

# **China Port Development Report**

**by**

**China Economic Indicator**



**Understanding China's Economic Indicators**



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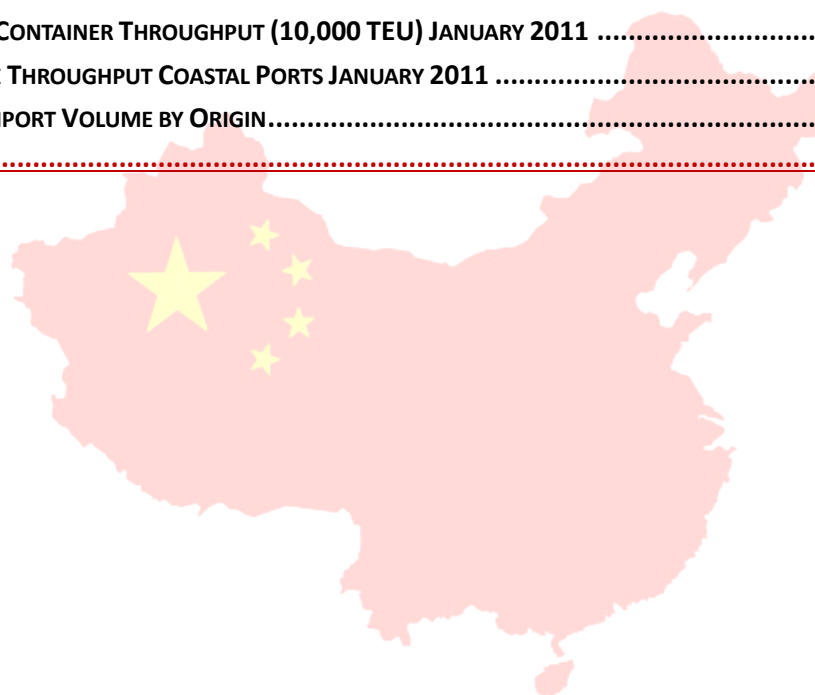
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## 2 China Economic Indicator

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Our researchers and analysts collectively have decades of experience on the ground in Mainland China, both living and working; not just in the developed east, but throughout the vast hinterland that represents the real opportunities in the coming decades.

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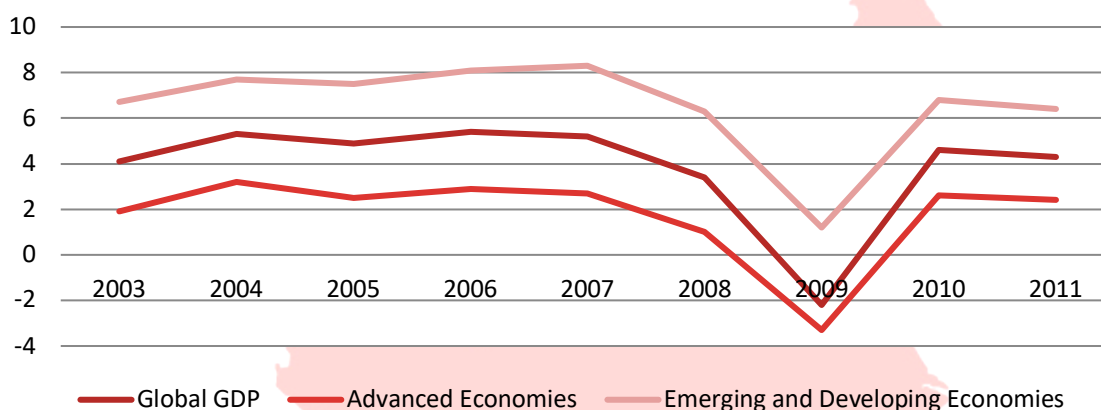
## 3 Executive Summary

### 3.1 China and the Global Economy

The global economy moved into a phase of growth in 2010 driven by massive fiscal stimulus around the world. This recovery led to a much higher than expected rebound in global trade.

As the world moves to a more 'normal' phase of growth as stimulus measures are withdrawn, the economy will settle the trade volumes following.

### Global GDP Growth Rate 2003-2011



China's economy remains fragmented, especially in terms of its interaction with the outside world in terms of foreign trade. Regional development in China is often better understood in relation to its primary trading partners. The impact of the financial crisis best illustrates this with the most severe effects felt in the regions most closely linked to the trading blocks of Europe and the US. Regions more closely linked to developing markets and neighboring countries much less severely affected. This fragmentation is a product of the way in which China implemented modernization strategies at the dawn of the reform era.

At present, government strategy in many arenas is focused on consolidating 'national market', integrating regulatory environments, and developing national logistics networks capable of competing on a national stage alongside established international players. To this end, the government is offering swaths of both soft and hard financing initiatives to the leading State-owned logistics operators.

China's economy still remains dominated by the main three economic hubs, which also represent the three primary port clusters. Of these three economic, and port, regions Beijing and the Bohai Bay is now the fastest



growing in both throughput and GDP. This said, river traffic growth outstripped coastal growth indicating a rise in transfer traffic as industry relocates further toward the hinterland in line with the 'Go-West' strategy and rising disposable incomes inland.

In 2010, China's economy continued to grow impressively. In part buoyed by massive domestic stimulus spending; in part by a nascent global economic recovery.

Foreign trade volume is estimated to have reached almost USD 3 trillion in 2010. Compared with 2009, the nation's foreign trade growth in 2010 represents a rise of 31.5 percent, well above the global average level of 11.4 percentage points. Import growth rate over the period was greater than export growth rate.

As GDP continues to grow, so does China's emerging consumer class. It is estimated that by 2015 China will be home to 150m consumers with levels of income close to USD 40,000/year. This will make China one of the largest consumer markets in the world.

Building on this, and in line with Beijing's desire to address trade imbalances and optimize logistics' chain efficiency the government is actively working to promote consumer interest in foreign products. This project will work closely with manufacturers, shippers and logistics providers.

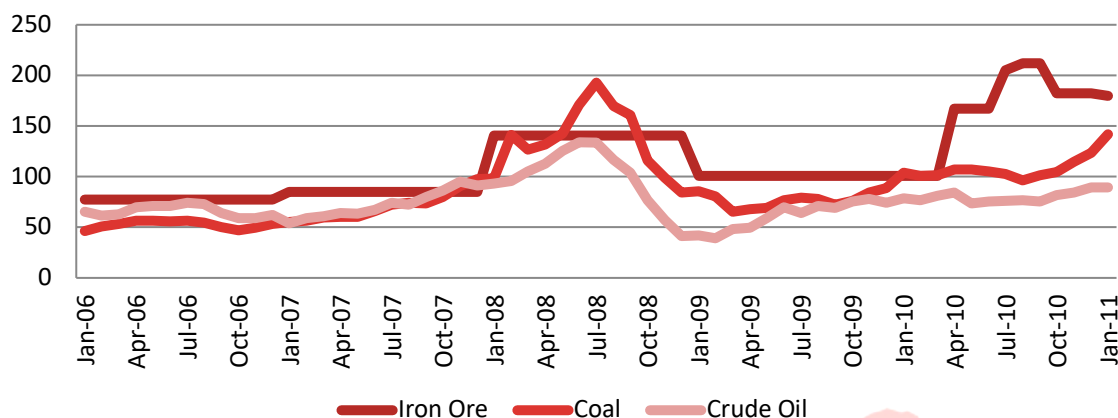
Despite a massive growth in regional trade development in Asia over the past 30 years, the financial crisis highlighted China's dependence on the developed markets of Europe, the US and Japan. This dependence unmasked the fact that much of the growth of inter-Asian trade over the past few decades has been driven by the geographic distribution of manufacturing chains across the region.

## 3.2 Global Commodities

Global commodity prices ended the year on a surge leading a reduction in the rate of growth for coal, and a net contraction in iron ore imports. High prices and measures by China to restrict energy intensive industries and introduce emission control measures will most likely restrict commodity growth in 2011 to single figures.



## Coal, Iron Ore and Crude Oil commodity prices



In 2011, China's baseline GDP growth rate is set to slow in 2011 to 9.8 percent, slightly lower than the previous year's figure of 10.3.

Of this figure the report estimates investment, consumption and net exports will contribute 5.4 percent, 4.0 percent and 0.4 percent respectively. It also predicts the growth rate for primary industry will reach 4.6 percent, 11.0 percent for the secondary industry, and 9.7 percent for the tertiary sector.

### 3.3 Port Development

Buoyed by global stimulus spending and a nascent economic recovery global shipping business was resurgent in 2010, with a corresponding feedback into the China port sector. Port throughputs soared in 2010 as the logistics industry in China scrambled to keep pace with rapidly expanding trade. Driven by growing port sector activity, the port logistics sector entered a period of restructuring and upgrading.

Statistics indicate that container throughput at China's coastal ports reached 1.8 times its 2005 volume; and 4 new ports joined the 100m ton club, bringing China's total to 22.

#### 3.3.1 Regional Development

In 2010, the annual cargo throughput of Shanghai Port exceeded 600m tons, ranking first in the world for the fourth consecutive year.

In 2010, Pearl River Delta's Guangzhou Port reached a cargo throughput exceeding 400m tons, ranking just behind Shanghai and Ningbo - Zhoushan.





Data for 2010 indicates that ports in the Bohai region, on aggregate grew quicker than the national average. This growth was in large part driven by Tangshan port where throughput 224m tons; an increase of 42 percent.

### 3.3.2 Foreign Trade Outlook for 2011

In January, ports above designated size, completed a cargo throughput of 736m tons, an increase of 13.3 percent. Coastal ports completed 514m tons; while river ports reached a throughput of 222m tons.

In January, port container throughput reached 13.505m TEU, up 17.6 percent. Coastal ports completed 12,219,000 TEU, river ports 1,286,000 TEU.

China's foreign trade is expected to maintain steady growth in 2011, but growth will fall compared with 2010. Overall, imports will fare better than exports, and trade surplus will be essentially flat with 2010.

### 3.3.3 Port Development

The annual increase in the handling capacity of coastal ports exceeded 500m tons from 2005 to 2010, prompted by a surge in transport demand and thus coastal port construction. The development of industries such as petrochemicals, steel, electricity power generation, grain, and oil in the years after 2002 has led to a surge in related port infrastructure construction.

By 2010, China possessed 413 ports; of these 413, 87 ports achieved a throughput above 2m tons; and 36 above 10m tons. Collectively these 413 operate some 31,429 productive terminal berths; 1554 of which are classified as 10,000 ton and above. China's coastal ports constitute more than 5320 of the national total of productive berths; of which 1261 are classified as 10,000 ton and above.

In general, river throughput growth tends to be higher than coastal throughput growth indicating the increasing importance of the hinterland in economic development and the growth of transfer business.

Another noticeable trend into the future will be the 'pairing' of inland dry ports with coastal neighbours to further drive hinterland development.

### 3.3.4 Bulk Cargo

Dry bulk cargo continues to dominate in terms of China's port logistics, comprising greater than 60 percent of China's total port cargo throughput. 2010 saw rising growth in port throughput as the domestic demand for commodities continued to grow driven by China's ongoing competitive advantage in the manufacturing sector. Coupled to the port throughput growth there was also an accompanying growth in port efficiency.



### 3.3.5 Coal

In 2010, port throughput of coal reached 164.83m tons of coal in 2010, up 30.99 percent on the previous year and coal exports declined 15.03 percent for the same period to 19.03m tons, according to the NDRC.

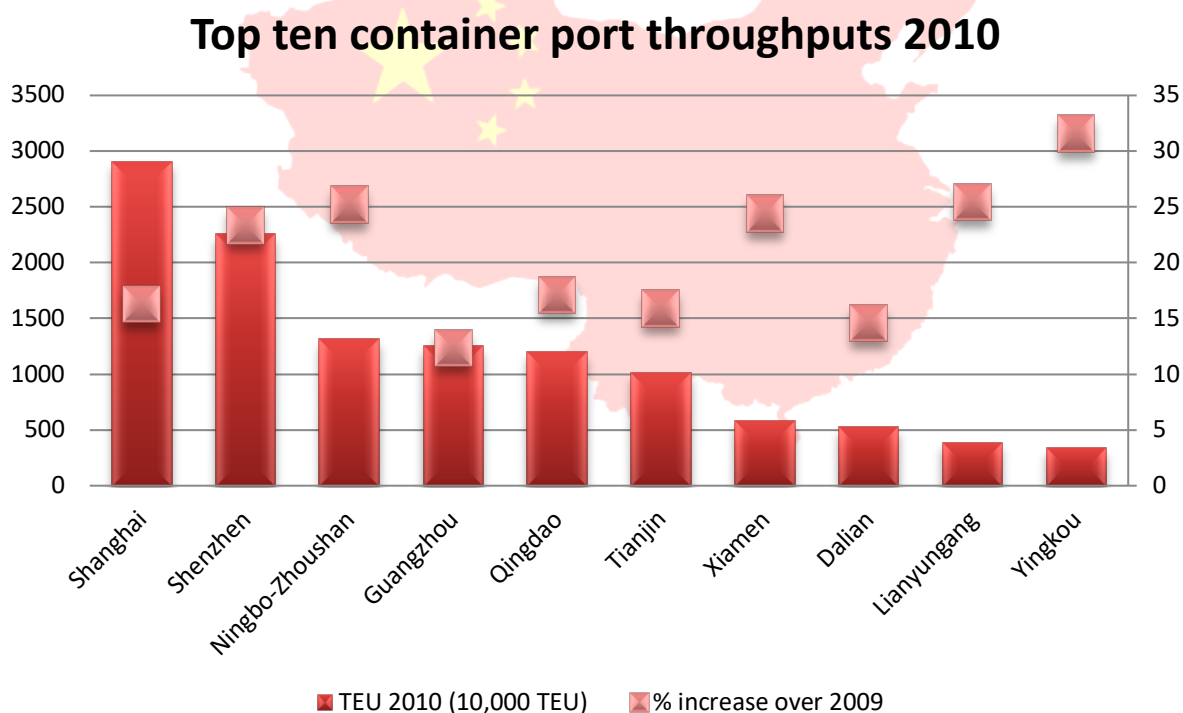
### 3.3.6 Iron Ore

Responding to domestic investment, and the growth of infrastructure projects, iron ore imports rebounded sharply in 2009; however this surge was short lived, with 2010 marking the first decrease in net iron ore import volume in 12 years.

### 3.3.7 Oil

China dependence on imported oil deepened in 2010 as imports grew 17.5 percent reaching a record 4.79m barrels a day in December. However, growth is expected to slow to 10 percent as the economy shifts toward a more sustainable level of growth and new refineries come online.

### 3.3.8 Container Cargo

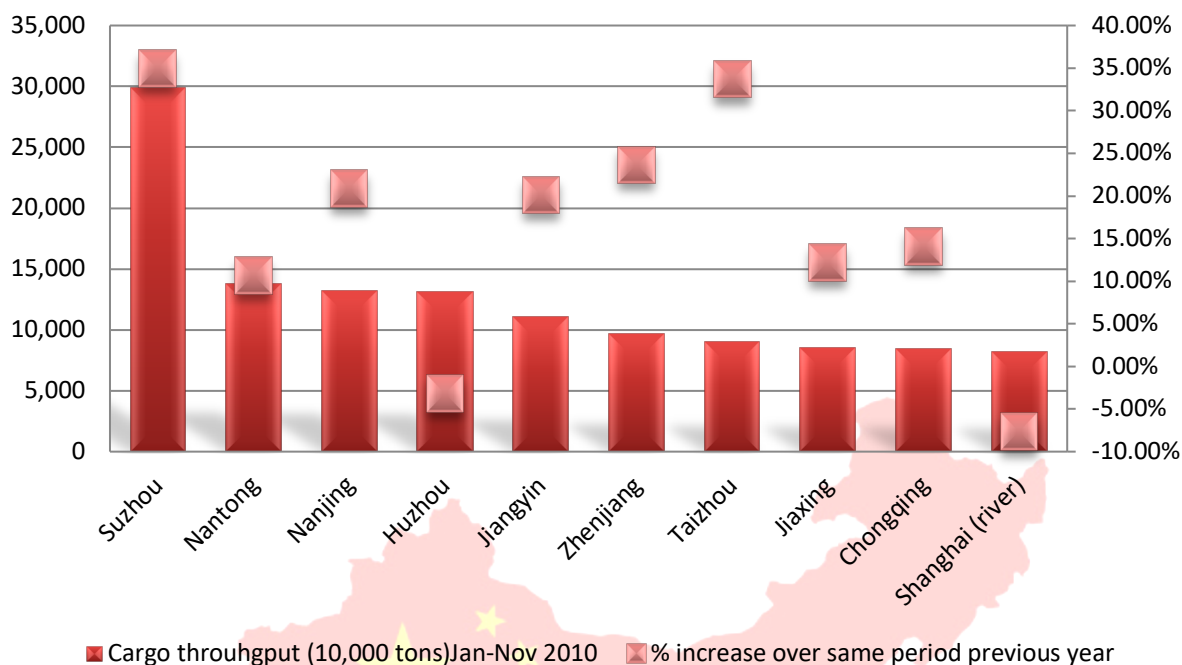


Container transport in 2010 is undoubtedly the biggest highlight of the port transportation and production. It is widely acknowledged that the international financial crisis devastated the container transport industry; despite previously gloomy predictions, the WTO now estimates that global trade grew 13.5 percent in 2010. Container throughput in China reached 145m TEU in 2010, a staggering 18.8 percent increase over 2009.



### 3.3.9 IWW Ports

#### IWW Cargo Throughput and Growth



Inland ports achieved a container throughput of 10.63 million TEUs in the first three quarters of 2010. Over the course of 2010, river ports, for the most part, grew much faster than coastal clearly illustrating the growing trend for river sea transfer.

It is estimated cargo throughput on the river exceeded 1.5bn tons in 2010, with coal and metal ores the largest cargo category by volume. Container throughput grew by 26.2 percent.



## 4 The Economic Background

### 4.1 The Geography of China's Economic Environment

The Chinese economy is better understood not as a single unit but rather a decentralised collection of several regional economies that interact with one another less than one might expect. This arrangement—which differs from other large countries such as the United States—results from China's transition from a command to a market economy.

In the 1980s, China initiated economic reforms by transferring control of many state-owned enterprises to provincial and local authorities. These authorities embarked on experimental reforms that, if proven successful, were later applied by the national government.

Decentralisation has largely worked; the Chinese have thus far managed the transition to a market economy relatively smoothly. In contrast, the 'shock therapy' method implemented by Russia led to widespread economic catastrophe in that country and a subsequent devastating drop of living standards for many. Living standards in China, on the other hand, have continually risen since initial economic reforms were implemented in the late 1970s.

Yet the consequences of decentralisation have not been entirely positive. During the 1980s and 1990s, individual Chinese provinces—and in some cases municipalities such as Shanghai—erected barriers to domestic trade and practised import-substitution as if they were separate countries. This lack of cooperation, exacerbated by GDP targets, meant that the Chinese economy failed to utilise many comparative advantage opportunities.

These inefficiencies persisted despite China's overall integration into the global economy. In essence, regions within China had closer economic ties with foreign countries than amongst each other.

Such fragmentation has resulted in the apparent lack of major, globally recognized companies emerging from China, particularly given the size of its economy. Larger Chinese firms have enormous difficulty managing their parent-subsidiary networks; companies under the same corporate umbrella often fail to cooperate and even work at cross-purposes.



The underdeveloped domestic mergers and acquisitions (M&A) market also exemplifies the problem with localisation. Leaders of certain industries often dominate market share in certain individual markets yet have enormous difficulty consolidating these gains nation-wide.

The absence of major firms, many China-watchers believe, will impede Chinese efforts to compete in a globalised economy. Building national markets, then, may be necessary.

To do so, the Chinese government can reduce inefficiency by enforcing national standards for road transport and simplifying the tax system. Establishing a law akin to the Commerce Clause in the United States would also smooth the path to a truly national economy.

In the meantime, however, China is likely to be defined by its disparate economic regions. The three largest and most important of these are on the east coast; the Pearl River Delta abutting Hong Kong, the Yangtze River Delta surrounding Shanghai, and the Bohai Bay region near Beijing.

Emerging markets, many lying further inland, are noted for their strengthening ties to international markets. For example, north-eastern China, an industrial region once known for its loss-making State-owned enterprises, has reached out to Russia.

Likewise, southwest China has established important transport links to Southeast Asia and has positioned itself as China's gateway to the increasingly vital region. Northwest China has similarly emerged as a key link to the energy-rich markets of Central Asia. The Shanghai Cooperative, a multi-lateral institution comprising China and several ex-Soviet central Asian states, exemplifies the growing importance of these ties.

Finally, central China has positioned itself as a bridge linking the developed markets of the east coast with the rising areas out west. Wuhan, inland China's largest city and a major stop on the Yangtze River, has the potential to act as a pivot linking the many disparate spokes in the Chinese wheel.

As these regions maintain a large degree of economic autonomy from Beijing, a further consideration of their individual characteristics helps illuminate trends of the Chinese economy as a whole.



## 4.2 Primary economic hubs

### 4.2.1 The Pearl River Delta (PRD)

Consisting of the area surrounding the Pearl River in Guangdong Province, the Pearl River Delta remains China's wealthiest region and the centre of its export-orientated economy. Guangdong's GDP in 2010 hit RMB 4.55 trillion, exceeding the target of 3.35 trillion yuan, making it the first among all provinces in China. The province has set a target of 9 percent growth rate for the 11th Five-Year Plan (2005-2010).

Last year, Guangdong's foreign trade growth rate was lower than the national average. Last year, the nation registered a 34.7 percent growth in oreign trade while Guangdong's import and export value grew by just 28.4 percent. Analysts believe that the growth rate of Guangdong's foreign trade in January this year, which was higher than the national average, which many analysts believe was due to the law starting point at the end of last year.

Export commodities, machinery and electronic products and hi-tech exports were higher than the corresponding increase in total exports, with main labor-intensive products achieving a growth rate upwards of 30 percent.

### 4.2.2 The Yangtze River Delta (YRD)

YRD economic zone refers to 16 cities in Shanghai, southern Jiangsu, eastern and northern Zhejiang; Shanghai, Nanjing, Suzhou, Wuxi, Changzhou, Yangzhou, Zhenjiang, Nantong, Taizhou, Hangzhou, Ningbo, Huzhou, Jiaxing, Shaoxing, Zhoushan and Taizhou.

The Yangtze River Delta (YRD) 13 of the 16 major cities in the Yangtze River Delta (YRD) witnessed GDP exceeding RMB 200bn in 2010; 6 cities in the YRD exceed RMB 500bn in 2010.

The top five were Shanghai with its GDP at RMB 1.6872.42 trillion; Suzhou with RMB 916.891bn, Hangzhou with RMB 594.582bn, Wuxi with RMB 575.8bn, and Ningbo with RMB 512.582bn with economic performance greatly aided by the emergence of recovery within the global economy.

The region's industrial production continued to accelerate and its above-scale industrial output value was RMB 14.7392 trillion in 2010, an increase of 26 percent year on year.

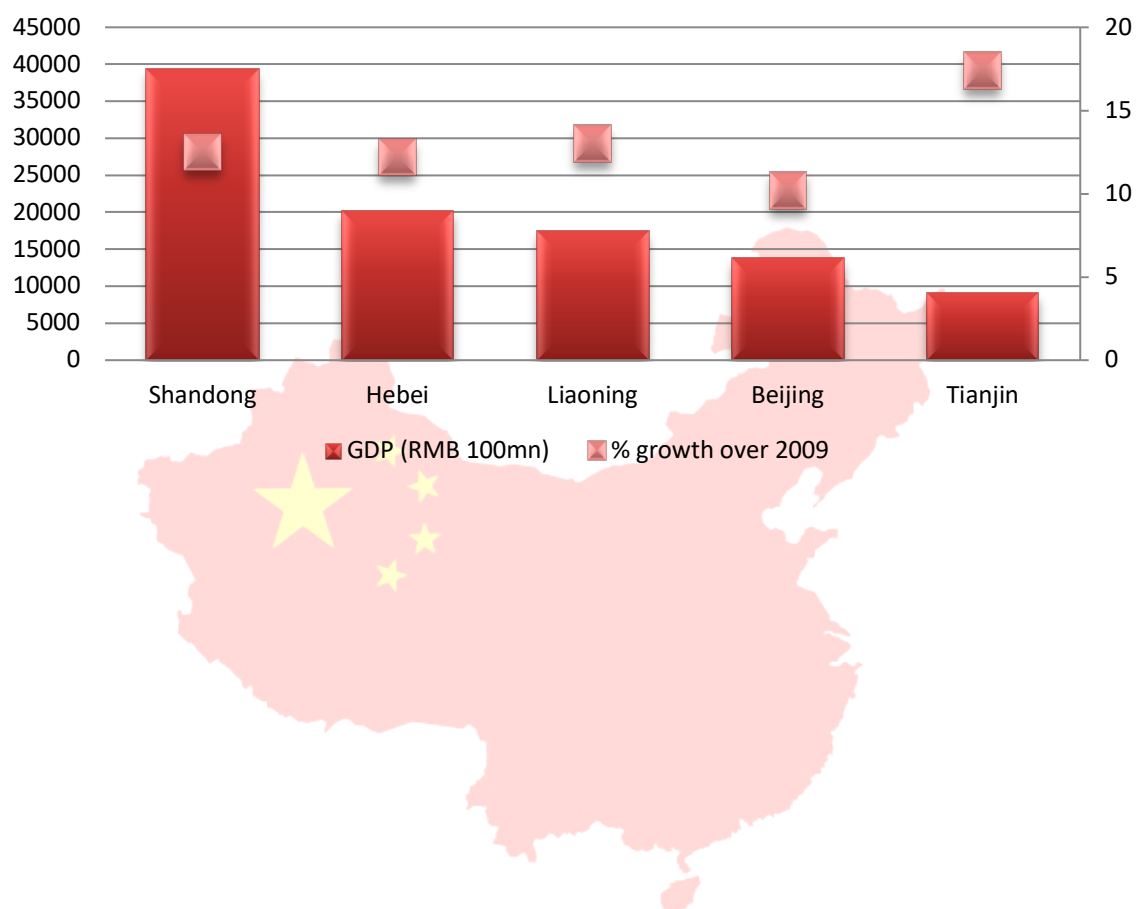
### 4.2.3 Beijing and the Bohai Bay region

Comprising Hebei, Shandong, and Liaoning Provinces as well as the municipalities of Beijing and Tianjin, the Bohai Bay region is the primary economic hub for north China with Tianjin Port functioning as the primary



economic fulcrum. Gross domestic product in the area exceeded RMB 10 trillion in 2010, representing growth rate exceeding 12 percent. Tianjin Municipality grew fastest at 17 percent, while Beijing grew slowest at 10.2 percent. Of the provinces mentioned above, Shandong contributed by far the greatest share of Bohai Economic Rim GDP.

## Bohai Bay Economy 2010





## 4.3 China's main economic regions

### 4.3.1 The East Coast (and Fujian Province)

#### 4.3.1.1 General Overview

In general, China's east coast has historically outstripped the interior of the country in almost every economic indicator. In the days before the Second World War, the east coast was dominated by colonial powers and hence traded broadly with the world – whereas the interior remained remote and isolated due a lack of hinterland infrastructure. In the days since reform, the eastern seaboard has regained its mantle as the economic engine of the country – so much so that the nation's rulers have feared the consequences of the country's growing economic disparity. Home to the three major economic hubs of the nation – the PRD, the YRD and Bohai Bay – the growth of the east in economic terms has been nothing short of meteoric.

However, for many years, the province of Fujian has lagged behind its more developed cousins on the coast. The reasons for this underdevelopment are ostensibly two-fold. The first is that the necessity of military preparedness in the straits of Taiwan meant that the region was weighed down with a vast military presence, thereby hindering development of non-military infrastructure. The second reason, closely related to the first, was that the administrative environment and security concerns engendered by the military build-up made the environment for foreign investment less friendly than many of the province's neighbouring areas.

This said though, the recent thawing of cross-straits relations is bringing about something of a renaissance in the region's prospects. Spurred by what one Chinese official called a 'narrowing and shallowing' of the straits, the central government has earmarked substantial funds for investment in provincial infrastructure aimed at maximising the province's proximity to the Mainland's former adversaries.

#### 4.3.1.2 Logistical Overview

Early deregulation of the investment environment for fixed asset maritime infrastructure investment, most notably in container handling facilities, led to the rapid growth of the region and the influx of FDI early in the reform era. This link to the outside world has, however, had some interesting and unique side effects. Regions along the coast integrated themselves into the global supply chain, and provinces and municipalities increasingly saw themselves in a regional competition with their neighbours - to the extent that some even introduced import substitution tariffs.

This regional competition in many ways meant that as China entered the 21<sup>st</sup> century, many of its regions were in fact better integrated into the global, or regional, economies than they were into the national economy. For





instance, it was in many ways easier for firms in Guangzhou to trade with companies in the Americas than it was for them to trade with companies in, say, Xinjiang in the far northwest of China.

In many ways, the greatest challenge for China in this century is to try and aggregate these disparate regional economies into a wider national framework. Measures such as the proposed introduction of a national trucking license and the fuel tax reform (*see section 6.16*) and the current program of rapid hinterland infrastructure are aimed at addressing this matter.

#### **4.3.1.3 Key Dynamics**

- The primary driving force for development of the east coast has been the region's proximity to high-class, foreign invested maritime container terminals.
- This proximity has opened the region to a flood of foreign investment and a subsequent rise in living standards that has swollen regional domestic demand.
- Fragmentation between regions on the coast remains an issue Beijing is keen to address by linking regions through administrative as well as infrastructural connections.
- Growing *détente* across the straits will likely lead to a flood of investment from the island of Taiwan, most likely in the assembly of high-tech goods from components manufactured on the other side of the straits.
- This growth of investment and trade will likely lead to increased demand for high quality supply chain solutions in regions traditionally overlooked by many global logistics providers—such as connecting Fujian and other primary trading ports linked to Taiwan with lower cost pools of workers further inland.
- Growth in trade will likely further spur domestic consumption of Taiwanese produced goods creating higher demand for consumer good distribution strategies.

#### **4.3.2 Pearl River Delta (PRD)**

##### **4.3.2.1 General overview**

The PRD Economic Zone (PRDEC), which consists of Guangzhou, Shenzhen, Dongguan, Foshan, Zhongshan, Zhuhai, Jiangmen and parts of Huizhou and Zhaoqing, has since the start of the 'Open Door' policy been China's most vibrant economic region. The region is now an important industrial market for all kinds of inputs, materials, and capital goods as well as a major market for transport and transport related services.

Per capita income has been growing steadily over the past thirty years, hand in hand with consumer expenditures, making cities such as Shenzhen and Guangzhou among the most prosperous in the Chinese Mainland. The region's proximity to Hong Kong, one of the primary catalysts for the region's early



development means its consumer tastes closely follow those of the west, creating attractive markets for foreign retailers.

Although the PRDEC accounts for only 0.4 percent of China's total land mass and less than 4 percent of the nation's population, it accounts for more than 10 percent of the country's GDP, and attracts almost 20 percent of all inbound FDI.

#### **4.3.2.1.1 The Greater and Pan-PRD Economic cooperation zone**

At present Hong Kong companies employ more workers in the PRD region than the entire population of Hong Kong. With more and more businesses in the PRD straddling the three administrative regions of Guangdong, Hong Kong and Macao the government has established the Greater Pearl River Delta (GPRD) Economic Cooperation Zone. The role of which is to integrate Hong Kong and Macao into the wider Chinese economy by streamlining investment regulation across the entire region and rationalising and integrating logistics development in the GPRD Area.

Included in the zone are Hong Kong, Macao and nine Guangdong municipalities. The infrastructure projects spearheading integration include improved road infrastructure, the construction of the Guangzhou terminus of the national intermodal rail network that will incorporate 18 full containerised rail hubs nationwide, and increased air freight integration between Hong Kong and Guangzhou Baiyun Airport.

At present Hong Kong is still China's biggest investment conduit. In an effort to stretch the benefits of that investment further into the southern China hinterland the government has also established the Pan-PRD Economic Zone. With economic growth and prosperity in the coastal regions far outstripping the west the government, and business, are keen to move production further inland.

Increasingly as Shenzhen becomes a victim of its own success and land and wage rates rise, forcing the industrial hinterland further back into China makes sense. Integrating logistics infrastructure in the eight provinces surrounding the GPRD is hoped to encourage investment into the wider South China region as a whole.

