Roads & Bridges

The Road & Bridge Segment remains the revenue generating cornerstone of the NWI investment portfolio.

Management Discussion & Analysis - SEGMENT OVERVIEW ROADS & BRIDGES



The ongoing development of a comprehensive network of expressways and roadways is fundamental to the success of inter-provincial trade flows and the expansion of the national economy. In recent years, the PRC government has pursued a rapid growth policy to build a National Trunk Highway Network that covers one of the world's largest and most diverse nations. Given the details supplied in the Tenth Five-Year Plan, the government intends to make road construction and operation a high priority in its infrastructure initiative.

Statistics in the road sector tell an impressive story. The road network totaled 1.4 million km in 2000 for a density of 14.6 km per 100 sq. km., up from 12.1 km in 1995. Transportation services have been significantly upgraded in recent years. Presently, expressways account for 16,000 km of the total road network, ranking China third in expressway length worldwide. However, expressways still represent only 1% of road length, compared to 2% in most developed countries. Class II Highways or above composed 188,000 km, up from 8.3% to 13.4% of the total from 1995 to 2000. However, these roads represent only 13.4% of the total as compared to 70% in North America.

Many factors favour road sector expansion. Under the Tenth Five-Year Plan, China will build 200,000 km of roadways. This will push the roadway length to 1.6 million km with expressways accounting for 25,000 km and Class II or above Highways reaching 280,000 km.

Another focus is on road development in West China and Inner Mongolia, an initiative that creates investment opportunities. Road density in West China is 7km per 100 sq. km, compared to 29 km in the coastal areas. The government will invest up to Rmb800 billion to construct 350,000 km of roadways over the next decade and offer favourable terms to foreign investors.

The synergies between road development and economic growth are notable as seen by the correlation between increased income and the percentage share of spending on transportation. Another clear benefit to road development is tourism. In 2000, tourism income reached Rmb450 billion and the number of travellers within China rose to 740 million. Meanwhile, foreign tourists accounted for 83.4 million visitors and this figure is on the rise.







Source: China Statistical Yearbook 2001

OPERATIONAL REVIEW

ROADS

The road segment is one of the main drivers in terms of providing NWI with stable expansion and steady recurring income streams within the basic infrastructure portfolio. Regional growth and the impact of investment flows have resulted in this segment's expansion. NWI invested in 34 road projects covering 1,146 km and four provinces (Guangdong, Guangxi, Shanxi and Hubei), one municipality (Tianjin) and one Special Administrative Region (Hong Kong). Up to October 2001, only two projects were not operational.

Guangdong Road Network

After two decades of growth, Guangdong has emerged as the most developed province with the most advanced road system. China's accession to WTO ideally positions this tradeoriented province to take advantage of new opportunities. Still, the growth in toll roads falls below the expansion rate of transport demand.

Guangdong invested Rmb6.6 billion on highways in 2000, more than any other province. Currently, the province has a total road length of 102,604 km with a density of 57.5 km per 100 sq. km. Expressways and Class I & II Highways compose 19% of the network. Overall, highways handle 70% of freight traffic and 92% of passenger transport.

Considering the number of NWI roads and their location, Guangdong remains a critical element in the portfolio. NWI invested in a total of 20-plus roads in Guangdong with a combined length of 757 km. Roads are grouped into the areas of Southern, Western, Northern and Eastern Guangdong.

Southern Guangdong	No. of Roads: 2	Length: 84.4 km			
Guangzhou City Northern Ring Road 22.0 km Beijing-Zhuhai Expressway (Guangzhou-Zhuhai Section) 62.4 km					
Western Guangdong	No. of Roads: 10	Length: 349.2 km			
Roadway No. 321 (Fengkai Section) Roadway No. 321 (Deqing Section) Roadway No.321 (Gaoyao Section) Roadway No.1962 (Gaoyao Section) Roadway No.1958 (Deqing Section) Roadway No. 1967 (Xinxing Section) Roadway No. 324 (Gaoyao Section) Roadway No. 1969 (Gaoyao Section) Roadway No. 1964 (Zhaojiang Section) Shuangjin Roadway (Gaoyao Section)		42.0 km 79.0 km 23.8 km 32.4 km 30.0 km 25.0 km 24.0 km 32.0 km 34.0 km			
Northern Guangdong	No. of Roads: 5	Length: 179.9 km			
Roadway No. 1959 (Qingxin Se Roadway No. 1906 (Qingcheng Roadway No. 1960 (Guangning Roadway No. 1960 (Sihui Secti Roadway No. 1962 (Guangning	iction) y Section) y Section) on) y Section)	26.6 km 26.8 km 60.0 km 47.0 km 19.5 km			
Eastern Guangdong	No. of Roads: 3	Length: 143.0 km			
Shenzhen-Huizhou Expressway (Huizhou Section)34.7 kmShenzhen-Huizhou Roadway (Huizhou Section)21.8 kmHui-Ao Roadway86.5 km					

Guangzhou City Northern Ring Road ("GNRR") passes through the busiest areas of Guangzhou, linking the east and west of the metropolis. GNRR is a critical inter-city link that connects to expressways headed east and west.

In FY2001, GNRR average daily traffic flow decreased by 10.7% to 130,747 vehicles. The fall was due to a temporary traffic diversion to adjacent roads as construction work took place on surrounding roads and traffic was restricted during the Guangzhou trade fair. In addition, some of the traffic was lured to Guangzhou Inner Ring Road because toll collection was not scheduled to commence until late 2001.

The completion of Guangzhou Inner Ring Road and its connecting roads facilitates traffic flows from the southern and western part of Guangzhou to other provinces through GNRR. Growth is further enhanced by the relocation of the Guangzhou Airport and the construction of an interchange connecting the Airport Expressway and GNRR.

