlink).

Indonesia Mobile and PCS Spectrum Band Plan



Source: Indonesian Cellular Association, Merrill Lynch

A 5-Year Action Plan for the Development and Implementation of ICTs issued by Presidential Instruction No.6/2001 lays out a framework for policy development in telecoms, IT and e-commerce. It will be implemented by the Telematics Coordinating Team (TKTI or *Tim Koordinasi Telematika Indonesia*) appointed by Presidential Decree No. 9/2003. The TKTI is a Government effort to coordinate across State agencies, including the universal service program aimed at bringing Internet access to 2000 schools each year through the 'one school, one laboratory' (OSOL) project. It is responsible for infrastructure, applications, legal structures, human resources, finance and investment, standardization issues and e-government. Following the success of Wartels, or street phone kiosks, and Warnets, or Internet cafes, of which there are over 2000, the TKTI also wants to promote IT cafes.

Currently the population of PCs is estimated at 5.5 to 6 million. In 2004 there were 1,087,428 internet subscribers and 11,226,143 users, according to the Indonesian Association of Internet Service Providers. Less than 20 percent of content is in the local Bahasa language. The ITU sees a potential for only 30 million Internet subscribers by 2015.

The ISP market is dominated by Telkom's TelkomNet Instan which is estimated to have 48 percent market share. Other prominent providers include Cyberindo Aditama (CBN), Centrin, Radnet, Indonet and Supra Primatama Nusantara (Biznet).

Telecommunications Market Environment

Currently there are 9.1 million fixed telephone lines in Indonesia yielding a national teledensity of about 4 lines per 100 population. Local access networks are however concentrated in main cities and towns. Jakarta alone is thought to accounts for half of all lines, and many of the country's 17,508 islands are poorly served. In 2000 the government estimated that out of nearly 70,000 villages across

Indonesia, 43,000 or over 60 percent had no access to telecommunications.

Teledensity per 100 People						
Year	1998	1999	2000	2001	2002	2003
Fixed line	2.7	2.9	3.2	3.4	3.7	4.0
Mobile	0.6	1.1	1.8	3.1	5.4	8.1
Internet	0.3	0.5	1.1	2.0	2.8	3.4

The World Bank puts

Indonesia's investment needs

into perspective. It estimates that for Indonesia to raise its mainline teledensity from its current level of around 4 percent to reach the level of China in 2001 within 5 years (around 14 percent), an additional 4.4 million lines are required each year. If capital costs fall to \$80 per line using fixed wireless technology, annual investment of at least \$350 million is required (Telkom's total pre-tax operating revenues from fixed line services in 2001 was \$970 million). Mastel, the Indonesian Telecommunications Society (www.mastel.or.id), points out that the DGT's demand forecasts of 32 million fixed lines by 2015 would only raise Indonesia's teledensity to just over 12 percent, a target it believes is unlikely to be met by a duopoly.

Telkom is Indonesia's largest operator and in which that government owns a 52.19 percent share. Telkom President Kristiono has stated that the funds will be used to gain 6 million new cellular subscribers, 400,000 fixed line users and 1.5 million subscribers to its wireless local loop service, Flexi. Fixed-line and Flexi subscribers combined are expected to increase to 11 million subscribers. Total capital expenditure for 2005 will be around 5.57 billion rupiah (\$596 million), broken down as follows:

- 21,2% for Transport/Core Network (\$126 million),
- 62,0% for Access Network (including Service Node) (\$369 million)
- 16.8% for Common Services (\$100 million).

Examples of specific Telkom projects within these three broad categories include:

Transport Network

- Submarine cables,
- Metropolitan area network/regional metro junction network,
- Long-haul transmission fiber optic,
- IP/Multimedia platforms (trunk gateway/soft switch class-4)



Access Network

- Fixed Wireless Network (CDMA 2000-1X),
- XDSL (for broad-band services: IP TV, Triple Play Option, VoIP, VoBB, Gigabit Ethernet),
- Optical Access Network / Digital Loop Carrier (for narrow-band services: FTTB, FTTH, FTTC),
- TDM Switch Signaling V5.2,
- IP/Multimedia platforms (soft switch class-5)

Common Services

- Supporting Facilities (such as building, Power Plant),
- Operation Support System,
- Interconnection,
- Call Center,
- Billing.

The growth in capex for 2006 is forecast to grow by a third to about \$800 million, but the composition of the spending is expected to be distributed slightly differently:

- 30.15 % for Transport/Core Network (\$240 million)
- 35.68 % for Access Network (including Service Node/Switching) (\$285 million)
- 21.29 % for Common Services (\$170 million).

