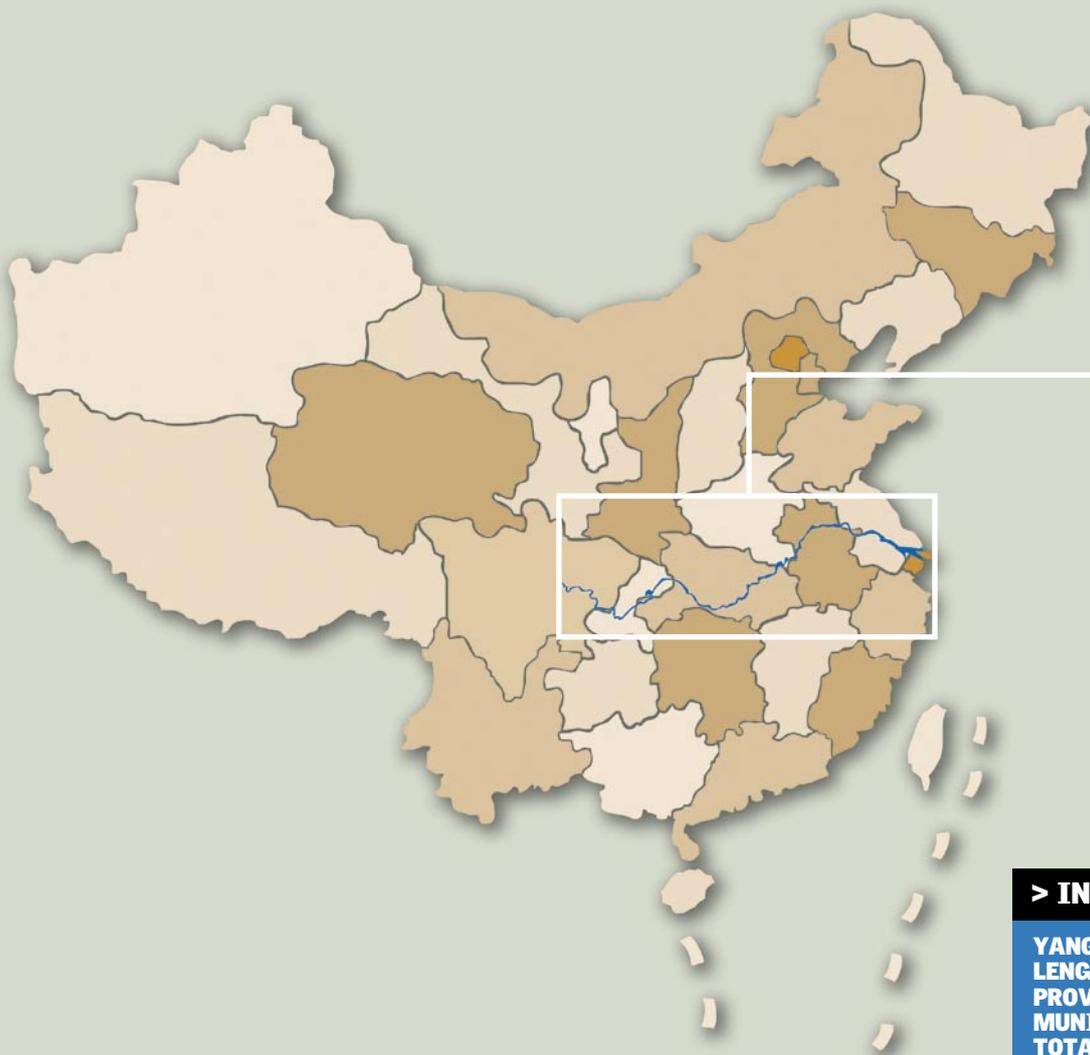


Waterway to Wealth

▶ Yangtze River

by RUTGER BOOT

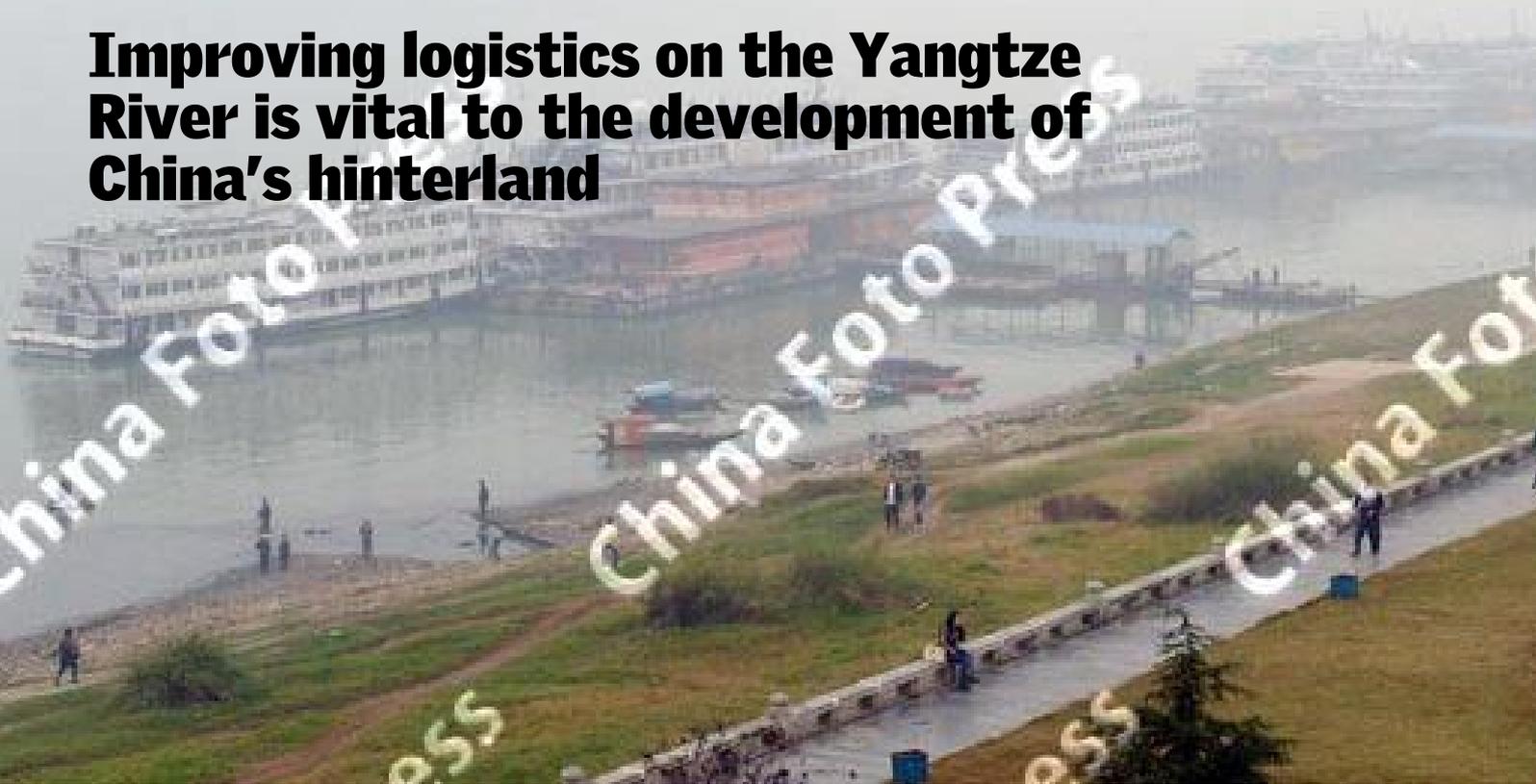


> INFORMATION

YANGTZE RIVER
LENGTH: 6,300 KM
PROVINCES CROSSED: 7
MUNICIPALITIES CROSSED: 2
TOTAL CARGO TRAFFIC: 990 MLN
TONS (2006)

Yangtze River

Improving logistics on the Yangtze River is vital to the development of China's hinterland



Following the Yangtze River on a map from source to estuary is a reminder of China's sheer size. Bubbling up from the foothills of the Himalayas, the Yangtze River cuts a swathe through the heart of China. Its 6,300 km course connects the Tibetan plateau with China's financial center, Shanghai. Along the way it passes through the booming interior cities of Chongqing and Wuhan, the former Chinese capital Nanjing, and one of the world's largest dam projects, the Three Gorges. The navigable part of the river flows through seven provinces and two municipalities: Yunnan, Sichuan, Chongqing, Jiangxi, Hubei, Hunan, Anhui, Jiangsu and Shanghai. This is where 25% of the Chinese population lives and two-fifths of Chinese gross domestic product is earned.

China's coastal cities have developed rapidly over the past 30 years.