#### **4.3.2.2 Logistical overview**

As with many of China's primary economic hubs, the PRD has traditionally been more integrated into the global economy than into the national economy. Hong Kong is perhaps the example *par excellence* in this respect – with other cities in the region following to lesser degrees.

In this vein, the logistical structures of the region have for many years been primarily focused on binding the region into the global system of production. Following Hong Kong's lead in the sixties and seventies, the PRD



has been quick to build high quality, internationally operated, world class port facilities – primarily in and around the mouth of the Pearl River. Logistics services in the region have focused primarily on integrating the region with Hong Kong and providing export services and infrastructure for manufacturing enterprises taking advantage of the zone's preferential economic policies.

However, as competition between enterprises has developed, and wage and rent prices have grown as the region prospered, regional development strategies have begun to look inland at development of hinterland cargo generation. In part to take advantage of lower cost production bases, in part to reap the benefits of the government's 'Go-West' strategy, and in part to fill the massive export capacity coming online in the region and the shortfall created by the global economic slowdown.

#### **4.3.2.3 Key dynamics**

- The changing role of Hong Kong – port facilities in Hong Kong are very likely to see their role in the region diminish as infrastructure across the border increasingly rivals its more expensive neighbour. Also, with the commencement of direct trading links with the island of Taiwan cargo traditionally transhipped through the Special Administrative Region is likely to significantly drop off. Added to this, transshipment business at the port is likely to be additionally affected by the development of deep water ports in Vietnam—thereby negating much of the current need for transshipment in Hong Kong.
- Shenzhen and Guangzhou airports – freight capacity, better facilities, improved customs clearance environments, supporting infrastructure networks and improved services at both Shenzhen and Guangzhou airports are likely to put increased pressure on Hong Kong airport as a lower cost alternative. By 2015 cargo throughput at Shenzhen airport is planned to reach 2.5m tonnes.
- Ports in the PRD are and will increasingly compete for shares of hinterland cargo by extending their cargo draw capacity further inland through the expansion of intermodal rail facilities nationwide and dedicated port-to-city container railways (e.g. Shekou-Changsha). Industrial development on the western banks of the Pearl River is likely to accelerate as new port facilities on the western shore open up the relatively underdeveloped and lower cost region to increased access and direct investment.
- Macroeconomic policies to integrate the PRD into the wider southern and southwest regions of China will likely increase the flow of goods through the PRD gateway to the world.
- Increased GDP and consumer expenditure will continue to make the region an attractive market for international manufacturers, especially those specialising in high-value consumer goods.
- Development of the Pan-PRD regions – the Pan-PRD region is an economic cooperation zone that includes



the provinces of Sichuan, Yunnan, Guizhou, Hunan, Jiangxi, Fujian, the island and province of Hainan and the autonomous region of Guangxi.

- The construction of a 50 km sea bridge connecting Hong Kong, Macao, and Hong Kong, commenced in December 2009, will integrate the Pearl River Delta area to an unprecedented degree upon its completion in 2015.

### **4.3.3 The Yangtze River Delta**

#### **4.3.3.1 General overview**

Beginning in the early twentieth century, Shanghai has been a magnet for foreign financial interests for almost a century – an interregnum of a few decades of staunch Stalinist policies notwithstanding. This continued interest has largely been the driving force for the development of the region over the past three decades.

In 1990s, the Chinese government opened the Pudong district of Shanghai to overseas investment, as well as additional cities along the Yangtze River valley. Since then, the Yangtze River delta has become one of China's key economic regions. It consists mainly of 15 cities, including Shanghai, Nanjing, Suzhou, Zhenjiang and Wuxi, although its scope has recently been widened to include Taizhou City in Zhejiang Province. Yancheng, Huai'an and Ma'anshan cities in Jiangsu and Anhui provinces are also likely to join the economic grouping.

The region is home to 10 percent of China's population and it generates just over a fifth of China's GDP and about a third of China's foreign trade. Pudong enjoys many privileges not yet available to other zones. In addition to reduced duties and income tax, foreign financial institutions have also been allowed to set up in the region along with a stock exchange. It has therefore become the financial centre of China with 180 Chinese and foreign-funded financial institutions.

The Chinese government has identified the development of a number of 'pillar industries': automotive (including components and spare parts), microelectronics and computers, household electrical appliances, pharmaceuticals, optical, mechanical, and electrical products.

High GDP per capita rates within the region continue to ensure that the area remains a major point of interest for foreign manufacturers looking to capitalise on the increasingly affluent spending habits of China's burgeoning middle classes.



### 4.3.3.2 Logistical overview

As with China's other major economic hubs, the success of Shanghai to date has been very much dependent upon two key factors. First is its familiarity with the outside world. Second has been its ability to integrate the nation's low cost labour base into global supply chains.

Adding to the logistical importance of the region is its proximity to supporting infrastructure such as Suzhou port, Taicang, and Ningbo-Zhoushan. This latter port, which recently merged, is tied firmly into the plans for the Shipping Centre by construction of the Hangzhou Bay Bridge, a 36 km long bridge linking the port with the city of Shanghai, thus shortening the route by 120 km.

The region's proximity to the Yangtze River is also of significance given the increasing importance of the river as a transport artery for development of the western regions. With Wuhan, 'China's Detroit', and the mega-city of Chongqing upstream the YRD has been increasingly positioning itself as the terminus of what some have dubbed 'China's third coast'.

*The 11<sup>th</sup> Five-Year Development Plan for Modern Logistics in Jiangxi Province* outlines an overall arrangement for modern logistics: to develop Nanchang, the northern, southern, eastern and western regions of Jiangxi into five major logistics regions with three-tier nodes.

### 4.3.3.3 Key dynamics

- Ongoing development of the central government's stated aim of making Shanghai the financial and commercial capital of the mainland.
- Completion of the government's plan to develop Shanghai into a global shipping centre by 2020, with the ostensible aim of integrating and streamlining services between the disparate ports in the region could very likely see increased efficiency and throughput volumes.
- The possible introduction of a tax free port zone—similar to that which propelled Hong Kong port to world status—is likely to make the port a more attractive destination for increased logistics investment in the future.
- The development of cross straits trade with the island of Taiwan is likely to lead to a swath of new investment from the island into the YRD hinterland—the lion's share of which is likely to be in high-tech intermediate good assembly for domestic consumption and re-export.
- Expansion of both Pudong—Shanghai's pre-eminent international airport—and Hongqiao—the regional feeder—are likely to generate tremendous growth in airfreight in the region. This is likely to be especially



true in terms of high-tech components needing to move through the supply chain extremely quickly. In this sector, growth of intermediary goods cargo from Taiwan is likely to accelerate quickly.

#### **4.3.4 Bohai Bay**

##### **4.3.4.1 General Overview**

The Tianjin-Beijing Bohai triangle accounts for around nine percent of national GDP, with per capita incomes well above the national average. The primary driving force behind economic development in the area has been due to the twin poles of the two cities: Beijing, the seat of political authority, and Tianjin, the capital's gateway to the sea and hence the wider world. The region also includes some cities in Hebei, Shandong and Liaoning provinces, many of which are at different stages of development.

Economic development in the triangle, in contrast to the PRD and to a lesser extent the YRD, has in the past been restricted by an overall lack of coordination, which has to a large degree been the result of different administrative regions, each with separate responsibilities. This administrative fragmentation has often meant that regions within the triangle often see themselves as in competition with neighbouring municipalities and counties.

The third largest city in China and the industrial capital of the northeast, Tianjin is one of China's four municipalities directly under the control of the central government – the others being Shanghai, Chongqing and Beijing. Located 120 km southwest of Beijing the city is linked to the capital by high-speed train at a maximum speed of 350 km per hour unveiled in 2008 in time for the opening of the Beijing Olympics. The introduction of the service has effectively put the city in the commuter belt of the capital, and vice versa, greatly enhancing economic integration between the two. The shift of passengers from the conventional rail network has also freed the older network for utilisation as a freight route.

##### **4.3.4.2 Logistical overview**

In recent years the government has worked hard to promote the region with aggressive spending on infrastructure in an attempt to draw investment from the Yangtze and Pearl River Deltas and to rejuvenate the de-industrialised former heartland of Chinese manufacturing; the northeast. As part of this strategy, Beijing has earmarked the Bohai Bay as a cornerstone and strategic component of the 11th Five Year Plan, pinning its hopes on improved logistics access to the region drawing much needed foreign direct investment. And, looking at how the region is currently faring, it may have worked better than intended.



Observers believe that the global financial crisis will impact Tianjin Port less than ports in the southern coastal region primarily because Tianjin's port throughput is less reliant on the purely export driven consumer good cargoes that many of the southern regions have traditionally relied on.

Tianjin has managed to attract several high-value, high-tech processing industries to its Free Trade Zone. These include Delixi and other enterprises from Zhejiang, as well as Kingway and ZTE from Shenzhen.

Indeed, in recent years, Tianjin has had tremendous success in attracting such industries to the region, in part due to the city's connectivity to Beijing Capital Airport and the air cargo expansions to Tianjin Airport and the attached processing zone. Furthermore, this expansion has, according to officials at the FTZ, already courted investment from the likes of Lufthansa, Korean Air, Singapore Temasek Shu-feng, and Taiwan's Arima Air Cargo Terminals among others.

#### **4.3.4.3 Key dynamics**

- More competitive in cost terms than other major economic hubs in China, the region is increasingly being seen as a softer, easier alternative to the Go-West strategy
- Pools of cheap labour and good quality supporting infrastructure exist to service industries that choose to relocate there
- Ambitious expansion projects are already underway at Tianjin port, as well as Dalian and other ports in the region, with the long-term aim of developing a Northeast Shipping Centre to rival the Shanghai Shipping Centre down the coast.
- High-speed rail links already connect Beijing and Tianjin, greatly enhancing economic integration and cooperation in the region.
- Tianjin port, among others in the Bohai Rim, is less dependent on direct export goods than many ports in the south of the country and has proved itself a bulwark against the main impact of the economic downturn, suffering only a slight fall in throughput figures.

#### **4.3.5 The Southwest**

##### **4.3.5.1 General Overview**

The region known as southwest China consists of Sichuan, Yunnan, Guangxi, and Guizhou Provinces as well as Chongqing Municipality. Historically, economic development in Southwest China has suffered from the region's mountainous terrain and distance from China's prosperous coastal region.

Since the announcement of the 'Go West' policy in the late 1990s the region has grown in significance both within China and in respect to the outside world. Chengdu, capital of Sichuan, has established itself as a major





logistics hub in inland China and has attracted multinational firms such as Intel. Nearby Chongqing has major port facilities on the Yangtze River, a significant advantage in facilitating domestic trade.

Yunnan Province, bordering three Southeast Asian nations, has entered into political and economic development agreements with the Association of Southeast Asian Nations (ASEAN).

To the east of Yunnan, Guangxi Province contains Southwest China's only sea coast. Beibu Bay, also known as the Gulf of Tonkin, has become a nexus of trade between China and Vietnam and has caused the provincial capital of Nanning to rise in stature. Southwest China's extensive links with Southeast Asia make it a region worth watching; China has key trade relationships with its southern neighbours, and arrangements such as the Greater Mekong Sub region (GMS) are poised to only grow in importance.

According to the *Infrastructure Construction Project Plan for the Major Industrial Park in Guangxi North Gulf Economic Zone (2008-2010)*, North Gulf plans to build up a Nanning International Logistics Centre, which will be an international modern logistics zone and a comprehensive city zone serving the China-ASEAN Free Trade Zone.

#### 4.3.5.2 Logistical Overview

Southwest China has always faced grave challenges in developing a first-class logistics operation. These problems result from the region's geographic isolation and relative economic underdevelopment. Travel times between cities in the southwest—even ones as major as Chengdu—often dwarf those of journeys of similar lengths conducted elsewhere.

Government investment, coupled with the recognition that the region has important geopolitical uses, have led to an upgrade in southwest China's logistics situation. A major logistics centre in Chengdu ranks among China's most important, while the construction of a new airport—as well as continued investment in road and rail infrastructure—in Kunming indicates the growing economic stature of the Yunnan capital.

Elsewhere, Chongqing's position as the Western nexus on the Yangtze River presents a significant advantage in the shipment of goods further east. In Guangxi Province's Beibu Bay, deep-water port construction continues apace, positioning itself as an important conduit in trade with nearby Vietnam. Guangxi also plans to make significant improvements to its two largest airports, located in Nanning and Guilin.

When considered as a region, Southwest China's vast improvements in intermodal transport should decisively end its historical isolation; if anything, ties to Southeast Asia promise to raise its profile within China considerably.





### 4.3.5.3 Key Dynamics

- The rise of multilateral political agreements such as GMS presage increased economic activity between southwest China and Southeast Asia. Initiatives like the pan-Asian road network and the Kunming-Singapore rail line illustrate the growing importance of the Sino-SE Asian relationship
- Chengdu's potential as the economic powerhouse of inland China. Intel's decision to base a major production facility in the Sichuan capital—a decision it made after public prevarication—indicates, in a sense, that Chengdu has arrived.
- Chongqing's rise as an inland financial capital and the de-facto Western terminus of Yangtze River trade.
- Beibu Bay's position as the nexus of Sino-Vietnamese trade, a relationship that has continued to grow in importance.

### 4.3.6 The Northeast

#### 4.3.6.1 General Overview

China's northeast, an area historically known as Manchuria, encompasses Heilongjiang, Jilin, and Liaoning Provinces as well as the eastern half of the Inner Mongolia Autonomous Region. The region is home to more than 110m people—nearly a 10<sup>th</sup> of China's overall population—as well as the bulk of the country's heavy industry.

Market reforms came more slowly to the northeast than to other parts of China owing to the region's preponderance of State-owned industries. By 2002, more than 40 percent of these industries were estimated to be losing money, prompting subsequent calls for reform that began the following year.

The Chinese government envisages the northeast as a lean, productive centre for industry without the vast inefficiencies that once plagued the region. In addition, the region's proximity to several foreign countries suggests enormous potential for extensive links to key markets, not least of which is energy-rich Russia. The growth of the port of Dalian, located in Liaoning Province, will also factor into the long-term growth strategy of northeast China.

#### 4.3.6.2 Logistical Overview

Recent years have seen extensive investment into northeast China's logistics network, mostly centred on the region's most prosperous city, Dalian. The city's ice-free sea port plays a tremendous role in the regional economy, as transport links to other cities in the northeast emanate from Dalian.



The Dalian Port Group, in association with ProLogis, jointly own a new logistics centre in Shenyang, capital of Liaoning Province. The two companies are also planning logistics facilities in Changchun, Harbin, and Manzhouli, bringing further economic development to the region's hinterland.

North-eastern China has also deepened its ties to countries on its perimeter, most notably Russia. The land port of Manzhouli facilitates trade between the region and Russia's Far East, a region rich in natural resource wealth. Chinese shipments of machinery, electrical appliances, and high-tech goods also pass through the port. A USD 25bn energy cooperation deal signed in February 2009 between the two countries will only cement economic ties further.

#### 4.3.6.3 Key Dynamics

- The economic relationship between China and Russia, countries that share a coastline of over 2,000 km, will be centred in the northeast region. Continued improvements in logistical capabilities in Manzhouli and along the Tumen River are vital to the region's strategy.
- Much of the fat from the State-owned enterprises dotting the northeast has been cut, but more remains. Privatising and downsizing major industries while avoiding mass levels of unemployment will challenge the region's leaders.
- The rate of economic development in Dalian, the region's most prosperous and only major coastal city, still contrasts sharply with that in the hinterland. Improved transport links—such as a train between Dalian and Mudanjiang in Heilongjiang Province—could revitalise the traditionally moribund inland parts of the region.

#### 4.3.7 Northwest China

##### 4.3.7.1 General Overview

The provinces that comprise northwest China occupy a large chunk of China's land territory yet constitute only a small fraction of the country's population; its population density resembles that of neighbouring Siberia and Mongolia far more than the crowded eastern half of China. A scattered population, combined with a hardscrabble landscape, have presented enormous logistical challenges to northwest China in the past. In terms of per capita GDP, the residents of Xinjiang, Tibet, Gansu, Ningxia, and Qinghai Provinces significantly lag behind their coastal Chinese counterparts. Yet the region's abundant natural resources and proximity to several foreign countries have made it a significant component of China's overall economic strategy.

The northwest region plays a pivotal role in China's relationship to its central Asian neighbours to the west. Beijing has signed accords with Kazakhstan to build an oil pipeline and Turkmenistan to pump natural gas into China. Both will traverse northwest China and head into more populous markets to the east. Much of China's



domestic reserves of these vital energy resources lie in the northwest, only adding to the region's role in supplying the country's energy needs.

#### **4.3.7.2 Logistical Overview**

Logistics and transport networks have much room for improvement in northwest China. Within Xinjiang, the region's largest province, the use of third party logistics providers is anaemic, and comprehensive service and information networks are lacking. The situation elsewhere in the region is scarcely better, though government investment in modern logistics centres in Ningxia and Tibet are positive signs that capabilities will increase in the future.

Transport links within the region are also improving; of particular interest here are links to Central Asian countries to the west. At present, only one rail line exists between China and Central Asia. Feasibility studies and plans exist to rectify this situation. Kashgar, home of China's westernmost railway station, may soon have direct rail links to destinations in Kazakhstan, Uzbekistan, and Pakistan, allowing for cheaper transport of vital goods across the region.

Likewise, the railway line linking Golmud, Qinghai with Lhasa, Tibet has already brought some logistical development to China's poorest region. A new logistics centre in Nagku County, Tibet—the world's highest in elevation—could stimulate Tibet's economy and well as provide access to Qinghai's mineral reserves.

The importance Beijing places on its relationship with central Asia underscores northwest China's potential for economic development. In order for this to happen, though, the region has to realise greater logistical efficiency.

#### **4.3.7.3 Key Dynamics**

- Economic cooperation with Central Asia; China's thirst for natural resources means that the northwest is poised to become the nexus of an increasingly important trade relationship
- New investment in logistics centres could significantly reduce logistics costs in a region beset by great distances and inhospitable terrain
- Kashgar, a historically significant trading centre along the Silk Road, could become a major central Asian rail hub linking China to emerging markets to its West
- New rail links emanating from Qinghai Province could unleash its economic potential after centuries of isolation



### 4.3.8 Central China

#### 4.3.8.1 General Overview

'Central China' does not describe an established region so much as a cluster of provinces that defy placement in China's more integrated economic areas. Nevertheless, central China—comprising the provinces of Hubei, Hunan, Shaanxi, Shanxi, Jiangxi, Henan, and Anhui—has a population of approximately 400m, greater than the population of all but two countries in the world. Though endowed with natural resources and transport advantages, central China lacks the economic development of the coastal provinces as well as the links to foreign markets enjoyed by provinces in the northeast, northwest, and southwest of the country.

In 2004, Chinese Premier Wen Jiabao announced the "Rise of Central China", an initiative calling for increased development in the region. The major role of the Yangtze River (*see section 7.10*) in daily life attests to the many advantages central China offers as a transport hub, particularly in marquee cities such as Wuhan. In addition, coal production in north-central China—centred round Shanxi Province—has an enormously significant impact on China's energy supply.

#### 4.3.8.2 Logistical Overview

Central China's location astride many of China's key trade routes presents significant opportunity in logistics. Transport modes linking China's natural resource sites in the west to population centres in the east traverse central China, indicating a need for modern logistical support. The city of Wuhan, central China's largest, has established major facilities in road, rail, air, and river freight, and other major capitals have followed suit with investment in modern logistics centres.

The Three Gorges Dam, the world's largest public works project, will significantly lower the cost of shipping goods from Chongqing in southwest China to the Yangtze River Delta in the east. Heightened trade along the world's busiest river could have a major effect on the logistical outlook of central China.

Logistical capabilities in the region still lag behind that of the coastal provinces, and even that of some southwestern cities such as Chengdu and Chongqing. However, the region's relatively well-educated, low-cost labour force implies a tremendous incentive for logistics providers to base themselves in cities such as Wuhan, Changsha, and Zhengzhou.

#### 4.3.8.3 Key Dynamics

- The completion of the Three Gorges Dam project will significantly reduce the cost of transporting goods along the Yangtze River and central Chinese cities located along the river could assume far more important logistical roles



- Coal production—and its distribution—in north-central provinces such as Shanxi play a major role in a country which relies heavily on coal-powered energy resources.
- A city cluster centred on the Hubei capital, Wuhan, intends to pool the region's resources together in order to create a new economic region to rival that of the PRD, YRD, and Bohai Bay areas.

### 4.3.9 The Yangtze River (China's Third Coast)

#### 4.3.9.1 General Overview

The Yangtze River, longest in Asia and third longest in the world, has been an essential artery for the Middle Kingdom for centuries. The headwaters, from the glaciers of the Tibetan plateau, flow over 6,000 km to the mouth of the river and Shanghai. However, in contrast to Chairman Mao Zedong's devotion for great waterway projects, the last few decades of last century witnessed an almost ambivalent approach to Inland Waterway (IWW) management in China.

Under-funding caused infrastructure and floating equipment to deteriorate badly and the navigable network fell from 172,000 km in 1960 to 123,300 km by 2004. Hydropower dams, an inadequate multi-purpose infrastructure development approach, and a lack of coordination all contributed to the decline.

However, China's central government has decided to turn this around. Starting with a series of policy commitments and preferential policies, and prompted by straining highway and rail networks, China is hoping to restore its 'Golden Waterway' to its former glory.

At present, the trunk line of the Yangtze stretches 2,838 km from Shuifu in Yunnan province to the Yangtze mouth in Shanghai. A major artery, linking western, central and eastern China, the Yangtze is of crucial importance to the Chinese transport network. Indeed, with 25 percent of the country's enormous population living along the 1,500 mile river basin, the Yangtze is already one of the most heavily utilised waterways in the world.

China's drive to open up the river is not in small part motivated by a desire to attract foreign investment further inland, thereby stimulating growth in China's vast hinterland. In recent years western development has lagged woefully behind the more developed eastern seaboard cities and in many ways the government sees the drive to open up the river as pivotal to its 'Go West' strategy. Currently, 80 percent of China's IWW traffic is on the Yangtze, and by 2020 the Yangtze is expected to be a fully integrated part of China's port network. In addition China hopes to be the world's perennial top ship building nation by 2015, a goal largely unachievable without the Yangtze River shipyards.



#### 4.3.9.2 Logistical Overview

China's policy to generate an economic corridor stretching westward has already led to huge investment in supporting infrastructure winding its way out of the river basin, bringing millions of low cost workers online, opening markets and lower rent property to both foreign and domestic investors. To date, the government has invested more than CNY 850bn (USD 105 bn) on 60 key projects from airports, rail lines, terminals, and pipelines to power stations, and broadband installation in the western region.

As an integral part of this strategy the government has moved quickly to improve conditions on the river. At present the Ministry of Communications is focusing its efforts on dredging, port construction, vessel standardisation, improving the ship lock capacity of the Three Gorges Dam and improving safety and connections between the trunk line and the tributaries. In the meantime efforts are being made to digitise the waterway, modernise traffic control, improve logistics infrastructure at the ports and computerise shipping data collection and management.

Development of the waterway as a logistics artery is currently focusing on development of three strategic hubs to open the river. Namely, Chongqing, Wuhan and Nanjing, with the new Shanghai Yangshan mega-port functioning as the region's deep-water transshipment point.

This long term central government commitment to the Yangtze is likely to promise a potentially bright future for all three IWW ports. In many ways though the new approach looks like a strategy of picking winners, as each of the IWW ports chosen have records of performance outstripping many other ports on the river. All three of the ports are currently investing and expanding strongly to cement their positions spearheading the project.

With over 100 medium to large scale river ports open to foreign trade straddling the banks of the mighty waterway, and with traditional hurdles to investment lowering, the time may well be ripe for foreign investment to take full advantage of the river.

According to the Ministry of Transport, by the end of 2010 the local expressway network around Chongqing will be 3 times its current size, and Chongqing port is expected to have a throughput capacity of 1.2m TEU. Chongqing is adjacent to 30 waterways of navigable size and there are 100 IWW ports planned, among them fifteen with an annual throughput of 500,000 tonnes and twelve on the main Yangtze trunk. Via the ship lock on the Three Gorges Dam, vessels of up to 10,000 tonnes will be able to reach Chongqing from the coast.

Longtan Port of Nanjing, already the largest inland river port in Asia, is currently working on construction of Stage 2 of Longtan Port Construction Project which is expected to raise container throughput to 1.4m TEU. In addition CNY 60m has been invested to improve and regulate channels linking Nanjing to Wuhu, Wuhu to



Anqing, Anqing to Wuhan, Wuhan to Chenglingji and Chenglingji to Yichang. The Regulatory Plan for the Yangtze River System divides the River into 5 sections – Yichang Dabujie-Chenglingji, Chenglingji-Wuhan, Wuhan-Anqing, Anqing-Nanjing and Nanjing-Liuhokou – focusing on 42 identified bottleneck stretches in need of increased regulation. Whilst import volumes grew rapidly at Qingdao, Tianjin, and Ningbo Ports, Shanghai, Shenzhen, and Nanjing Ports slumped badly as a result of the crisis. By the end of 2010 throughput capacity is expected to reach 3m TEU making it the largest comprehensive foreign trade port area on the Yangtze River mainline.

Wuhan port is located on the middle stretches of the Yangtze. North of Guangzhou, east of Chongqing and west of Shanghai, Wuhan is roughly 1000 km equidistant from all three. The present port area is 122.45 square km and last year throughput at the port reached 25m tonnes with container throughput exceeding 250,000 TEU.

Under the current five year plan, Wuhan is in the process of developing all of its main five port areas: Dunkou comprehensive port area, Hanyang container port area, Hankou, which is primarily reserved for passengers, Yangluo container and bulk port area and Zuoling dangerous goods area. Wuhan Port Group is also investing CNY 1.4bn (USD 182m) in 8 major projects. The current level of investment is five times as much as it was during the last five year plan, an amount roughly equal to building another Wuhan Port.

#### **4.3.9.3 Key Dynamics**

- As development of the Shanghai Shipping Centre accelerates there will mostly likely be a substantial increase in the freight utilisation of the waterway—with volumes increasing in both directions.
- As China's energy and raw materials demand rises, there is likely to be increased demand for barge traffic to transport materials to industries adjacent to the river.
- As developments to the Three Gorges Dam are completed, transit times will reduce and freight rates should lower.
- Increased logistical access to the region along the banks of the river should lead to an increase in FDI across the regional traversed by the waterway.
- As increased navigational aids come online, the river will become increasingly accessible to larger vessels and more attractive to international operators.





## 4.4 Key policy developments affecting the Logistics Industry in China

According to details of the 12<sup>th</sup> Five-Year-Plan policy will focus on development of IWW infrastructure and utilisation. In particular development of:

- Legal management and overall legal infrastructure of IWW port and shipping regulation.
- IWW management information technology systems - to this end, local and National government has introduced policy measures to accelerate electronic port construction and river information service systems as the starting point to build basic, public information service platforms to promote inter-sectoral coordination mechanisms.
- Internal structural adjustments to domestic logistics market – promoting nationised standardisations.
- Strengthening market supervision.
- Fixed asset infrastructure investment – increased development of specialised port infrastructure, construction of high-grade channel networks.
- Security reform – coordinated development of security systems.
- Increased guidance for the maritime industry.
- Improved pilotage, cargo handling industry management policies to promote the implementation of policy for an international shipping center, study and formulate standards.
- Accelerate structural adjustment water transport with clear targets and major tasks.
- Channel management and conservation program to enhance the level of maintenance and management of channels.
- Efforts to improve sea transport services and the level of protection.
- Efforts to improve the level of water transport and information technology- development of ten standards to accelerate the construction of inland waterways, ports and other energy saving industry.
- Development of cross-strait sea transport. Full implementation of the cross-strait shipping agreement to expand the breadth and depth of exchanges and cooperation with Taiwan; to also strengthen cross-Straits shipping market and promote cross-Straits passenger roll, cruise transportation.
- Strengthen international cooperation and soft power building industry; with a focus on the United States, European Union, Japan and other bilateral maritime meetings, supporting inbound cargo.

### Other key areas of policy change in 2011 included:

- **Reducing market access barriers:** The Ministry of Commerce is playing an active role in facilitating the opening-up of China's logistics industry to the outside world by compiling *The Catalogue of the Guidance for Foreign Investment* and listing the logistics industry as an officially recognised 'encouraged industry'.





- **Tightening of supervision over the logistics market:** The Postal Law (revised draft) drafted by the State Post Bureau has recently passed discussion of the State Council. China's first *Express Service Standard* was announced and came into effect. Moreover, the delivery security systems have been improved with the issuance of *Notice on Tighter Control of Illegal Online Trading Activities*, *Notice on Tighter Supervision on Delivery Security*, and *Announcement on Tighter Control of Delivery Security during the 29<sup>th</sup> Olympic Games*. In addition, the Ministry of Commerce has revised the *Specific Rules for Administration of International Freight Forwarding Agency*, which improved the recording system for international freight forwarding companies and enhanced follow-up supervision.
- **Further improving the Customs clearance environment:** Various types of bonded logistics zones and E-Ports have been established to improve the efficiency of import and export logistics. According to the *Regulations on Direct Pass System in the Inspection and Quarantine of Import & Export Commodities* announced by the General Administration of Quality Supervision, Inspection and Quarantine, the Customs clearance procedures have now been simplified, owing to the direct pass system for import and export commodities and the intensive informatisation infrastructure construction within the inspection and quarantine framework.
- **Increased cooperation in the East Asian region:** The Ministry of Transport initiated an annual workshop on the *Sino-Asian Ocean Shipping Agreement*, which significantly increases facilitation of transport and logistics cooperation between China, Japan and South Korea.

#### 4.4.1 Go West

The Go West strategy is China's ongoing project to open the less developed, western regions of the country to investment in an effort to ameliorate the effects of income disparity across the nation. The goals of the project are particularly important for a government concerned with the potential civil disquiet caused by the widening gap in living standards experienced as the east coast economically outstrips the less developed regions of China.

In terms of overall success, the Go West strategy is bearing some fruit. Not least with high value, high profile investments from major multinationals such as Intel—witness the ongoing relocation of thousands of jobs from east coast facilities to their new Chengdu plant. However, critical issues, like delivering on improved transport infrastructure and streamlined bureaucracy, remain.

If done correctly, the Go West strategy could work. Among those expected to see the most potential in the Go West strategy are not necessarily manufacturers hoping to save costs and cut margins on export goods, but instead companies that are focused both on local as well as export markets – with Intel a case in point.



By locating factories further inland, large scale manufacturers may be able to offset increased transport costs in the interior, against domestic consumption profits in largely untapped inland markets. Being further inland also allows access to markets which have not been already inundated with media marketing, which could grant some with a keen eye for opportunity whole untapped consumer markets. Logistics networks in these areas are often woefully underdeveloped presenting numerous opportunities for providers with the foresight and local knowledge to begin servicing these regions.

One of the linchpins of the Go West strategy is the new nationwide fully-intermodal containerised rail network, which is due for completion soon. This is an extremely important step for China in realising the potential of the Go West strategy. Another major factor for China is the Inland Waterway (IWW) transport network. In this respect China is spending a lot of money upgrading facilities along what some have referred to as China's 'third coast', the Yangtze.

China's drive to open up the river is not in small part motivated by a desire to attract foreign investment further inland, thereby stimulating growth in China's vast hinterland. In recent years, western development has lagged woefully behind the more developed eastern seaboard cities and in many ways the government sees the drive to open up the river as pivotal to its 'Go-West' strategy.

China's policy to generate an economic corridor stretching westward has already led to huge investment in supporting infrastructure winding its way out of the river basin, bringing millions of low cost workers online, opening markets, and lower rent property to both foreign and domestic investors. To date, the government has invested more than RMB 950bn (USD 105bn) on 60 key projects from airports, rail lines, terminals, and pipelines to power stations, and broadband installation in the western region.

#### **4.4.2 Ongoing Policy Goals in the Logistics Sector**

The following policy goals are the stated objectives of current policy in the sector and are likely to form the backbone of the logistics section of the upcoming 12<sup>th</sup> Five Year Plan.

- To produce a number of international level logistics enterprises able to compete on a level playing field in the global environment
- To increase scope, capacity, utilisation, operation, and efficiency of outsource logistics and 3 and 4PL
- To realise an annual growth rate of 10 percent in added value within the sector
- To further lower logistics cost to GDP ratio in line with more developed, mature markets



## 4.5 The Logistics Stimulus Package

### 4.5.1 The need for logistics industry stimulus and restructuring plan

According to Chinese government sources the current economic crisis has seriously affected the logistics industry. Statistics indicate that more than 40 percent of logistics providers have seen profits decline over the past two years; many have suffered severe losses to the extent that some regional, small and medium-sized companies have been forced to withdraw from the logistics market altogether.

