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China's Port Logistics Industry The Case for Inland Waterways

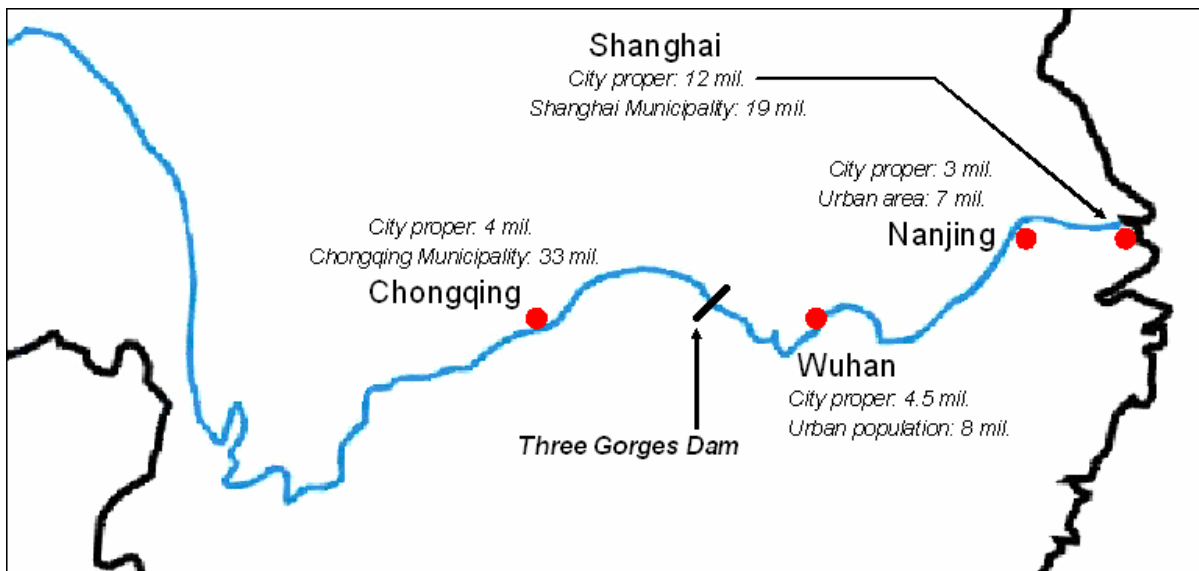
"There is a tide in the affairs of men, which, taken at the flood, leads on to fortune"
-Shakespeare, Julius Caesar

Over the course of the following several months, ChinaVest will continue to provide summary research on the logistics infrastructure in China. Our firm, a merchant bank based in Shanghai, has been operating in greater China since 1981. We have a long track record in the logistics infrastructure sector, having both owned logistics companies (such as TAIT) and advised multinational firms that utilize China's interconnected system of ports, highways and rail.

China's Yangtze Inland Ports

The port of Nantong is the second in our installment of ports along the Yangtze River. In our first research report (May 2007), we highlighted the general dimensions of the port industry in China. We then began a more thorough analysis of China's inland waterway system. When we discuss inland waterways in China, we refer essentially to one river, the 4,000 mile Yangtze which hosts roughly 80% of China's inland waterway shipping. The population that resides along this river is roughly the size of the European Union.

Figure 1: THE YANGTZE RIVER—A CLOSER LOOK



The Yangtze is the world's third longest river. Its path slices through the middle of China, beginning in the Kunlun Mountains in the western part of the country, winding its way eastward, and opening up into the East China Sea. Major inland trade is confined

between the Port of Chongqing and the Port of Shanghai, and the highest volume occurs between Nanjing and Shanghai. Chongqing lies directly in the center of China while Shanghai is located in the Yangtze Delta, where the river meets the East China Sea.

Inland cities located west of Nanjing and in Central China have historically been more economically depressed than the seaport cities of the eastern coast. Given recent increases in the price of labor along the heavily urbanized coast, second-tier cities in Central China are now attracting new waves of investment. The labor differential, however, still remains quite high. Hourly manufacturing wages in Chinese urban areas are US\$1.19 per hour while compensation for TVE's (towns and village enterprises) is US\$0.45 per hour¹. Though this may seem relatively insignificant compared to the average US\$23 per hour manufacturing labor rate in the United States, it makes a tremendous difference in many low margin industries.

In recent years, those central cities with ports along the Yangtze have been investing billions in infrastructure in order to attract factories, companies and investors. Manufacturing hubs have sprung up along the river in large numbers, surrounding the ports for easy accessibility.