The skylines of Shanghai, Xiamen and Wenzhou now rival the former grand gateway to China – Hong Kong. But this growth has reached a tipping point. The comparative advantages of China's coastal cities are slowly disappearing because prices are rising, labor is becoming scarcer and the general pace of development is slowing down.

As a result, investors are increasingly looking inland for future development. Accessibility to the hinterland is key. And while China has spent billions of RMB developing its road and rail networks over the past two decades in an attempt to connect the interior with the booming east coast, logistics firms increasingly see China's largest waterway as key to moving goods across the vast Middle Kingdom.

"Increased competition in [coastal] cities is quickly forcing domestic and global players to expand into smaller

second- and third-tier cities to drive growth," says Garry So of logistics firm Kerry EAS. "In China, foreign retailers such as Wal-Mart and Tesco, and Hong Kong-based retailers are branching out into smaller [inland] cities. This means logistic service providers need to follow them and offer their services."

RIVER OF GOLD

Logistics and infrastructure firms have not been slow to realize the Yangtze's potential. The last decade has witnessed a frenzy of port expansion and shipbuilding along the river's course. Shipbuilding output along the Yangtze already accounts for around half of China's total output and is expected to reach 300 million tons by 2010, which will represent 60% of China's total shipbuilding output by 2015.

The Yangtze now carries 80% of all inland waterway cargo in China. Yangtze River vessels carry 80% of iron oil, 72% of

crude oil and 83% of coal along the river. Total cargo traffic on the river reached 990 million tons in 2006. Of this, 550 million tons was international trade, and the total throughput of containers in Yangtze River ports was 6.34 million twenty-foot equivalent units (TEUs)

Many Yangtze ports have also encouraged the development of major logistics hubs and parks in recent years. Cities along the Yangtze are actively marketing their logistics and transportation facilities in an attempt to attract foreign investors, who bring in money and cargo. Zhang Runbing, managing director of investment group Wuhan Zhisheng, believes Yangtze cities such as Wuhan should be top of investors' shortlists of locations of interest.

"Looking at the GDP and the population growth is highly important when considering a city for investment," he says. "Wuhan is a transport hub and is very competitive, especially at a time when the first-tier cities face more and more pressure in the form of government policy and market conditions."

CONTAINER CONUNDRUM

Yet while the potential of Yangtze ports such as Wuhan is evident, there is still plenty of room for growth and improvement. Despite the Yangtze's impressive trade statistics, the majority of container traffic arriving into Shanghai's vast port is still transported onwards by road or rail. Just 10% of all containers are transported inland by barge and just 16% of containers arriving from the interior come along the Yangtze by barge.

In addition, even those goods that are being transported by river are not being managed in the most efficient way. Containerized transport along the Yangtze is still in its early stages. At present there are only around 400 container vessels operating along the length of the Yangtze. This is a negligible part of the total Yangtze fleet that, according to statistics, consists of more than 70,000 ships. Around 90% of vessels on the river are small, general cargo ships, and around 30,000 are non self-propelled barges and pontoons. The majority of boats on the Yangtze river are old, small and poorly equipped. This hampers the safe navigability of the river, especially at night.

Industry experts estimate that the containerization rate of goods in Chinese

"In 2006, some ports even had a lower throughput than in 2005. Major ports such as Wuhan, Zhangjiagang and Zhenjiang showed lower growth than China's GDP growth. This does not make sense." — Albert Veenstra, Erasmus University Rotterdam

interior cities is around 54%, but this can be much lower in specific areas – in Anhui Province, for example, a figure of 20% seems more appropriate. As a result, much of the cargo travels downstream and to and from river ports in small, separate units – known in the industry as breakbulk – not in containers. This is far from the most efficient use of barge space. The average capacity of Yangtze container ships is 245 deadweight tonnage (DWT) and the container loading capacity is just below 90 TEUs. This is well below the capacity of the state-of-the-art container ships used on American and European rivers.

INEFFICIENT SHIPMENTS

The dominance of just two or three major companies also hinders efficiency.