Flexi is a CDMA2000 1x network operating at both 800 MHz and 1900MHz. The Gale Group estimates that the service reached 1 million subscribers in 114 cities as of August 2004, utilizing a total of 1179 base stations, and that it will grow to reach 191 cities by 2005. Telkom is expected to spend \$200 million annually on Flexi.⁷ Motorola sold at \$30 million worth of equipment in 2003 for Sumatra, and the system is IP-capable, with data platforms provided by Cisco. Samsung has also reported providing Telkom with \$200 million contract for up to 1.6 million subscribers MSC capacity and 800,000 base station subscriber lines. Merrill Lynch estimates that Flexi has 92 percent share of the WLL market.

Indosat, meanwhile, is pinning its competitive entry on its rival fixed wireless access (FWA) brand 'Star One'. Star One had nearly 25,000 users by end 2004, 50 percent in Jakarta, of which around 75 percent were pre-paid. In March 2005 it announced a plan to spend \$40 million on a 500,000-line fixed wireless network serving Jakarta (300,000 lines) and Surabaya (200,000 lines). Indosat expect to spend up to \$116 million annually on fixed wireless services in the years to come. Press reports indicate that Indosat is open to revenue-sharing agreements for last-mile network deployment. Potential partners are required pay into escrow around \$70 per line, a figure that is estimated to be close to actual cost of the infrastructure.

⁷ Indonesian Commercial Newsletter, 38. ISSN: 0853-2036; Volume 29; Issue 395, Copyright 2004 Gale Group Inc.



Others are eager to compete in the FWA sector. Ratelindo, owned by Bakrie Telecom and licensed in 1993 to operate a fixed cellular service, is seeking a nationwide license to compete with Telkom and Inmost. It already provides data communications and voice over CDMA 2000 1x. Using wireless and fixed-wireless local loop also has an advantage of minimizing the always contentious issue of unbundling, although the core interconnection issue remains. PT Wireless Indonesia (WIN), a cellular telecommunication network and service provider in Indonesia, has selected Airvana to enable high-speed wireless and broadband data services for its CDMA2000 1xEV-DO network in Indonesia. Other companies still operating under the PBH revenue-sharing arrangements dating back to 1989 include Batam Bintan Telkom in Riau Province (Sumatra) and Ratelindo Telecom (the 'Esia' brand owned by Bakrie Telecom) in Jakarta, Bandung and West Java also offer fixed wireless connections.

While Indosat/Satelindo attempts to enter the domestic PSTN market through fixed-wireless technology, Telkom is attacking the international call market. Indosat/Satelindo have hit back with both pre-paid and post-paid VoIP and calling card services of their own with similar and even greater discounts. Continued loss of market share is inevitable. So is the decline of international revenue in total revenue, from over 70 percent to less than 30 percent 2000-2003, and as mobile revenues rise to over 50 percent. It is unclear if the national domestic PSTN duopoly will continue to 2010. Ministerial annual review may eventually see competitive entry and interconnection as a more effective path to investment in the PSTN than the continuation of the revenue-sharing approach of the early 1990s.

Since 1985 no Government budget has been allocated to providing universal service. Following the collapse of the KSO schemes and failure to implement tariff rebalancing, the Government announced its master plan. In it the DGT is scheduled to provide basic access services to 43,000 unserved villages by 2015 at a cost of Rp 2.14 trillion (\$23 billion). An estimated 3,000 lines were deployed in 2003. An estimated \$50 million was allocated for an additional 3,500 lines in 2004. Expansion funding is hoped to come from a universal service fund, into which telecom operators will pay 0.75 percent of annual gross revenues (after deduction of bad debts and interconnection fees). Local governments contribute grants and land acquisitions to house the facilities. Priority is given to villages with existing technical support, such as a suitable site, an electricity supply, and proximity to an existing telephone exchange. The gap between the plan and projected funding is believed to be large.

The Government is also planning new financial support for backbone networks. DGT, with the support of BAPPENAS, the national planning agency, has proposed a multi-agency offshore optical fiber ring project, the Palapa Ring O2R network, to link the islands by 2010.

WiMax and WiFi are likely to see rapid growth in the near term. In the early stages private partnerships may be a key driver for growth, especially with non-governmental organizations. By late 2004 over 20 operators provided WiFi Internet access over frequencies ranging from 2.5 GHz up to 10.5 GHz of unlicensed spectrum. WiFi and VoIP are seen by community activists in Indonesia as a cheap and effective way to bring telephony and Internet access to under-served areas.