Statistics from the China Federation of Logistics and Purchasing (CFLP) shows that in 2008 (the year the policy was formulated and introduced), while the value of China's social logistics reached RMB 89.89 trillion, up 19.5 percent year on year, this in fact represented a growth rate decline of 6.7 percentage points. The impact of this decline is had a serious knock-on effect on the domestic economy. However, figures for the 2009 indicate that this slowdown abated, reaching RMB 1.47 trillion as stimulus measures drove the economy back to target growth. However, the crisis did create some structural change in the composition of the industry in China.

According to the CFLP, the impact of the financial crisis on the logistics industry would have likely further deepened had wide ranging government measures not been forthcoming.

### 4.5.2 Objectives

In the longer term, the Logistics Stimulus and Restructuring Package is likely to have a number of key implications for the logistics industry in China. Whilst the specifics and final implementation strategy of the plan have yet to be finalised, details released thus far illustrate that within the overall framework of the proposal plans include:

- I. Comprehensive expansion of logistics network coverage in rural areas for the purpose of dispatch and delivery of agricultural products and consumer goods to boost agricultural income and living standards, whilst at the same time reducing the massive levels of on-route wastage and damage.
- II. Development of the logistic market will be promoted by encouraging enterprises to outsource logistics services to specialised logistics providers. It will also create incentive schemes for parcel services and express delivery providers.
- III. Merger and restructuring of small to medium sized companies will be accelerated. Asset restructuring will be encouraged in order to create *modern logistics* companies with international scope.
- IV. Emphasis for logistics industry development will be especially focused specific strategic areas as follows:
  - a. energy distribution including petroleum, coal, and major mining products
  - b. agricultural products



- i. development of a system for quality standards
- ii. development of cold chain logistics for agro-products
- c. establishment of a nation-wide network for distribution of daily consumer goods
- d. increased efficiency in dispatching of food, salt, tobacco, and publications
- e. centralised pharmaceutical logistics for purchasing and dispatching
- f. dangerous chemicals transport will be further regulated, especially in tracking and monitoring
- g. auto and auto parts logistics
- h. reverse logistics and green logistics, including product and packaging recycling, will be encouraged to protect the environment
- i. postal and express delivery
- j. emergency logistics to respond to war, disasters, or epidemics.





### 4.5.3 The creation and development of 9 distinct logistics zones and 10 Logistics Corridors

Map of China



Source: CIO

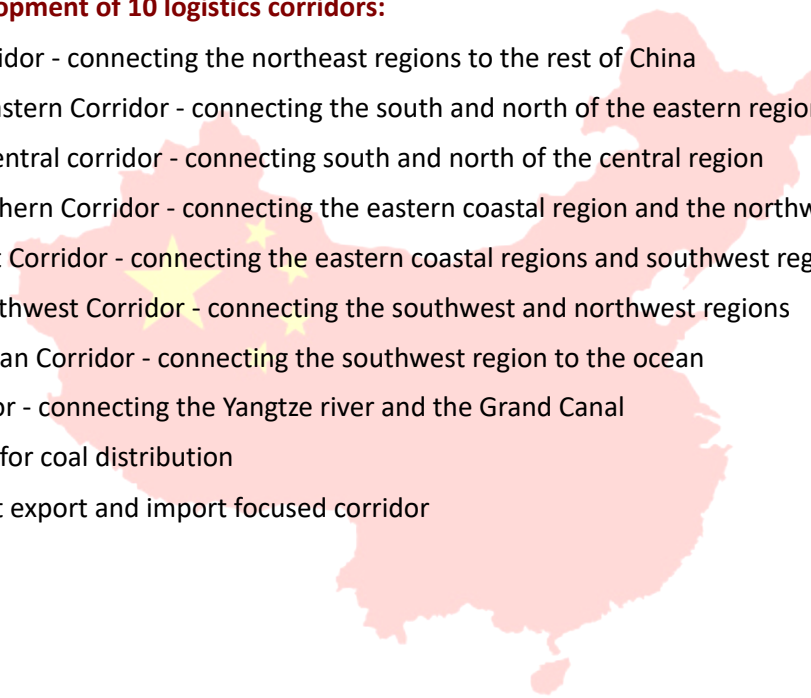


## 9 Logistics Zones

- Beijing, Tianjin centred North China logistics region
- Shenyang, Dalian and Harbin centred Northeast logistics region
- Qingdao centred Shandong Peninsula (Shandong Province) logistics region
- Shanghai, Nanjing, and Ningbo centred Yangtze River Delta logistics region
- Xiamen-Fuzhou centred Southeast coastal logistics region
- Guangzhou and Shenzhen centred Pearl River Delta logistics region
- Wuhan and Zhengzhou centred central logistics region
- Xi'an, Lanzhou, and Urumqi centred northwest logistics region
- Chongqing, Chengdu, and Nanning centred southwest logistics region

### Creation and development of 10 logistics corridors:

- Northeast Corridor - connecting the northeast regions to the rest of China
- North-South Eastern Corridor - connecting the south and north of the eastern regions
- North-South Central corridor - connecting south and north of the central region
- East-West Northern Corridor - connecting the eastern coastal region and the northwest region
- East-Southwest Corridor - connecting the eastern coastal regions and southwest regions
- Southwest-Northwest Corridor - connecting the southwest and northwest regions
- Southwest-Ocean Corridor - connecting the southwest region to the ocean
- Yangtze Corridor - connecting the Yangtze river and the Grand Canal
- Coal Corridor - for coal distribution
- And a specialist export and import focused corridor





**Beijing-Tianjin Logistics Region**



**Shenyang, Dalian, Harbin Northeast Logistics Region**



**Yangtze River Delta Logistics Region**



**Pearl River Delta Logistics Region**



Source: CIO







**Western China – Comprising both the North-western and South-western Logistics Regions**



**Xiamen-Fuzhou Centred Southeast Coastal Region  
(Fujian Province)**



**Wuhan-Zhengzhou Centred Logistics Region  
(Henan and Hubei Provinces)**



Source: CIO



#### 4.5.4 Regional developments

In terms of the regional development implications of the plan, the following points have been laid down for implementation:

- Limits between administrative districts should be eliminated to follow the needs of logistics and economic development, helping form regional cooperation and cross-regional integration. (This measure is focused on eliminating many of the inefficiencies prevalent in the intra-provincial sector where a lack of unified licensing forces upwards of 30 percent of all hinterland trucks to operate empty, largely due to the absence of US Federal Licensing regulation equivalent legislation.)
- The Yangtze River Delta, Pearl River Delta, North China, the Shandong Peninsula, the Northeast region, and south-eastern coastal areas will focus on technological innovation, manufacturing logistics, international logistics, and trade logistics. The development of a few modern logistics companies that can compete in international arena will be encouraged, presumably through the availability of low cost loans and access to below market price capital, and implementation of national level regulatory measures.
- The central logistics regions should focus on 3PL and play a role in linking south and north, and east and west.
- Northwest and southwest logistics regions should speed up reformation and develop modern logistics management and technology and should rely on resource advantages to shorten gap with central and eastern areas.
- National and regional logistics links will be determined by the State, whilst local logistics links will be determined by local government. National logistics links include 21 main cities and 17 cities will serve as regional logistics hubs.

#### 4.5.5 Main themes

**Increased outsourcing of logistics within the domestic manufacturing sector.** To enhance efficiency within the logistics sector, large scale manufacturers, many of which are State, or quasi-State-owned, will be encouraged to divest their interests in in-house logistics management in favour of increased outsourcing to professional specialised logistics providers.

**Promoting 'Green Supply Chains'.** The final draft of the proposed package is likely to strongly emphasise the need for development of environmentally friendly technologies and practices within the logistics industry. Most likely this will take the form of both higher and more stringently applied legislative regulation as well as increased availability of financing for cleaner technologies and management practices for the larger, State-owned, logistics providers.



The central government hopes that increased pressure and competition in the industry in the field of environmentally friendly supply chains and logistics management will create a 'survival of the fittest' scenario in which 'dirty operators' or large scale polluters will be forced from the market.

**Taxation restructuring.** There will all likelihood be a restructuring of related taxation and fees to aid profitability among ailing enterprises.

- Current gross profit margins within the storage business are around 3-5 percent and transport company's are only around 1-3 percent nationwide
- The current crisis has eroded even these fractional margins
- It is hoped that smaller enterprises will benefit greatly from a reform in the taxation laws by granting increased tax allowances for companies engaged in the logistics industry

**Increased efficiency and technological development.** Financial assistance will be made available for State-owned logistics providers and supply chain enterprises to accelerate development of service level through the creation and implementation of best practice procedures and the application of improved technology.

It is hoped that the increased availability of financing will allow enterprises to improve their levels of logistics management as well as greatly raise the level of informization within the industry.

**Streamlined procedures and regulations.** The package will also include a raft of measures to streamline administrative management such as customs clearance. These measures are aimed at reducing the inefficiency within supply chains as well as an overall acceleration of cargo handling.

#### 4.5.6 Implications

The proposed plan presents a series of opportunities for logistics providers with established market presence in China.

Whilst many insiders in the Chinese government privately confided that proposed legislation may in fact make operation more difficult for foreign invested enterprises in the short term, most were confident that given the economies of scale and market segmentation prevalent in the country, larger international providers will be able to leverage their positions and scale to maintain their market share.

The general consensus among policy makers is that in the ensuing reorganisation state-owned enterprises will remain largely unaffected, as will the international players with the capital to adapt to the changing landscape.



Many involved with the plan do privately confide that the plan may very well make life more difficult for small to medium scale companies – in part as part of the driving force to accelerate agglomeration of what Beijing still perceives to be a fragmented industry.

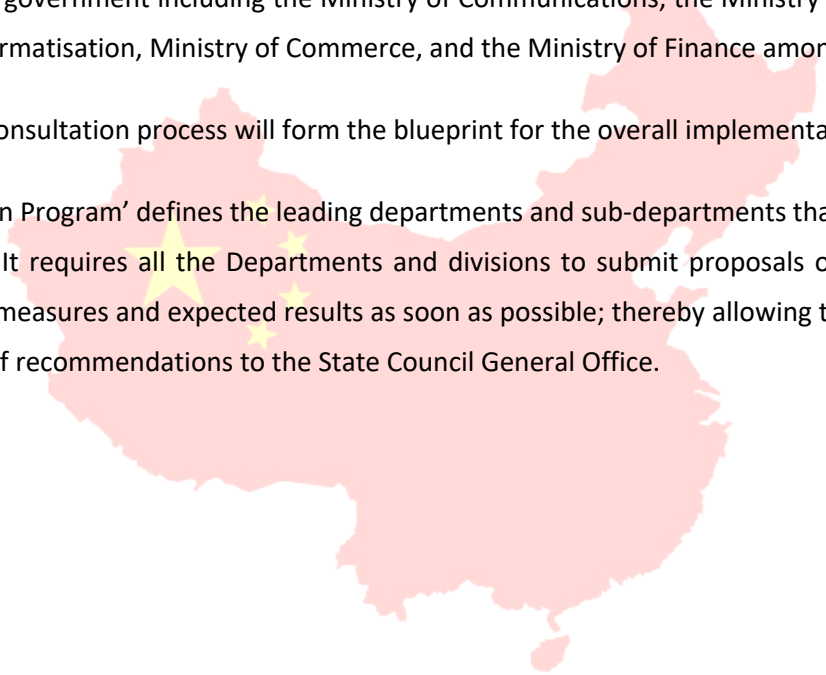
#### 4.5.7 Implementation

Full details of the 'Departments' Implementation Program of the Plan for Restructuring and Revitalisation of the Logistics Industry' are currently being released.

However, in order to manage smooth implementation of the Plan, the National Development and Reform Commission (NDRC) has developed the 'Departments' Implementation Program of the Plan for Restructuring and Revitalisation of the Logistics Industry' on the basis of a consultation process involving over 32 departments of the government including the Ministry of Communications, the Ministry of Railway, Ministry of Industry and Informatisation, Ministry of Commerce, and the Ministry of Finance among others.

The results of this consultation process will form the blueprint for the overall implementation strategy.

'The Implementation Program' defines the leading departments and sub-departments that will be involved of each part of work. It requires all the Departments and divisions to submit proposals on the annual tasks, objectives, specific measures and expected results as soon as possible; thereby allowing the NDRC to present a summary report of recommendations to the State Council General Office.





## 4.6 Opportunities for foreign logistics providers and supporting industries within policy development

Given the scope of the program, it is likely to present a series of opportunities for logistics providers and supporting industries.

One such opportunity is in development of green supply chains. Companies that have experience in developing environmentally friendly logistics solutions as well as technology are well placed to provide equipment and help train management in more efficient use of resources. Opportunities in this area will be of special interest to larger scale enterprises that are capable of leveraging government relationships to develop cooperative partnerships with the larger State-owned logistics providers that will have access to the special financing programs the government will provide.

Within the area of skill exchange, the program for the Development of the Greater Mekong Sub-region has specifically stated the need for external expertise and skills in developing cross border logistics capabilities in preparation for the opening of the China-ASEAN Free Trade Area (CAFTA).

Explicitly stated aims in preparing for implementation of the CAFTA are as follows:

- To construct a mechanism for dialogue between governments and the private sector and strengthen interaction between them
- To explore the establishment of a GMS Logistics Association in order to strengthen cooperation between enterprises and broaden their dialogue with governments
- To further the work of logistics standardisation, including the mobilising application of information technology
- To enhance logistics personnel training
- To gradually expand the implementation of the Cross-Border Shipping Accord.
- To increase awareness among enterprises and government departments about the Cross-Border Shipping Accord.

Opportunities in this area will be of special interest to logistics providers based in or with established networks in the region of Southeast Asia. One such company that has been quick to seize on the potential of the region has been KART, which recently opened routes from Bangkok to Kunming and is in the process of developing routes linking south-western China with Bangkok, via Hanoi.



Alongside this there exist numerous opportunities presented by increased encouragement for larger domestic manufacturers to increase outsourcing logistics services. According to the Ministry of Transport, the primary focus of competition between State and international logistics providers will likely switch to second and third tier cities in 2009-10. The need to address the growing markets of China's interior is heavily reflected in the plan.

Development of nine new logistics zones presents numerous opportunities for logistics providers, container handling equipment manufacturers as well as warehousing enterprises and subsidiary service suppliers.

The development of a cold chain distribution network, as part of an overall program to reduce fresh produce wastage, presents clear opportunities for companies with experience in the field, equipment providers and for financial houses looking for attractive fixed asset investments in privately run and operated facilities that meet the national development plan criterion.

An undertaking of the scale necessary to effectively cut the massive levels of wastage on route will undoubtedly present many and varied opportunities across numerous sectors.

Whilst implementation of the main national level plan will be managed by State Council and the NDRC, many local and regional level aspects of the program will be under the auspices of local government. This greatly magnifies the opportunities available to companies interested in participating in the plan.

Local and regional level governments often lack the fundamental knowledge necessary for application of State-level directives and have clear incentives to outsource construction, management or operation of logistics services and facilities.

Added to this, local and regional governments are often judged at higher levels by their ability to attract FDI thereby creating incentives for them to create favourable environments for foreign investors. Many local and regional governments have extensive programmes to attract such investment.

Coupled with the development of 10 new logistics corridors across the country, this represents in many ways the likely geographic shifting of the centre of economic gravity the Chinese government envisages over the next two decades.

Heavily influenced by the imperative to open the interior of China to FDI, the plan to create the new corridors is expected to both increase access to domestic markets as well as bring lower cost labour pools online.

The creation of these corridors creates many opportunities for those with the necessary access to capital to fund such projects and those with the China teams able to operate projects outside the more developed



eastern coastal regions. Projects of these types represent substantial, long term prospects as China's interior regions continue to grow in prosperity.

Indeed, whilst in the past there has been a balance of investment between State and international private investors in logistics parks and processing zones, there is some evidence that the plan will come down in favour of private enterprise with preferential policies specifically targeting international players.





## 4.7 Challenges presented by policy development

Most government officials interviewed did privately confess that the restructuring of the industry would very likely favour the creation of larger, more capital endowed enterprises - most likely at the expense of medium and small scale enterprises.

Most were able to confirm that the plan would most likely result in a sustained period of merger and acquisition activity resulting in a substantial reduction in the number of logistics firms operating in the market.

However, most also believed that larger international firms with high level of capitalisation would see the plan as an opportunity – not a risk.

Many felt that medium sized enterprises could see themselves squeezed out of the market as international firms consolidated their market share of the international market and State-owned providers did the same with the State-owned market.







## 4.8 Key projects in the Logistics Plan

Main areas of focus within the plan include the following sectors:

- multimodal and transshipment facilities
- logistics parks
- citywide dispatching systems
- logistics projects for bulk commodities such as coal and petroleum (focused in Shanxi, Inner Mongolia and Shaanxi)
- manufacturers will be encouraged to detach logistics departments and outsource logistics services to focus on their core business
- implementation standardisation in warehousing, transshipment facilities, and transport equipment
- implementation of information platforms, especially for ports, bulk commodity transaction platforms, and transport information platforms
- technological innovation and key hi-tech projects
- special logistics systems for emergency response

### 4.8.1 Policy implementation

In terms of implementation of the policy:

- local government should take the lead
- management systems reform will be deepened
- logistics service should be standardised to fit international norms
- monopolies control of markets will be dismantled and re-regulated
- health and safety procedures will be strengthened across the industry
- relevant laws and policies will be implemented to improve and support the logistics sector
- special considerations will be made for coal, crops, agro products, cold chain, logistics parks, and emergency logistics.
- key logistics cities will receive financial and legislative support from local, municipal and provincial governments
- bank loans, stock listings, bonds, joint ventures, or mergers should be encouraged for financing of logistics companies
- for national and regional key logistics projects, the central government will provide financial support
- statistical monitoring systems for logistics will be improved
- international corporation will be deepened and encouraged, especially with South Korea, ASEAN nations, and central Asian nations



- logistics personnel training and education will be strengthened through the industrial unions and other organisations





## 4.9 Urbanisation and the changing structure of logistics networks

China's rapid economic growth is occurring alongside a trend that, while receiving far less publicity, could have equally significant ramifications. This trend is the speed in which Chinese people are urbanising.

China's urban population is expected to swell by 350m people by the year 2025. That figure is greater than the present population of the entire United States. By 2030, the number of Chinese living in cities is expected to surpass 1bn for the first time, and an estimated 221 cities will have populations of 1m or greater. Furthermore, this figure is likely to contain upwards of 150m consumers with incomes exceeding USD 40,000 per year.

Urbanisation is likely to present both opportunities and challenges to the logistics industry. The growth of second and third-tier cities will create new distribution channels within China, particularly if these cities assume a hub-and-spoke relationship with the country's largest metropolitan centres.

Food distribution will also be affected. As the proportion of Chinese citizens who practice subsistence farming dwindles, food supply chain networks will only grow in importance. Far more people in China will rely on better refrigeration networks to access staple food items. Urban residents also typically consume greater quantities of processed goods, implying another area of potential market growth.

Can China's infrastructure development keep pace with the rate of urbanisation? Congestion in cities like Shanghai have led to enormous transport inefficiencies, as traffic snarls have slowed the movement of goods into and out of the major cities. One major challenge for China's city planners is to organise infrastructure development in a way that accommodates increasing numbers of residents.

Finally, there are environmental concerns. Water and food contamination have led to well-publicised scandals in China, and as more people move away from the source these issues could only become worse. In addition, the rise in the standard of living that accompanies urbanisation leads to more consumption, more sewage, and more waste – thereby leading to massive growth in the waste logistics market. China has tackled these issues with enthusiasm over the past few years, but will have to redouble its efforts to cope with upcoming population pressures.



## 4.10 An Emerging Consumer Class

According to the newly announced policy, China will, during the course of its 12th Five Year Plan, attempt to focus on re-balancing its trading relationship with the rest of the world. Creating a swath of opportunities for global manufacturers and all those involved in managing global supply chains.

These factors, coupled with a pro-active approach by Beijing to work with global shippers and logistics providers may well begin to see this global imbalance redressed.

Since joining the World Trade Organization (WTO) in 2001, China's foreign trade surplus has grown as its share of global production processes has expanded. On the logistics front, this has created imbalances in trade flows affecting transport prices, as carriers are forced to return unladen from low-demand regions to high-demand regions. Something many of China State-owned logistics providers are becoming increasingly tired of.

In the US market, for example, approximately 60 percent of current international container cargo demand is between ports in the U.S. and ports in Asia. For this Trans-Pacific trade, the greatest demand for vessel capacity is for imports into ports in the U.S. Total import container shipments to the U.S. are about 1.5 times that of export. In Trans-Pacific trade however, import TEUs are about twice that of export.

However, developments within China itself and a proactive policy by Beijing may begin to redress this imbalance.

Conclusions in the report suggest that in just a few years, China will supersede the United States' overall consumption rates.

It should be noted that overall expenditure per person will remain lower than the US's however; a combination of the country's population growth rate alongside its expenditure will lead to this aggregate. It is estimated that in 2015, China will bring to the global arena a total of one hundred and fifty million consumers most of which will be spending close to forty thousand dollars in annual incomes. These staggering figures indicate that China will take centre stage as the world's biggest consumer.

According to guidelines laid out in October of last year, the 12th '5-Year-Plan' will focus on 'inclusive growth,' ensuring the benefits of economic growth are spread to a greater proportion of Chinese citizens. The plan's key themes are rebalancing the economy, ameliorating social inequality and protecting the environment.

According to the Chinese Government's 12th Five Year Plan, China is transforming itself from a producer of low-end products to higher value added goods and from an exporting economy to a consumer market.



## 4.11 Deliver China

According to economic theory, imbalances in trade flows affect transport prices, because (some) carriers have to return without cargo from the low-demand region to the high-demand region. Therefore, transport prices in the high-demand direction have to exceed those in the low-demand direction. This implies that transport costs, and therefore trade costs, are fundamentally endogenous with respect to trade imbalances.

In the US, for example, approximately 60 percent of current international container cargo demand is between ports in the U.S. and ports in Asia – referred to as the Trans-Pacific trade. For the Trans-Pacific trade, the greatest demand for vessel capacity is for imports into ports in the U.S. Total import container shipments to the U.S. are about 1.5 times the number of export TEU. In the Trans-Pacific trade, however, import TEUs are about twice the number of export TEU.

Moreover, not all of the physical space on a ship (the “nominal capacity”) will be usable space (“effective capacity”). Factors that contribute to this difference include the number of each size and type of container equipment (e.g., “high cube” containers will take up more space), the type and weight of cargo, and the destination of the cargo – all of which can impact where and how the containers can be stowed on the ship.

The single largest factor that affects the difference between the nominal and effective capacity of ships on any particular service or voyage is the weight of the cargo. Ships, like trucks and trains and planes, have a maximum cargo weight that cannot be exceeded. On average, U.S. exports, which are primarily raw materials, are considerably heavier than U.S. imports, which are primarily finished goods. In the Trans-Pacific trade in 2008, export TEU weighed on average 12 tons and import TEU weighed on average 9 tons. This means that a ship that is able to carry 4,000 import TEU might only be able to carry 3,000 export TEU because the ship would actually be “full” from a weight perspective.

Also, while there may be no shortage of physical containers globally, there are situations where an exporter may encounter a shortage of a specific container type or in a specific location or geographic region. This is due to equipment imbalances that result from differences in where goods are transported to and from. For example, there may be a surplus of empty containers in Los Angeles or New York, there may not be a surplus near a farmer in Kansas.

Locations or regions that have a high volume of both imports and exports generally do not experience equipment shortages even when the ratio of export volume to import volume increases above historic levels. Examples of these locations or regions include areas in and around most major ports, as well as some other major metropolitan areas like Chicago, Dallas and Atlanta.



An exporter, which is seeking to send cargo from an area that has limited import volume, and therefore limited empty containers available, may have to pay extra for movement of empty containers into that area for loading. If an exporter commits to a carrier to ship-defined quantities and pays for the repositioning of empty equipment to its facility, an adequate supply of container equipment can generally be obtained. An exporter that is unable or unwilling to make such commitments may encounter container equipment shortages in some geographic regions.

Therefore, the differences of *Traffic Volume*, *Cargo Weight* and *Shipping Prices* have further weakened an exporter's (who is based in "unfavourable" region for the shipping line) competitive position on a global level, and consequently, lowering a country's export and an even greater trade imbalance.

#### 4.11.1 China 12th Five Year Plan

In October 2010, the Communist Party of China's Central Committee approved the guiding principles of China's 12th Five-Year Plan for National Economic and Social Development (2011-2015). The National People's Congress will ratify the plan in March 2011. The 12th FYP's guiding principles will promote the government's focus on "inclusive growth," which means ensuring the benefits of economic growth are spread to a greater proportion of Chinese citizens. The plan's key themes are rebalancing the economy, ameliorating social inequality and protecting the environment.

As summarized by Professor Kay Shimizu of the Weatherhead East Asian Institute of Columbia University. The most significant part of China's 12th Five-Year Plan is the focus shift from the export-led sectors to increasing domestic consumer demand by raising Chinese labors' incomes to allow all Chinese residents prosper in this new era.

Mr. Wei Jianguo, the Secretary General of China Center for International Economic Exchanges, has emphasised on the importance of import strategy in the 12<sup>th</sup> FYP and its role in China's long-term economic development.

#### 4.11.2 Deliver China

The global maritime logistics industry has boomed on the back of China's entry to the world economic trading system and its emergence as the factory of the world. For the most part, the logistics boom has been built on exports, with a large percentage of containers returning east from the west empty or at best filled with waste and other recyclable materials.

However, the prosperity created by this first export-led era of Chinese globalization has started to stimulate the emergence of a growing middle class who are developing a very healthy appetite for "western" products.



This, combined with a weakening dollar and euro, has meant that for the first time in the modern era China imported more than it exported in the first full quarter of 2010.

A new opportunity is therefore emerging for foreign companies to enter the Chinese market, with significant ramifications also for global container trade flows and balances.

Between 2007 and 2010, the global economy has suffered from a financially-led recession, during which we seen the world exports and imports dropped dramatically, weakened US Dollar and Euro, increased unemployment and slow/negative growth in GDP infecting almost every corner of the globe. During the same period, China achieved on average 10 percent year-on-year GDP growth, overtook Japan and became the second biggest global economic power.

With a population of 1.3 billion, China is the biggest country in the world. Its consumer market has the potential to be larger than that of North America and Western Europe combined. China has grown to become a strong force within the global market. This is largely because of its growing consumerism. There is a need to examine this paradigm shift from a conservative spending power into the consumerism spending culture.

Preliminary research at the GIL indicates that in just a few years, China will supersede the United States' overall consumption rates. It should be noted that overall expenditure per person will largely remain lower than the US's however; a combination of the country's population growth rate alongside its expenditure will lead to this aggregate. It is estimated that in 2015, China will bring to the global arena a total of one hundred and fifty million consumers most of which will be spending close to forty thousand dollars in annual incomes. These staggering figures indicate that China will take centre stage as the world's biggest consumer.

#### **4.11.3 Timing/Convergence**

There are a number macroeconomic and socio economic factors in play that make the project particularly timely.

According to the Chinese Government's 12th Five Year Plan, China is transforming itself from the global factory for the production of low-end products to producing high value added products and from an exporting economy to a large consuming market. In order to respond to such a requirement, the GIL has started a new import orientated research project called Deliver China combining the power of logistics, distribution and market research to create a "one-stop" solution for Importers to the Chinese market.

We have described the rise of Chinese consumerism above in the context of the market in China being ready. In addition, with the recent economic meltdown in Western Economies, traditional domestic markets have slowed enormously and will remain constricted for many years to come as the legacy of financial



mismanagement is remedied. Therefore Western companies from Multi Nationals to SME's need to look to global emerging markets to sell their goods and services, the biggest of which is of course China.

Also in the macro economic cycle of globalisation some manufacturers are leaving China for the lower cost economies such as Vietnam, consequently factory units and associated warehousing are becoming vacant, these would be ideal for logistics operations for imported goods. Recent meetings and discussions between the GIL and its members in Shenzhen have quite clearly identified this as an area of opportunity.

While the Chinese consumers display a strong consideration and loyalty to local brands, they are also as keen in exploring foreign brands if the products are readily accessible within their purchasing channels. Therefore foreign companies entering the Chinese market have to allocate resources into establishing distribution channels which is expensive and risky. Alternatively they can form alliances with local companies to ensure that the products are within close proximity to consumers.

#### **4.11.4 USP's and Benefits**

There have been many initiatives established by Western Governments, Development Agencies and companies themselves to enter the China market. Some have been successful, the majority not, 95% of those who have succeeded have been Multi National Companies (MNC's) with established brands.

These organisations have the scale and budgets required to penetrate this huge market; however for Small Medium Enterprises (SME's), which equate to 80 percent of Western Businesses, penetrating the Chinese market is a daunting and often impossible task. Therefore the Deliver China Strategy is to develop a National Brand or "Basket" of goods, branded specifically around key elements of the Country of origin. This National approach will allow high quality SME's to get their goods to the Chinese shelves.

Furthermore by partnering with established logistics and distribution partners we can ensure that the imported goods are labelled, packaged and prepared store ready in country and then distributed by a strategic partner who has the infrastructure, network and relationships to ensure that the goods hit the right shelves at the right time in the right format. This will give the companies included and the Country selected the best possible chance of succeeding in the market.

Through a strong local partner instead of creating product differentiation through pricing, importing Countries can focus on long-term technical and emotional benefits around a strong National Brand.

The emergence of the realisation that Ports are Economic strategists means that now more than ever the supply chain is aligned to truly deliver a joined up and coherent market entry strategy for Countries wishing





to enter new markets. With Ports at either end of the supply chain integrating deeper and more effectively into the community and country the flow of goods becomes more efficient.

## 4.12 Purchasing Managers Index

Despite much of the healthy scepticism abounding at present as to the nature of the global economic recovery, a number of key indices, such as China's Purchasing Manager Index (PMI), indicate the Chinese manufacturing sector is already regaining momentum; perhaps a positive auger of things to come.

China's economy recorded a Purchasing Managers Index (PMI) figure of 55.4 in January 2011, marking the eleventh consecutive month in which China's PMI finished above 50, indicating that within a sample of industries companies appear to be expanding on a whole.

PMI is based on five main indicators: new orders, inventory levels, production, supply deliveries, and the employment environment. 17 of the 20 industries sampled recorded PMI levels above 50, with the metals industry ranking highest and the tobacco industry lowest.





## 4.13 Regional Market Dynamics

### 4.13.1 Growth of Intra-Asian Freight Movement

The 1997 financial crisis brought about a radical restructuring of policy and defined key issues with a shift into more concrete sectors of the material economy – such as manufacturing - and away from speculative markets such as real estate as viable long-term sources of capital for development. The basic tenets of macroeconomic development have been reinforced as a result - namely, stability, high savings and investment, expansions in education and training, and a stronger orientation toward exports.

As a result of the renewed focus on export, transport and developments in the flow of freight have seen monumental improvements in the APAC region as a whole. In spite of vast improvements on interconnectivity between nations within the APAC region, several problems still persist, and they are numerous. These bottlenecks include:

- A lack of simplified, standardized and harmonized documentation and procedures
- A lack of transparency in application of procedures
- Differing freight tariffs between nations
- Poor infrastructure and complex paperwork
- Poor freight tracking
- Outright denial of access to foreign vehicles
- An incompatibility of vehicle weights and dimensions, insurance and driver's licensing qualifications
- Operational difficulties from differences in the capacity of vehicles used in cross-border traffic
- Inadequacy of transport and cargo handling and storage facilities both at, and in the vicinity of border regions
- Lack of multimodal transport and logistics services

Even with these impediments to trade, intra-regional freight movements in APAC are growing faster than any region in the world, with the bulk of freight movements are still being conducted by the larger players such as China, Japan and Korea. Regional average growth in freight movement terms stands at 7.2 percent of global trade.

The region does however still need to address intra-regional boundaries as a means of ensuring continued dynamism in regional trade and investment flows. As a means of addressing these issues, the APAC forum has stated nations should seek to take advantage of complementarities and build on existing strengths in order to achieve more efficient and competitive freight movement rates collectively. Among the regional agreements set into play include, for example, the Greater Mekong Sub-region (GMS) which holds as its mandate, among



others, a need to go beyond tariff and non-tariff barriers on freight transport and into trade facilitation measures such as conformity of standards and procedures across borders in the APAC region as well as the GMS.