Trade through the river's ports is highly unbalanced with an estimated 70% - 30% ratio of exports to imports. Most of the goods shipped downstream along the river are exported abroad. Before these goods set sail towards their international markets and port destinations, most stop in one of the eight *Yangtze River Delta* region ports: Nanjing, Zhenjiang, Yangzhou, Zhangjiagang, Changshu, Taicang, Nantong or Shanghai.

Figure 2: INLAND PORTS IN THE YANGTZE DELTA REGION

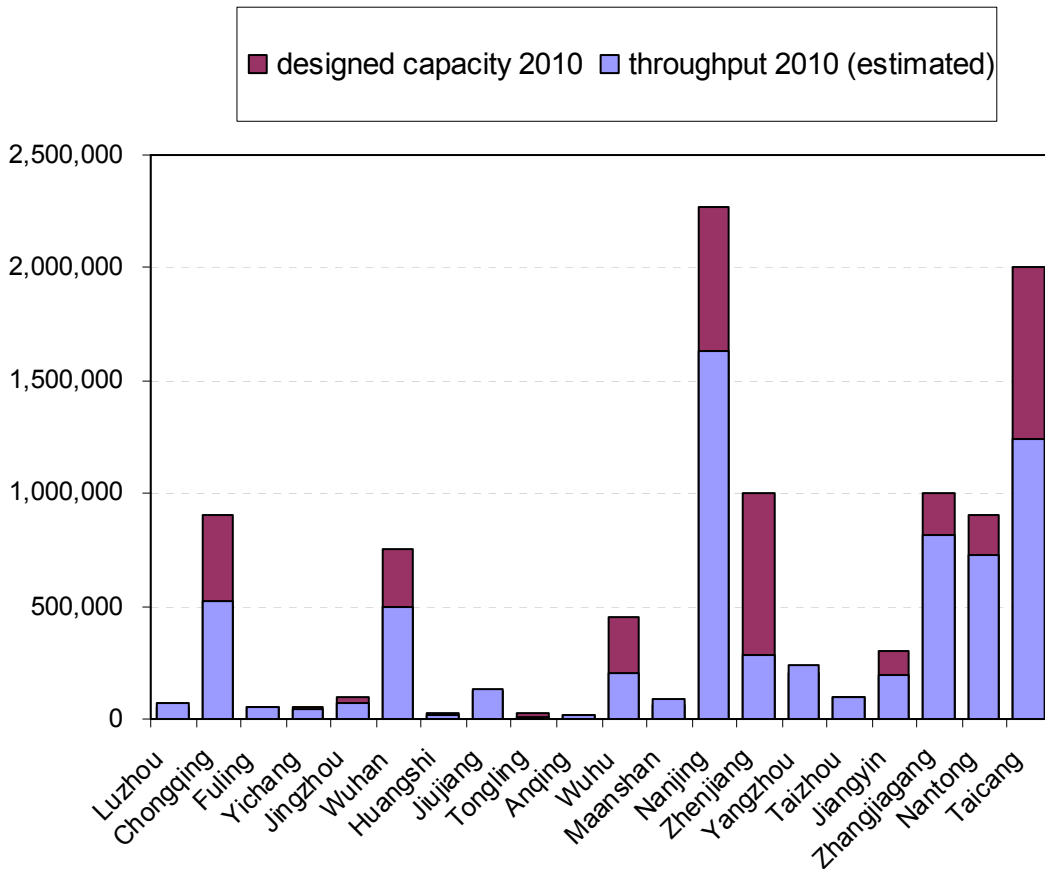


¹ Erin Lett and Judith Banister, "Labor Costs of Manufacturing Employees in China," Monthly Labor Review (November 2006): 40.

The Yangtze River Delta is one of the country's most developed regions. Though the area accounts for only 2 percent of China's total land, the delta produces 22 percent of the national GDP. In the first half of 2007, the delta's 16 cities received US\$12.37 billion in foreign investment while the rest of the country attracted a total of US\$30.25 billion during the same period, according to statistics from the Ministry of Commerce.

Inland ports along the Yangtze River have promoted projects worth a total of eight billion Yuan (roughly US\$1 billion) to entice domestic and foreign investors. In 2006, the combined handling capacity of ports alongside the Yangtze River reached 780 million metric tons, an increase of 20.6 percent. The chart below highlights container capacity (measured in TEU's) and throughput of various ports along the Yangtze. It shows that some ports, like Taicang (covered in our last report), will likely have a large excess capacity by 2010. By comparison, Nantong will have some spare capacity but it does not appear to be extreme.