Mobile Market

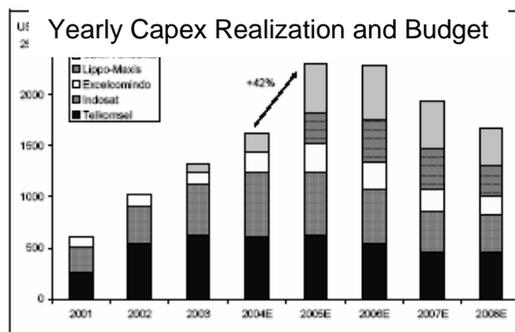
Indonesia’s mobile sector remains one of the least developed in Asia. At year-end 2004 it had a mobile penetration rate of about 13.4 percent with an estimated 30 million mobile users. This penetration figure compares to 35 percent or higher for countries with similar levels of per capita income such as China and the Philippines. So far, cellular services have chiefly served middle-class urbanites that also have access to fixed-line services. As such, mobile has only just begun to have a net impact on previously un-served segments of the population. Analysts forecast subscription levels might double to 60 million subscribers by 2007, or about 36 percent penetration. An estimated 95 percent of subscribers have pre-paid accounts.



In the post-consolidation era, Indonesia now has three principle mobile GSM operators accounting for approximately 95 percent of users:

- *Telkomsel*, the mobile arm of Telkom that is partnered with Singapore Telecom, is the country's largest mobile operator with nearly 16 million subscribers and an estimated 48 percent share. It claims to be the only operator providing service to all of Indonesia's 440 local regencies. It expects to grow 39 percent to 21 million subscribers in 2005. SingTel paid \$429 million to increase its stake to 35% in 2002. Telkomsel awarded Siemens a €100 million contract for an intelligent network platform in March 2005. The company’s main vendors for network equipments are Siemens, Nokia, Ericsson and Motorola. Spending for the past several years have been \$500 million to \$600 million annually, but that figure is expected to rise to about \$700 million in 2005.
- *Indosat* is tied to Singapore Technologies Telemedia (STT). It has 9.6 million cellular subscribers and an estimated 32 percent of the market. STT acquired 42 percent of the company in 2002 for \$634 million. The company now has a market capitalization of about \$3.3 billion; and,
- *Excelcomindo* had about 4.2 million subscribers in 2004, or about 15 percent share. It was started by Verizon but recently shifted hands with a \$314 million strategic position taken by Telekom Malaysia in early 2005.

In March 2005, Hutchison Telecommunications International Ltd. Agreed to buy a 60% stake in Cyber Access Communications, marking its expansion into Indonesia. Cyber Access was awarded Indonesia’s first third-generation mobile service license in 2003, in addition to its existing 2G license (although it does not currently offer



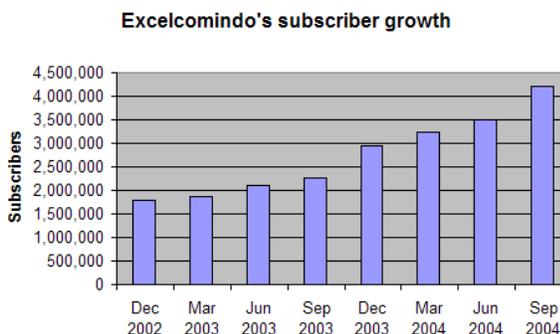
Source: Companies, Merrill Lynch estimates



2G mobile services). Hutchison will pay Charoen Pokphand Group Indonesia \$120 million for the stake. CP Group will hold the remaining 40% interest in Cyber Access. Hutchison projects that as much as \$1 billion will be invested in the network.

Capital investment has chiefly been in GSM network platforms. Taken together, the two market leaders Telkomsel and Satelindo are expected to invest \$1 billion this year to expand their networks to meet demand. The expansion will bring to nearly \$10 billion the total invested in mobile capex to date. CDMA investments are slowly growing, as the table shows. Average mobile ARPU in 2004 is about \$9.

At the moment, none of top three providers have been allocated spectrum for 3G, a situation regarded by some investors as raising risk.



Source: I elegeography

Excelcomindo is the latest to experience the capital holdings revolving door. Telekom Malaysia bought a 27.3% stake with a \$314 million cash offer in early 2005, beating competitive bids by SK Telecom, Telenor and PLDT. Telekom Malaysia is believed to have acquired the 23.1 percent position held by Verizon, which co-founded the company as Nynex in 1996; and 4.2 percent of shares held by Mitsui. Verizon's exit, following its sell-down of TelecomAsia in Thailand in 2004, makes the firm's complete withdrawal from the Asia Pacific region. Telekom Malaysia is reported to be seeking operational control and is expected to acquire a majority of shares through separate transactions. The remaining Excelcomindo shares are currently held by Telekomindo/Rajawali Group, which has a 60% stake, and the investment group AIF Capital which holds 12.7%. Excelcomindo had around 4.2 million subscribers at the end of September 2004, giving it a 15.5 percent share of the mobile market. Excelcomindo recorded gross revenue of about \$250 million for the first nine months of 2004 and plans an initial public offering in 2005.