Another such measure is the China-ASEAN Free Trade Agreement (FTA). In November 2002, the Chinese and ASEAN leaders signed the Framework Agreement on Comprehensive Economic Cooperation between China and ASEAN declaring that a China-ASEAN FTA would be set up in 10 years. The process of establishing the China-ASEAN FTA was thus set in motion.

Starting on January 1, 2004, the two parties began implementing an Early Harvest Plan (EHP), cutting tariffs on more than 500 products, as part of the effort to facilitate the birth of the FTA. At the Eighth China-ASEAN Summit convened on November 29, 2004 in Vientiane, capital of Laos, the two parties signed a package of agreements on trade in goods and dispute settlement, laying down foundations for standardizing tariff cutting and resolving disputes.

The Framework Agreement on Comprehensive Economic Cooperation between China and ASEAN helped advance bilateral trade, with the China-ASEAN trade volume crossing the threshold of USD 100bn for the first time in 2004 and hit USD 130.37bn in 2005.

Starting from July 20, 2005, China and ASEAN began to cut tariffs on more than 7,000 products, which marked the beginning of the Phase of substantial tariff reduction between China and ASEAN in the run-up to the establishment of the FTA. Upon full implementation, the China-ASEAN FTA will be the largest FTA in Asia, the most populous FTA in the world.

#### **4.13.2 Asia's Decoupling Myth**

In general, the Asian region has undergone a significant period of expansion in terms of local, regional and intraregional trade. Accompanying this expansion of trade has been a tremendous growth of investment and financial linkages. In particular, since the 1990s, growth in the intra-Asian trade market has been remarkable.

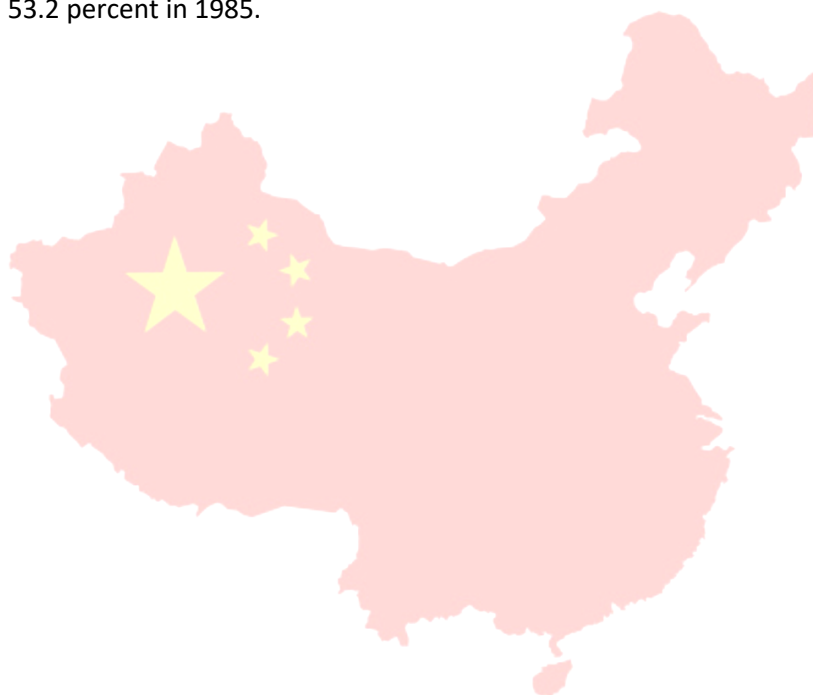
This growth in intra-Asian trade has been seen by some as indication that many Asian nations are strengthening their regional economic ties in an effort to insulate themselves from the cyclical nature of dependence upon traditional international trade models. Conversely, the relative decline in Asia's trade with international partners, i.e., non-Asian states, has also been seen by some of evidence that Asia's reliance on external trading partners is diminishing in real terms.

However, despite the relative decline, the Asia region's dependence on extra regional economies remains strong. Export to GDP ratio has continued its upward trend reaching almost 55 percent of GDP in 2005



compared with a global average of 28.5. In terms of incremental export-to-GDP ratio, measured on a year-on-year basis have also witnessed an upward trend which by implication indicates the increasing importance of the export sector as an engine of growth across the region as a whole.

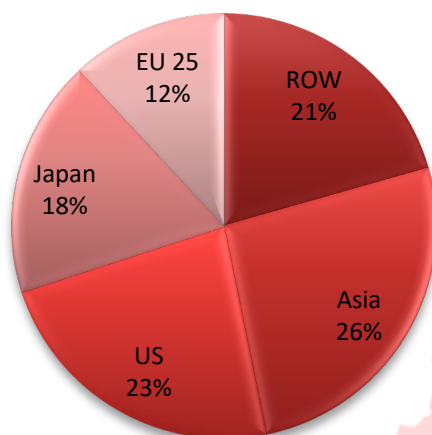
The general liberalisation of Asia's trading environment has led to a broad diversification of its export base. In addition to this there has been a rapid growth in intra-Asian trade, as exports destined for other Asian nations rose from 26.2 percent in 1985 to 37.3 percent in 2005. The overall general dynamic of this shift has been to diminish the importance of the region's single largest trading partner, the United States, over the twenty-year period from 23.2 percent in 1985 to 17.6 percent in 2005. Japan and the EU-25 now account for 25.8 percent of Asia's total export market, much larger than the US share. But taken together, the G3 economies (the major export destination of global exports, the EU-25, the US and Japan) account for only 43.3 percent of Asia's total exports, down from 53.2 percent in 1985.





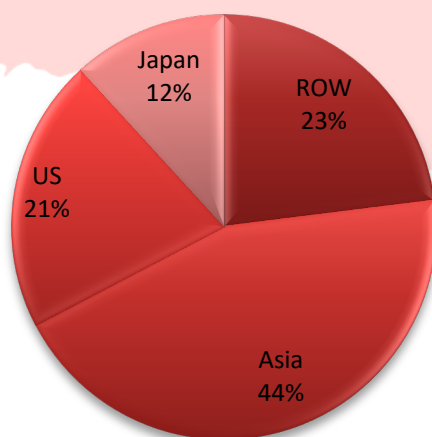
The following charts illustrate the changes in Asian export patterns between 1985 and 2005.

## Asian Exports by Destination 1985



Source: Global Trade Database

## Asian Exports by Destination 2005



Source: Global Trade Database



This diversification of geographic spread implies that the economies of Asia are now slightly better insulated against external demand shock originating from the G3 economies by creating the capacity for mitigating growth in regional non-G3 Asian markets themselves. This said though, most evidence still suggests that demand fluctuations in the G3 economies – especially the US – still play a major role in dictating trade pattern fluctuations in the Asian economies. The table above illustrates the close relationship between US non-oil imports and Asian growth.

According to data from the Asian Development Bank (ADB), the US accounts for almost 50 percent of the total G3 non-oil imports and there is a strong correlation between non-oil import trends between all three G3 regions. Furthermore, according to analysis of ADB data, whilst the percentage share of Asian exports destined for the G3 has consistently fallen over the period 1980-2008, the correlation between growth in G3 non-oil imports and Asian export growth has in fact risen significantly from a 0.2 decadal average correlation in the 1980s, to a 0.8 correlation on average for the first seven years of the twenty first century.

Despite the G3's decreasing share of Asian exports as a whole, the increasing correlation between these two factors is due in large part to the emergence of new dynamic driving inter-Asia trade. Namely, the vertical integration of production processes spread geographically across the Asia region whose final products are destined for countries outside the Asia region. In short, much of the growth in inter-Asia trade has been in intermediate products shipped from one country to another for processing or assembly.

Indeed analysis based data from the Global Trade Analysis Project database confirms in decomposition more than 70 percent of intra-Asia trade consists of intermediate goods used in the production cycle, and of this half is driven by demand outside the Asia region. Consequently, around 61.3 percent of total Asian exports in terms of finished goods are consumed in G3 countries.

Within Asia, the PRC is the largest driver of regional exports, but its final demand accounts for only 6.4 percent of total Asian trade, which was only half the contribution from Japan and slightly below a quarter of the US. The results show that the G3 economies are still the main ultimate export destinations for finished goods leaving Asia, when taking into account the share of intermediate goods trade that is for assembly and production within the region, but that is eventually shipped out of the region.

Based on these data, it can be estimated that of the total volume of finished goods leaving Asian countries as exports, around 20 percent are destined for Asian markets with around 60 percent absorbed by G3 countries and the remainder headed for the rest of the world (ROW).



## 5 The Chinese Economy and World Trade

### 5.1 Overview of the Global Economy

The world economy is moving on from a post-crisis bounce-back phase to a slower, but relatively solid growth period in 2011 and 2012. Global GDP - which expanded by almost 4 percent in 2010 - is expected to slow to 3.3 percent in 2011, according to the World Bank.

Developing country growth of 7 percent in 2010, and 6 percent in 2011 is projected, which is more than twice the rate projected for high-income countries.

Most low-income countries saw trade gains in 2010 and, overall, their GDP rose 5.3 percent in 2010. This was supported by a pick-up in commodity prices, and to a lesser extent in remittances and tourism. Their prospects are projected to strengthen even more, with growth of 6.5 percent in both 2011 and 2012, respectively.

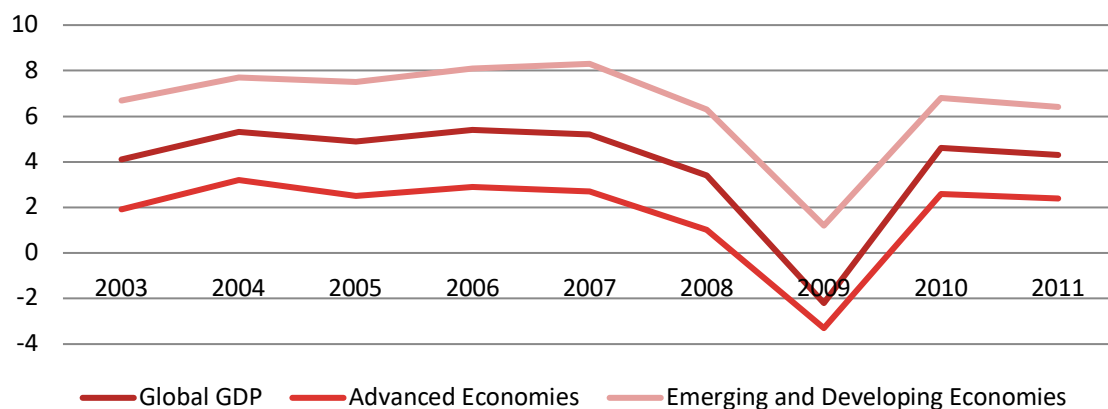
In general, most of the developing world has weathered the financial crisis well, and by the end of 2010, many emerging market economies had recovered or were close to resuming the growth potential they had attained prior to the crisis. Strong developing-country domestic demand growth is leading the world economy; however persistent financial sector problems in some high-income countries are still a threat to growth and require policy actions.

After the sharp growth deceleration of 2008 and the contraction in 2009, global GDP is estimated to have increased 3.9 percent in 2010. The pickup in growth among high-income countries - a 6.2 percentage point improvement in growth rates - was more marked than in developing countries - 5 percentage point increase in growth rates; but at 7 percent, growth in developing countries was more than twice as strong as in high-income countries. As a result, low and middle-income countries contributed almost half of global growth - 46 percent - in 2010. Moreover, all of developing country growth was due to increased domestic demand.

Growth in both high-income and developing countries is expected to slow somewhat in 2011, mainly reflecting the easing already observed in the second half of 2010, before picking up again toward mid 2011, settling at rates close to their longer-run potential. Global GDP is projected to increase by 3.3 percent and 3.6 percent during 2011 and 2012, with developing economies expanding by 6 percent or more in each year, more-than twice the 2.4 and 2.7 percent growth expected for high-income countries.



## Global GDP Growth Rate 2003-2011



Source: Database of the World Economic Outlook, IMF; \*2010-11 figures are estimates

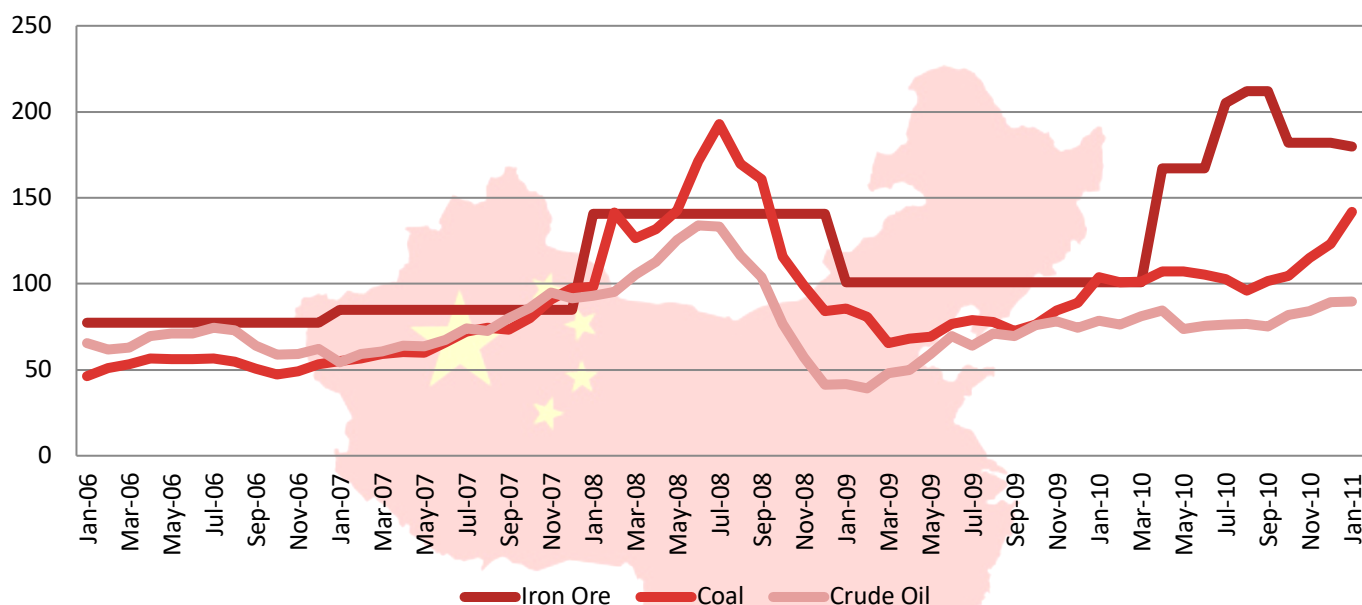




## 5.2 Global Commodity Prices

Primary goods in the global energy markets experienced ups and downs in 2010. Crude oil prices rose in 2010 from an average price of USD 61.92 to USD 85 with prices. The World Bank estimates this average to fall to 80.4 as the 2011 progresses global growth settles to sustainable levels. Coal prices finished 2010 on an upswing fuelled by a rise in general economic activity. Prices fell precipitously in the wake of the financial crisis and remained largely stable throughout the first half of 2010.

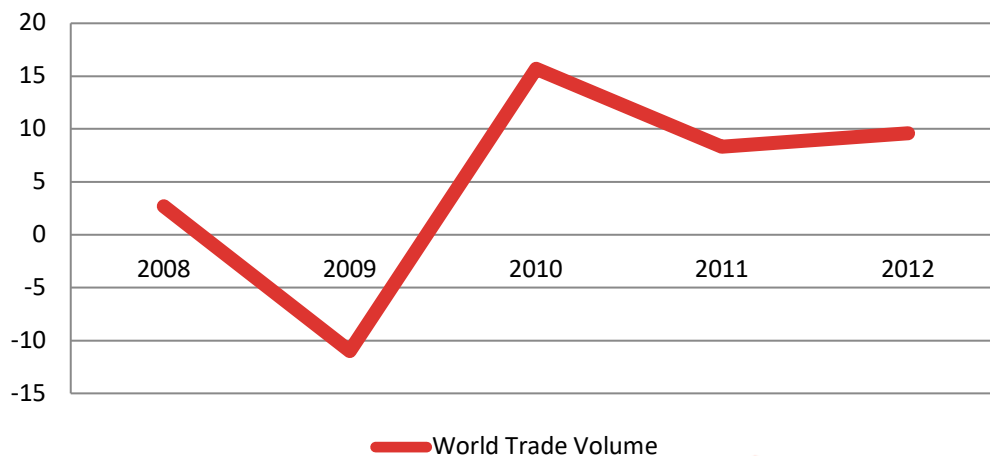
### Coal, Iron Ore and Crude Oil commodity prices



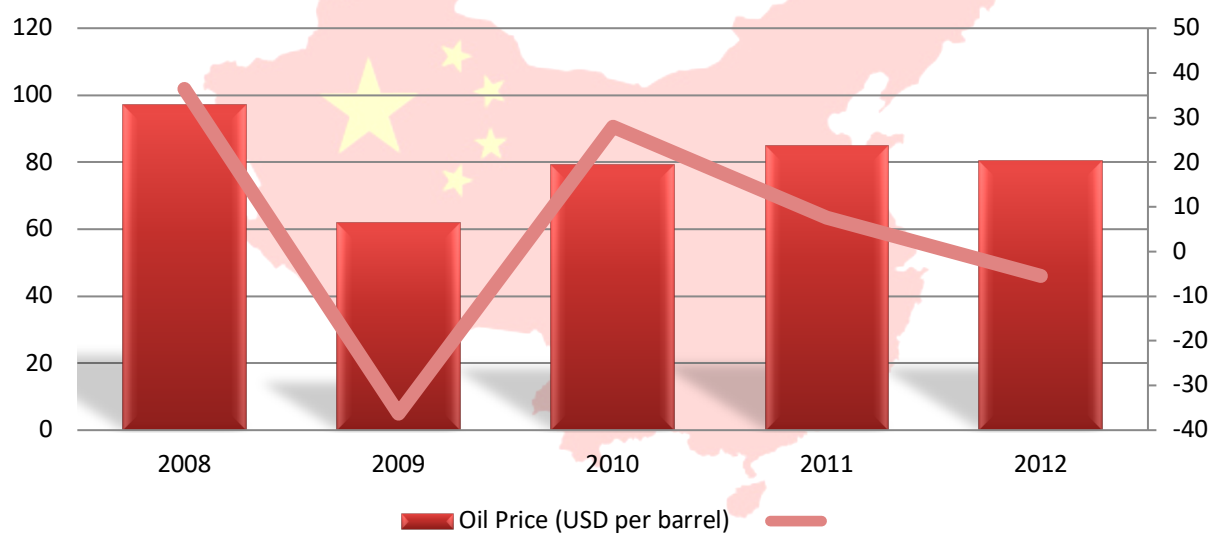
Source: IMF, GlobalCOAL. (N.b. Crude Oil (petroleum); West Texas Intermediate, USD per barrel; Iron Ore, 67.55% iron content, fine, contract price to Europe, FOB Ponta da Madeira, US cents per dry metric tonne unit; Coal, Australian thermal coal, 12000- btu/pound, less than 1% sulfur, 14% ash, FOB Newcastle/Port Kembla, USD per metric tonne)



## World Trade Volume



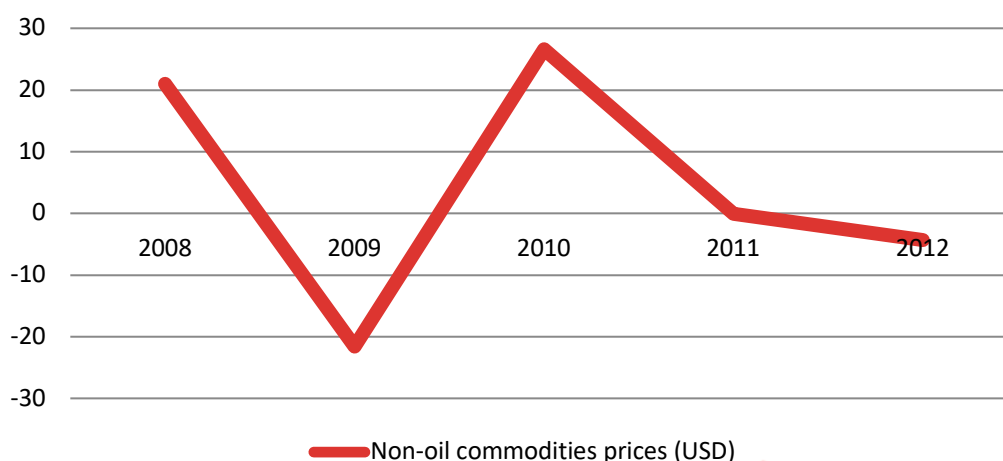
## Oil Prices (USD per barrel)



Source: World Bank



## Non-oil commodities prices (USD)



Source: World Bank

### 5.3 Asia Pacific Regional Economic Outlook

In 2010, Asia entered a second year of robust growth with China very much leading the way. Growth in the first half of 2010 marched ahead of growth in other regions, as global manufacturing continued to rebound fueling exports and investment in the region. Private consumption remained strong, as labour conditions continued to improve and confidence remained high despite greater market volatility as a result of global financial turbulence.

During the second half of 2010, economic activity moderated toward a more sustainable pace, although remaining robust. In particular, industrial production and export growth rates started to moderate. In light of this, China's 12<sup>th</sup> Five-Year-Plan has moderated growth targets down for key economic regions toward what it sees as more sustainable levels based on expected global performance. This in part reflects the maturing of the global and regional inventory cycle, particularly for the information technology products that are important for production and exports in many Asian economies.

The short-term baseline outlook for Asia remains positive; growth is expected to settle at more sustainable but still high levels. Growth is likely to remain particularly strong in the large, domestic-demand-driven economies of China, India, and Indonesia. A continuing, albeit sluggish, recovery in advanced economies during 2010–11 is envisaged. Outlooks support firm growth in Asia's exports, although below the very high rates of 2009 and 2010. A gradual pace of withdrawal of policy stimulus, sustained improvements in labor market conditions, and still accommodative financial conditions are expected to sustain private domestic demand.



Reflecting the slowing of export growth and strong domestic demand, Asia's current account surplus is projected to decrease to about 3 percent of regional GDP in 2010 and 2011, from about 5 percent in 2007, making a modest contribution to the narrowing of global imbalances.

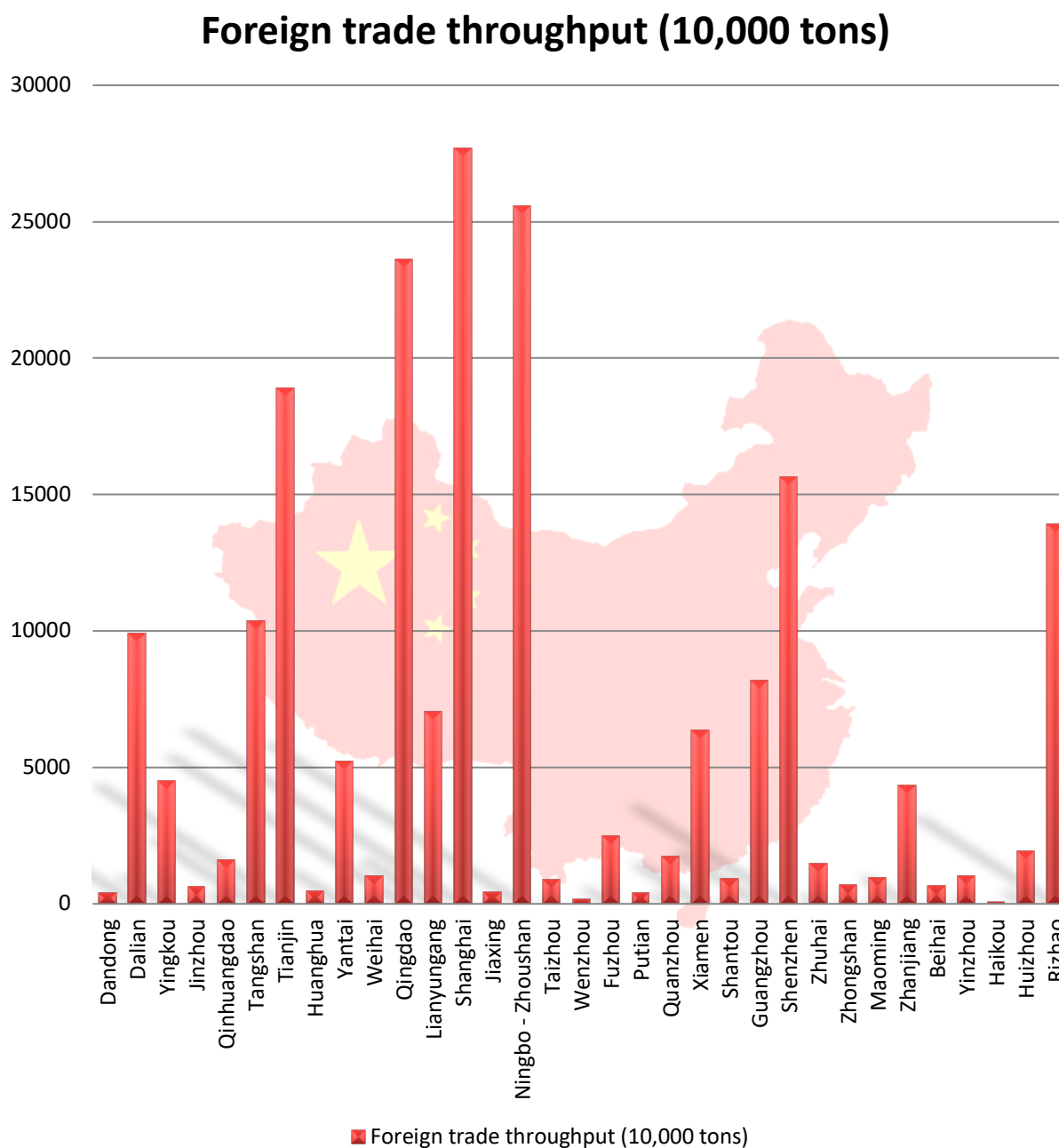
The main risk to the outlook is the external environment. While global financial conditions have improved since June 2010, underlying sovereign and banking vulnerabilities in advanced economies remain a significant challenge, and concerns linger over the strength of the global recovery. Despite Asia's strong economic and policy fundamentals, important trade and financial linkages with advanced economies suggest that a further deterioration in global financial conditions and a slowing of the global recovery would have important repercussions for the region. External demand from advanced economies is unlikely to return to precrisis trends in the foreseeable future.





## 6 Port Development

### 6.1 Foreign Trade Throughput 2010



Source: Ministry of Transport (see appendix for datasets)

China's total foreign trade volume is currently estimated to have reached almost USD 3 trillion in 2010, a historic high, yet the nation's exports are likely to come up against more trade barriers as the world economic



struggles to stage a bullish recovery, according to the Ministry of Commerce. Compared with 2009, the nation's foreign trade growth in 2010 represents a rise of 31.5 percent, well above the global average level of 11.4 percentage points.

At the same time, China's domestic economic growth and domestic demand expansion led to a growing demand for imports and exports; while a rapid increase in international commodity prices will likely constrain commodity import growth to more retional levels.

Meanwhile, in the wake of rapid growth in foreign trade imports, China's trade surplus continued to decline. According to customs statistics, China's foreign trade surplus amounted to USD 170.412bn from January to November, a drop of 4.2 percent as compared with the same period in 2009, and a decrease of 33.4 percent from the same 2008 period. A declining surplus is attributed mainly to a significant rise in the rate of import growth over export growth. China's exports grew 33 percent to USD 1.42 trillion from January to November, with imports up 40.3 percent to USD 1.253 trillion.

In its major trading partners, in addition to the European Union (EU), the nation's import growth rate from the United States, Japan, South Korea and ASEAN are significantly higher than China's export growth rate to these countries and regions. This shows that China has taken pragmatic, substantial moves to promote the balanced growth of global trade. China's marked import growth has become a vital, important force to drive the world economy out of an impasse. In a third trade policy review of China in May, the World Trade Organization (WTO) highly appreciated its adherence to import expansion.

As a matter of cause, China's higher trade surplus was mainly driven by a rapid import growth. In a foreseeable future, however, it will remain increasingly difficult to offset trade surplus with import growth. And so a large surplus or imbalance will remain a cause for trade frictions against China.

Nevertheless, the distribution of China's export destination countries has not changed much. The EU remains China's largest export market from January to November 2010, and the country's exports to the three major economies, namely, the U.S., Europe and Japan markets, accounted for 45.5 percent of China's total exports. If China's export flow through Hong Kong is included, then the developed countries are still China's major export markets.

This also indicates from a side aspect the need to accelerate the pace of change in China's foreign trade development model and, only in this way, can China boost the further implementation of exports market diversification strategy in an effort to disperse or diffuse its export risks.

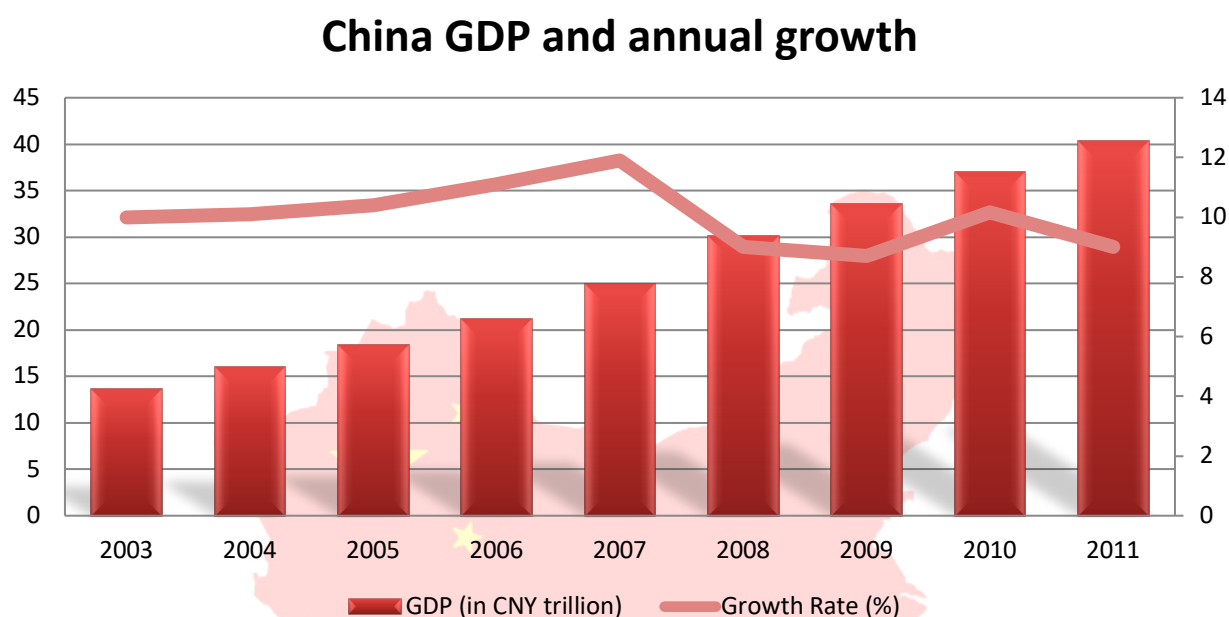
What especially needs alert is that a rapid recovery of foreign trade situation and export situation in particular is likely to slow down the pace of foreign trade shift and restructuring. What this means is China intends to



capitalizes on the readjustment of global economy and the new round of technological innovation and press ahead with changes in the foreign trade development strategy and strategic transfer of the entire economy.

