Telecommunications in Rural China

The explosive telecom growth in China (reported in the first issue ***ComExport***) is decidedly uneven. While China, on average, has 1.63 telephones per 100 people, cities such as Beijing, Shanghai and Guangzhou have 18, 14, and 15 per 100 respectively. The 800 million people who live in China's rural areas have only 0.1 or 0.2 telephones per 100 people—a huge untapped market. Development in the rural areas is closely linked to the availability of funds, which in turn depends on the development of local industry or tourism.

Foreign Affairs and International Trade Canada and the Department of Communications (now the Department of Industry), organized a mission, led by Michael Binder, now Assistant Deputy Minister for Spectrum, Information Technologies and Telecommunications at Industry, to introduce Canadian companies to the rural Chinese market and to demonstrate Canadian technology to the Chinese. The mission was launched in Beijing on May 21, by the Minister of Communications, and visited Kunming in Yunnan province, and Nanning and Guilin in the Autonomous Region of Guangxi, in addition to a number of smaller locations in those regions.

Telecommunications in rural China grows out from the cities and county seats. Areas distant from these centres may lack telephone service—for example, 48 percent of village government headquarters in Guangxi do not have telephone service. The current goal is to extend networks and to increase capacity rather than finding ways to reach every community. Providing access to communities distant from current telephone service through more expensive means, such as satellite communications, appears unlikely.

Some communities will gain access to the telephone network only when cellular service is extended close to their area. Cellular systems are now being commissioned in cities with one large cell covering the city and surrounding countryside. The initial cost to the subscriber is very high. Nevertheless, the systems are oversubscribed as soon as they are set up. Post and Telecom Authorities (PTA) are scrambling to add cells, channels and acquire cellular sets. If they have a 900 MHz TACS system and there is spectrum available in the 800 Mhz range, they will consider adding an AMPS network, particularly for private networks. Availability of equipment and speed of installation is important. In Nanning, for example, 1000 people have paid a large deposit to be on the waiting list for cellular service. Officials would likely consider purchasing from other suppliers if quick delivery and installation could be guaranteed.

There is a desperate need for "bypass solutions" for premium customers (such as hotels and western joint ventures) in areas where the local telephone system is over-loaded. For example, in Nanning, only one call in 30 to Guangzhou or Hong Kong gets through during peak hours due to high trunk traffic.

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Southeast Asia

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cellular services in Bangkok and with Telecom Asia and possibly others in the near future working to improve the fixed telephone network, mobile revenue growth rates in Bangkok may be lower than in the past, but rural markets are still open to development. Cellular, along with paging and satellite-based services, is fully liberalized in Thailand.

Malaysia

Cellular telephone service in Malaysia is provided by Telekom Malaysia, which operates an NMT 450 system, and Celcom (a private company owned by Alpine Sdn Bkd and Time Engineering and Technology Resources), which operates a TACs 900 system. The present overall telephone penetration is 12 per 100 people and this is expected to increase to 25 per 100 by the year 1997.

Telekom Malaysia, privatized in 1990, is the country's dominant telecom operator, providing all telecom services. The present mobile network has six exchanges with a total of 120,000 mobile exchange lines. Capacity is expected to increase to 150,000 lines by 1995.

To date, the Malaysian government has allowed competition in customer premises equipment, paging, payphone and mobile services. Competition may be introduced for domestic trunk international services as well. Telekom Malaysia's decision to set up a joint venture to develop a digital cellular mobile subsidiary reflects the strong growth potential of cellular.

The developing countries are about to experience extensive growth in the cellular area. It is expected that Indonesia, currently possessing the fifth largest cellular market in the region, will surpass Malaysia, Singapore, Thailand and the Philippines over the next few years. In fact, the least developed countries will for many reasons turn out to have the most potential in cellular markets. As a result, the cellular industry in all of these countries may actually surpass, in relative size, the cellular markets of more developed countries like Singapore within the next five years.

Rural China

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Equipment sold for the Chinese market must be designed with rapid demand growth in mind. As the penetration rates jump from one telephone to 10 telephones per 100 people during this decade, equipment supplied to a telecom authority that supports two or three times current capacity will be overloaded in two or three years. Therefore higher capacity equipment should be installed at the outset.

In the provinces visited by the mission, there was, as yet, little demand from local industries for data communications such as 56kb switched or private lines. China's packet switching network, using Northern Telecom equipment, has just been commissioned to link all the provincial capitals. Several provinces have established packet switching networks at the municipal level, while other provinces are planning to do the same in the near future.

Chinese telecom equipment manufacturers in the areas visited do not appear to be interested in the latest in technology, but rather in products that have been proven in other markets. What is of particular interest is semi-knock-down (SKD) kits that they can assembly without the need for highly skilled technicians. Joint ventures based on China's assembly of SKDs have been set up for cellular systems, switching equipment, optical fibre, digital microwave, VSATs, radar, paging, generators and air conditioners.

Further information, including a detailed report on the mission, is available from the International Telecommunications Division at Industry Canada (see contacts box).

Telecom Market Opportunities in Saudi Arabia

In 1992, the Saudi Ministry of Posts, Telegraph and Telephones (PTT) announced its intention to proceed with the first phase of a planned one million-plus telephone line expansion project (TEP-6), valued at US$2–3 billion, doubling the capacity of the Kingdom's existing telephone system. Saudi Arabia is now one of the world's largest markets for telecommunications equipment and expertise.

By the time the fifth five-year plan came into effect in 1990, the Kingdom's telecommunications network included 1.5 million telephone lines serving 350 cities and villages, 30,000 telex lines serving these same communities and 20,000 mobile telephones in use in 30 cities. Overall investment in the sector during the current Saudi five-year plan has been projected at US$6.5 billion, with the telecom market estimated at $1.5 billion this year. Growth in network infrastructure is expected to remain at 25 percent for the foreseeable future.

TEP-6 also includes the following elements:

- switching, transmission equipment, outside plant facilities;
- expanding the subscriber radio system;
- expanding the (long distance) fibre optic network;
- upgrading the microwave network from analog to digital;
- expanding/upgrading satellite earth station facilities.

Despite this major expansion project, the upgraded system will meet only about 30–40 percent of the overall demand requirements of the Kingdom's 17 million inhabitants. The rapid line-capacity expansion will need to be continued after the completion of TEP-6 and there is a wide range of other complementary opportunities of interest to Canadian telecommunications firms:

- Packet switching—there is a requirement to update and expand the X.25 packet switched network.
- PBX—the Saudi PBX market will require 200,000 lines per year.
- Mobile telephones—there is an increasing demand for mobile telephones. A tender for 100,000-plus new lines has recently been issued.
- Pagers—there is strong demand for pagers and paging equipment. Glenayre is a major player in the Saudi pager market.
- Spectrum management—the issue of assigning frequencies for civilian and military use is now under review.
- Air traffic control—navigational aides at air force facilities were installed in the mid-1970s and are now considered to be in need of updating. Five Saudi air bases will require air traffic control upgrading.
- Operations and maintenance—the contract currently managed by Australian Telecom expires in September 1994, and the PTT is expected to call for bids within four to six months.
- Other opportunities—market opportunities exist in network digitalization, network planning/management, coaxial cable and fibre optics, encryption, and security-related telecommunications areas.

Over the period 1991–1992, Canadian firms exported to Saudi Arabia an average of about $12 million per year worth of telecommunications equipment, our fifth largest export to the Kingdom. Corresponding annual exports from

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