Phase I of Beijing-Zhuhai Expressway (Guangzhou-Zhuhai Section) ("BZGZ") is a 62.4 km expressway. Section I connects to the Humen Bridge at Nansha and Section II links Panyu and Zhuhai through Zhongshan. The average daily traffic flow of BZGZ Sections I & II rose by 12.3% and 34.3% respectively. The average toll rate of Section I increased 5.2% due to a rate rise for Class B vehicle. With the opening of new toll stations in Section II which attract shorter rides, the average toll rate fell by 5.9%.

Strong economic and tourism development in Panyu, Zhongshan and Zhuhai support BZGZ growth. The plan to transform Nansha into a high-tech logistics center will further enhance development. Moreover, a new expressway from Panyu to Guangzhou connecting to BZGZ along with the completion of Phase II of BZGZ in the next few years will attract more traffic.

Sestern Guangdong

The Western Guangdong Network absorbs local and crossborder traffic from west Guangdong and east Guangxi. Radiating from Zhaoqing the network has feeder roads directing traffic to a number of key centers. Roadway No. 321 is an inter-provincial road and the entire section of Zhaoqing to Wuzhou is owned by NWI. In addition, sections of Roadway No. 321 are major cash flow generators.

Due to the completion of Roadway No. 321 and improvement in surrounding roads, average daily traffic flow for most roads rose in FY2001. The exceptions were Roadway No. 1967 (Xinxing Section), Roadway No. 324 (Gaoyao Section) and Shuangjin Roadway (Gaoyao Section), which witnessed a marginal decrease in traffic, and Roadway No. 1962 (Gaoyao Section), which watched traffic fall 13.3% due to an environmental protection plan that restricted use for clay transport. In FY2001, there was no increase in toll rates. NWI expects traffic to increase for most of Roadway No. 321 as the connecting network improves. The commitment to develop West China enhances the economy of Guangxi and supports traffic and the Deqing and Fengkai sections are expected to benefit from a substantial increase in cross-border traffic.

The average daily traffic flow for all roads, except Roadway No. 1959 (Qingxin), rose in FY2001 due to increased popularity and an improved economic environment. Roadway No. 1959 (Qingxin), which serves the popular Qingxin Spring Resort, was affected by decreasing tourism flows. Roadway No. 1906 (Qingcheng) has been operational since mid-September 2001. NWI's stake in Roadway No. 105 (Lianping County North Section) was disposed of in October 2000.

The Northern Guangdong network benefits from the ongoing migration of industries, many of which are moving from the more expensive Zhujiang Delta area to outer Guangdong. Meanwhile, the government is continuing efforts to promote tourism and this should also increase traffic flows.

Seastern Guangdong

An overall increase in average daily traffic flow on all roads was mainly attributable to the development of port facilities in the area and an increase in trade. However, the average toll rate decreased slightly in FY2001 due to a higher proportion of lower class vehicles in the traffic mix. Steady economic growth, the completion of connecting roads and increased throughput at Yantian Port will expand traffic.

Guangxi Road Network

The Guangxi Autonomous Region attracts an increasing amount of foreign road investment. In 2000, Guangxi expanded the length of highways by 1,532 km to 52,910 km. Highways remain the primary choice of transportation for freight traffic. Out of 296 million tons of freight traffic, 79% is transported via highways.

However, the condition of the existing Guangxi road network is poor, with Expressway, Class I & Class II Highways accounting for only 7% of total roadways in 2000. In an effort to alleviate traffic pressures, Guangxi will construct highways to link with the National Trunk Highway. By 2005, Guangxi highways are expected to reach 60,000 km.

Guangxi Road Network	No. of Roads: 7	Length: 175.4 km
Beiliu City Roadways Rongxian Roadways Yulin-Shinan Roadway Yulin Shinan-Dajiangkou Roadway Yulin Shinan-Guigang Roadway Roadway No. 321 (Wuzhou Sect Cangwu County Roadway	ly tion)	39.8 km 26.0 km 27.8 km 38.7 km 20.0 km 13.0 km 10.1 km

A toll rate increase was approved in first half 2001 for two road projects. Other than Yulin Shinan-Guigang Roadway, all roads are operational. NWI is considering to withdraw from the Yulin Shinan-Guigang Roadway. The reason for this is that the Guangxi government plans to construct an expressway parallel to this road that runs from Nanning to Guangzhou.

The performance of roadways in this network is mixed. The average daily traffic flow for Cangwu County Roadway and the Wuzhou Section of Roadway No. 321 rose by 5.6% and 3.3% respectively. However, the traffic flow of Beiliu City Roadways and Rongxian City Roadways decreased due to the usage of newly constructed roadways in the surrounding areas.

This road network is expected to benefit from economic expansion and freight traffic growth at Beihai Port, one of the largest ports in Guangxi. When the Nanning-Guangzhou Expressway becomes operational, traffic to the network should further improve. In addition, the joint venture is applying for toll rate increases and new toll stations.

Shanxi Road Network

The Shanxi economic strategy hinges on the construction of roads, the development of resources and the promotion of tourism. Shanxi is committed to improving its inter- and intraprovincial network over the next five years. It is expected that road length will reach 60,000 km by 2005, with Class II Highways or above increasing by 3,000 km.

Shanxi is China's largest coal producer and its coal is carried by rail and highways to Beijing, Tianjin and other cities. Freight traffic via highways and railways reached 578 million tons and 285 million tons respectively in 2000. With coal as a vital input for power and industrialisation, the province is being promoted as an industrial base to save on inter-provincial transportation costs. More recently, Shanxi has emphasised tourism. In 2000, tourism income contributed 5% of GDP or Rmb8.1 billion, an increase of 22.5% over 1999.