In early 2005 Malaysia's Maxis Communications paid \$100 million to acquire a 51 percent stake in PT Natrindo Telepon Seluler, an early stage operator with only 25,000 subscribers but valuable licenses for GSM and 3G services. Maxis is believed to be planning to spend between \$1.3 billion to \$1.8 billion over the next five years, with \$700 million to \$800 million earmarked for capital expenditure over the next two years. With such a small subscriber base, Maxis is essentially building a Greenfield network for scratch. Analysts estimate that PT Natrindo needs 3-4 million subscribers to break even which is, in even a high growth scenario, several years out.

In addition to the top tier providers, other smaller mobile services operators include Mobile 8, Mandara, Primasel, Telkom Flexi (Telkom's CDMA 1x network), and PCS operators like Satellite Phone (Bryu). There are also several semi-active license holders, including Cyber Access, Mandara and Primasel, as well as PT Wireless Indonesia (WIN Cellular), which is not yet



licensed but is planning an \$800 million CDMA nationwide network. Each of these companies has the potential to be take-over targets by the existing players for foreign speculators.

Mobile License Holders

Licence holder	Technology	Spectrum band	Mobility	Region	Principal shareholder
Operationally Active					
Telkomsel	GSM	900&1800 Mhz	Full Mobility	Nationwide	PT Telkom, Singtel
Indosat	GSM	900&1800 Mhz	Full Mobility	Nationwide	ST Telemedia
Excelcomindo	GSM	900&1800 Mhz	Full Mobility	Nationwide	Telekom Malaysia
TelkomFlexi	CDMA2001X	1900 Mhz	Limited Mobility	Nationwide	PT Telkom
Indosat StarOne	CDMA2001X	1900 Mhz	Limited Mobility	Nationwide	Indosat
Bakrie Telecom	CDMA2001X	800 Mhz	Limited Mobility	Nationwide	Bakrie Brothers
Mobile-8	CDMA2001X	800 Mhz	Full Mobility	Nationwide	Bimantara Citra
Semi Active					
Lippo-Maxis	GSM & 3G	1800&2100 Mhz	Full Mobility	Nationwide	Maxis, Lippo Group
CyberAccess	GSM & 3G	1800&2100 Mhz	Full Mobility	Nationwide	CP Group Thailand
WIN Cellular	GSM & 3G	1900&2000 Mhz	Data	Nationwide	Sinar Mas Group
Mobisiel	CDMA450	450 Mhz	Full Mobility	Nationwide	Private investor (domestic)
Primasel	CDMA2001X	1900 Mhz	Full Mobility	Nationwide	Private investor (domestic)

Source: Merrill Lynch Research

PT Mobile-8 Telecom is reportedly planning to spend \$120 million on infrastructure in 2005, half of it in Java, to grow its subscriber base from around 500,000 to 1.8 million this year, and net capacity of 3 million. \$200 million has been invested so far. Mobile-8 is 70.52 percent owned by Indonesia's PT Bimantara Citra Tbk, with South Korea's second-largest mobile carrier, KTF Corp., owning nearly 2 percent and Qualcomm controlling 7.31 percent.