### 6.1.1 China's Economy

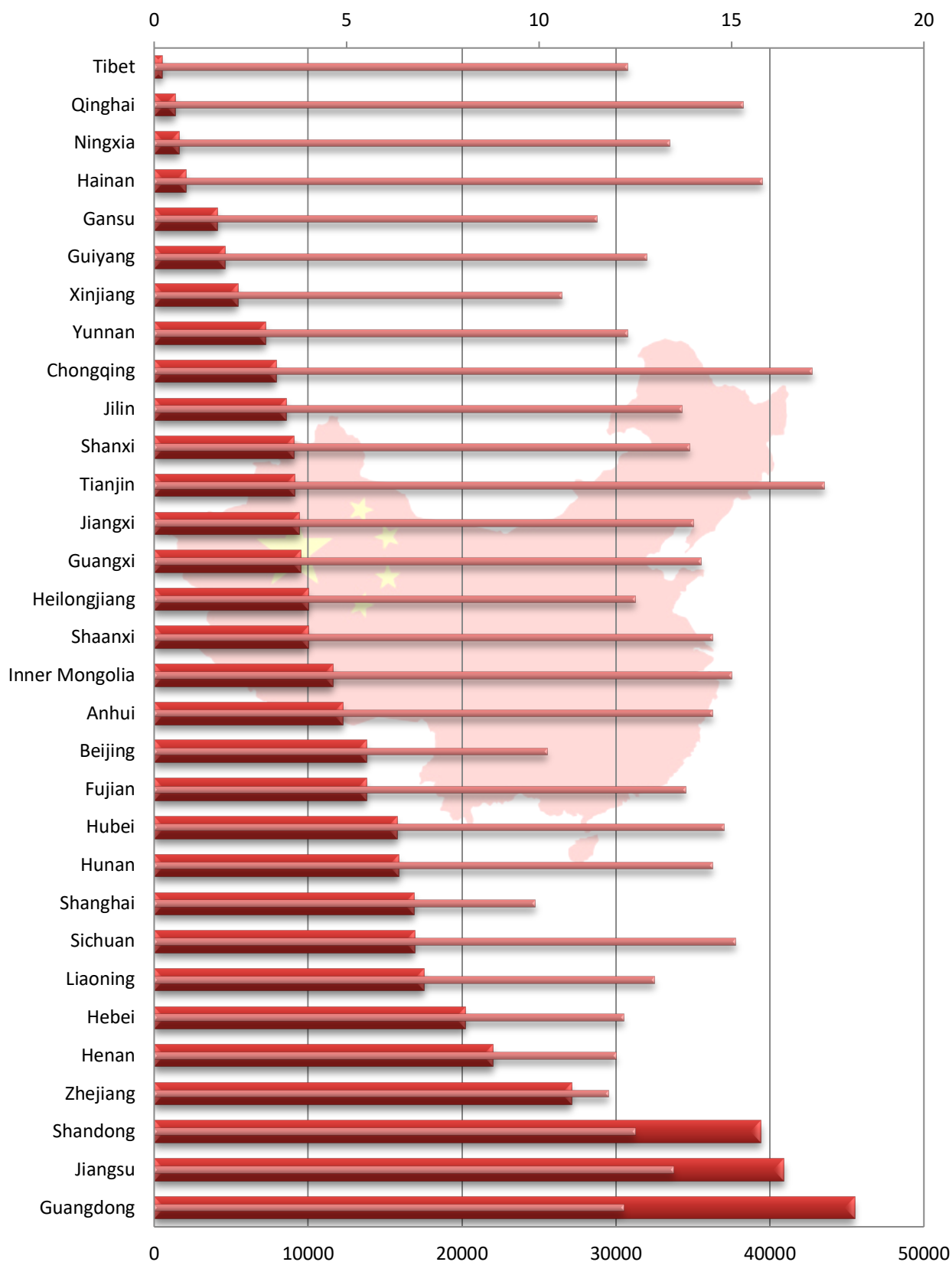
The following chart illustrates China's total GDP and its percentage growth rate over the previous year from 2003 to 2011.



Source: National Economic and Social Development Report (2010 estimate; 2011 predicted)



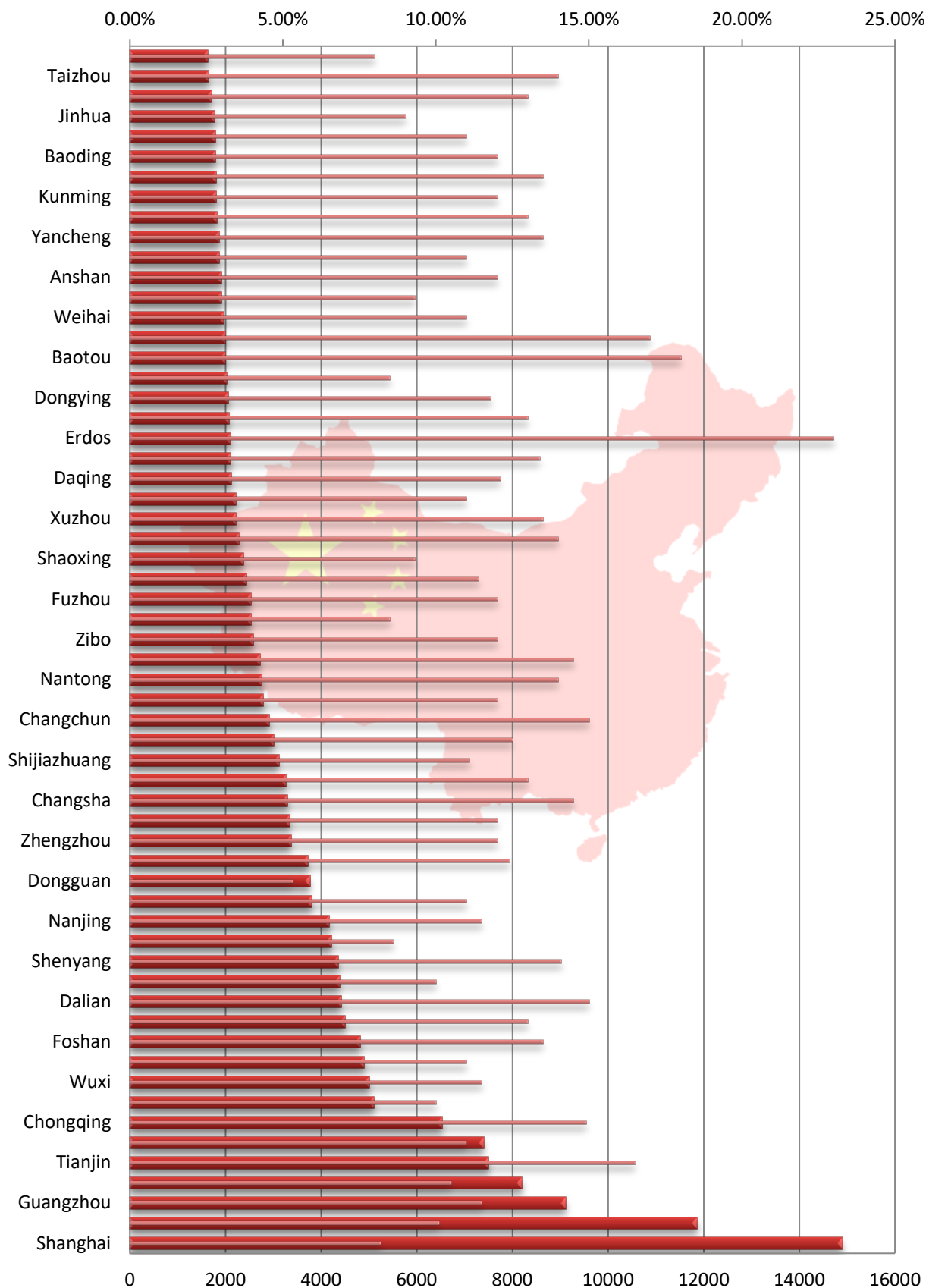
## Provincial GDP and growth in 2010







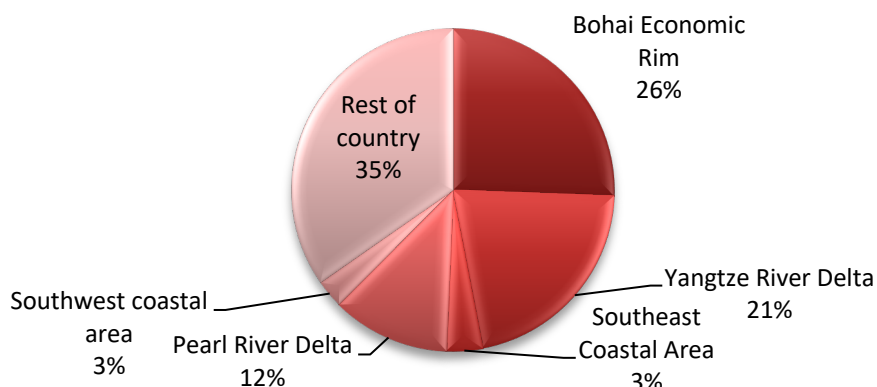
## GDP Growth by City





The following figure shows the relative geographic distribution of GDP by region in 2010.

### Proportion of Total GDP 2010 (%)



Source: National Bureau of Statistics of China

#### 6.1.2 Economic Forecasts for 2011

According to a report by the Chinese Academy of Science's Centre for Forecasting Science (CFFS) published in January, China's baseline GDP growth rate is set to slow in 2011 to 9.8 percent, slightly lower than the previous year's figure of 10.3.

Of this figure the report estimates investment, consumption and net exports will contribute 5.4 percent, 4.0 percent and 0.4 percent respectively. It also predicts the growth rate for primary industry will reach 4.6 percent, 11.0 percent for the secondary industry, and 9.7 percent for the tertiary sector.

In terms of quarterly growth, China's economy is likely to be slow out of the gate in the first half year of the year, growing more rapidly in as the year progresses, partly due to expectations of an improved global financial environment. However, quarterly variations in growth are unlikely to exceed 1 percent, indicating a relatively stable development environment.

In the coming year, it is predicted that:

- The contribution of consumption to economic growth will expand, but growth will remain slower than government goals.
- Total investment in fixed assets of the whole society is expected to reach around RMB 35 trillion; increasing 25 percent over 2010, with rapid investment growth.
- Contribution of domestic demand to GDP growth is expected to be 96 percent in 2011; making domestic demand a major driving force of China's economic growth.



- Export and import growth in 2011 is predicted to be lower than 2010.
- CPI for 2011 will reach 3.7 percent.
- Q1 CPI will be highest, slowing later as measures to control inflation take effect.
- Primary factors influencing CPI change will be food and real estate prices; food rising 7.1 percent over 2010 contributing 64 percent of the CPI; housing prices will increase 5.4 percent contributing 19 percent to the CPI.
- Foreign trade will maintain steady growth in 2011, but growth rates will slow compared with 2010.
- Imports will grow faster than exports, and trade surplus will remain stable over 2010.
- Total imports and exports will reach USD 3.5952 trillion in 2011, an increase of 21 percent;
- Total export volume will reach USD 1.8935 trillion, an increase of 20 percent.
- Total import volume will reach USD 1.7017 trillion, an increase of 22 percent.
- China's total import and export to the United States is expected to reach USD 464.4bn in 2011 an increase of 20.5 percent.
- Export volume to the US will reach USD 340bn, an increase of 20 percent.
- Import volume from the US will reach USD 124.5bn, an increase of 21 percent.
- China's total imports and exports to the EU are expected to reach USD 583bn, an increase of 21.5 percent
- Export volume to the EU will be about USD 376.6bn, an increase of 21 percent.
- Import volume from the EU will be about USD 206.4bn, an increase of 22.5 percent.

The report goes on to state that, given no unforeseen deterioration in the global economic fundamentals, wars or other major emergencies, it is expected that the bulk commodity futures prices will continue to rise in 2011. The CRB commodity futures index, which represents the bulk commodity futures, will fluctuate between 530 to 650 points with an average of 584 points, rising about 15.8 percent or so compared over 2010. In detail:

- West Texas Intermediate (WTI) crude oil futures prices are likely to fluctuate between USD 75 to 115 a barrel giving an average price of USD 90.
- Gold will fluctuate between USD 1250 to 1650 an ounce giving an average price of USD 1,380.
- LME copper futures will fluctuate between USD 7000 to 11,000 a ton, giving an average price of USD 8,666 a ton.
- CBOT futures of wheat, corn, soybean and other major agricultural products will rise in 2011, with an increase of about 18 percent to 24 percent compared with the year before.

In addition, demand growth will be slow in real estate, and demand growth of residential real estate will fall sharply; main demand growth will be in non-residential real estate, including office space and commercial business space.

In terms of industry growth, it is predicted that automotive, electronic appliance, non-ferrous metal, steel, coal and oil industry will lead the pack in 2011.

- Annual car sales in China will reach 20 million, an increase of around 11 percent.



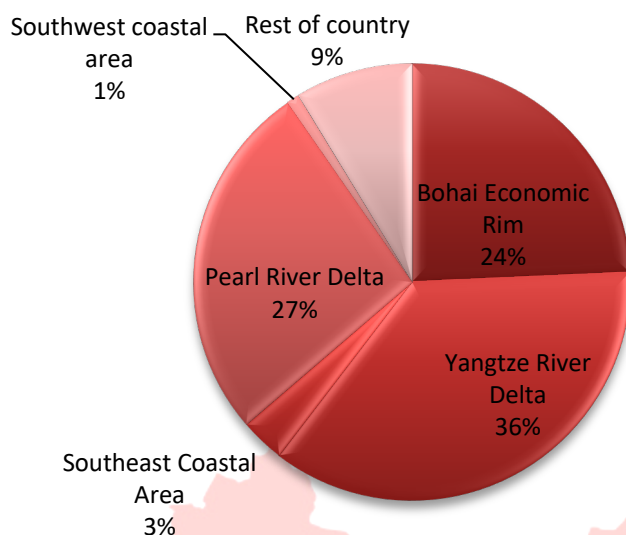
- Electronic appliance industry will boom in the first quarter of 2011, and sales of home appliances going into countryside and trade-in sales will continue rapid growth;
- Non-ferrous metal industry boom will continue through the end of the first quarter, and non-ferrous metal prices will remain high.
- Steel, oil and coal industry will maintain a downward trend during the first half of 2011, but will rebound in the second half as domestic growth grows.





The following figure illustrates the relative geographic distribution of national foreign trade by region by value in 2010.

### Proportion of Foreign Trade by Value 2010 (%)



Source: National Bureau of Statistics of China

#### 6.1.3 Foreign Trade in Decomposition

In bilateral trade with major trading partners between January to November, China-EU bilateral trade value reached USD 433.88bn, up 33.1 percent. Sino-US trade over the same period amounted to USD 346.89bn, an increase of 30.2 percent.

Bilateral trade with Japan amounted to USD 267.79bn, up 31.7 percent. Of this figure, exports from Japan reached USD 109.11bn, up 24.9 percent, with imports from Japan reaching USD 158.68bn, up 36.9 percent; leaving a trade deficit of USD 49.57bn, an increase of 73.6 percent.

Meanwhile, bilateral trade between China and ASEAN totalled USD 263.01bn, an increase of 40.6 percent. Of this figure, exports reached USD 124.45bn to ASEAN, an increase of 33.6 percent; imports from ASEAN reached USD 138.56bn, up 47.5 percent; leaving a trade deficit of USD 14.11bn U.S. dollars, a staggering 17 fold increase.

The figures also show that from January to November, Guangdong's import and export value reached USD 705bn, an increase of 30 percent.



In the same period, Jiangsu, Shanghai and Beijing reached an import-export value of USD 421bn, USD 333bn and USD 270bn respectively, up 38.8 percent, 35 percent and 41.8 percent.

In addition, Zhejiang, Shandong and Fujian import and export value reached USD 229.5bn, 170.54bn and 97.33bn respectively, up 36.3 percent, 36.6 percent and 36.8 percent.

In addition, from January to November in central and western regions saw significant growth in foreign trade, with import and export value reaching USD 6.63bn in Gansu, a growth rate double that of the national average.

Tibet, Yunnan and Jiangxi, import and export value reached USD 6.9bn, 12.1bn and 18.59bn respectively, up 94 percent, 78.5 percent and 67.1, well above the national average growth rates.

In terms of export commodities, from January to November, China's export of electromechanical products reached USD 842.74bn, up 32.7 percent over the same period; accounting for 59.2 percent of total exports. Exports of electrical and electronic products reached USD 350.8bn, up 31 percent; machinery and equipment exports reached USD 279.59bn, an increase of 33 percent.

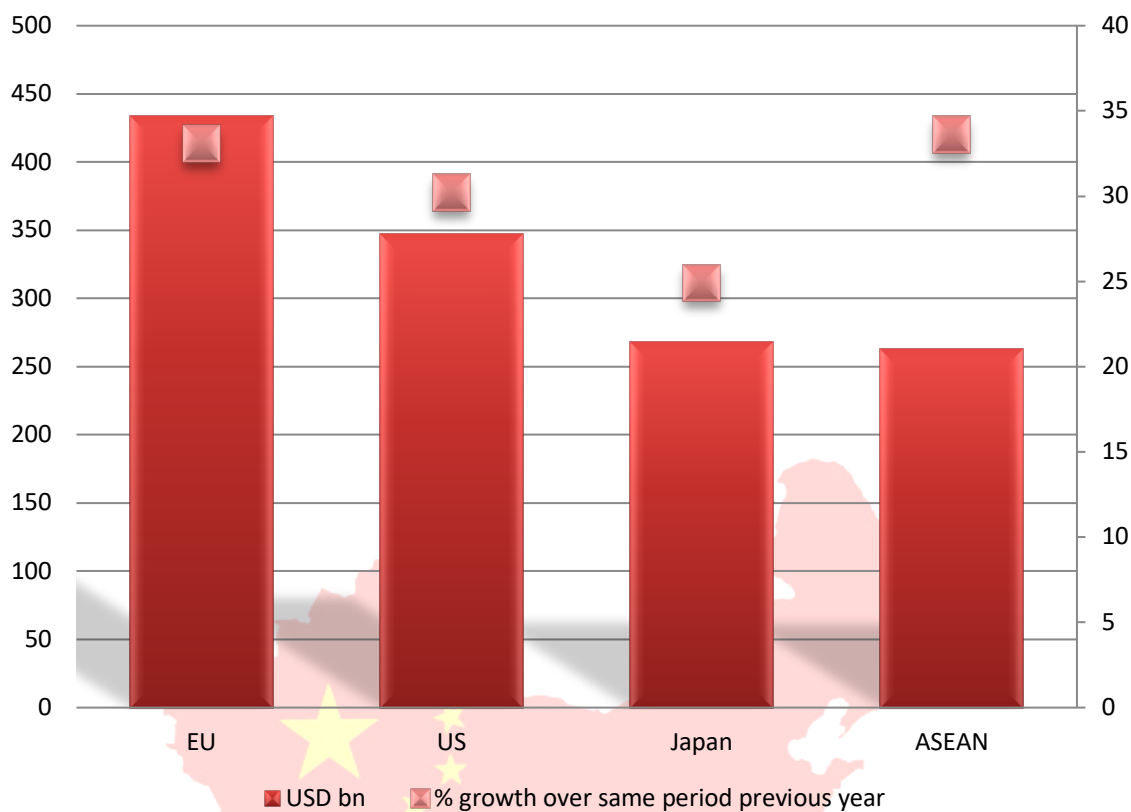
The same period, clothing exports reached USD 116.94bn, up 21.2 percent year on year; textile yarn, fabrics and products exports reached USD 69.68bn, up 29.6 percent; shoe exports reached USD 322.1bn, an increase of 27.8 percent.

From January to November China imported 560 million tons of iron ore, down 0.9 percent, at an average import price of USD 126.4 per tonne, up 59.7 percent; imports of plastics in primary forms reached 21.66 million tons, an increase of 0.2 percent, at an average import price of USD 1,814 per ton, up 25.8 percent; steel imports reached 15.02 million tons, down 7 percent, at an average import price of USD 1,220 per tonne, up 11 percent.

Over the same period, imports of soybeans reached 49.37 million tons, an increase of 30.7 percent, at an average import price USD 449.4 per tonne, up 2.3 percent. In addition, imports of machinery and electronic products reached USD 596.88bn, up 36.6 percent; over the same period 725,000 cars were imported.



## Bilateral trade value with China

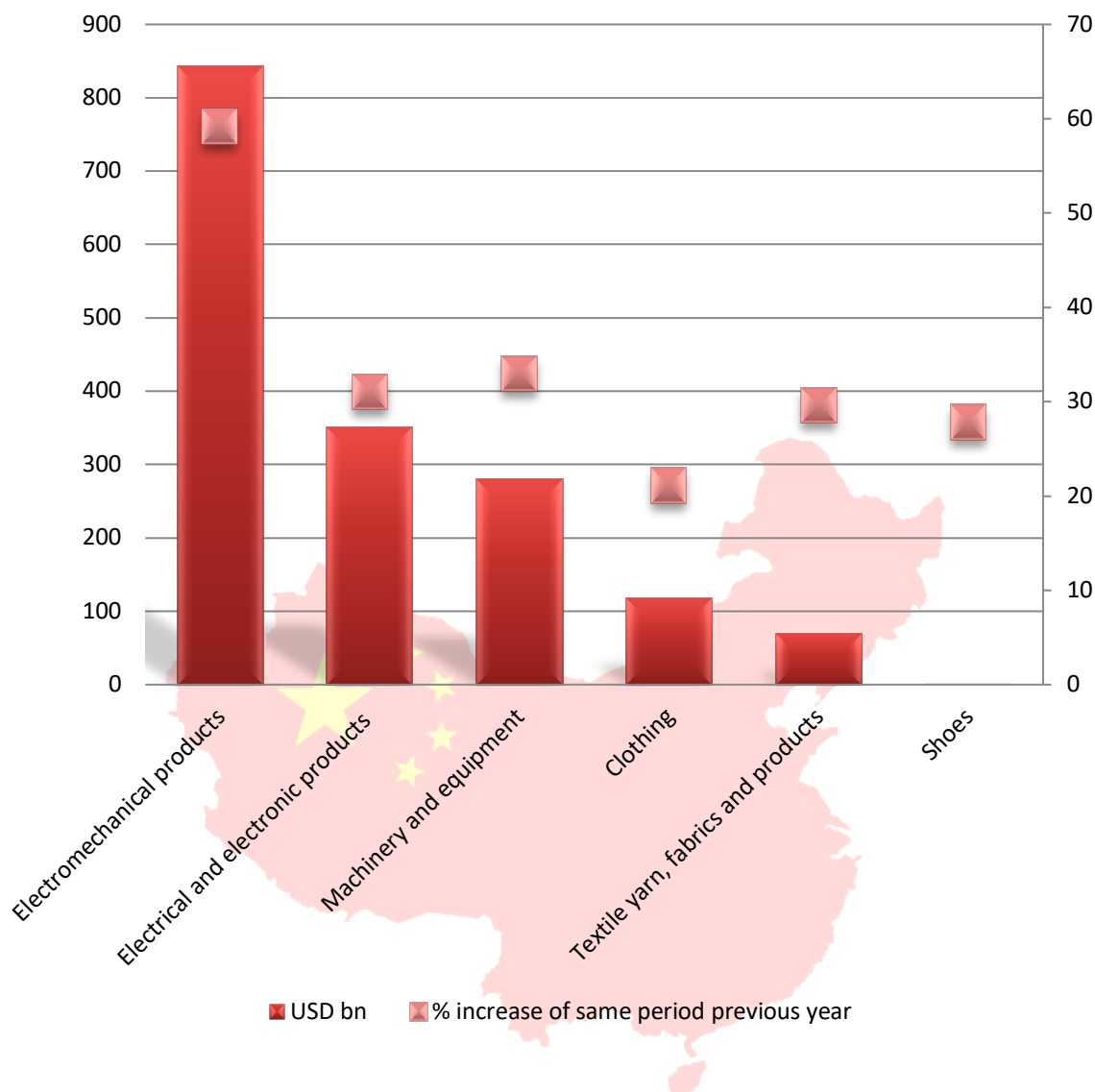


	USD bn	% growth over same period previous year
EU	433.8	33.1
US	346.89	30.2
Japan	267.79	24.9
ASEAN	263.01	33.6

Source: General Administration of Customs



## National exports by category Jan-Nov 2010



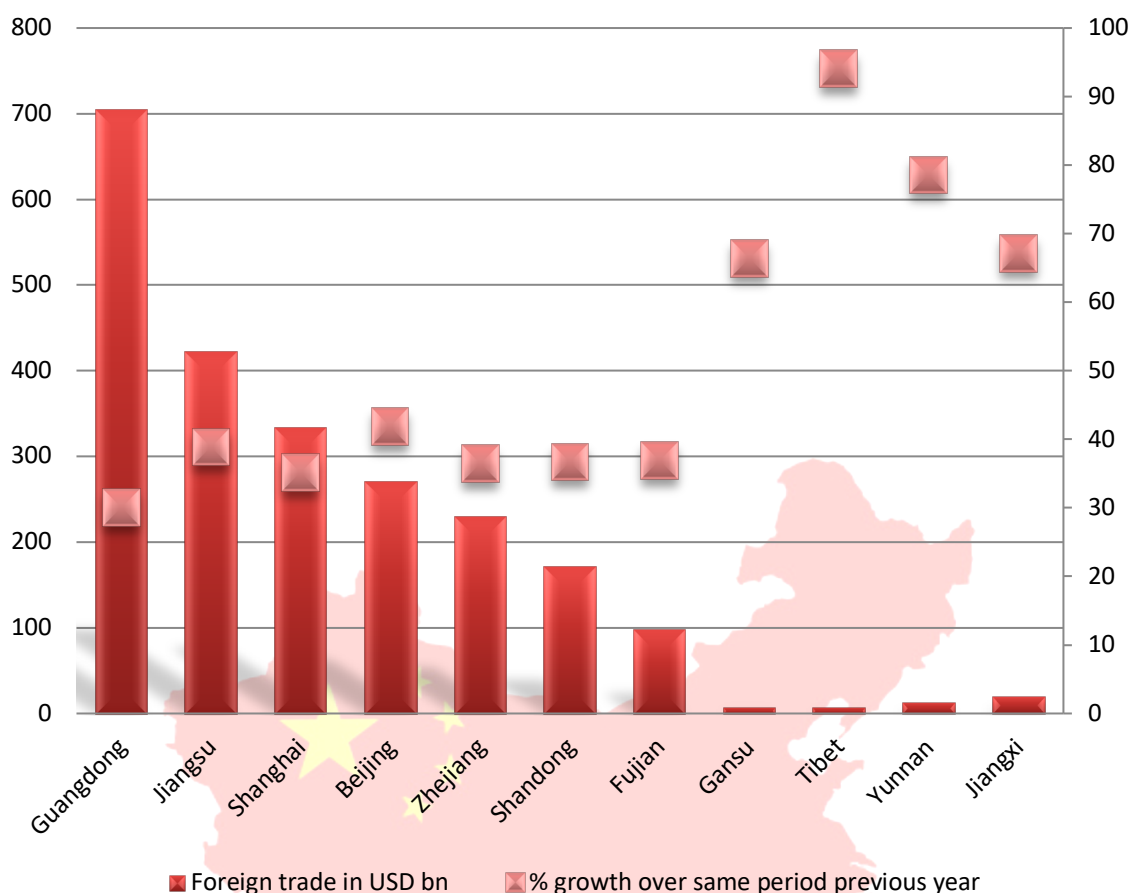
	USDbn	% increase of same period previous year
Electromechanical products	842.74	59.2
Electrical and electronic products	350.8	31
Machinery and equipment	279.59	33
Clothing	116.94	21.1
Textile yarn, fabrics and products	69.68	29.6
Shoes	322.1	27.8

Source: General Administration of Customs





## Provincial Foreign Trade Jan-Nov 2010

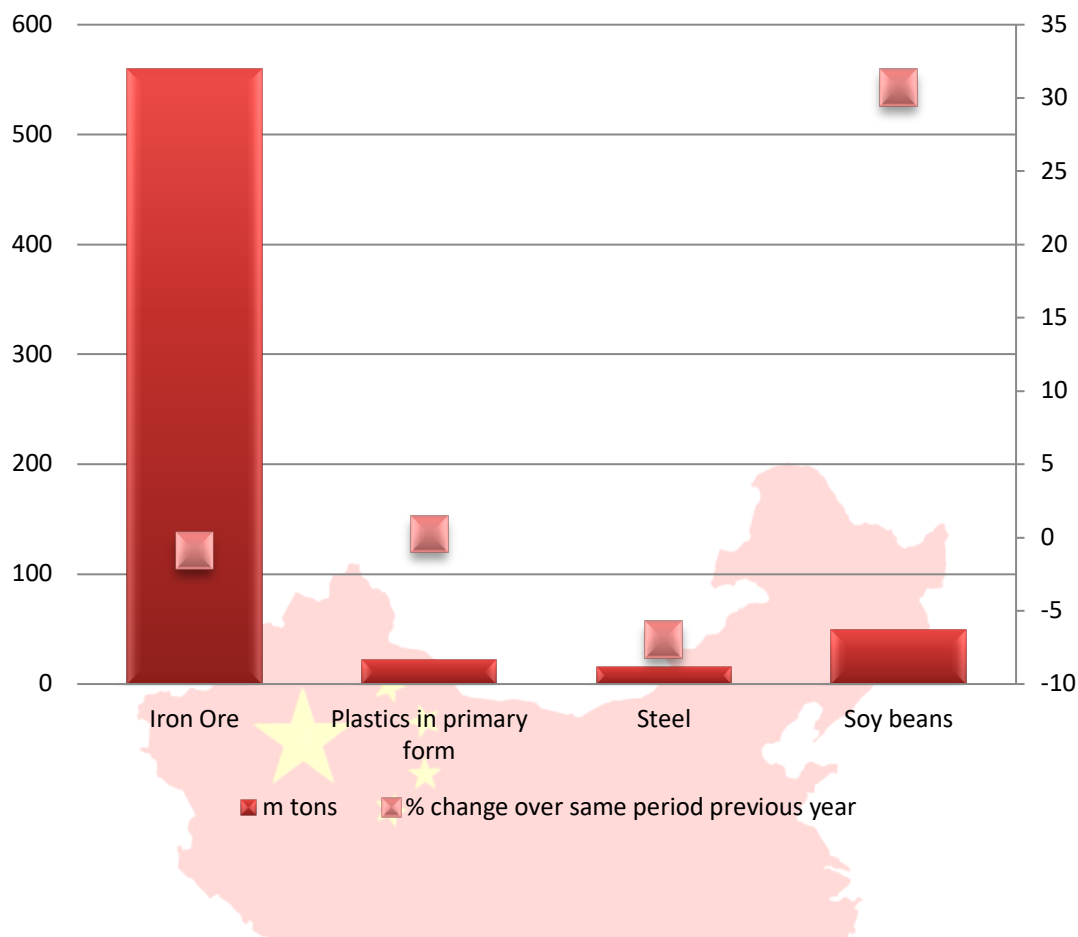


	Foreign trade in USD bn	% growth over same period previous year
Guangdong	704.9	30
Jiangsu	421.8	38.8
Shanghai	333.3	35
Beijing	270.3	41.8
Zhejiang	229.5	36.3
Shandong	170.5	36.6
Fujian	97.33	36.8
Gansu	6.63	66.3
Tibet	6.9	94
Yunnan	12.1	78.5
Jiangxi	18.59	67.1

Source: General Administration of Customs



## Imports by category Jan-Nov 2010



Imported Goods	m tons	% change over same period previous year
Iron Ore	560	-0.9
Plastics in primary form	21.66	0.2
Steel	15.02	-7
Soy beans	49.37	30.7

Source: General Administration of Customs



## 6.2 Major Coastal Overview

### 6.2.1 Development in 2010

Buoyed by global stimulus spending and a nascent economic recovery global shipping business was resurgent in 2010, with a corresponding feedback into the China port sector. Port throughputs soared in 2010 as the logistics industry in China scrambled to keep pace with rapidly expanding trade. Driven by growing port sector activity, the port logistics sector entered a period of restructuring and upgrading.

Latest data from the Ministry of Transport indicates that container throughput at China's coastal ports reached 1.8 times its 2005 volume, with 4 new ports joining the 100m ton club, bringing China's total to 22.

As of 2010, 12 of the top 20 container ports and 9 of the top 20 100m+ ton ports were in China.

According to the Ministry of Transport the latest statistics show that in 2010, above-scale port cargo throughput reached 8.02bn tons with container throughput reaching a staggering 145m TEU, an increase of 15 and 18.8 percent respectively. At present, China's coastal port cargo throughput, container throughput, throughput of coal and iron ore import volume rank first in the world. As of the end of 2010, China possessed 22 100m ton ports; more than any other country - including Shanghai, Ningbo-Zhoushan, Qinhuangdao, Dalian, Shenzhen, Guangzhou, Tianjin and Qingdao. Despite this, China has ambitious plans to grow this number considerably in under the current Five Year-Plan.

Under the plan, ports aiming to gain access to this exclusive club include Taizhou, Wenzhou and Yangzhou hope to reach 100m tons by the end of this year. In addition to this, Xuzhou and Jingjiang plan to be hot on their heels with their targets set for 2013 and 2015 respectively.