Figure 3: YANGTZE RIVER PORT CAPACITY



Source: Zhang, Mo (2007). Study on container shipping on the Yangtze River. Master Thesis, Delft Technical University (supervisor Dr. Albert Veenstra)

Where the Yangtze meets the East China Sea, two important container ports sit on opposite sides of the delta. The port to the south is Shanghai, which surpassed Hong Kong in the first quarter of 2007 to become the world's second busiest port. Shanghai reached a high of 5.89 million TEU's in the first quarter of this year alone, an increase of 28% year on year. As we shall see later in this report, Shanghai's increase has a direct impact on the Nantong Port. Dr. Albert Veenstra, professor of maritime economics at Holland's Esrasmus University and specialist on Yangtze Ports says, "All ports along the Yangtze depend more or less directly on the development of Shanghai Port. This is also reflected in the shipping connections, which are predominantly one-to-one connections with Shanghai."

Opposite Shanghai, on the north bank of the delta is Nantong, a city with a rapidly growing commercial influence.

Port of the Month: Nantong

Nantong is a port (and a city) located several hours from the mouth of the Yangtze. Nantong is in Jiangsu Province, an important, growing, industrial region in China. Jiangsu Province has a population of 75 million people. Historically, life in the Nantong region has depended on agriculture and textiles as well as salt production on the nearby seacoast. A local entrepreneur named Zhang Jian founded Nantong's first modern cotton mill in the late 1800s. He then developed an industrial complex that included oil, flour, silk reeling mills, a distillery and a machine shop. He also founded a shipping line. By the early 1900's Nantong was commonly called "Zhang Jian's Kingdom".

Throughout its history, Nantong has remained an important center for the textile industry. In the past several decades, because of its deep-water harbor, and connections to inland canals and the Yangtze River, Nantong has also become one of the 14 port cities open to foreign investment projects under China's policies of modernization. Today, Nantong's population of 7.4 million is primarily engaged in industrial production, particularly textiles.

Nantong is an integral part of the broader Shanghai Economic Zone. The coastal city has also set up a complete land and air transportation network. Nantong has a total of 217 kilometers of expressway, 1,568 kilometers of highway and two railways. The Nantong Airport is located only 18 kilometers from the downtown area and is equipped to serve D-level planes, such as the Boeing 737.

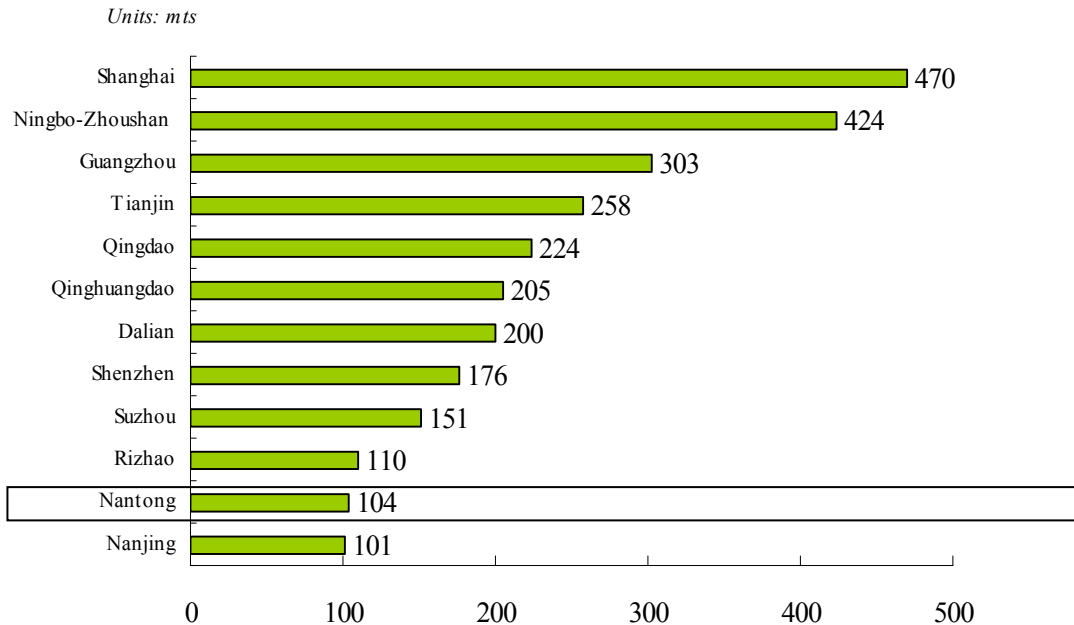
Recently, Nantong formed an industry cluster that focuses on the shipbuilding industry and has since become a major ship repairing base in China. Nantong possesses large-scale shipbuilding and repair enterprises such as COSCO KHI, Keppel and Yahua. The city has a combined total of 97 shipbuilding enterprises. Nantong Ocean Ship Engineering owns both an 80,000-ton floating dock and the *Nantong Floating Dock*, which, at 150,000 tons, is the largest in China. The government of Nantong sees the shipbuilding and repair industry as one of the city's core competencies, and recently set a goal to achieve a capacity of 10 million tons and sales of RMB 10 billion.