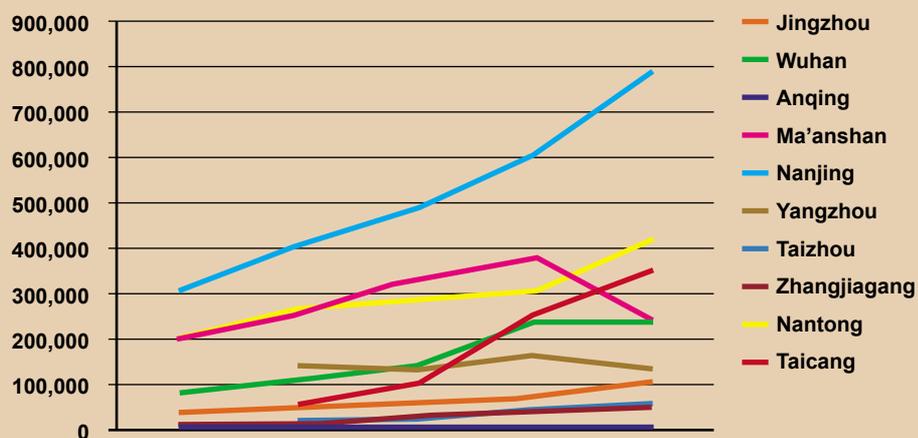
Much of the port capacity upriver is controlled by Shanghai's port operator, the Shanghai International Port Group (SIPG). The group owns Wuhan Port, and has stakes in the ports at Chongqing, Nanjing, and Jiujiang. It also operates logistics parks in Anjing and Wuhu, and container services on the river through its own shipping line. Another large state-owned enterprise in China, Cosco Group, owns Zhenjiang, Zhangjiagang and Yangzhou ports and also has a stake in Nanjing Port alongside SIPG.

The presence of SIPG and Cosco on the Yangtze River ensures that much of the container flow on the river heads towards Shanghai – an estimated 70% of cargo on the river either has its source or destination in the city's port. This has a direct impact on the service pattern of most Yangtze shipping companies. Most services connect an inland port with Shanghai, stopping at few other ports along the way. Routes from faraway ports like Chongqing (2,300 km) or Wuhan (1,000 km) tie up capacity for a long time.

Transshipment of containers through an intermediate port is a common solution to improve capacity utilization and carry more containers with fewer ships. But according to Kevin Lu of China's Waterborne Transportation Institute, transshipment through Yangtze ports such as Nanjing is still fairly rare.

YANGTZE PORT THROUGHPUT 2002-2006

Twenty-foot Equivalent Units



Source: Yangtze River Port 2006, Yangtze Port Administrative Committee and Yangtze Shipping Year Book 2005

“The port of Nanjing is very favorably located for this transshipment function. Cost calculations for various routes and alternative transshipment locations show that transshipment in Nanjing is cheaper than in competing ports such as Wuhan,” he says. “Still, however, transshipment in Nanjing is only 10% of total throughput.”

Dr. Albert Veenstra of Erasmus University Rotterdam in the Netherlands, who has researched container traffic developments on the Yangtze River, believes the predominance of small barges is another barrier to transshipment. “The current ships are still relatively small, especially in tributaries and along the upstream section of the river,” he says. “The efficiency of a transport system with transshipment improves if the last section

between Nanjing and Shanghai is done by large inland barges with low unit costs. On the Yangtze River, these barges can easily be 500 TEUs or more. Currently, however, the largest barge is 350 TEUs, and very few of these large barges are in operation at this time.”

Nevertheless, much of the infrastructure to handle larger ships is already in place. The container fleet and many of the current container terminals are modern and well maintained. “I don’t think we can teach the Chinese much about building and operating inland vessels,” said a Dutch inland shipping entrepreneur from GP Shipping who preferred to remain



anonymous, during a field trip along the Yangtze River. “Their operation is completely state of the art.” He added that the current ship standards put forward by the government are the only reason why the ships were not bigger, faster and more versatile than they are now.

THREE GORGES BOTTLENECK

One of the main obstacles to the development of the Yangtze River in the past was the fluctuation in water levels in the river’s middle section between Chongqing and Wuhan. The Three Gorges Dam has to some extent remedied this problem by stabilizing water levels, but it has also created new problems of its own.