Shanxi Road Network	No. of Roads: 5	Length: 131.7 km
Shanxi Taiyuan-Gujiao Roadway	(Taiyuan Section)	23.2 km
Shanxi Taiyuan-Gujiao Roadway	(Gujiao Section)	36.0 km
Roadway No.309 (Changzhi Sec	tion)	22.2 km
Taiyuan-Changzhi Roadway (Cha	Ingzhi Section)	18.3 km
Jincheng-Jiaozuo Expressway (S	hanxi Section)	32.0 km

All NWI roadways are operational, except for Jincheng-Jiaozuo Expressway (Shanxi Section).

The Shanxi Taiyuan-Gujiao Roadway (Taiyuan Section) became operational in mid-2000. Traffic volume on Taiyuan-Gujiao Roadway (Gujiao Section) increased 42% as the construction work on an adjacent road is not yet completed. Roadway No. 309 (Changzhi Section) and Taiyuan-Changzhi Roadway (Changzhi Section) continue to benefit from rising coal truck traffic and the Jincheng-Jiaozuo Expressway is expected to be operational in mid-2002. With the emphasis on infrastructure development, plans to construct a power plant and develop tourism, the Shanxi economy is expected to grow and NWI roadways will benefit.

Wuhan City Project

Wuhan's central location makes it an ideal transportation hub. Both the Beijing-Zhuhai Expressway and the Shanghai-Chengdu National Highway cross the city. Highways are a major method of transporting goods but development cannot support traffic levels. Some Rmb9.7 billion will be invested to improve the network and by 2005 expressways are expected to expand by 60%.

Wuhan Airport Expressway ("WAE"), is the only connection between Wuhan Tianhe Airport and Wuhan City. A toll rate increase of some 45% was approved by the Hubei Provincial Government, effective on 25 April 2001. Furthermore, Wuhan Airline moved to Tianhe Airport in January 2001, and that has increased traffic volume on WAE.

WAE traffic correlates to the number of passengers using the Airport. With the growth in tourism and the introduction of new international flights, traffic on WAE will increase.

Tianjin Project

Tianjin is a vital trade and industrial centre serving northern China. As a Free Trade Development Zone, Tianjin enjoys preferential tax treatment and is a magnet for foreign capital. Due to a number of factors, foreign enterprises find the city a strategic location from which to set up businesses. Overall, freight traffic is heavy as six National Highways pass through Tianjin. In 2000, 188 million tons of goods were transported on the road network, representing 72% of the total freight traffic.

NWI is an active investor in the Tangjin Expressway (Tianjin North Section) project. Section I of the Expressway has been operational since January 1999 and Section II commenced operation in January 2001. The expressway is a major crossprovince expressway. Since Section II of the expressway commenced operation, transportation to Tianjin Port and Tianjin City is more convenient. Linkage to highway networks in Shenyang is possible with the launch of the Beijing-Shenyang Expressway in 1999. Average daily traffic flow rose by 35.1% this year due to drivers recognising the convenience of using the expressway, better highway linkage and a diversion of traffic from a nearby road.

The construction of a 66 km South Section of Tangjin Expressway started in mid-2001 and is expected to be complete in 2004. This will have a positive impact on traffic flows due to a connection with the expressway.

Hong Kong Project

Hong Kong boasts one of the world's best infrastructures. A growing population, high population density and a rising number of vehicles operating on a limited land mass combine to create a congested city. In addition, China plays an important role in pushing forward road expansion plan. Since reunion with the Mainland, the level of cross-border traffic has intensified and alternative transportation routes between Hong Kong and the Mainland are being studied. In 2000, it is estimated that cross-border vehicles carried over 9.4 million tons of goods into Hong Kong.

The average toll rate increased by 10.2% at Tate's Caim Tunnel, an NWI investment, after a toll increase in January 2000 while average daily traffic flow remained stable.

BRIDGES

Bridge Project	No. of Bridges: 6	Length: 7.0 km
Wuhan Bridge Development Gaoming Bridge Zhaoqing Deqing Xijiang Bridge Tianjin Yonghe Bridge		4.0 km 1.1 km 1.4 km 0.5 km

NWI transferred its stake in Guangzhou Three New Bridges to a Chinese party in January 2001.

Gaoming Bridge forms a vital passage between eastern and western Guangdong. The average daily traffic flow of Gaoming Bridge decreased slightly in FY2001.

Some 1.4 km in length, Zhaoqing Deqing Xijiang Bridge was operational in May 1999. The average daily traffic flow increased slightly in FY2001.

Wuhan Bridge Development includes Yangtze River Bridge No. 2. The opening of Yangtze River Bridge No. 3 in September 2000 provided an alternate route to cross the Yangtze River in Wuhan. As a result, cross-provincial vehicles were diverted and the average toll rate of Yangtze River Bridge No. 2 fell 17.1% while the average daily traffic flow dropped by 1% as a result of an increase in local traffic.

Yonghe Bridge, 510 meters in length, connects Tangjin Expressway to Tianjin City. The average daily traffic decreased slightly due to a diversion to Tangjin Expressway (Tianjin North Section) Section II in FY2001.



From traditional to alternate power projects, NWI leads the way forward in the Energy Segment.

The growth of the power industry has made the energy segment a strong contributor to the NWI basic infrastructure portfolio. The year 2000 witnessed numerous factors pushing peak load capacities in most coastal areas to record levels. A surge in demand was driven by economic growth, rising industrial output and improved productivity. Transmission upgrades, better distribution, tariff reforms and rising residential demand supported the expansion.