In the Bohai Bay region, Dandong port throughput is expected to reach 150m tons in 2015. In the Southeast coastal region Quanzhou hopes to follow Xiamen Port to become Fujian Province's second and third 100m ton ports in coming years. Integration of Ningde and Fuzhou, to be achieved in 2012, will create the provinces first. Shantou Port aims to join the club by 2015.

As has been widely observed, the crisis brought with it the darkest days the shipping industry has seen since the dawn of the opening and reform era. However, the sector seems to have seized the initiative to use the slowdown to make wide scale structural adjustments in the management to the operation of port logistics, paving the way for a smooth expansion into a new period of port growth.



## 6.2.2 Yangtze River Delta

In 2010, the annual cargo throughput of Shanghai Port exceeded 600m tons, ranking first in the world for the fourth consecutive year.

With the accelerated pace of port construction along the Yangtze River in 2010, homogenization of business service environment has become a primary focus for the next stage of development in preparation for development of the Shanghai International Shipping Centre.

In addition to this, greater emphasis is being placed on upgrading and improvement of shipping services. Measures to this end include greater integration of Ningbo and Jiangsu's port infrastructure as well as streamlining procedures for moving transfer cargo through Shanghai port.

Added to this, Jiangsu and Zhejiang Provinces have made extensive efforts to integrate Shanghai Port into their infrastructure networks through development and integration of road, rail and air networks.

In addition to this, many see the paucity of capital market risk management services and supplementary shipping services as the weakest link in the development of SISC. With this identified, local governments are strongly encouraging the development of these sectors in YRD cities to offer assistance to the SISC project.

In respect to development of the SISC, shipping services and risk management of capital market is the development of Shanghai international shipping centre is a weak link in the Yangtze River Delta.

## 6.2.3 Pearl River Delta

In 2010, Pearl River Delta's Guangzhou Port reached a cargo throughput exceeding 400m tons, ranking just behind Shanghai and Ningbo - Zhoushan.

Over the past couple of decades, Guangdong's pre-eminent position as the nation's leading industrial production base has driven the emergence of a vibrant port industry in the Pearl River Delta; from the large scale ports at Guangzhou, Shenzhen, Hong Kong, Zhuhai to medium scale ports in Humen, Zhanjiang, Shantou as well as a host of smaller scale ports throughout the region. This density of port concentration is being used to drive the regional integration of the surrounding region to spur industrial growth and drive productive forces further inland bringing low cost rents and labour pools online. The main spur of this drive is known as the Pan-PRD and Greater PRD development programs.

Although this integration progressed slowly, by most standards in 2010, optimizing infrastructure connections between the ports in the region and the hinterland will be a driving force behind development of the region's



port industry under the incoming 11<sup>th</sup> Five-Year Plan. This development pattern should ensure continued growth in the region's port industry for the foreseeable future.

Meanwhile, river port resources integration efforts are increasing to achieve the advance and retreat, complementary development. Development of ports in Hubei Province is accelerating with increased integration of eastern Hubei's Jingjiang Port with the shipping hubs of the Three Gorges, Wuhan New Port and other major ports on the Yangtze River mainline.

#### **6.2.4 Bohai Bay**

Data for 2010 indicates that ports in the Bohai region, on aggregate grew quicker than the national average. This growth was in large part driven by Tangshan port where throughput 224m tons; an increase of 42 percent.

The region's port performance has been resurgent in recent years, initially driven by resource commodities, with Qingdao and Dalian among the largest oil processing facilities in the country. Likewise, the region's proximity to northern China and the northwest have long the Bohai bay ports the primary dispatch point for coal transfer to southern provinces. China's northwest, the traditional home of much of China's heavy industry, has also driven port throughputs in terms of iron ore.

However, in recent years there has been much effort to entice manufacturing back to the region – in part to boost the economy of the region, in part to allow manufacturing industries to take advantage of lower cost labour pools and rents as prices rise in the south of the country.

These efforts have gone hand in hand with infrastructure development in the region to build the container handling capacity necessary to handle the foreign trade driving this manufacturing base. To this end in recent years the Bohai bay ports have seen soaring TEU throughputs, particularly at Tianjin, Qingdao, Yingkou, Lianyungang and Dalian. The likely outlook for container growth in the region will see throughputs continue to grow at a rate faster than that of the PRD and the YRD largely because of its lower starting base and cheaper industrial costs.

In general, GDP in the region is growing faster than the rate in the other two major port regions, which indicates that as consumer tastes develop, container throughput in the region will likely be further driven by rising domestic consumption.



## 6.3 Outlook for 2011

### 6.3.1 Foreign Trade Growth Estimates for 2011

China's foreign trade is expected to maintain steady growth in 2011, but growth will fall compared with 2010. Overall, imports will fare better than exports, and trade surplus will be essentially flat with 2010. It is predicted that China's total imports and exports will be about USD 3.6091 trillion in 2011, an increase of 21.4 percent compared with the year before; export volume will be about USD 1.8935 trillion, an increase of 20 percent compared with the year before; import volume will be about USD 1.7156 trillion, an increase of 23 percent compared with the year before.

China's imports and exports to the United States are expected to maintain steady growth in 2011, but growth will fall compared with 2010; growth rate of imports and exports to the United States will be slightly lower than the total growth throughout the country. China's total import and export value to the United States is expected to be about USD 464.5bn in 2011, an increase of 20.5 percent compared with the year before; export volume will be about USD 340bn, an increase of 20 percent compared with the year before; import volume will be about USD 124.5bn, an increase of 22 percent compared with the year before.

China's imports and exports to the EU are expected to maintain steady growth in 2011, but growth will fall compared with 2010; the growth rate of imports and exports to the EU will be slightly lower than the total growth throughout the country. China's total imports and exports to the EU are expected to be about USD 584.7bn, an increase of 21.9 percent compared with the year before; export volume will be about USD 376.6bn, an increase of 21 percent compared with the year before; import volume will be about USD 201.8bn, an increase of 23.5 percent compared with the year before.

In 2011, China's import and export situation is likely to be confronted with certain degree of uncertainty.

The following aspects should be particularly concerned about the impact on the import and export:

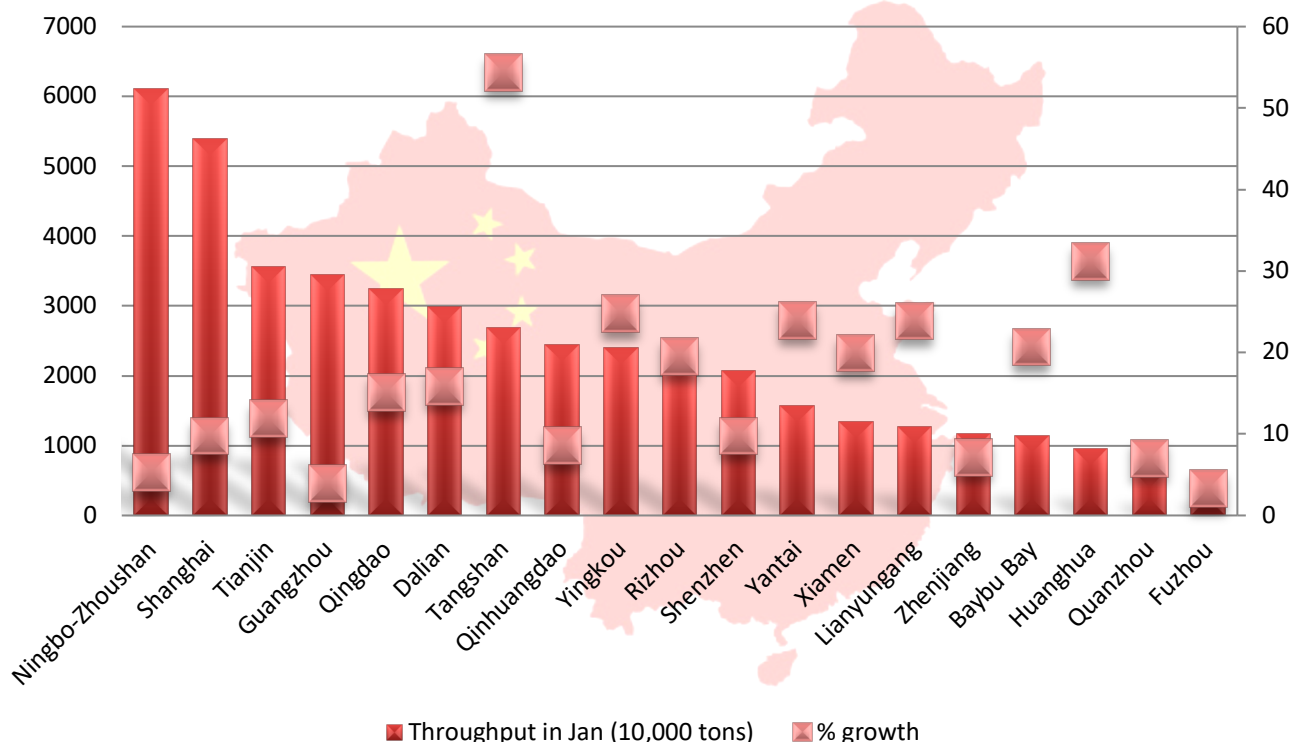
- The world economy as a whole will be in a moderate growth phase in 2011, due to the withdrawal of large-scale economic stimulus packages; this is likely to create some risk.
- World economic growth in 2011 will be lower than 2010, around 4.2 percent, which will affect China's exports in 2011.
- China's GDP growth will remain relatively high in 2011, with the growth rate of around 9.8 percent; business planning in "The 12th Five Year Plan" addresses the market expansion of both domestic demand and import; implementation of import promotion policies will effectively drive the development of China's imports.



- In 2010, China's import prices were high, while export prices recovered slowly, and trading conditions showed marked deterioration.
- In 2011, international bulk commodity prices will face greater rising pressure, and the trend for import prices is likely to continue, while China's terms of trade may continue to deteriorate, which would have direct and indirect effects on the trade surplus.
- Pressure of RMB appreciation and the impact of import and export trade frictions should not be ignored.
- Overall, there will be more opportunities than challenges in China's import and export development.

### 6.3.2 January 2011

#### Port throughput January 2011

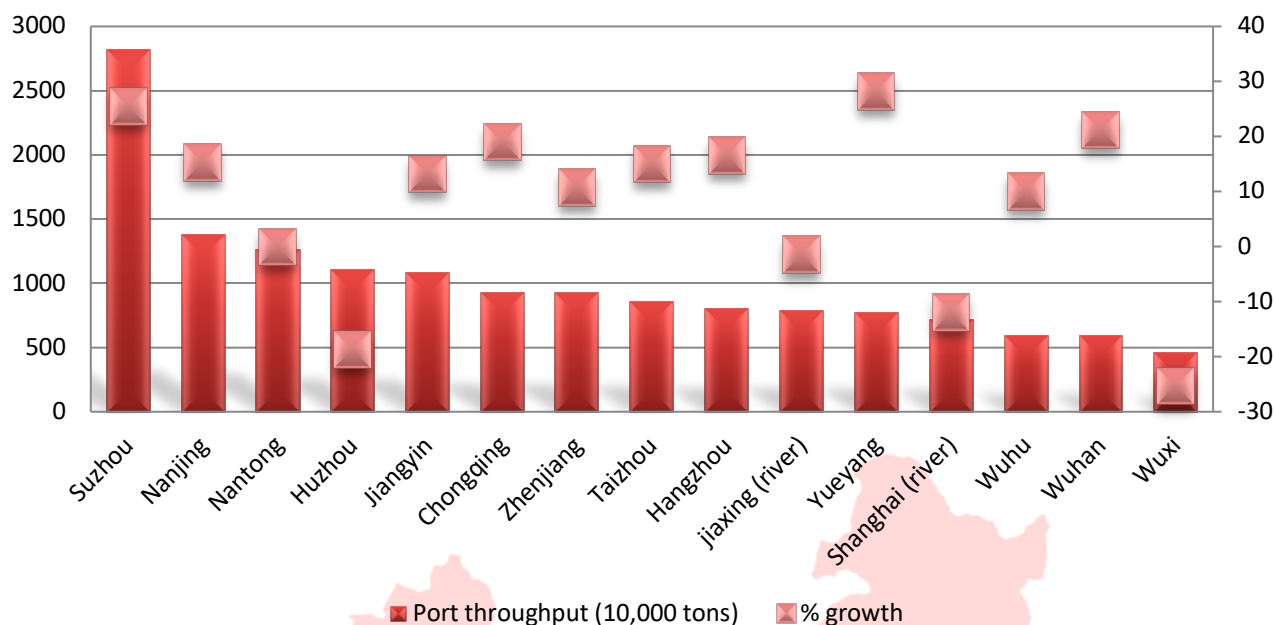


According to statistics from the General Administration of Customs, the China port sector made a strong start in 2011. Based on January's figure the port industry looks set to reach a new record high this year in terms of production and transport.

In January, ports above designated size, completed a cargo throughput of 736m tons, an increase of 13.3 percent. Coastal ports completed 514m tons; while river ports reached a throughput of 222m tons.



## IWW port throughput Jan 2011



Source: Ministry of Transport (for more detailed datasets please consult the appendix)

Rapid economic growth drove strong demand for bulk commodities before the New Year celebrations with iron ore, coal, crude oil grain, and other categories all surging. Container throughput, although strong before Spring Festival, were less impressive in terms of performance compared to the bulk sector.

In terms of domestic and foreign trade growth went hand in hand, up 13.2 and 13.5 percent respectively; marking the first time since last May that foreign growth exceeded domestic. Winter heating and the formation of energy reserves before the holiday helped drive demand; especially in the north where coal and iron ore were at a record high, boosting cargo throughputs in the region.

In January, continuing to lead the country were China's 100m ton ports. Yingkou, Yantai, Rizhao, Lianyungang, Xiamen, Beibu Bay, Suzhou and other ports maintained growth rate between 20-30 percent; through substantial growth in coal and iron ore, Tangshan Port growth rate reached as high as 54.3 percent, exceeding the average growth rate 3 times; Ningbo-Zhoushan and Shanghai both exceeded 60m tons of cargo throughput leading the pack.





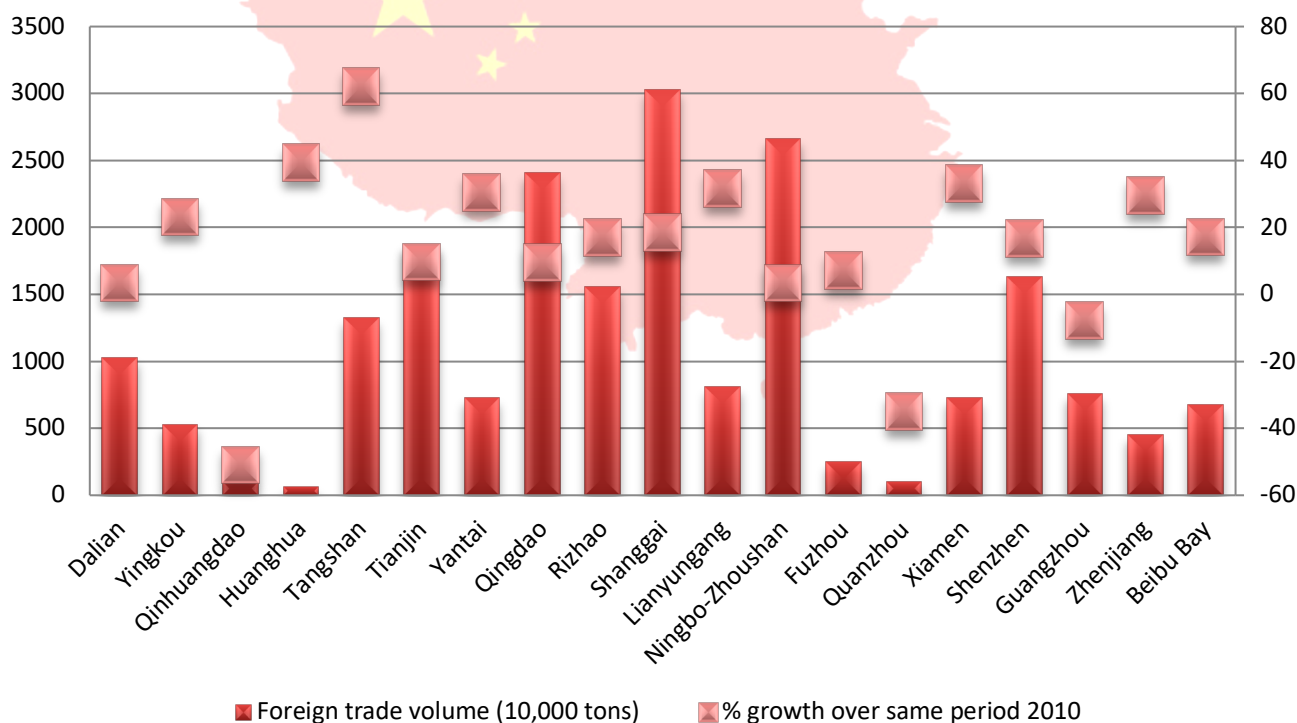
### 6.3.2.1 Strong growth of imports

In January, above designated scale ports completed 237m tons of foreign trade cargo throughput, an increase of 13.5 percent; coastal ports completed of 220m tons, with river ports completing 17m tons. Of this figure foreign trade cargo throughput exceeded the average growth rate; in particular imports. Customs data show that gross foreign trade imports in January rose 51 percent over the same period the previous, exceeding export growth of 13.3 percentage points.

Bulk of foreign trade growth was primarily focused on iron ore, steel, crude oil and food. China's January iron ore imports reached 68.97m tons, up 47.9 percent; 10.9m tons above the previous monthly surge, reaching record highs. However, steel ore price rises after the Chinese New Year may see this trend stabilise.

Last year, China's auto production and sales both exceeded 18m. Affected by the substantial overall growth in oil, crude oil imports in January this year reached 21.8m tons, an increase of 27.5 percent; refined oil reached 3.85m tons, an increase of 15.5 percent.

#### Foreign trade throughput coastal ports Jan 2011



Source: Ministry of Transport

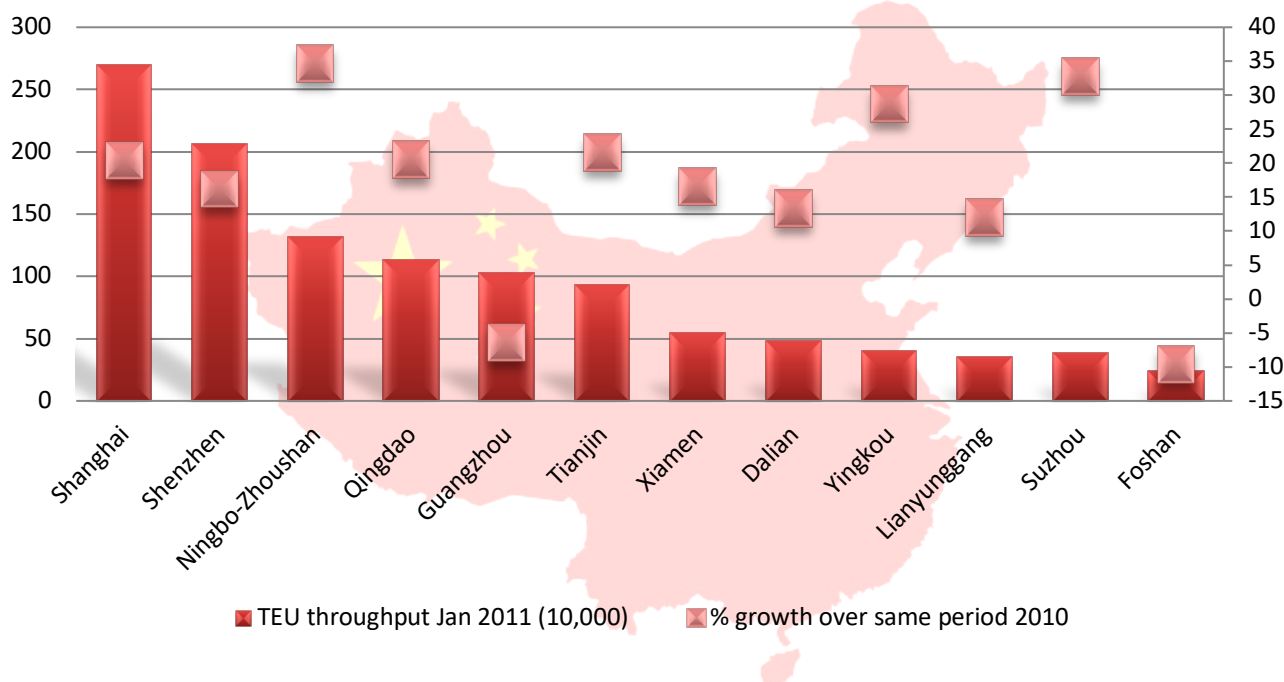


With the impact of steadily rising domestic food prices, the state increased the intensity of foreign food imports. In January, soybean imports reached 5.14m tons, an increase of 26 percent.

Benefiting from the rising flow of foreign trade the container sector saw strong growth. In January, Yingkou, Yantai, Lianyungang, Xiamen, Zhanjiang port throughput exceeded 30 percent, with Tangshan recording a record growth figure of 62 percent. Shanghai, however, with 30.25m tons of foreign trade port cargo throughput ranks the country first.

### 6.3.3 Expected growth in container throughput

#### Coastal container throughput Jan 2011



Source: Ministry of Transport

In January, port container throughput reached 13.505m TEU, up 17.6 percent. Coastal ports completed 12,219,000 TEU, river ports 1,286,000 TEU.

As the year began, the long plagued U.S. economy witnessed unemployment rates declined, and the debt crisis of major European countries also showed signs of improvement. Coupled to this, growth in emerging economies remained strong indicating the global economy is gradually warming.



According to customs statistics, in January China's foreign trade increased by 37.7 percent, to 34.9 percent, a growth rate exceeding market expectations. Primary drivers for this trend are the appreciation of the RMB which has driven domestic consumer demand and state promotion of imports to address trade imbalances.

In line with the traditional pre-Chinese New Year mini-peak, monthly container throughput broke the previous 2010 end of year record of over 13m by 280,000 TEU. This figure also greatly exceeded market expectations. The main emergent trend in the January figure is a rebalancing of port throughputs between north and south.

In January, some of the major container port continued to maintain rapid growth, including Qingdao, Tianjin, Yingkou, and Suzhou with growth rates above 20 percent; Ningbo-Zhoushan reached as high as 34.6 percent. Shanghai Port container throughput for the first time exceeded 2.7m TEU.





## 6.4 Future Development Trends

### 6.4.1 Dry Port Pairing

A new development trend in the port sector in recent years has been the coupling of inland 'dry ports' with coastal partners. One example of this is the pairing of Tianjin Port with Xi'an International Port District.

Tianjin Port in north China – also commonly referred to as Beijing's Gateway to the Sea - is the largest comprehensive port in the region, with an economic hinterland radiating inland to cover some 500m square kilometres – almost half of China's total land area. Illustrating Tianjin's importance to the region roughly 70 percent of all cargo throughput and 50 percent of the value of import and export at the port originates outside the province of Tianjin.

At present, Xi'an's International Port District represents more than RMB 200bn in investment in construction projects on land area closely integrated with trade and logistics industries to simulate port function. The International Port District, one of the largest modern integrated logistics park and bonded logistics centres in the country, relies on Xi'an's railway container centre and rail transport customs clearance to link the city to the sea through Tianjin Port.

The development of this dry port 'twinning' project is designed to promote development of inland provinces, with the export oriented economic development model at its core. It also enhances the economic hinterland of coastal ports with these inland dry port links radiating out to the regional economy. Up to now, Beijing, Tianjin, Shanxi, Shandong, Henan, Hebei, Inner Mongolia, Ningxia, Xinjiang provinces have joined the project creating a network of 16 inland dry ports.

In 2011 and beyond, integration of port resources, expanded logistics services, will become salient features of port industry development.

After a massive period of investment and construction, China's current port capacity has effectively reached a supply-demand equilibrium with the foreign trade demand, with some pointing to possible overcapacity issues in the not too distant future. Whilst development of the China port sector has doubtless been impressive, the global financial crisis did expose the sector's over-reliance on external demand.

In light of this, the government is currently working on projects to stimulate the domestic demand and work with global shippers to develop 'Nationally Branded baskets of products' that will appeal to China's emerging middle class.



Another major development in the China port sector is the emergence of China in the international port financing arena. In mid-2010, the announcement of the acquisition of shares by Shanghai in the Zeebrugge terminal in Belgium marked the first step in this international strategy.

Meanwhile, the port enterprises are also actively expanding the port's logistics services to promote rail transport, River-Sea transport development, the promotion of inland dry port construction, dry-port to sea-port logistics systems.

Port industry in the future will not only earn money through cargo handling, but also through the extension of industrial chain and value-added services. As for example, in Shanghai Waigaoqiao's six terminals have not only introduced roll on roll off, but have also expanded services to include spare part distribution, testing and maintenance functions; exemplifying a transition many ports are keen to make, from a traditional port model, to a moder port services concept of development.

#### **6.4.2 Continued Growth of River Ports**

In 2010, growth of river ports in general outstripped growth of coastal ports illustrating the trend toward IWW-coastal port transfer cargo, a trend likely to continue for the foreseeable future.





## 7 Bulk Cargo Operations

Dry bulk cargo continues to dominate in terms of China's port logistics, comprising greater than 60 percent of China's total port cargo throughput. 2010 saw rising growth in port throughput as the domestic demand for commodities continued to grow driven by China's ongoing competitive advantage in the manufacturing sector. Coupled to the port throughput growth there was also an accompanying growth in port efficiency.

January to November, witnessed a foreign trade throughput growth of 14.8 percent over the previous year, accelerating by 6.8 percentage points. The domestic growth rate as high as 16.7 percent, 1.9 percentage points higher than foreign trade, foreign trade growth rate of the previous year, almost equal.

As the global recession lifted and the effects of RMB 4 trillion of stimulus spending gradually realised, China's economy began to accelerate. In the first three quarters of 2010, GDP grew 11.9, 11.1 and 9.6 percent. As the government attempts to apply macro-economic measures to head off the spectre of inflation port throughput growth is expected to cool to more sustainable levels.

An indicator of economic activity, electricity consumption increased by 30.5 percent year on year, with some energy-intensive industry production hitting record highs. Coal and iron ore demand was particularly strong, coupled with a low base in 2009, in the first half of 2010 growth in port cargo throughput reached 19.1 percent; 23.2 percent in Q1.

A vigorous economic development situation in H2 led the government to adopt micro-economic fine tuning restricting the operation of energy intensive industries; leading to a contraction in demand for coal, iron ore and other bulk cargo commodities.

In detail, in Q3, total port cargo throughput growth began to decline significantly - especially after the introduction of key energy-saving and emission reduction measures in September - leading to growth rate as low as 8.7 percent - the lowest level for 16 months. Coal throughput resumed growth in October however as the winter approached, with cargo throughput growth rebounding strongly in November to 21.3 percent - second highest monthly growth rate in 2010.

High growth in recent years at a number of the ports continued, remaining strong in 2010; ports including Yingkou, Tangshan, Yantai, Rizhao, Nanjing, Suzhou, Jiangyin continued to see double digit growth with some significantly higher than the national average port growth rate.

Predictions at present estimate fluctuation in the global economy will continue into 2011, although the U.S. economy is already witnessing improvement in a number of key indices; and the debt crisis in Europe also showed mild signs of improvement. Recently, the World Bank issued mildly optimistic estimates, calculating



the global economy grew 3.9 percent in 2010; expecting it will continue to grow 3.3 percent in 2011 and 3.6 percent in 2012. In addition to this, the Central Economic Work Conference Committee has recently downgraded its estimates for GDP growth in China to 8 percent.

Given these conditions, port production is likely to maintain a relatively steady growth rate, with cargo throughput growth expected to remain at around - although almost certainly slightly lower than - 10 percent.

According to customs statistics, China's iron ore imports in 2010 was 6.19m tons, down 1.48 percent over the previous year, the first decrease in 12 years.

2010, January to November, China imported a total of 148mn tons of coal, representing a growth of 35 percent over the same period the previous year.

In 2009, imports of coal and iron ore represented the backbone of foreign import growth; reaching 41.9 percent and 250 percent respectively. Growth rates in both these sectors fell dramatically in 2010, significantly affecting the overall growth of foreign trade imports.

Part of the reason for this decline is that during the international financial crisis, global commodity prices fell precipitously. In 2009 iron ore and coal prices dropped, reaching at their lowest rate USD 70 per ton, and USD 62 per ton respectively. This low price coupled with massive stimulus spending on the part of the Chinese government led to large growth in import volumes. In short, as global prices fell below domestic production rates China switched to imported commodities leading to huge growth.

In 2010 as the global economy recovered, international commodity prices rebounded; iron ore and coal prices rose to a high of USD 170 per ton, and USD 130 per ton, more than double the previous year.

As these business costs rose, some turned to domestic procurement of goods, others have been driven to increase overall production efficiency and promote energy conservation, leading to a cooling of commodity prices. Iron ore imports from April 2010 onwards for 6 consecutive months saw negative growth. Likewise, coal imports fell from 16m tons in January to 13.88m tons in November, a decrease of 16.7 percent.

Although iron ore and coal throughput growth slowed, this did not alter the trend of foreign trade cargo throughput overall. Due to crude oil and grain in particular, as well as the high growth of foreign trade container sector, leading to sharp growth in foreign trade overall. From January to November, China witnessed a foreign trade throughput growth of 14.8 percent over the previous year, accelerating by 6.8 percentage points.



In 2010, domestic trade growth reached as 16.7 percent, 1.9 percentage points higher than foreign trade percent, foreign trade growth rate of the previous year, almost equal.

In decomposition, coal, metal ores, crude oil, mineral construction materials, and steel remained the most important water transport goods occupying more than 60 percent of the total national cargo throughput. In this respect, national port throughputs remain closely linked to infrastructure and national investment.

According to estimates issued by the NDRC, as macro-economic policies take effect in 2011, and emphasis shifts from 'capital growth' to growth maintenance, restructuring, rebalancing, and management of inflation expectations' and national monetary policy shifts from 'moderately liberal' to 'normal' the erratic ups and downs of 2009/10 are likely to become a thing of the past as growth returns to 'normal' trends.

According to figures from the NDRC, coal throughput at major ports in the first 11 months of 2010 reached 511m tons, an increase of 23.1 percent. The NDRC predict this growth rate is unlikely to be maintained in the coming months largely due to:

- Coal shipments in 2010 has been a record high, compared with the base higher-than-expected in the coastal economic growth without the context of demand for coal can not be increased significantly.
- Overall coal growth will be limited by the changing structure of industry in China's major industrial regions. I.e. a shift from energy intensive low value manufacturing to higher value, less energy intensive industries.
- As West-East energy transmission projects gain speed, this will mitigate energy import dependency in eastern regions, limiting growth in coal consumption.
- The current Five Year-Plan will further increase mandatory emission reduction targets, thereby eliminating certain less energy efficient production processes. Overall, we are likely to witness a substantial reduction of the GDP:energy unit ratio in the very near future thereby shifting away from the linear GDP:energy growth model seen in recent years.

For these reasons, although high overall throughput volumes for coal will remain, the overall growth rate will reduce substantially settling somewhere between 5-10 percent.

As the global economy slumped in 2009, ore imports declined 1.48 percent. However, benefitting from a surge in domestic investment and the corresponding growth of domestic infrastructure projects, iron ore import volumes rebounded, but likely to remain within a limited range.



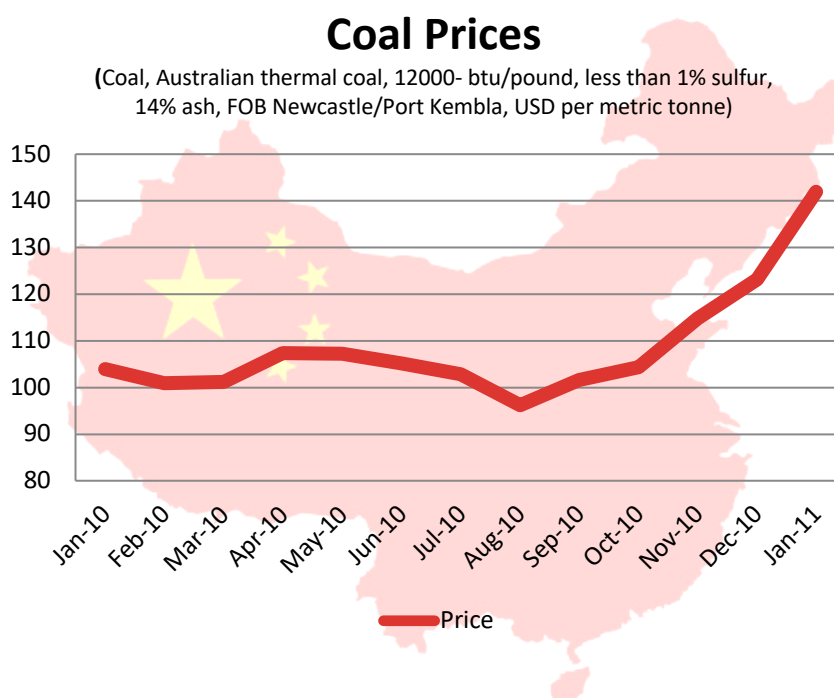


Crude steel output in 2010 reached a national record 620m tons, up 8.2 percent over the previous year; however this growth rate is down 5 percent from the previous year indicating that domestic production growth is approaching current potential capacity.