Indonesia Mobile Sector: Industry Essentials⁸

	2001	2002	2003	2004E	2005E	2006E	2007E	2008E
Wireless svc revenue								
Telkomsel	4,918	7,573	11,146	14,914	19,582	23,024	25,833	27,739
YoY	76%	54%	47%	34%	31%	18%	12%	7%
Indosat	2,658	3,272	5,118	7,475	9,881	11,941	13,706	14,795
YoY	57%	23%	56%	46%	32%	21%	15%	8%
Excelcomindo	1,777	2,098	2,198	2,779	3,644	4,289	5,011	5,436
YoY	62%	18%	5%	26%	31%	18%	17%	8%
Lippo-Maxis	0	0	0	0	0	53	659	1,720
YoY							1147%	161%
Total GSM	9,353	12,942	18,462	25,168	33,107	39,306	45,209	49,689
YoY	67%	38%	43%	36%	32%	19%	15%	10%
Total CDMA	0	0	0	594	1,501	2,759	4,110	5,045
YoY					153%	84%	49%	23%
Total industry	9,353	12,942	18,462	25,763	34,608	42,065	49,319	54,735
YoY	67%	38%	43%	40%	34%	22%	17%	11%
Share of revenue								
Telkomsel	53%	59%	60%	58%	57%	55%	52%	51%
Indosat	28%	25%	28%	29%	29%	28%	28%	27%
Excelcomindo	19%	16%	12%	11%	11%	10%	10%	10%
Lippo-Maxis	0%	0%	0%	0%	0%	0%	1%	3%
Total GSM	100%	100%	100%	98%	96%	93%	92%	91%
Total CDMA	0%	0%	0%	2%	4%	7%	8%	9%
Average subscribers								
Telkomsel	2,470	4,631	7,800	12,801	19,299	25,536	30,700	34,332
YoY		88%	68%	64%	51%	32%	20%	12%
Indosat	1,484	2,748	4,773	7,857	12,044	16,380	19,821	22,055
YoY		85%	74%	65%	53%	36%	21%	11%
Excelcomindo	995	1,451	2,312	3,959	5,594	7,106	8,569	9,537
YoY		46%	59%	71%	41%	27%	21%	11%
Lippo-Maxis	0	0	0	0	0	181	953	2,279
Total GSM	4,948	8,830	14,884	24,617	36,937	49,204	60,043	68,203
YoY		78%	69%	65%	50%	33%	22%	14%
Total CDMA	0	0	0	1,001	3,304	6,287	9,447	12,037
YoY					230%	90%	50%	27%
Total industry	4,948	8,830	14,884	25,618	40,240	55,490	69,490	80,240
YoY		78%	69%	72%	57%	38%	25%	15%
Ending subscribers								
Telkomsel	3,252	6,011	9,589	16,014	22,583	28,489	32,910	35,755
Indosat	1,912	3,583	5,962	9,751	14,337	18,423	21,220	22,890
Excelcomindo	1,223	1,679	2,944	4,974	6,214	7,998	9,141	9,932
Lippo-Maxis	0	0	0	0	0	363	1,543	3,015
Total GSM	6,387	11,272	18,495	30,739	43,135	55,273	64,814	71,593
Total CDMA	0	0	0	2,001	4,606	7,968	10,927	13,147
Total industry	6,387	11,272	18,495	32,740	47,740	63,240	75,740	84,740
Penetration	3%	5%	8%	14%	21%	27%	32%	36%
Net adds								
Telkomsel	1,565	2,759	3,578	6,425	6,569	5,906	4,420	2,845
Indosat	857	1,670	2,380	3,789	4,586	4,085	2,797	1,671
Excelcomindo	456	456	1,265	2,030	1,240	1,784	1,144	791
Lippo-Maxis	0	0	0	0	0	363	1,180	1,472
Total GSM	2,878	4,885	7,223	12,244	12,396	12,138	9,541	6,779
Total CDMA	0	0	0	2,001	2,604	3,362	2,959	2,221
Total industry	2,878	4,885	7,223	14,245	15,000	15,500	12,500	9,000
Share of net adds								
Telkomsel	54%	56%	50%	45%	44%	38%	35%	32%
Indosat	30%	34%	33%	27%	31%	26%	22%	19%
Excelcomindo	16%	9%	18%	14%	8%	12%	9%	9%
Lippo-Maxis	0%	0%	0%	0%	0%	2%	9%	16%
Total GSM	100%	100%	100%	86%	83%	78%	76%	75%
Total CDMA	0%	0%	0%	14%	17%	22%	24%	25%
Total industry	100%	100%	100%	100%	100%	100%	100%	100%

Source: Companies, Merrill Lynch estimates

Satellite

The geography of Indonesia makes it highly reliant upon satellite communications to reach remote areas and to provide universal access. Indonesia is now into its third generation of satellites. The first generation was the Palapa A series operated for domestic communications by Telkom since 1976. The second series, Palapa B had a regional reach capable of serving the entire ASEAN area, and higher capacity and transmission power to reduce the linkage costs of earth

⁸ Merrill Lynch, *Indonesia Mobile: Time to Be Conservative*, February 17, 2005.



stations and to open new markets. Palapa B1 satellite was sold to Pacifik Satelit Nusantara (PSN) for its 'inclined orbit' geo-mobile business started 1995, called AceS which provides mobile cellular connectivity between operators in Indonesia, the Philippines, Malaysia, Thailand, Nepal, Sri Lanka and China. Satelindo was awarded the right to operate the remaining Palapa series in 1993 along with a GSM service while Telkom developed a yet more powerful satellite, Telkom 1 and Telkom 2 with coverage stretching from Guam to India.