China ranked second in the world with a generation capacity of over 320GW at the end of 2000. Thermal power represents some 74% of total installed capacity, hydro 25% and other energy forms account for just 1%. China expanded capacity by 6.8GW in first half 2001 and is moving towards a target of 390GW by 2005. On the heels of consumption growth in 1999 and 2000, China continued to experience strong demand in 2001. Almost half of the provinces and cities marked doubledigit demand increases as the national average annual growth rate reached 7.5%.



2000 Electricity Generation in China

2000 Installed Capacity in China



Reforms

Presently, the demand and supply equation varies between regions. For instance, the Northeast and Hainan power grids have relatively high excess capacity and that situation is expected to continue. The Central China and Sichuan grids experience excess capacity only in the rainy season due to the focus on hydro. Peak load demand for coastal provinces is expanding and Guangdong may soon suffer from power shortages. Overall, the imbalance in capacity and resources restricts development and the government is rolling-out a plan to implement structural changes.

Following recent tariff reforms, the government plans to improve urban and rural distribution networks on a nationwide basis. This reform will separate generation from distribution. In an effort to improve transmission efficiency and accessibility, the government planned to invest about Rmb300 billion since 1998 to reconstruct networks.

One initiative to develop the energy sector framework is to limit construction of inefficient coal-fired plants, especially in the developed provinces. Combined cycle natural gas-fired plants, large hydro plants and clean power facilities are in the pipeline to increase peak-low loading flexibility and control the pollution problem. In addition, existing power grids will be connected to at least one other grid by 2005.

West China Bonanza

West China can boast an abundance of clean energy resources and government incentives are in place to support development. Currently, the pace of economic growth on the coast has created a rising level of demand. Up until now, the coastal region has largely met its needs with thermal power, a major pollutant. The demand for clean power can be eased by cross-country transmission. If West China can meet this demand, the result will be a boost for inland provinces and better environmental conditions on the coast.

Guangdong Energy Market

With a population of 86 million and a per capita GDP 82% higher than the national average, Guangdong's industrial output ranks first in the nation. Guangdong has always been a top-performer and GDP is expected to grow at an average of 9% per annum in the coming five years.

With a demand increase of 21.3% in 2000, the pressure to meet consumption continues, despite the fact that Guangdong has the highest installed capacity (32GW) and generated 134 TWh of power, an increase of 6% and 17.2% respectively over 1999.

- SEGMENT OVERVIEW ENERGY

Guangdong is expected to suffer from power shortages at peak demand. A buoyant economy forces the Guangdong grid to run at maximum capacity to meet peak consumption. To ease this pressure the Guangdong Power Bureau signed a supply agreement with Guizhou and Yunan provinces. With 7.4 TWh purchased from other provinces in 2000 alone, or 5.2% of generation, under the new power agreement, the maximum power distributed from Yunnan province will be 600,000 kW in 2001. After unification of the national grid, allocation will be market oriented and the demand-supply situation will be less of a factor.

Macau Energy Market

The Macau economy is showing signs of recovery and that is an important factor for the energy sector. By 2000, Macau GDP reached MOP49.8 billion, with tourism as a major economic driver. The number of tourists increased by some 23.1% in 2000. Over the past five years, power consumption rose at an annual average rate of 4.4%, or 3.9 MW on a per capita basis in 2000.

Alternate Energy

NWI strongly believes in the future prospects of the alternate energy sector in China. One of the prime areas of development is superconductivity.

The world has recognized the benefits of superconductivity. The world pays a high price for not having a thermally efficient environment and thermal superconductivity changes that, drastically reducing energy costs in the process.

Heat transfer devices based on technology developed by New Qu Energy, a NWI portfolio investment, focus on thermal superconductivity. New Qu Energy, the owner of QuTech technology, operates several subsidiaries and its products have penetrated commercial markets.

There is no technical constraints on manufacturing QuTech products. However, conservative estimates reveal that the number of factories needed to serve the market over the next 20 years would number in the thousands. For that reason, strategic alliances with various industries are an option for expediting the distribution of the products.

OPERATIONAL REVIEW

In FY2001, NWI operated five power plants in China and Macau with a total capacity of 1,879 MW. The portfolio includes: Zhujiang Power Stations Phase I & II ("ZPS") and Shunde De Sheng Power Plant ("DSP") in Guangdong; Qianwei Dali Power Plant ("QDP") in Sichuan; and, Companhia de Electricidade de Macau-CEM, SA ("CEM") in Macau. This year, NWI disposed of its H-Share shareholding in Beijing Datang Power Generation Co. Ltd. for cash proceeds of some HK\$1.26 billion.

The energy segment experienced strong growth in FY2001. The prime contributor was ZPS, at which generation grew 28.5% in FY2001. ZPS exceeded the minimum off-take amount this year. Despite a drop in the average tariff and a major maintenance project undertaken during the year, the increase in electricity demand managed to generate an increase in revenue.

In 1985, Macau granted CEM an exclusive right to supply electricity for a 25-year period ending in 2010. On the back of this franchise, CEM achieved stable growth in FY2001, as gross generation rose 1.8% over FY2000. QDP also achieved stable growth with output growing at 3.7%. DSP was the only power plant to experience a fall in generation. The drop of 3.4% was due to the closing of the plant for two months of scheduled maintenance. DSP is the major power producer in Shunde and operates at full load to cope with demand.

Outlook

The energy segment is expected to perform well in view of strong demand in Guangdong, where ZPS and DSP are located. Given the shortage of power and no additional installed capacity planned for the short term, ZPS and DSP are in a strong position. Meanwhile, it is expected the QDP will maintain stable growth in the coming year.