The Nantong port has 45 berths of various kinds, including ten 1,000-ton berths. There are 79 wharfs capable of handling over 1,000 ton-class vessels, 29 wharfs for 10,000 ton-class vessels and 11 wharfs for 50,000 ton-class vessels. Nantong is open to 199 ports in 65 countries and regions including the U.S., Canada, Australia, Japan, Russia and Singapore. It has also opened three lines for international container shipment specifically for Hong Kong, Japan and South Korea, with 28 regular container vessel liners shipping to various parts of the world every day.

In terms of cargo throughput (cargo/freight) alone, Nantong ranks 11th in China and 3rd along the Yangtze River. Nantong's cargo throughput in 2006 was 103.9 million tons, an incredible increase from 1995 when its capacity was roughly 16 million tons.

Figure 4 below shows all Chinese ports with capacity greater than 100 million tons.

Figure 4: PORT THROUGHPUT > 100 MM TONS



Source: Development Research Center of the State Council Network

The Nantong port has several key advantages over other ports in China. The first is that it is located across the Yangtze Delta from Shanghai. Another is that Nantong has direct access to both the Yangtze River and the East China Sea. However, as the sea and the river are not located directly next to each other, in order to make the most effective use of these advantages, the Shanghai and Nantong ports would need to be connected. According to Holland Erasmus University's Dr. Albert Veenstra, this would require a railway track of limited length and intricate logistics. Currently, such a project does not seem to be a priority for Nantong, but in a few years, this bypass to Shanghai could provide a competitive edge that no other port has.

Investments in Yangtze-related infrastructure are immense, even by Chinese standards. By 2020, a total of 18 new bridges and tunnels will be built spanning the lower Yangtze River. The objective is to connect the cross-river cities and better coordinate development throughout the region. In June 2003 construction began on what will be the world's longest cable-stayed bridge to date (measured by distance between spans). The Sutong Bridge will cost an estimated US\$750 million and is expected to open in 2008. It will decrease travel time between Nantong and the economic circle around Shanghai to within one hour. Additionally, three cross-river tunnels: "Shanghai—Chongming—Qidong", "Shanghai—Chongming—Haimen" and "Shanghai—Nantong Railway", will be constructed by 2010.

The map below highlights (in green) the Nantong region. Ports are marked with anchors. Readers should note the difference between Nantong's coastal and river ports.

Figure 5: NANTONG—A CLOSER LOOK



In 2006, the Shanghai Port system handled 470 million tons of cargo, exceeding Singapore to become the world's largest freight port. Because the growth in volume is outpacing Shanghai's infrastructure, Nantong is perfectly positioned across the Yangtze Delta to help balance Shanghai's trade overload. Recently, Nantong signed a strategic cooperative agreement with Shanghai, making it one of the main members of the Shanghai International Transportation Center.

Nantong is aggressively pursuing its ambitious plans. The city has laid out the core industries it will develop during its "11th Five Year Plan" period (2006-2010) as:

- (a) shipbuilding,
- (b) textiles,
- (c) chemicals,
- (d) electronics,
- (e) services, and
- (f) energy

According to Nantong's Mayor, Mr. Ding Dawei, the city's GDP increased by 13 percent last year and its economic volume reached 147.2 billion Yuan (roughly US\$19 billion), ranking 8th among the 16 large- and medium-sized cities in the Yangtze River Delta. Indices of GDP and per capita GDP have both doubled in the years since 2000, and last year, newly approved contractual foreign investment exceeded US\$5 billion, an increase of 34.2 percent year on year.

Along the Yangtze River, Nantong Port is divided into eight port areas: Rugao, Tianshengang, Tongzhou, Rengang, Langshan, Fuminggang, Jianghai, and Tonghai. Along the Yellow Sea/East China Sea, two new ports are being completed at Yangkou and Lüsi to specifically serve in and outbound sea trade. At the risk of providing too much information, we highlight specific data on each of the river port areas below. Because we aren't focusing on coastal ports, we do not list details on Nantong's two sea ports.