Spurred by the 2011 national target to create 10m new housing units, demand for steel will continue to rise.

## 8 Coal Transport

### 8.1.1 Review of Coal Throughput 2010



Source: IMF

In 2010, port throughput of coal reached 164.83m tons of coal in 2010, up 30.99 percent on the previous year and coal exports declined 15.03 percent for the same period to 19.03m tons, according to the NDRC. The NDRC confirmed that over the period, Indonesia was the largest coal exporter to China, followed by Australia, Vietnam, Mongolia and Russia. The five accounted for 84 percent of the nation's coal imports. At the same time, total coal transport on the rail system reached 1.4bn tons.

Citibank predict China's net coal imports, as a percentage of total coal utilization, will surge to 63 percent this year, or over 200m tons, due to the nation's strong demand and high dependence on coal as energy. Most



analysts now agree the strong surge in imports - partly prompted by a demand surge during the harsh winter months in the first quarter and large price differentials in the second - would set the tone for 2011.

Over the course of 2009, coal imports increased by almost 211 percent to 125.83m tons, according to statistics from the China National Energy Administration (NEA). Over the same period, China's coal exports fell 50.7 percent year-on-year to 22.4m tons according to statistics from the General Administration of Customs, with production up 12.7 percent to 2.96bn tons; making China a net importer of coal on an annualised basis (China's net coal import reached 103.43m tons in 2009).

The enormous surge in imported coal for 2009 was due in large part to slumping global prices which created an economic incentive for State power generators to switch to imported coal as the price fell below that of domestic production – in the second half of 2009 imported coal prices fell to RMB 100 below that of domestic production rates. For this reason, coal import growth in 2010 grew slower than 2009.

- **The seven loading ports in the northern coast are** Qinhuangdao, Tangshan, Tianjin, Huanghua, Qingdao, Rizhao, and Lianyungang.
- **Unloading berths in southern coastal ports include** Nanjing, Zhenjiang, Nantong, Suzhou, Shanghai, Ningbo, Zhoushan, Taizhou, Wenzhou, Fuzhou, Xiamen, Shantou, Shenzhen, Guangzhou, Zhuhai, Jiangmen, Beihai, Qingzhou, and Haikou. Transport linking these northern and southern ports has improved greatly in recent years.
- **Despite significant advances in 2010, coal transport still mired by logistical problems.** Though China's overall coal production capacity remains high, logistical weaknesses prevent the country from maximizing its potential. The high cost of transporting coal from the mines of north-central China to the areas of greatest demand along the coast has forced the country to rely on imports to fulfil its needs. Investment in rail infrastructure may go a long way to ameliorate these issues in the coming years.

## 8.2 Throughput Capacity and Demand Analysis on Coal Ports

### 8.2.1 Performance and Development of Coal Terminals in China

Whilst China has many coal-rich regions, they are unevenly distributed across Shanxi, Inner Mongolia, Shaanxi, Ningxia, and other parts of inland northern China. Major coal consumption areas correlate with China's economic powerhouse provinces along the eastern and south-eastern coasts, prompting the need for efficient coal transport across large swathes of land. Coal terminal construction, once non-existent in China, has accelerated rapidly during the reform and opening era.



Qinhuangdao, China's first coal port, began in 1983 with a designed annual capacity of 10m tons; in 2008 alone China built five new loading berths adding a combined 60m tons of throughput capacity. Coal terminals at major coastal ports in North China have a total of 59 specialised loading berths and a total loading capacity of 545m tons. China's existing 14 coal terminals of 100,000 ton capacity and above are located at 6 ports with a combined loading capacity of 366m tons.





The table below illustrates coal berth throughput capacity as of 2010.

Port	Name of Berth	Main Use	Length of Berth (metre)	Capacity (10,000 ton class)	Throughput Capacity (10,000 ton)	Date Built
Qinghuangdao	Coal Phase III	specialised wharf	840	10	3000	1989
	Coal Phase IV	specialised wharf	N/A	10	4000	1997
	Coal Phase IV Construction Enlargement	specialised wharf	495	10	1500	2005
	Coal Phase V	specialised wharf	1187	15	5000	2006
Cangzhou	No. 203 berth	specialised wharf	840	10	3000	2004
Tianjin	No.4 Harbour Basin No. 32 –No. 34	specialised wharf	850	10	3000	2008
	South 9	specialised wharf	1110	20	4300	2002
	South 10	specialised wharf		20		2002
	Shenhua Coal Port	specialised wharf	890	15	4500	2006
Qindao	Qianwan Port Region	specialised wharf	566	10	1500	1995
	Qianwan Port Region	specialised wharf		10		1995
Rizhao	N/A	ore and coal	420	20	2300	1999
	N/A	specialised wharf	844	15	4500	1985
	N/A	specialised wharf		15		1985

*Source: CPHA and MOT*

### 8.2.2 Equilibrium Analysis on Coal Terminal Demand and Capacity

China's strategy of transporting coal rests on three major channels; the Shanxi Datong-Hebei-Qinhuangdao Line, the Shanxi Shenchhi-Hebei-Huanghua Line and the Jining-Caofeidian Line. In addition the Beijing-Hangzhou Grand Canal and some ports along the Yangtze River also play an important role in coal transport, with a total volume of over 40m tons.

By 2009 coal terminals at major coastal ports in North China had more than 60 specialised loading berths with a total loading capacity in excess of 500m tons. Coal terminals of 100,000 tons and above at the major seven ports in North China achieved a total loading capacity of 366m tons, able to meet the requirements laid out in the '11<sup>th</sup> Five-Year Plan'; the major seven ports in North China—Qinhuangdao, Tangshan, Tianjin, Huanghua, Qingdao, Rizhao, and Lianyungang—are expected to achieve a loading capacity of 527m tons by the end of the current Five-Year Plan period.

China's major ongoing coal terminal project is at the Tangshan Caofeidian Coal Terminal. When finished, the terminal will consist of 16 coal berths for 50,000 to 100,000 ton vessels with an annual loading capacity of 200m tons. The project, valued at RMB 1.5bn, is to become a key centre for north-to-south coal transport after construction.

In addition, the Shenhua Group has invested in a Phase 2 Coal Terminal project at the Tianjin Nanjiang Port Region with a projected annual throughput capacity of 35m tons. Once completed, the terminal will be able to dispatch 80m tons each year.

## 8.3 Port Analysis

### 8.3.1 Guangzhou

Guangdong Province is not only the traditional industrial manufacturing heartland of China, it is also one of its most energy dependant regions; home to many energy intensive industries. With no exploited coal reserves in the region, Guangdong is heavily reliant on seaborne domestic coal transmission and international imports. As the region continues to grow, so must its coal consumption.

Of Guangdong's annual coal consumption, some 80-85 percent is transmitted by sea, with Guangzhou port the main point of disembarkation, handling upwards of 60 percent of this volume. In recent year, a growing proportion of this volume has been accounted for through international imports.



Due to this, Guangzhou is southern China's largest coal transport and distribution hub feeding a vast hinterland that encompasses Sichuan, Chongqing, Guizhou and Yunnan in Southwest China; Hunan in Central China; and Fujian and Jiangxi to the East. For this reason Guangzhou's coal throughput is very much seen as an economic barometer for the economy as a whole.

In 2010, monthly coal throughput at the port remained relatively stable fluctuating roughly between 3.5 and 4m tons. Within this dynamo there has been a growing trend for the coal to be used within Guangdong itself, and in Guangzhou in particular. Added to this, within this overall volume structure, international imports have formed an increasingly large share of the total.

In general, over the year, coal prices in southern China have some degree of fluctuation. With January, April, May, September and October representing relative peaks. Other months tended to exert downward pressure on prices. This is in part explained by higher than expected domestic coal contracts in the summer leading to better managed reserves during the summer peak. Also, increased rainfall in the summer months buoyed hydro-power generating capacity in the southwest.

In 2010, international imports of coal at Guangzhou port came primarily from Indonesia, the Philippines, Vietnam, Australia, Russia, the United States, South Africa, Colombia, and Canada. In 2011, imports from these countries will further increase in volume. However, overall increase in demand will be less than the corresponding growth in GDP, foreign trade, and imported coal will fall as a proportion of overall throughput.

### 8.3.2 Qinhuangdao

Qinhuangdao is by far China's largest coal port. In 2010 the port completed a throughput of 251m tons, an increase of 8.5 percent; of this figure 224 tons was coal, representing an increase of 17.6 percent.

The Datong-Qinhuangdao Railway electrification project, 400m tons in annual the design capacity, provides 55 percent of the total movement of coal in Qinhuangdao Port, greatly accelerated coal transport in the region.

The 12 Five-Year Plan list Qinhuangdao as a key port for the focus of development in coming years. As part of this development the government has released plans to list the port on the stock market.

Coal throughput capacity growth is expected to reach 6m tons this year, bringing the total design capacity 230m tons by 2012.

Qinhuangdao's importance as a coal port became evident during the snowstorms that hit south China in early 2008. During the first week in February the port successfully loaded a total of 7.29m tons, a period in which nearly 10,000 trucks were unloaded daily.



In recent years the port has seen a substantial upgrading of coal loading and unloading efficiency, enabling it to handle unusual pressures such as the Sichuan earthquake and the Beijing Olympics as well as the usual spike in power consumption during the summer, and winter months.

To improve the efficiency, Qinhuangdao has integrated its dispatch centre and office facilities, enhancing information management and general work group management. In addition, in 2010 the port implemented a system accelerating ship drainage, significantly affecting many aspects of overall efficiency. Road infrastructure leading to the port and the port hinterland have also been significantly upgraded as well as the transport network infrastructure efficiency within the port, reducing the wait time for vehicles within the port and the distance between berth and vehicle loading facilities.

Since the beginning of 2010, these increases in overall efficiency and integration of landside transport infrastructure have led the port to reach a record number of single day turnarounds for ships at port.

In 2010, Qinhuangdao Port has implemented a long term coal berth rental system enhancing efficiency of bulk supply.

In addition to this, the port has undertaken bridge construction projects, upgrading of facilities at a large number of berths, and renovated conveyor belts to operate at higher speeds. The port has also embarked on a series of projects designed to reduce energy consumption at the port and carbon emissions.

### 8.3.3 Tianjin

In 2010, Tianjin completed a throughput of 66m tons of coal shipments, an increase of around 12.4m tons.

Tianjin Port in 2010 transit of coal by train into the port accounted for 64.4 percent, 35.5 percent truck.

Tianjin port has a total of 16 coal loading and unloading berths, and an annual handling capacity of 85m tons of coal.

Located in Nanjiang port region, consisting of Berths 7-10, the Shenhua Coal Terminal is partly invested by the Shenhua Group. Tianjin Shenhua Coal Terminal Phase I, has a design capacity of 35m tons a year.

Completed in 2009 the new facility added 10m tons of capacity bringing the Nanjiang's coal capacity to 45m tons.

### 8.3.4 Cangzhou-Huanghua

Last year, Huanghua Port, through cooperation with Shenhua Coal Group, implemented a large scale program to rationalise and maximise efficiency at the port bringing completed coal throughput at the port to 90m tons.



Furthermore, the National Development and Reform Commission officially approved the Huanghua Port Phase III Construction Project. The project will oversee development of four new 50,000-ton coal loading berths, with corresponding water and land facilities, with an expected throughput capacity of 50m tons. After completion, subsequent improvement of rail infrastructure, road network projects and overall upgrading of the coal supply chain logistics network system capacity is expected to bring Huanghua Port coal throughput capacity to 150m tons.

### 8.3.5 Tangshan Port

Analysing the rapid development of Tangshan Port, it is important to separate the port between Kailuan Coal Terminal, the old Jingtang Port, the national Jingtang port region and the national Caofeidian Coal Terminal.

In 2010, completed coal throughput at Laojingtang Port reached 15m tons; Jingtang Port Region reached 35.5m; Caofeidian reached 41m tons.

According to plans in 2011 Laojingtang, will reach 20m tons; Jingtang will reach 40m tons; and Caofeidian 60m.

### 8.3.6 Rizhao

In the first nine months of 2010, coal throughput reached 19.942m tons of coal, primarily consisting of imports; export volume was 7.872 million tons.

A natural deep water harbour in the north, Rizhao Port was designed as a specialized terminal for coal; but its iron ore throughput is increasing year by year, making coal a declining share of business. However, with infrastructure improvements in recent years coal throughput is likely to grow quickly in coming years.

Rizhao Port is currently investing in construction projects for a specialized coke wharf; the project includes construction of a 50,000 and 70,000-ton berth with a designed annual capacity 7.3m tons. The new coke terminal will rely on the Rizhao-Shanxi railhead.





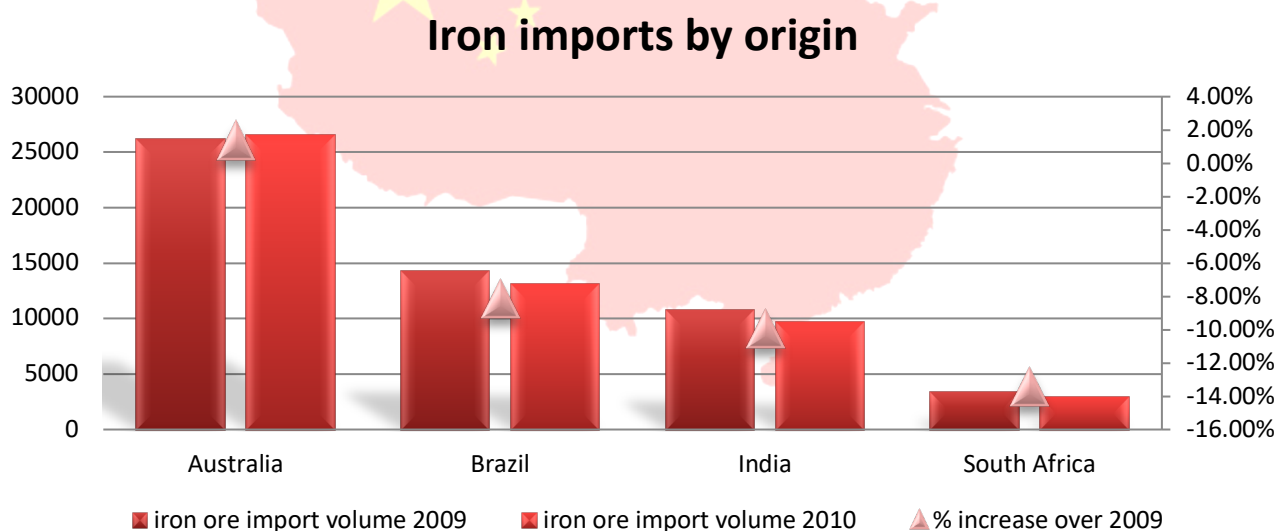
## 9 Iron Ore Transport

### 9.1 Overview of Iron Ore Transport 2010

In 2010, imports of iron ore reached 618m tons; a decrease of 1.48 percent – or 8.99m tons - compared to the 2009 figure of 627.6m tons. Responding to domestic investment, and the growth of infrastructure projects, iron ore imports rebounded sharply in 2009; however this surge was short lived, with 2010 marking the first decrease in net iron ore import volume in 12 years.

China consumes more iron ore than any other country in the world. Iron ore imports account for the majority of the country's foreign trade throughput volume, and is the second major category handled at ports after coal. Iron ore is mostly imported by super ore vessels which are typically transhipped or lightened at large ore terminals before arriving at steel mill wharfs. Certain types, such as India ore, are carried by vessels lighter than 100,000 tons. The study of iron ore import transport should focus on the capacity and operation of large ore terminals.

In 2010, Australia Brazil, India, South Africa accounted for more than 80 percent of China's imports.



The value of iron ore imports in 2010 reached USD 79bn, an average price of USD 128.4 a ton; and increase of around 60 percent over the previous year – in part explaining the 2010 decrease. Most believe growth will resume this year – however figures will remain moderate staying shy of double figures.

In 2011, China is set to commence work on 10m units of housing construction; corresponding demand for steel as steel supports, will rise with many believing that the nations demand for iron may rise by 20m tons. Given



the overall demand structure and a stabilisation in global iron ore prices, most believe growth in iron ore imports will resume this year – however figures will remain moderate staying shy of double figures.

Iron ore imports skyrocketed in 2009. Iron ore imports grew markedly in 2009, increasing more than 40 percent to 628m tons. Crude steel production likewise grew from 500m to 568m tons during the year. The growth numbers reflect the surge in infrastructure projects that commenced following the announcement of the government's fiscal stimulus package. Another key factor has been China's urbanisation process, as vast swathes of the rural population migrate into China's cities.

Following an analysis by The China Steel Industry Association, statistics revealed that nearly three-quarters of steel output from major companies derived from the Bohai Bay and Yangtze River regions. This indicates that iron ore terminals are unevenly distributed, causing potential logistical problems.

Iron ore importers have increasingly voiced concern over ports in the Bohai Bay region freezing during the winter. This pattern, exacerbated by unseasonably cool weather in the north of China in 2009 and 2010, led to a drop in iron ore imports during the first months of the year and raises further questions about regional distribution.

Import growth will prove a positive factor for private and foreign-owned firms. While State-owned companies continue to control the majority of iron ore imports at approximately 65 percent, imports from privately-owned and foreign-invested enterprises continued to climb in 2009/10. While government-owned companies imported around 400m tons during the year—an increase of 14.3 percent from 2008—imports from private firms nearly doubled while foreign-funded enterprises grew by 96 percent. Most analysts expect this trend to continue in 2010 and beyond.

New development and reconstruction of iron ore terminals has continued. In June 2008, Bao Steel announced the launch of a 10m ton manufacturing centre in Zhanjiang. The Phase I project involves an investment of RMB 69.6bn with a total capacity of 10m tons, whilst the long-term capacity goal is 20m tons—to equal that of Shanghai Bao Steel—and the total investment is to exceed RMB 100bn.

On August 3<sup>rd</sup> 2008 Jiangsu Rongsheng Heavy Industries signed an agreement with Brazil's largest mining company Companhia Vale do Rio Doce (CVRD) to provide 12 large-sized iron ore carriers (at approximately 400,000 tons) valued at USD 1.6bn with the goal of reducing average transport costs through large-sized vessel transport.

According to the agreement the first consignment of carriers will be delivered in 2011 with the rest due the following year. This deal is part of CVRD's USD 59bn investment plan through 2013. In August CVRD also signed an agreement with Dalian Port Group for port ore transport cooperation. This agreement compels Dalian Port



to provide CVRD with services including unloading, mixing, storage, and re-sorting. In the coming five years ore throughput at Dalian is expected to increase by 5m to 10m tons.

Due to adjustments in the steel plant distribution pattern, China plans to construct 12 super-large iron ore vessels with a capacity of 400,000 tons, which will in turn triggering new changes in the ore terminal distribution pattern.



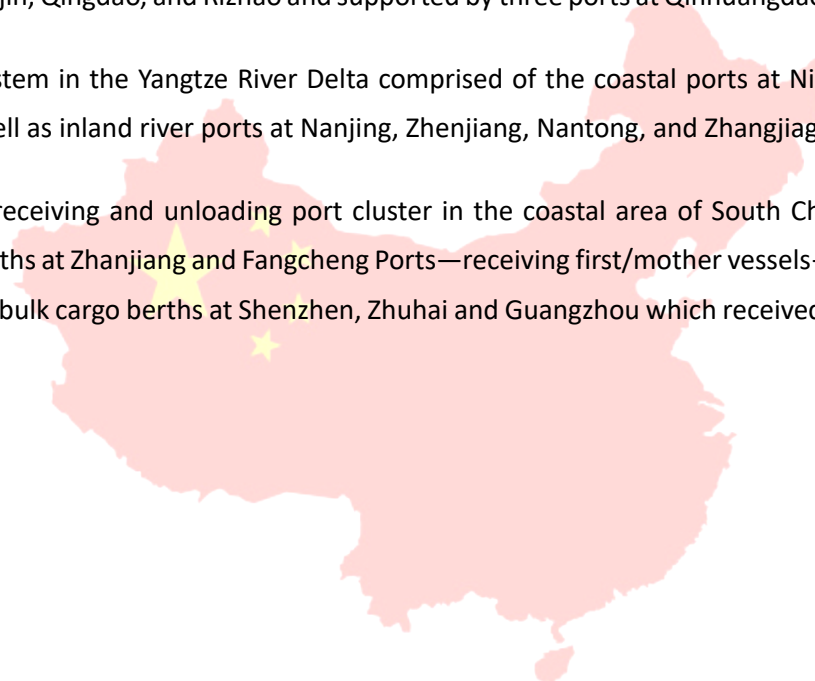


## 9.2 Throughput Capacity and Demand Analysis on Iron Ore Ports

### 9.2.1 Performance and Development of Iron Ore Terminals in China

The Beilun Ore Transshipment Terminal was the first modern 100,000 tonnage transshipment terminal in China. Begun in 1979 as the key support project for the Shanghai Baosteel Group, the terminal marked the prelude to the high-speed development of China's ore terminals upon its completion in 1982. By 2010, more than 35 berths of 100,000 tons or above have been built. Furthermore, an optimised port pattern for iron ore transport has been formed. This pattern consists of:

- a receiving and unloading port cluster in the Bohai Rim which includes six major ports at Dalian, Yingkou, Tangshan, Tianjin, Qingdao, and Rizhao and supported by three ports at Qinhuangdao, Yantai, and Jinzhou;
- a transport system in the Yangtze River Delta comprised of the coastal ports at Ningbo, Zhoushan, and Shanghai as well as inland river ports at Nanjing, Zhenjiang, Nantong, and Zhangjiagang
- an additional receiving and unloading port cluster in the coastal area of South China focussing on the specialised berths at Zhanjiang and Fangcheng Ports—receiving first/mother vessels—and complemented by the general bulk cargo berths at Shenzhen, Zhuhai and Guangzhou which received transhipped/second vessels.





The table below illustrate iron ore ports above 10,000 ton class (10,000 ton class included)

Port	Name of Berth	Main use	Depth of water	Length of berth	Capacity	Throughput Capacity	Built Date
Dalian	Dagushan Peninsula	ore specialized berth	-23	436	30	2300	2004
Dalian	Dagushan Peninsula	trans-shipment berth	-18.6	450	15		2006
Yingkou	Bayuquan No. 16	general bulk cargo berth	-15.5	340	20	195	2006
Yingkou	Bayuquan No. 17	general bulk cargo berth	-20	405	20	1200	2004
Yingkou	Bayuquan No. 26	general bulk cargo berth	-16	330	10	400	2002
Tangshan	Caofeidian No. 1	bulk ore specialized berth	-25	808	25	1500	2005
Tangshan	Caofeidian No. 2	bulk ore specialized berth	-25		25	1500	2005
Tianjin	Beijiang No. 25 No. 26	ore port	-19	466	10	600	1999
Tianjin	Nanjiang No. 11	general bulk cargo berth	-20.8	431	20	1400	2004
Tianjin	Nanjiang No. 12	bulk cargo berth	-20.8	375	20	1000	2006
Qingdao	No. 65	general ore berth	-14.1	300	10	1020	1993
Qingdao	No. 76	general ore berth	-21	420	20	2300	1999
Qingdao	No. 87	general ore berth	-14.1	315	15	800	2005
Rizhao	East No. 10	ore berth	-20.5	381	20	3500	2005
Rizhao	East No. 11.	ore berth	-24.5	391	30		2005
Qinhuangdao	No. 301	ore port	-17	409.66	20	2000	2003



<b>Yantai</b>	No. 63, 64	general bulk cargo berth	-16	209+209	20	680	2001
<b>Yantai</b>	No. 65, 66	general bulk cargo berth	-20	304+304	20		2007
<b>Ningbo</b>	Beilun ore No. 1	ore uploading berth	-18.2	351	10	3000	1982
<b>Ningbo</b>	Beilun ore No. 2	ore sand port	-20.5	360	20		1994
<b>Baoshan Steel</b>	No. 1,2	raw material port	-12.5	621	20	3720	1999
<b>Baoshan Steel</b>	No. 8,9	raw material port	-12.5	621	20	2200	1999
<b>Majishan</b>	Phase 1	ore uploading berth	-24.2	456	25	1000	2002
<b>Majishan</b>	Phase 2	ore uploading berth	-24.2	465	30	3000	2007
<b>Shanghai</b>	Luojin No. 1	ore uploading port	-12.5	770	20	2200	2007
<b>Shanghai</b>	Luojin No. 2	ore uploading port	-12.5		20		
<b>Lianyungang</b>	Miaoling Port Region No. 34	ore berth	-16.5	315	10	700	2004
<b>Nantong</b>	Langshan Phase 3	ore port	-15.2	710	10	1500	2006
<b>Nantong</b>	Langshan Phase 4	ore port	-15.2		10		2006
<b>Fangcheng</b>	No. 18	loading and uploading ore port	-19.5	462	20	1500	2007
<b>Zhanjiang</b>	Xiashan Port Region	ore port	-18.9	360	20	1500	2005
<b>Xiamen</b>	Haicang Port Region No. 7	general bulk cargo berth	-17.5	325	12	95	2007

Source: Compiled from CPHA and MOT Statistics



The above 34 ore terminals have a total berth-line of 13.12 km and an average length of about 386 metres per berth. These terminals have a designed aggregate throughput capacity of 370.9m tons and an average of 10.9m metres per berth. More specifically, the 18 ore berths at 8 ports in North China have a total terminal line of 7,284 metres (average 404 metres/berth) and a throughput capacity of 204m tons (average 10.3m tons/berth); the 13 ore berths at 5 ports in the Yangtze River Delta have a total terminal line of 4,692 metres (average 361 metres/berth) and a throughput capacity of 136m tons (average 10.46m tons/berth); the 3 ore berths at 3 ports in South China have a total terminal line of 1,147 metres (average 382 metres/berth) and a throughput capacity of 31m tons (average 10.3m tons/berth).

### 9.2.2 Equilibrium Analysis on Iron Ore Terminal Demand and Capacity

The gap between the quantity of iron ore imported and that processed by ports reflects the volume of iron ore transhipped by second vessels to steel mill wharfs, accounting for about 16.5 percent of total ore imports. This suggests that 100,000 tonnage ore terminals in China cannot fully serve large-scale vessels and that a large amount of imported ore must be handled at smaller terminals and transported by lighter vessels.

Additionally we can conclude that the gap between demand and supply at Chinese coastal ports remains relatively large.

In China imported iron ore is mainly transported by water, meaning that the geographic distribution of China's steel mills have an important influence on iron ore terminal layout. In order to determine whether the distribution of iron ore port terminals is optimised it is first necessary to consider whether the distribution pattern of ore terminals is matched with that of steel mills. China has around 1,200 steel companies, including 70 large and medium-sized steel companies. Thus far a basic pattern of domestic large-scale iron and steel groups have emerged. These include Anshan & Benxi Iron and Steel Group in north-eastern China, the New Shougang-Jingtang Steel Group and Hebei Iron & Steel Group in North China, Baosteel and Sha Gang Group in eastern China and the Wuhan Iron & Steel Group in central and south-western China. China's iron ore terminal distribution pattern should be in accordance with that of iron and steel companies.

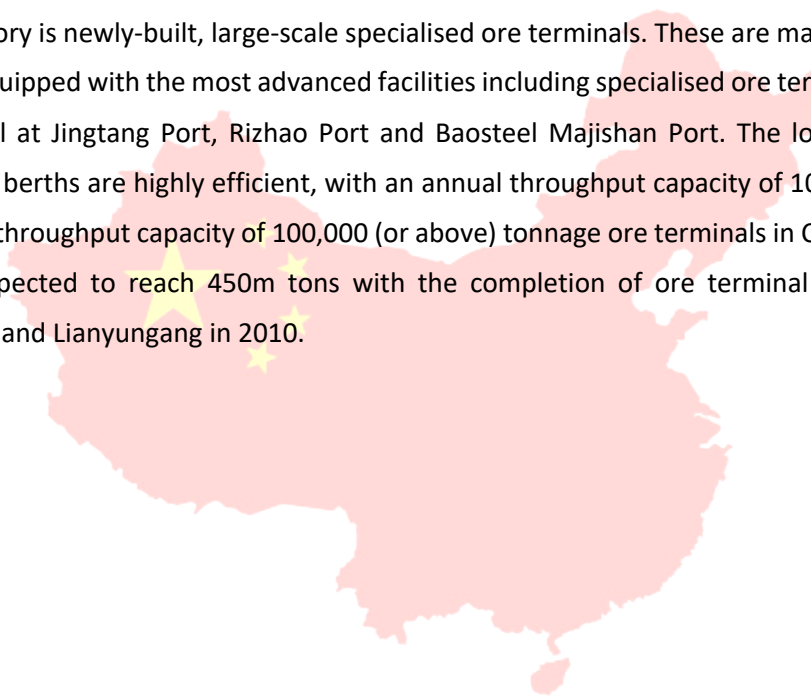
Northern Chinese ports receive and unload roughly two-thirds of China's iron ore imports, though super-scale ore terminals have a limited receiving capacity whereas ports farther south have an excess capacity, indicating a better equilibrium could be met. Within the Yangtze River Delta, ports handle roughly a quarter of China's iron ore imports, mainly at Ningbo-Zhoushan. Ports within the Pearl River Delta handle the remaining portion, though normally general ports rather than specialised terminals are used.



### 9.2.2.1 *The Modernisation Process of Iron Ore Terminals*

The process of modernising China's iron ore terminals over the past 27 years has led to the formation of two types of terminals: general bulk cargo, and specialised ore. As large-scale vessels are more and more popular for foreign trade ore transport, port and terminal operators began emphasising large-scale terminal development. General bulk cargo berths built before 2006 that are navigable for 100,000 tonnage vessels may berth large vessels with the approval of the Ministry of Transport. These terminals include the 64, 65, and 66 berths at Yantai Port as well as the 1, 2, and 8 berths at Baosteel Raw Material Terminal. Both berths have been approved as 200,000 tonnage berths. Because a single quay length is only around 220 metres—shorter than the length of a 100,000 tonnage vessel—operators can only connect two berths to anchor a 200,000 ton vessel to a 100,000 ton vessel.

An additional category is newly-built, large-scale specialised ore terminals. These are mainly 200,000 tonnage or above and are equipped with the most advanced facilities including specialised ore terminals at Dalian Port, Caofeidian Terminal at Jingtang Port, Rizhao Port and Baosteel Majishan Port. The loading and unloading operations at these berths are highly efficient, with an annual throughput capacity of 10m tons per berth. At present the annual throughput capacity of 100,000 (or above) tonnage ore terminals in China reaches 370.9m tons, a number expected to reach 450m tons with the completion of ore terminal projects at Taicang, Zhoushan, Liheng, and Lianyungang in 2010.







## 9.3 Port Analysis

### 9.3.1 Rizhao Port (Bohai Bay)

Iron ore has been the largest import by category at Rizhao Port since 2005, and throughput figures have grown considerably over the past year. In January 2010 iron ore imports at the port reached 11.1m tons, an increase of over 44 percent from the same month in 2009. Improvements at Rizhao Port include the October 2008 construction of a Phase II terminal of the ore terminal, including the successful trial run of a new heavy loading system capable of handling the loading operation of 70 large carriages simultaneously and containing a maximum unloading capacity of 9,000 tons an hour and a maximum loading capacity of 4,200 tons per hour.