To cope with electricity demand in Macau, CEM is constructing a combined-cycle gas turbine power plant composed of two phases. The first phase is expected to be operational by the end of 2001 and the second by 2003, creating additional installed capacity of 136 MW.

As for the alternate energy sector, NWI is expecting major breakthroughs in the near future as products come to market and revenues are generated.

Water Treatment

Water Treatment is among the most promising infrastructure segments in Greater China.



The ongoing challenge to supply water to 1.3 billion citizens has left the government no choice but to bolster the water treatment industry. Limited water preservation awareness and explosive urban growth exerts heavy pressure on the water system. Uneven distribution of resources and severe deforestation does not help the situation. Meanwhile, water pollution is a problem and China has a long way to go to improve water quality. There is over 60 billion tons of polluted water produced annually and 90% of city water is polluted. In addition, only 30% of water used for industrial purposes is recycled, compared with 75% in western countries.

Government policy aims to reform the sector by improving supply, leakage rates, pollution levels, the pipeline and drinking water quality. Above all, tariff reform is important to industry development and all indications point to a willingness to enact such reforms as a modern tariff system will encourage investors to operate water treatment facilities. Foreign participation in the industry is on the increase and the industry is responding to this influx of capital and expertise. Nearly 50 foreign invested companies held 2.5% of the market share in 2000.

The willingness to overhaul the water treatment industry is encouraging. As a direct impact of deregulation, foreign investors have access to exciting opportunities. Poised to maintain its dominance, NWI is committed to 11 projects and one strategic investment. As a leading investor in this sector, NWI will be first to benefit from new policies.

Water Tariff System

Tariffs remain unreasonably low and do not reflect the cost of financing investment in facilities. Currently, low tariffs cause massive amounts of water to be wasted due to a lack of investment and inefficient systems. This wastes resources and makes water operations unprofitable.

As such, reforming the tariff system is a priority. Under the City Water Supply Tariff Regulation water is deemed a commercial commodity instead of a welfare commodity. Tariffs will be calculated to yield a reasonable return on investment. As part of its goal to establish a pricing system the Ministry of Water Resources promised to raise prices gradually over five years and protect resources through an improved legal framework. A market-driven distribution system is scheduled to be operational in urban areas in 2001, with rural areas to follow. There are numerous benefits to this plan. The public will be encouraged to preserve resources. In addition, an increase in profit for water operations will attract investors and water pollution levels will fall in line with protection efforts.

Government Policy

In response to this challenge, the government will introduce new technology to improve the system, strengthen pollution prevention techniques, build water treatment plants and place emphasis on construction of major projects for re-routing water from south to north.

The government is committed to opening the sector to new competition. Although government is the sole resource owner, there will be a break in the monopoly on water-use and allocation rights with the introduction of competition. In 2000, the first water-use rights trading case arose when a city in Zhejiang Province bought permanent use rights for 50 million cubic meters of water from a neighbouring municipality.

The project to divert water from south to north consists of a number of canals and pumping stations located on the Yangtze River. The first phase involves diverting water from the lower river to the North China Plain. Channelling around 40 billion cubic meters annually from the river should quench the thirst of the northern provinces.

New Infrastructure

Water charges are based on a user and polluter pays basis. Recently, the State Planning Commission, Ministry of Construction and National Environmental Protection Bureau issued a guideline on sewage treatment fee collection, urban sewage drainage and a central treatment system. This notification emphasised that a sewage treatment fee is important to the water tariff system. Previously, the treatment fee was added to the water tariff to compensate for urban drainage and treatment expenses. From now on, an urban treatment fee will be collected throughout the country. This forms the foundation of the sewage drainage and central treatment system and has sped construction of sewage treatment infrastructure.

More good news comes with an increase in environmental protection investment. The government will invest as much as Rmb700 billion during the Tenth Five-Year Plan with output occupying 1.4% GDP, up from 0.93% during the Ninth Five-Year Plan. The scope of environmental protection should propel China into the average level of developed countries.

Macau Water Treatment

As China continues down the road to economic reform Macau will be a major beneficiary. Currently, Macau receives more tourist traffic from China and there are signs that the industry is revitalising. At the same time, GDP growth improved to 4.6% in 2000 from -2.9% in 1999. Water demands are rising and the government's response is positive.

OPERATIONAL REVIEW

In August 1997, NWI acquired a 50% equity interest in Sino-French Holdings (Hong Kong) Ltd. ("Sino-French"), a jointventure company with Suez (formerly known as Suez Lyonnaise des Eaux, SA). Through its interest in Sino-French, NWI holds an interest in one Macau water treatment plant, 9 China water treatment plants, a water micro-filtration equipment manufacturing plant and an 4.3% interest in Shenyang Public Utility Holdings Co. Ltd.

The daily aggregate capacity of the NWI water portfolio is 3.5 million cubic meters. All projects and the strategic investment are operational as of October 2001 and contributed to AOP, except for Lianjiang Water Plant. Other than the Macau and Tanzhou water plants, which are under concession agreements, all PRC plants have off-take agreements with the municipal supply company or are fixed return investments.

Of all operational projects, the greatest contributor to revenue in FY2001 was Macao Water Supply Co. Ltd. ("SAAM"), a water utility operating under a 25-year concession agreement granted by Macau. Despite a fall in sales revenue of 4% as a result of a tariff reduction of 3% in April 2000, the after-tax operating profit of SAAM rose 5% this year. The main reason for the increase was a reduction in the provision for repair and maintenance costs.