- (a) **Rugao** handles petrochemicals. It has a petrochemicals berth of 50,000 tons owned by the Oriental Petrochemicals Company, and a 30,000-ton berth belonging to Rugao Stevedoring Company.
- (b) **Tianshengang** is an industrial zone which provides services for power plants. Tianshengang Stevedoring Company, which belongs to Nantong Port Group, owns three bulk cargo terminals of over 2,000 tons, equipped with two bridge grabs of 8 tons, and a 10-ton gantry crane. Ruitong has an asphalt terminal of 5,000 tons. Yuejiang Stevedoring Company has a 3,000-ton general cargo terminal. Jiangdong Shipping Company has a 3,000-ton terminal for dry-docking. There is also Tianshengang power plant, Huaneng power plant, Xinxing thermal power plant and other privately owned berths of 1,000 tons.
- (c) **Tongzhou** handles cargo and passenger vessels. There is a terminal (two berths) of 25,000 tons for general cargo, one 40-ton gantry crane and four 5-ton gantry cranes. There is also a 500g-ton floating jetty used for passenger ships traveling from Nantong to Shanghai and Chongqing.
- (d) **Rengang** is mainly used for ship building and dry-docking. There are two shipbuilding berths of 300,000 tons and 70,000 tons together with a 100,000-ton dry dock that belongs to Nantong COSCO. Nantong COSCO Shipping Company also owns repair docks of 150,000 tons and 100,000 tons, and floating repair docks of 150,000 tons and 80,000 tons. Nantong Cereals & Oil Transportation Co owns one 50,000-ton and one 25,000-ton general cargo berth, equipped with four 10-ton gantry cranes, eleven electric 8-ton cranes, and ten 5-ton cranes. Huaneng Power Plant owns a 25,000-ton general coal terminal; the Nantong Petroleum Co. owns a 25,000-ton petrochemical terminal and the Nantong Fuel Co. has a 5,000 ton general cargo terminal.
- (e) **Langshan** is an integrated foreign trade port district that serves the bulk cargo, containers and general cargo of Nantong. It is owned by the Yaogang and Langshan Stevedoring Companies, which belong to the Nantong Port Group. Yaogang Stevedoring Company has two 50,000-ton berths and one 25,000-ton berth for bulk cargo. It also owns six terminals of more than 1,000 tons. The terminals have ten gantry cranes with a maximum lift of 25 tons. Langshan Stevedoring Company has two 50,000-ton bulk cargo berths and one 25,000-ton bulk cargo berth. There is also one 16-ton gantry crane and eight 10-ton gantry cranes in the district. The container terminal also owns one 25,000-ton berth, one 15,000-ton berth (used only for containers) with two 30-ton gantry container cranes and two 50-ton gantry container cranes.
- (f) **Fuminggang** serves the Nantong Economic & Technology Development Zone. In the district there is a 10,000-ton terminal from the Dahuyang Group; an LPG

wharf of 25,000 tons belonging to Huasheng Harbour Company; and a 5,000-ton oil & chemical wharf that belongs to Shenghua Chemical & Industry Company. There is a 50,000-ton wharf for general and bulk cargo and a 50,000-ton terminal for containers belonging to Xinda terminal. Cosco Steel Construction terminal has a 280,000-ton quay.

- (g) **Jianghai** is the main operating area for bulk oil and chemical products. It has five berths over the 1,000-ton class for oil and chemical products. The gross holding capacity of the storage tanks is 1,109,200 cubic meters. The gross capacity of the liquefied gas is 18,000 cubic meters and the capacity of edible oil tanks is 200,200 cubic meters. In this port area, the Jiaming Port Storage Company has one 25,000-ton class oil and LNG wharf; Qianhong Port Storage Company also has a 10,000-ton class oil and liquefied gas wharf; Donghai Petroleum & Chemical Company has a 25,000-ton class oil and chemical wharf; Huifeng Oil & Chemical Company has a 25,000-ton class oil and liquefied gas wharf; Ninghui Petroleum & Chemical Company has a 13,000-ton class oil & chemical wharf; Gangde Logistics Company has a 25,000-ton class general cargo wharf and a 30-ton gantry crane.
- (h) **Tonghai** is still under construction.

Conclusion

China is currently experiencing unprecedented growth. Sea and river ports play a key role in both sustaining the demands of an enormous population with increasing purchasing power and managing growth in international demand for Chinese products.

Because of its excellent location and the impact of new infrastructure projects linking the port to other cities, we believe that in years to come, Nantong will grow in importance. It is even foreseeable that Nantong will become the core component of the "north wing" of Shanghai's shipping facility. Nantong will continue to serve as a main transit shipping port to transport goods along the Yangtze River. And the construction of Yangkou and Lüsi sea ports will further promote Nantong Port's combined sea-river transportation capabilities.

In our next installment, we discuss two ports: Changshu and Zhangjiagang.