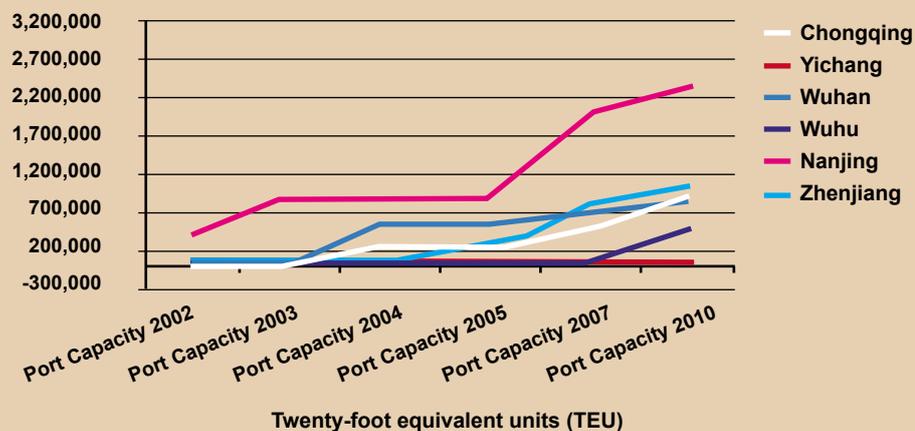
Currently, the locks in the dam are becoming a bottleneck for traffic between Chongqing, upstream of the dam, and the

lower part of the river. The capacity of the dam’s two five-step locks is just enough for the current passenger and container traffic, but commodity-carrying ships can incur waiting times of several days. These are mainly coal-loaded ships. Growth in coal demand has guaranteed a substantial source supply to Yangtze waterway transportation, and there is likely to be a steady increase in the amount of coal being shipped along the Yangtze in the coming years. The amount of coal transported by train between the Yangtze ports Pukou, Yuxikou, Hankou and Zhicheng is predicted to fall, while significantly more coal from Yunnan, Guizhou and Sichuan provinces will be transported via waterway. Overall, the total volume of coal transported on Yangtze River trunks is expected to increase by as much as 15%.

There are moves to address this problem and to deal with the expected increase in capacity. By 2009, a smaller separate ship lift will be installed, able to get ships weighing up to 3,000 DWT over the dam in 45 minutes. But it remains to be seen whether this will be sufficient.

Concerns have also been raised about the ecological impact of the Three Gorges Dam. The official Xinhua News Agency in September quoted government officials attending a forum in Wuhan as saying that the project had had a “notably adverse” effect on the river’s environment. “If no preventive measures are taken, the project could lead to catastrophe,” they added. Sediment is settling at the upstream side of the dam, while too much sand is being flushed away downstream. The latter is perhaps the most critical as far as transportation is concerned, because it would result in the riverbed becoming lower, which, in time, would impede ships exiting the lowest lock chambers.

YANGTZE PORTS DESIGN CAPACITY FROM 2002 TO 2010 (EST.)



Source: Yangtze River Port 2006, Ports Administrative Committee, The analysis of container throughput of the main national inland ports in 2010, Mofcom of PR, the 2005-2010 blueprint of Anhui province, Government Office of Taizhou



FULL STEAM AHEAD

Despite these concerns, the government appears committed to developing the Yangtze as a key logistics hub. Li Shenlin, China's communications minister, announced a major investment drive earlier this year, pledging USD 1.9 billion over the next three years, mainly targeted at infrastructure improvements. "The inland waterways will be developed in the next 15 years to handle the bulk of the

freight," he said. "The Chinese government welcomes foreign capital to invest in inland waterway projects."

More specifically, there will be opportunities for improvements in planning and logistics, standardization of ships and the development of new vessel traffic management systems, port construction and port equipment. The Yangtze Administration of Navigational Affairs and the Waterway Bureau of the Ministry of Communication are already developing a riverside traffic management system based on GPS, radar and automated identification technology. This is a huge task due to the length of the river and the jurisdiction of the seven provinces and two cities. Pilots are underway for the development of accurate river maps and the expansion of current local traffic management systems.

Foreign companies and bodies, including Hitt, LogicaGCM and the Dutch government, are involved to provide a regional innovation system to keep better track of dangerous goods from the petrochemical

industry being transported along the Yangtze. "China wishes to learn from other countries about how to boost sustainable development in and along the Yangtze," Li said. "Countries such as the Netherlands have more advanced technologies and, above all, abundant experience in inland shipping."

These ambitions are commendable, and fit well with China's image of roaring economic development. Yet for all the impressive plans, Albert Veenstra, who recently conducted a field trip along the river, believes the Yangtze is still a long way from fulfilling its potential. "It is well known that transport and logistics grows much faster than a country's GDP. This leads to expectations for the growth of Yangtze River traffic that we have not been able to witness during our research," he said. "In 2006, some ports even had a lower throughput than in 2005. Major ports such as Wuhan, Zhangjiagang and Zhenjiang showed slower growth than China's GDP growth. This does not make sense." The future will show if the Yangtze can live up to expectations. ■

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