Due to the rise of regional consumption Zhongshan Tanzhou Water Plant experienced the highest growth in revenues (19%) among NWI water plants and a record profit in FY2001, up 30.2% over FY2000. Zhongshan Tanzhou Water Plant is under a concession agreement with the municipal government. The agreement includes the right to supply and distribute drinking water and engage in water related business in Tanzhou Township to 2022. The plant was acknowledged by the World Bank as a model in China.

In terms of profit growth, Zhongshan Dafeng and Quanlu water plants had the best performance in FY2001. After-tax operating profit reached Rmb36 million, a 74.7% increase over FY2000, due to an increase in off-take volume and higher profits contributed from energy and chemical cost savings.

The Dongguan Microfiltration Equipment Plant, which is engaged in the production of microfiltration and ultrafiltration equipment for industrial use, registered a strong 32.8% growth in revenue and a 44.7% increase in after-tax operating profit in FY2001.

Nanchang Water Plant, which holds a 7% market share of Nanchang's water production capacity and serves a population of 105,000, registered stable growth in FY2001. Sales revenue slightly increased by 2% and after-tax operating profit grew 8%. Baoding Water Plant completed its first full year of operation in FY2001. Production volume in first half 2001 was lower than offtake target volume due to slow progress in closing the private water facilities of state-owned enterprises in Baoding and unexpected poor raw water quality.

For newly operating Siping Water Plant and Changtu Water Plant, actual consumption was lower than the offtake volume. However, production in Siping Water Plant is expected to increase above the offtake amount as the city is pursuing a policy of closing private wells.

One newly acquired water plant, Zhengzhou Water Plant, started operation in August 2001 and will contribute to AOP in the coming year.

Outlook

The PRC water sector is primed for growth. Industry deregulation will alleviate the supply situation and produce a positive effect on revenue streams. Meanwhile, improvement of the distribution network creates opportunities to build water plants. With tariffs and efficiency on the rise the profitability of the NWI water portfolio will expand.

In Macau, the water business is expected to maintain steady growth over the next few years as demand remains stable. SAAM continues to hold a monopoly on water supply and distribution in Macau. The current production capacity of 258,000 cubic meters per day will be sufficient to fulfill demand over the next five years. The implementation of a cost savings plan remains the key driver for SAAM growth.

Zhongshan Tanzhou Water Plant remains the sole water provider of Tanzhou Township. Water sales will continue to grow at the present rate and a production capacity of 60,000 cubic meters will gradually be utilized. Upgrade work will be completed in 2001 to increase the existing capacity by 40% to cope with demand.

Dongguan Microfiltration Equipment Plant plans to fulfill Rmb12.3 million of contracts in 2001. The company will continue to cooperate with NWI to provide equipment for the treatment of waste water and production of polished water.

With the acquisition of new water plants combined with the ongoing growth in demand, the AOP contribution from the Water Sector is expected to increase.



Cargo Handling

The Cargo Handling Segment is bolstered by stable operations in Hong Kong and expansion in China.

China Port Overview

From scope to quantity the China port sector has taken a major step forward in recent years. In fact, the speed of PRC port growth surpassed that of Hong Kong, the world's largest container port.

Presently, China is the seventh largest trading nation with total imports and exports trade of US\$474.3 billion in 2000. China's coastline is 18,400 kilometers in length with 11 coastal provinces, cities and regions. It accounts for some 40% of the nations population and 56% of total GDP. By 2005, the total value of imports and exports is expected to exceed US\$680 billion. This is good news for the port sector, as 90% of imports and exports.

Container cargo handling is the prime focus of the port business. The government's stated goal is to achieve 20% growth per annum and increase port-handling capacity to 60 million TEUs by 2005. This is an ambitious order for a country that has lagged behind in containerisation of trade flows and the challenges presented are formidable.



Transportation of Goods in China

Solid Port Performance

Following the record setting pace set in 2000, first quarter 2001 indicates another growth period for the port sector. Cargo handling throughput of Mainland major ports reached 1.6 billion tonnes in 2000, of which foreign cargo accounted for over one-third. The leading container ports handled a total throughput of 22.7 million TEUs with seaports processing 20.6 million and river ports 2.1 million. According to a government forecast, cargo-handling demand will reach 3 billion tonnes with coastal ports handling some 2.2 billion tonnes by 2005.

The government initiative calls for 135 new deep-water berths and the renovation of 45 berths. In addition, inland river port construction will allow easier access to shipping routes as the Yangtze River shipping lanes between the Zhujiang and Yangtze deltas are rebuilt. During the Ninth Five-Year Plan, the government invested Rmb23.1 billion in inland river transportation and another Rmb27.6 billion was earmarked for investment in the Tenth Five-Year Plan.

WTO Card

WTO membership will bring major changes to the port sector. To join WTO China is committed to liberalization, including the removal of trade restrictions, lower tariffs and fewer barriers to market entry. China ports face two major challenges in the post-WTO environment. First, the competition for cargo handling among regional ports will intensify. Second, the competition from international port developers and shipping companies will reach new heights.

In general, WTO will increase the flow of capital into China and port construction will be a major beneficiary. In coming years, China ports plan to expand berths, build deep-water facilities and further increase the containerisation rate. This requires capital and the WTO environment is expected to create new opportunities for those businesses that are open to change.

Source: China Statistical Yearbook 2001

PACIFIC PORTS

NWI is the largest single shareholder in Pacific Ports Company Ltd. ("PPC") with a stake of 75%. Since NWI port and container cargo port-related assets were acquired in March 2000, PPC has broadened its business scope to become a leading container cargo port operator in China and one of the major cargo handlers in Hong Kong. In the process of restructuring operations, PPC has achieved profitability and set the stage for future expansion in Greater China. Presently, the highest level of PPC activity is in the South China ports of Hong Kong and Xiamen. Meanwhile, Tianjin Port serves the northern hinterland.

The fiscal year ended 30 June 2001 produced record profit for PPC. Over the course of FY2001, PPC consolidated its Greater China port assets in preparation for regional and global expansion. In the first full financial reporting year since NWI injected port assets, PPC registered gains in most sectors and regions. PPC reported a net profit of HK\$276.1 million for FY2001, compared to HK\$65.8 million for FY2000, which accounted for an 18-month period ending 30 June 2000. Earnings per share were HK6.91 cents for FY2001, compared to HK2.58 cents for FY2000. The main AOP contributors were the associated companies and jointly controlled entities at the ports of Hong Kong and Tianjin. Newly injected NWI port assets contributed HK\$320.2 million to AOP, compared to HK\$112.3 million in FY2000.

The Hong Kong port operations continue to lead the way in terms of AOP, though the China business grew at a faster pace. A major AOP contributor in China was Xiamen container handling operations, which reported an AOP of HK\$11.4 million, a 27% rise over HK\$9.0 million in FY2000.

Outlook

After three years of restructuring and two years of profitability, PPC is in a position to expand its operations on a solid

business foundation. The smooth integration of NWI port assets into the fold allows PPC to increase its pace of growth and leverage substantial Hong Kong-China synergies in the development of regional and global business. While PPC has aspirations in the global market its focus is to capture a larger share of Greater China trade flow. Finally, with WTO on the horizon, the port sector is prepared for an era of substantial growth. Given the low containerization rate of the Mainland cargo handling market, the opportunity for port operators and cargo handlers is impressive.

A slow-down in trade flows is noticeable as the global recession begins to take its toll, but PPC takes comfort in the fact that China continues to grow. Overall, it is the ongoing prosperity of China and the nation's record in weathering the Asian Crisis that bodes well for port activity. In addition, PPC will make an effort to modernize its operations and build its technology base to improve its efficiency and productivity.

In the coming years, the container cargo-handling and logistics and warehousing business will be a key AOP driver due to growth of PRC containerisation. Hong Kong will remain a major AOP contributor due to its gateway to China status and the strong presence of CSX World Terminals Hong Kong Limited and ATL Logistics Centre Hong Kong Limited. Meanwhile, improved relations with Taiwan and the enlarging of the Three Links policy is a positive factor for Xiamen Port.

The global trade environment will present numerous challenges, but PPC can meet these challenges with a strong balance sheet and a solid business franchise in Greater China. In addition, management believes that some of the impact of the global recession will be mitigated by the positive effect of WTO membership and the ongoing growth of the economy. With these factors coming into play, PPC has every reason to feel confident about the future.

e-Infrastructure/ Technology

e-infrastructure/technology promises to be a key revenue driver and capital gains provider in the coming years.

The prospects for information technology and mobile communications are enormous and the expansion of these segments in China will impact the world. So promising are the expectations that China is slated to become the world's largest IT market and a major exporter of products. Currently, China's IT infrastructure ranks second in the world, just behind the US. On the mobile communications front, the phone user base already surpassed that of the US in 2001. Given government support and accession to the WTO, the PRC technology market is poised for more expansion.

As the new economy takes hold, the IT and mobile communications businesses are quickly reaching global standards. Technology and mobile communications product demand has never been so high and all numbers point skyward. The Ministry of Information and Industry ("MII") predicts the IT sector will more than double over the next five years and China could be the world's largest market for products such as PCs, cell phones and pagers.

When looking at the growth potential, it is interesting to consider China in the context of its Asian neighbors. If the growth rate continues as is, the next five years will see technology exports surpass those of Malaysia, Taiwan and Singapore. By 2010, technology exports are expected to be about 30% larger than those of Japan and greater than the sum total of Malaysia, Taiwan and Singapore.

Government Encouragement

The IT and mobile communications explosion shows no signs of slowing, despite a difficult global economic climate. Solid performance has enabled the PRC to weather the technology crash while the IT and mobile communications market has responded to government incentives.

The government expects the total size of the IT industry to quadruple by 2010 to meet demand for network infrastructure, technology production and information services. In addition, the policy to support inland provinces will open new markets. At the moment, the regions of Beijing, Tianjin, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan support IT and wireless industry growth. Many wonder about the potential of the IT market should China succeed in broadening its economic base.

New Age Communications

There is a growing demand in China for access to a variety of information platforms and services. Multimedia technologies are enhancing communication options and delivering benefits that range from entertainment to utility. However, due to the stringent requirements for network bandwidth, low telecom charges and high technology levels, developments such as 3G communications are still in the early stages.

Multimedia

Multimedia refers to the combination of text, sound and/or video and is distinguished from traditional motion pictures by a scale of production that is smaller and less expensive. Multimedia is enhanced by the possibility of audience interactivity. Such elements include voice-command, mousemanipulation, text-entry, touch screen, video-capture or live Cable TV or CATV ("Community Antenna Television") brings programs to millions worldwide. In addition, cable is a popular way to interact with the Internet and access multimedia information. Typical interactive usage ranges from selecting videos from a central library to game playing, voting, home banking and shopping. Interactive TV involves the implementation of set-top units and infrastructure arrangements depend on the approach of the service provider.

This medium is popular in France and the UK, with 6.5 million registered users. Global interactive TV users will reach 226 million by 2006, rising from only 1.3 million in 2000. Yet, interactive TV faces limitations as there is no standardized settop box and this issue needs to be addressed. Nevertheless, analysts predict that China will be a prime market for cable TV.

VoD (Video on Demand)

The convergence of TV, PC and phones is in the works as cable modem signals transmit through telecom networks. However, there are problems that must be overcome, such as slow transmission speed, data loss and unstable images. Currently, there are a number of VoD system applications. Information-on-Demand allows individuals to access programs real time, fulfilling information needs without the necessity of computers or phones.

Mobile Communications

Currently, the trend is towards mobile Internet services, such as mobile data communications and multifunctional devices. Wireless web services include games, banking, ticket booking, e-mail, restaurants and travel. Unfortunately, mobile data transmission rates range from 9.6 to 14.4 Kbps, too slow for mobile Internet users.

Communications is moving from voice to text (Short Message Service or SMS), picture messaging, digital image input and mobile multimedia. Mobile Internet includes SMS and WAP, with GPRS and 3G networks for multimedia messages. Wireless ICP includes SMS, WAP and STK. Similar to paging, SMS sends messages of up to 160 characters to mobile phones using Global System for Mobile (GSM) communication. Currently, SMS messages are transmitted within the same cell network or to anyone with a roaming service.

SMS Revolution

In recent years, SMS has proven successful in Nordic nations and some Asian countries. SMS accounts for 10% of Average Revenue Per Unit for certain European operators and the average European sends 15 to 20 messages per month, with teenagers often transmitting over 100 messages per month. In China, the SMS market is expanding quickly. China Mobile, the largest mobile network provider, recorded 400 million messages in 2000 and expects that 10 billion short messages will be sent in 2001. Beginning in fourth quarter 2000, SMS volume increased by 10 million messages per month.

- SEGMENT OVERVIEW E-INFRASTRUCTURE/TECHNOLOGY

SMS popularity is not surprising. First and foremost, its low cost is attractive. The availability of hardware, secrecy, personalization, efficiency and convenience are seductive in a culture with new communication styles. However, as the market continues to expand network capacity and speed may not meet requirements.

Future Goals

The next decade will be an evolutionary period for the IT and wireless sectors and the government is eager to see major improvements. Construction of IT network infrastructure will be accelerated as China introduces a new generation of high-speed information delivery and broadband networks. In the Tenth Five-Year Plan the MII outlined the following tasks:

- To breakthrough the broadband bottleneck and accelerate the speed of growth in terms of capacity and advanced technology by creating an efficient and reliable IT infrastructure.
- To provide key technology application solutions by establishing a creative and reasonable structure that enhances profitability and competitiveness.
- To provide IT application solutions to centralize coordination, share resources, restructure traditional industry and build IT infrastructure.
- To implement regulations and form a legal administration to create a competitive environment and build an efficient operation and management system.
- To strengthen enterprise reforms through modern and effective regulation, technology and management systems.

Summary

The prospects for the IT and mobile communications industries in China are better than those facing any nation. A massive market of individuals, enterprises and government agencies combined with the belief that technology can drive the economy makes China the market to watch. With the positive support of government policy, injections of capital and the development of a human resource base, the market is on track to meet a promising set of projections.

OPERATIONAL REVIEW

During FY2001 the e-infrastructure/technology portfolio was restructured and positioned for growth. Though businesses were affected by global developments in technology markets, headway was made in certain sectors.

chinadotcom is a pan-Asian Internet company offering web solutions, portals and marketing services. NWI is a founding investor and a major stakeholder in the first Asian Internet company to list on NASDAQ. In first quarter 2001 chinadotcom revenue reached US\$22.3 million, a 31% increase over first quarter 2000. The Web Connection, a chinadotcom subsidiary, received the best e-commerce solutions provider award from "Internet World Asia" and emerged as Asia's largest web integrator, developer and host. On the multimedia front, PrediWave Corp., the developer of an end-to-end solution for Interactive digital TV that operates on an existing "one-way" cable infrastructure, successfully completed a series of demonstrations with Beijing Cable TV. Commercial deployment is expected in first quarter 2002. Meanwhile, Stellar One, an emerging middle-ware provider, bundled its ConnectTV product with Fujitsu Siemens Computer's ("FSC") new ACTIVY media center, a home entertainment gateway.

In the mobile communications sector, GWcom specializes in data communications networks and provides content and applications for mobile devices. Last year, China Unicom, with a 60% market share in paging, supported GWcom's two-way mobile data communications technology through the deployment of a Shanghai network. Similar roll-outs are planned for other cities. In addition, China Mobile engaged Byair, the GWcom mobile data service arm, to provide wireless data services in Beijing, Tianjin, Zhejiang, Fujian, Guangdong and another seven provinces.

Also in the mobile communications sector, Linkair Communications, a developer of LAS-CDMA (Large Area Synchronized Code Division Multiple Access) technology, continues to develop high speed and high capacity wireless solutions, license proprietary technology and manufacture ASICs. During this period, Linkair successfully completed a field test of its LAS-CDMA in Shanghai. In addition, Group Sense (International), a designer and maker of hand-held information retrieval and data communications products, completed a HK\$81.9 million financing with Intel, Softbank and UTstarcom.

Outlook

The promise of e-infrastructure/technology is based on a strong domestic market and the vast potential of new technology. Despite the global technology shake-out, most of the operational companies in this sector are technology providers with tremendous promise. In coming years, e-infrastructure/technology should produce AOP as well as capital gains.

In the Internet and e-commerce sectors, chinadotcom will continue to lead the industry in a range of businesses. With a strong cash position chinadotcom is currently considering new acquisitions.

In the multimedia segment, PrediWave will complete its trial run in Fujian Province and this low cost interactive digital TV solution will have a major presence in the China and global market. For its part, Stellar One will work to produce industry standard set-top boxes and broadcast software applications.

In the mobile communications sector, GWcom will gain prominence in the two-way mobile communications market in China. As well, Byair will continue to be a dominant player in providing applications and contents to major mobile operators.