### 9.3.2 Tangshan Port (Bohai Bay)

Tangshan Port processed 47.3m tons of iron ore imports in 2008, an increase of 34.5 percent year-on-year. Within Tangshan the Jingtang Port Region handled 16.43m while the Caofeidian Port Region—which consists of two ore berths with a combined annual capacity of more than 15m tons—handled 30.88m. Caofeidian Phase 2 will build two new 250,000 ton ore terminals with a planned capacity of 30m tons following the relocation of the Capital Steel ports to bring Tangshan's overall capacity to 60m once finished.

### 9.3.3 Ningbo-Zhoushan Port (YRD)

Ningbo-Zhoushan Port processed 72.25m tons of imported iron ore in 2008, an increase of 17.1 percent from 2007. Ningbo Port handled 40.72m of the total whilst Zhoushan the remaining 31.53. As is the situation across China, iron ore imports grew markedly in 2009, reaching a combined 140.88m tons. The throughput share for Ningbo and Zhoushan remained roughly equivalent. Of this amount Ningbo handled 40.72m whilst Zhoushan handled the remaining 31.53m.

### 9.3.4 Xiamen Port

Xiamen Port, the largest in Fujian Province, has become the largest ore material logistics centre in Asia, a trend that is likely to accelerate once the Haixi Steel and Ore Material Logistics Centre begins service. In addition, the Haicang Bonded Port Region will become the largest and most developed National Taiwanese Investment Zone on the Chinese mainland when finished; the area began construction in September 2008.

### 9.3.5 Tianjin Port (Bohai Bay)

Tianjin Port processed 57.86m tons of iron ore 2008, up 23.7 percent from 2007. In late 2008 Tianjin Port and the Hong Kong Yuanhang Group formed a joint-venture called Tianjin Port Yuanhang International Ore Terminal intended to establish, manage, and operate Tianjin Port's 300,000 ton specialised iron ore berth.



Endowed with a coastline of 400 metres, the berth has a planned annual throughput capacity of 23m tons and will be able to handle the loading and unloading operations of 300,000 ton iron ore carriers once completed. The project received an estimated total investment of RMB 2.94bn and is expected to be completed by the end of 2010.





## 10 Oil Products Transport

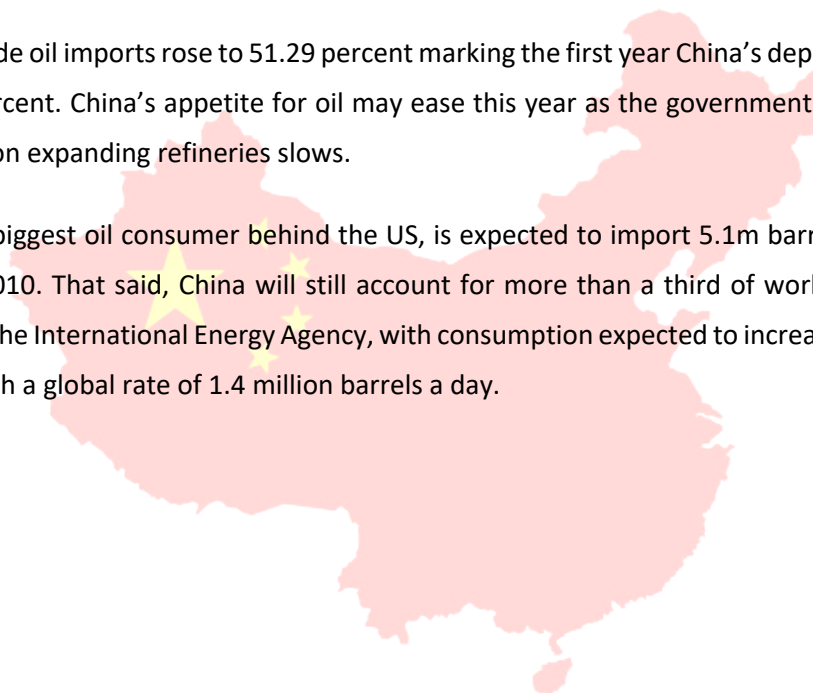
### 10.1 Key trends and features in oil transport

China dependence on imported oil deepened in 2010 as imports grew 17.5 percent reaching a record 4.79m barrels a day in December. However, growth is expected to slow to 10 percent as the economy shifts toward a more sustainable level of growth and new refineries come online.

China's oil demand hit record highs last year, with apparent oil demand rising 13.9 percent from a year earlier to a record high of 9.34m barrels per day in November. Real demand growth may mitigate in 2011 as stockpiles built since 2006 begin to fill improving capacity to cope with potential supply bottlenecks.

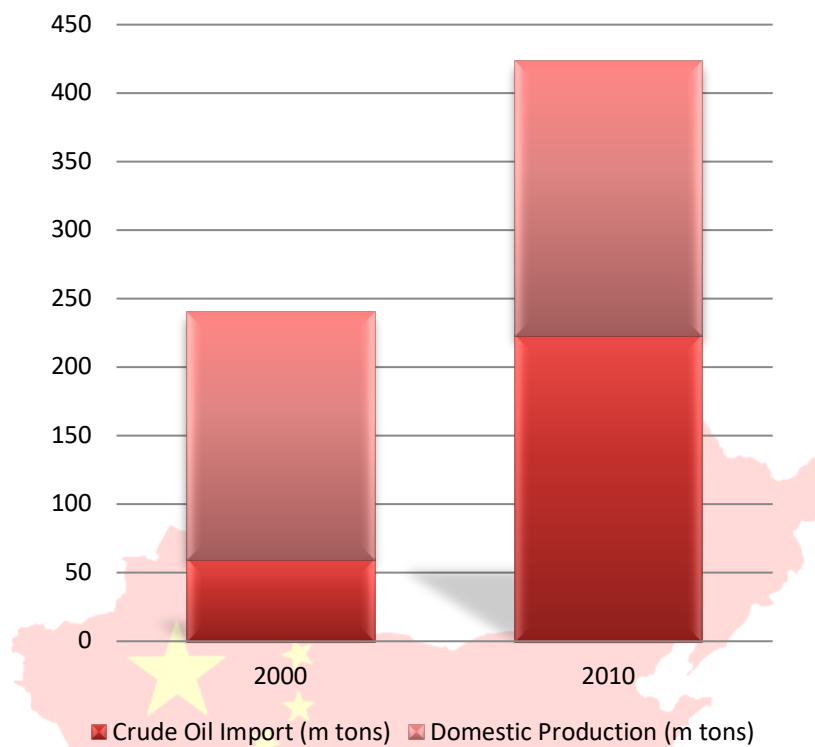
In 2009, China's crude oil imports rose to 51.29 percent marking the first year China's dependency on imported oil exceeded 50 percent. China's appetite for oil may ease this year as the government takes steps to tackle inflation and work on expanding refineries slows.

China, the world's biggest oil consumer behind the US, is expected to import 5.1m barrels a day in 2011, up 6.3 percent over 2010. That said, China will still account for more than a third of world demand growth in 2011, according to the International Energy Agency, with consumption expected to increase by 500,000 barrels a day compared with a global rate of 1.4 million barrels a day.





## Composition of Crude Oil Consumption 2000-2010



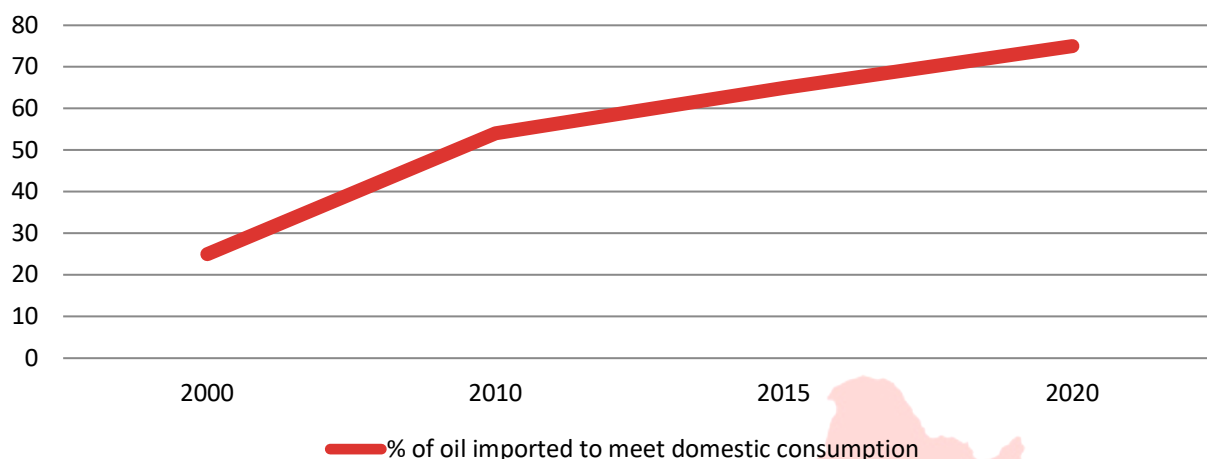
Due to the country's rapidly increasing demand, increased oil imports are likely to continue while the country steps up exploration and development of natural gas as a substitute.

Analysts believe that by 2020, nearly 65 percent of the oil consumed in China will have to be imported. China's oil dependency reached 45 percent in 2006 and has grown at two percent every year since then. The country first became a net importer of crude oil in 1993.



The following charts illustrate crude oil imports as a proportion of total oil consumption 2000 and 2010.

### % of oil imported to meet domestic consumption



Source: NBS

In 2010 China relied on three nations above all as sources of its imported oil—Saudi Arabia, Angola, and Iran. Beijing's increasing economic relations with the latter country has led to tension with countries like the United States.

## 10.2 Throughput Capacity and Demand Analysis of Oil Terminals

Before 1990 port construction in China was only intended to meet domestic oil transport needs, leading to the relatively small size of terminals; most were in the 30,000 tonnage to 50,000 tonnage range. Yet as the Chinese economy grew rapidly and a great number enjoyed vastly improved living standards, societal demand for oil maintained a rapid growth trend, prompting China to rapidly develop oil handling facilities.

While imports reached 70m tons by 2000, very few ports in China—namely Ningbo Suanshan, Zhoushan Aoshan, Huizhou and Maoming had large enough terminals to accommodate the needs of the country's petrochemical businesses. Thus since the dawn of the 21<sup>st</sup> century China has made a concerted effort to construct 300,000 tonnage terminals, greatly increasing capacity.

Large-scale oil terminals are evenly distributed across China's major economic regions with four unloading terminals in the Bohai Bay region (unloading capacity 80.8m tons), four unloading terminals in the Yangtze River Delta (unloading capacity 84m tons), and four unloading terminals in South China's Fujian, Guangdong, and Hainan Provinces with a combined unloading capacity of 54m tons.



### **10.2.1.1 Development of national oil reserve**

*The National Plan for Mineral Resources (2008-2015)* calls for China to increase reserves of oil, rare coal resources, and key mineral resources in an effort to secure a consistent energy supply. China's strategic oil reserve is estimated to have reached 145.9m barrels in 2010 with an eventual goal of 511.9m barrels. The plan also calls for better use of underground resources, including investigating the proper area for building large-scale underground oil reserve bases in the southeast of the country.

### **10.2.1 Equilibrium Analysis on Oil Terminal Demand & Capacity**

For the past several years China has accelerated construction of 200,000 tonnage crude oil terminals in an effort to meet rising demand. By and large, capacity now meets demand and the even distribution of the terminals throughout the coastal region attests to China's strong infrastructure in this aspect. In terms of second carriage transport, the loading and unloading volume in general doubles the import volume, and is handled at small oil terminals owned by oil distribution enterprises. Few of the 200,000 tonnage terminals in China are publically owned whilst many are exclusively for use of petrochemical companies.

In response the State Council approved the National Petroleum Reserve Centre in 2007. The Phase I project calls for the establishment of four national oil reserve bases located at Zhenhai and Zhoushan, Zhejiang Province; Huangdao, Shandong Province; and Dalian, Liaoning Province. Recently Zhenhai Base has begun operations with the others slated to begin soon. The Phase II project, the site selection for the strategic oil reserve bases, has been completed. The Phase III project, strategic oil reserve depots, is under planning.

The development of China's economy and national oil reserve bases calls for an annual increase in crude oil imports in order to meet the persistent demand growth rate of 10 to 15 percent. Several ports throughout China are reportedly building 300,000 tonnage terminals including Yingkou, Dalian, and Quanzhou Ports. In addition China presently plans to launch new projects at Zhoushan Aoshan, Ningbo Daxie, Qinzhou Port, and Zhuhai Gaolan. Once construction of these projects is completed terminal capacity is expected to meet demand needs for the foreseeable future.



## 10.3 Port Analysis

### 10.3.1 Ningbo-Zhoushan Port

Crude oil throughput at Ningbo-Zhoushan totalled 84.4m tons in 2008 before reaching 93.225m tons in 2009, an increase of 10.4 percent. These figures make it the largest crude oil port in the country. In 2009 the Sinochem-Xingzhong Oil Staging (Zhoushan) Co. completed construction of a 300,000 ton oil terminal which is now the largest in the country. The terminal has a planned capacity of 18m tons including a 15m ton unloading capacity.

### 10.3.2 Qingdao Port

Qingdao Port is the second-largest crude oil port in China having handled 33.23m tons in 2008, a figure that rose to 35.89m tons in 2009. A 300,000 ton crude oil terminal, in operation since the end of 2008, has a throughput capacity of 18m tons.

### 10.3.3 Dalian Port

Dalian is a vital oil and chemical port in North China as well as the transshipment centre for oil and liquid chemicals for all of Northeast Asia. In 2008 crude oil throughput at Dalian increased 19.8 percent to 27.42m tons, whilst the following year Dalian throughput climbed slightly to 28.3m.

### 10.3.4 Tianjin Port

No port experienced faster oil throughput growth in 2008 than Tianjin at 34.7 percent—a trend that continued well into 2009. A newly-established 300,000 ton crude oil terminal at the Nanjiang Port Region No. 30 indicates that further throughput growth at Tianjin is likely. The USD 1.3bn project was a joint-investment involving China PetroChemical Co. and Tianjin Port Group, established to support a national ethylene project.



Port	Ton Class (10,000 ton)	Throughput Capacity (10,000 ton)	Date Started Operation	Remarks
Dalian Dagushan	30(37.5)	2280	Sept 2004	berth 510 metres, water depth alongside 25 metres, efficiency 1200 cubic metres/hour
Tianjin	30	2000	Aug 2008	berth 468metres ,water depth alongside 25 metres
Qindao Huang Island oil loading	20	1700	1990	port length 498 metres, water depth alongside 21.3 metres
Qingdao	30(45)	1800	Dec 2008	port length 520 metres, water depth alongside 24 metres
Caofeidian	30(45)	2000	2008	crude oil accept and uploading capacity 12000 cubic metres/hour
Zhoushan Daishan	25	2500	1996	storage 1.58 million cubic metres
Zhoushan Cezi Island	30	2000	2006	port length 510m with investment RMB 730m
Ningbo Zhenhai Suanshan	25	2000	1994	port length 522 metres and water depth alongside is 22.5 metres
Ningbo Daxie Shihua	25	1900	2006	port length is 485m and water depth alongside 25metres storage tank 830,000 cubic metres
Huizhou Mabianzhou	30	1200	2007	port length 490 metres and storage 80,000 cubic metres
Guangdong Maomin	25	1200	1994	single point mooring and uploading system
Zhenjiang	30	1500	2002	port length 470 metres and water depth alongside 18.6 metres
Yangpu Port	30	1500	2007	uploading efficiency 9000 tons/hour



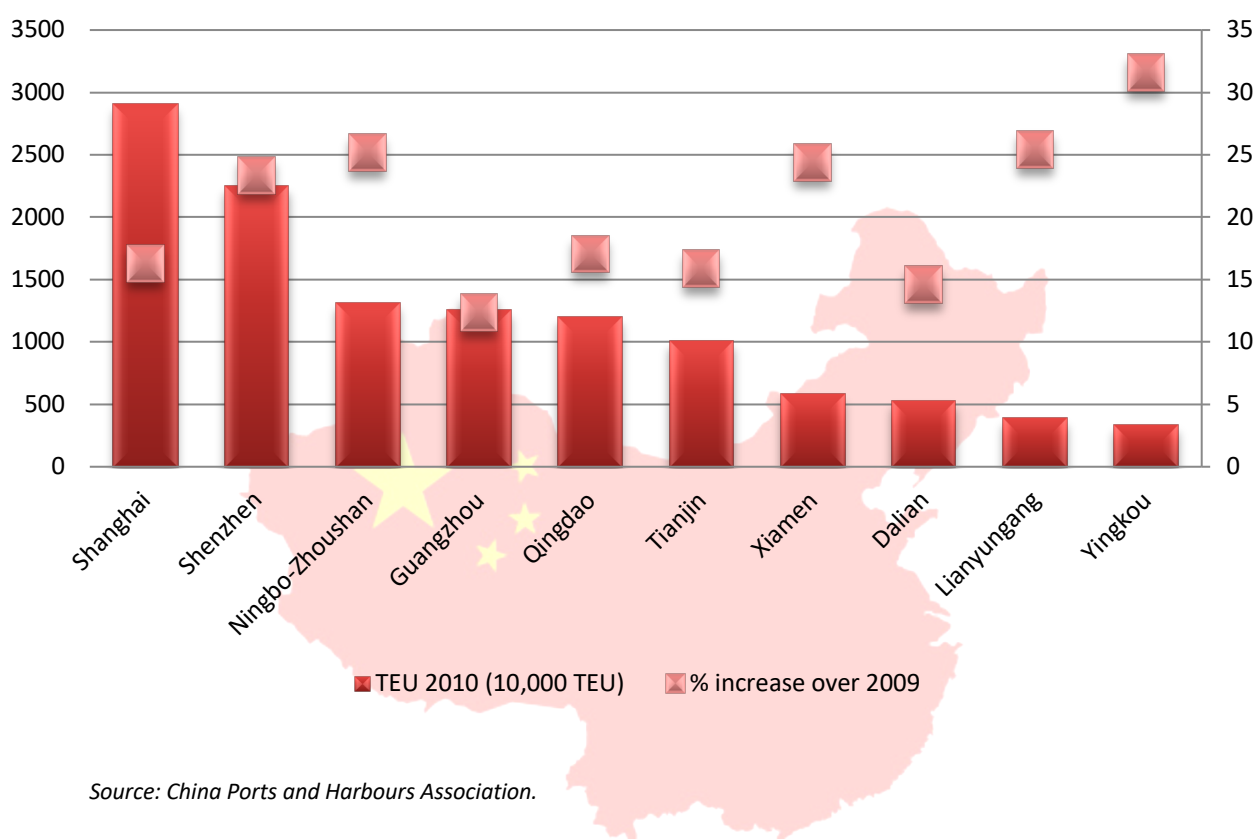


Source: Compiled from CPHA and MOT statistics

## 11 Container Transport

### 11.1 Overview 2010

#### Top ten container port throughputs 2010



Source: China Ports and Harbours Association.

Container transport in 2010 is undoubtedly the biggest highlight of the port transportation and production. It is widely acknowledged that the international financial crisis devastated the container transport industry; despite previously gloomy predictions, the WTO now estimates that global trade grew 13.5 percent in 2010. Container throughput in China reached 145m TEU in 2010, a staggering 18.8 percent increase over 2009.

Clarksons shipping consultancy, initially estimated global container volume growth of 3.5 percent in 2010 but now acknowledge the growth rate was in fact closer to 12 percent, a growth rate far exceeding expectations.

According to customs statistics, China's foreign trade and import-export growth in 2010 reached 38.7 percent, 31.7 respectively; both record highs.



Driven by the nascent economic recovery, throughputs grew in all major container market; Europe, US and Japan. Benefit from the rapid growth of foreign trade, port container throughput in 2010 reached 145m TEU, exceeding pre-financial crisis levels to a new record; the growth rate reached 18.8 percent, reversing the negative figures from 2009.

#### **11.1.1.1 Impact of the financial crisis**

While the financial crisis that hit the global economy during the second half of 2008 was particularly cruel to the Chinese container port sector, there were ominous signs well before the full effects of the economic storm became known. After a nearly 20 percent appreciation in the exchange rate of the RMB since the summer of 2005, soaring fuel prices and inflation and rising costs, figures released by China Customs in April 2008 showed the first decline in foreign trade growth for three years. This slowdown had an immediate impact on China international container trade sector with ports in numerous regions reporting disappointing figures for the Chinese New Year period.

As the global economy lurched into an ever deeper malaise and the spending power of the world's primary consumer blocks – the US, the EU and Japan – fell precipitously, the impact was quick to reverberate back through the global supply chains impacting both shipping lines as well as the international container ports that fed them.

In 2008, as the already slow period lurched into the full blown financial crisis, only four of the sixteen Chinese ports to exceed 1m TEU reported higher growth rates than from 2007: Tianjin, Dalian, Yingkou, and Yantai. The other twelve saw their growth rates decline; in Shanghai, Shenzhen, and Qingdao growth fell below 10 percent and Zhongshan and Foshan ports actually experienced negative growth. These sixteen ports—which account for 87.9 percent of China's national throughput total—handled a combined 113.07m TEU that year.

While the Pearl River Delta region was certainly hit hardest, in truth no region was spared. In the Yangtze River Delta, growth in Shanghai Port dropped a reported 10.4 percent while at Ningbo-Zhoushan the fall was even more startling—to 17 percent from 38.4 percent. Farther north, in the Bohai Bay area, Qingdao Port reported a decline in growth to 8.3 percent from 27 percent. In response to this slowdown, in the latter months of that year, Beijing was quick to react unveiling a raft of measures, including an aggressive fiscal spending program and the re-introduction of VAT exceptions for a host of export categories.

In general, the south of the country was hit hardest, with port further north faring much better. At least part of the reason for this is that ports further north depend less on the lower value exports that tend to be the mainstay of certainly Guangdong's economy. Tianjin, for example, was boosted by the fact that much of its



exports originate in the Binhai Free-Trade Zone, which tend to produce higher-tech products and the fact that its portfolio of shipping routes is less dependant on China-Europe or US routes.

In the first half of 2009, the Chinese economy began to stabilise as the effects of the economic stimulus package began to be felt. In turn the export container shipping market began to recover. In June 2009, Chinese export container freight index hit its lowest point and began to rise by the beginning of July, reaching 808.23 on July 31st.

Despite this rebound in the second half of the year, driven by both increased domestic and international demand, volumes began to rise again. China registered a 2009 throughput of 121m TEU, a 6 percent drop from the previous year. Of this figure, coastal ports handled 109m TEU while inland ports handled the remaining 12m TEU. These two figures represented declines of 5.9 percent and 7.4 percent, respectively. If not for a fourth quarter surge in throughput numbers, these numbers would be even gloomier.

As volumes continued to rise, approaching 2008 levels as the year ended, a many ports experienced a frantic rush for capacity as the Chinese New Year approached. Many vessels to Europe and America were overbooked from mid-December, leading to a corresponding rise in rates. The China Containerized Freight Index (CCFI) rose 7.7 percent in a month to stand at 1,081.67 points on Feb 5, 2010, reflecting the turnaround in international seaborne trade.

The shipment spike amid the price hikes partly arose from the export boom on the back of the shaky recovery of major Western economies. It was also a result of the intention of shipping firms to lift prices via a curb on capacity and the reduction of the ships' service speed during what is traditionally a slow season. It is estimated that prices for outbound container containers doubled in the month from December. The Ministry of Commerce now estimates that export volume in the country, which has now overtaken Germany as the world's largest exporter, reached leap 20 percent year-on-year in January, after a rise of 17.2 percent in December. The same estimates predict that China will post 22 percent export growth in 2010.

The IMF expects global GDP growth in 2011 to slow from 4.8 percent to 4.2 percent; 2.2 percent in advanced economies, and 6.4 percent for developing countries. With the world economic recovery, world trade will rise moderately, although the growth outlook is not yet clear. Clarkson is more optimistic, with an expected high volume for the China container port sector, estimating 2011 will reach 154m TEUs, an increase of almost 10 percent. This growth, however, remains significantly lower than 2010.

According to the Ministry of Commerce's estimates for 2011, China's foreign trade growth will fall to 10 percent mainly due to the high base last year. Western and Japanese economic growth remains uncertain with



the possibility of increased international trade friction; the possibility of greater Yuan appreciation; and rising resource prices and labour costs all of which may affect overall competitiveness.

## 11.2 Port Throughput Capacity and Demand Analysis

### 11.2.1 Performance and Development of Container Terminals in China

According to the China Ports & Harbours Association there are over 90 terminals for container operations in China located at 45 ports nationwide. Container port performance depends on a variety of factors including geographical location, water conditions, weather, freight source location, and container line development.

The table below illustrates the performance of major container terminals in China at the start of 2010.

Unit: Metres/10,000 TEUs

Terminal Operator Name	Length	Throughput per 100 metres	Productivity per crane
Yingkou Container Terminal Co. Ltd.	590	16.12	15.85
Jinzhou New Times Container Co. Ltd.	533	12.19	8.13
Dalian Port Container Terminal Co. Ltd	1380	12.012	16.57
Dalian Container Terminal Co. Ltd	1855	14.07	16.31
Tianjin Port No.1 Harbour Operating Company	360	3.23	2
Tianjin Orient Container Terminals Co. Ltd.	1137	11.04	12.55
Tianjin Port No.2 Harbour Operating Company	366	14.22	13.01
Tianjin Port Container Terminal Co. Ltd.	1223	18.3	16.07
Yantai Raising Dragon International Container Terminal Co. Ltd.	730	1.78	2.17
Yantai Global Terminal Co. Ltd.	573	6.25	8.95



Yantai Container Terminal Co.	583	15.14	14.71
Qingdao Yuangang International Container Terminal Co. Ltd.	1437	7.65	22
Qingdao Qianwan Container Terminal Co. Ltd.	3400	25.63	25.63
Dalian New Oriental International Container Terminal Co. Ltd.	1660	17.86	12.89
Shanghai Container Terminals Ltd.	2281	15.93	19.12
Shanghai Port China Shipping Container Lines Co. Ltd.	231	16.29	18.81
Shanghai Shendong International Container Terminal Co. Ltd.	3000	18.79	16.58
Shanghai Hudong Container Terminal Co. Ltd.	1437	25.1	18.97
Shanghai Mingdong Container Terminal Co. Ltd.	1300	23.74	20.58
Shanghai Pudong International Container Terminal Co. Ltd.	900	32.67	26.73
SIPG Zhengdong Container Terminal Co.	1634	35.22	23.98
Ningbo Beilun Second Container Terminals Co. Ltd.	1258	29.46	23.13
Ningbo Port Group Zhenhai Gangbu Co. Ltd.	1437	1.76	8.43
CMICT Ningbo Daxie Co. Ltd.	1170	9.32	12.11
Ningbo Far East Terminal Operating Co. Ltd.	385	23.47	11.29
Ningbo Gangji Terminal Operating Co. Ltd.	1700	15.82	13.45
Ningbo Beilun International Container Terminal Co. Ltd.	900	22.89	18.73
Zhejiang Shihang Zhapu Port Co. Ltd.	932	0.93	10.05
Wenzhou Jinyang Container Terminal Co. Ltd.	582	4.93	9.57

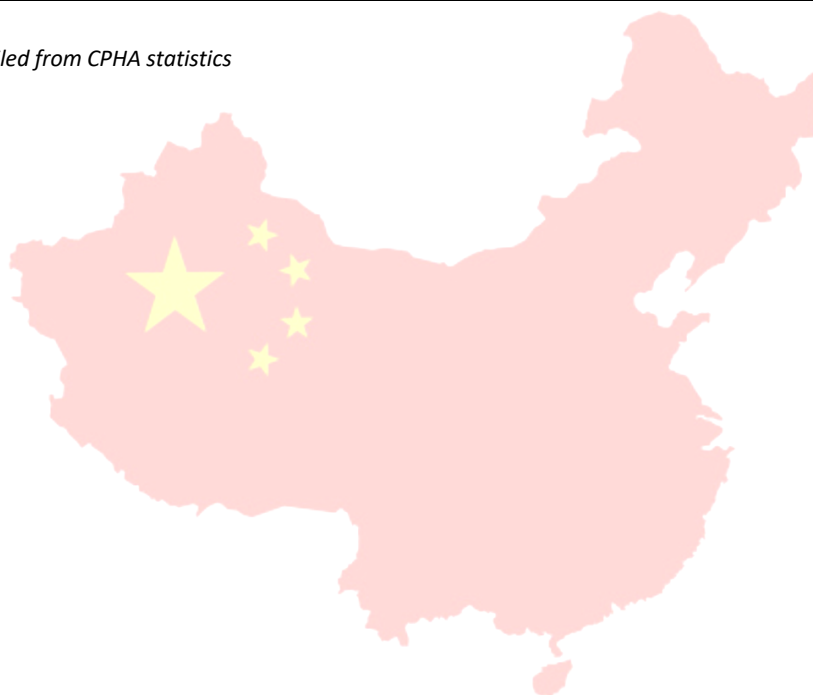


Fuzhou Mawei Port Service Co.	200	7.01	7.01
Fuzhou Qingzhou Container Co. Ltd.	519	12.03	15.62
Quanzhou Pacific Container Terminal Co. Ltd.	1297	7.38	6.83
Jinjiang Pacific Port Development Co. Ltd.	248	10.08	8.34
Xiamen Port Group Haitian Container Terminal Co. Ltd.	3312	8.47	9.04
Xiamen New World Xiangyu terminals Co. Ltd.	976	7.38	8
Xiamen Port Development Co. Ltd. Dongdu Office	350	12.65	11.07
China Merchants Zhangzhou Port Service Co. Ltd.	1620	2.23	9.05
Guangzhou Nansha Seaport Container Terminal Co. Ltd.	1437	13.92	12.5
Guangzhou Container Terminal Co. Ltd.	1299	11.44	9.91
Guangzhou Nansha Port Service Co. Ltd.	2100	21.14	24.66
China Merchants Shenzhen Port Service Co. Ltd.	3204	4.81	7.01
Shekou Container Co. Ltd.	2550	16.1	15.8
Yantian International Container Terminal Co. Ltd.	6092	15.9	13.45
Shenzhen Chiwan Container Terminal Co. Ltd.	3387	16.67	15.26
Zhanjiang Port China Shipping Container Lines Co. Ltd.	396	6.07	8.01
Haikou Port Container Terminal Co. Ltd.	396	8.75	6.93
Nantong Port Container Terminal Co.	440	9.1	10.01
Zhangjiagang Yongjia Container Terminal Co. Ltd.	1437	4.95	11.85



Zhenjiang Port Container Co.	628	3.06	4.81
Nanjing Longtan Container Terminal Co. Ltd.	910	12.61	19.12
Changsha Jixing Container Terminal Co. Ltd.	320	2.94	4.71
Wuhan Container Terminal Co. Ltd.	582	5.73	11.12
Wuhan International Container Terminal Co. Ltd.	270	5.92	5.12
Total	68944	14.37	15.06

Source: Compiled from CPHA statistics





In 2010, the 53 largest container terminals in China together operate more than 665 cranes with a total berth line length approaching 70,000 metres. Individual cranes at the above terminals handled an average of 150,600 TEU, with the maximum figure equalling 267,300 TEU and the minimum a mere 20,000 TEU. This disparity attests to the large differences that still exist in terms of equipment utilisation.

In terms of terminal operation volume, the average throughput/100 metres of the above terminals reached 143,700 TEU in 2009, with a maximum figure of 352,200 and a minimum of less than 10,000 TEU.







The table below shows throughput per 100 metres of China's major container terminals at the beginning of 2010.

Throughput TEU/100 metres	Terminal No.	Throughput (10000 TEUs)	Berth Length (metres)	Port
> 200,000 TEUs	9	3521.3	13,314	Shanghai, Ningbo, Qingdao etc.
143,700-200,000 TEUs	11	3882.18	25,297	Shanghai, Ningbo, Shenzhen, Tianjin, Yingkou
100,000-143,700 TEUs	11	1264.4	10,034	Fuzhou, Dalian, Guangzhou, Xiamen, Tianjin, Nanjing
50000-100000 TEUs	12	865.1	11,049	Fuzhou, Xiamen, Qingdao, Dalian, Ningbo, Wuhan etc.
< 50000 TEUs	10	375.1	11,250	Zhangzhou, Changsha, Zhenjiang, Zhangjiagang, Wuhan etc.

Source: Compiled from CPHA statistics

In general cranes can complete 150,000 moves annually, or in other words 200,000 TEU. Throughput/100M therefore indicates the degree of equipment utilisation. 20 of the 53 terminals cited above produced at 143,700 TEU/100M or better, contributing a total of 74.03m TEU and contributing 75 percent of total container throughput with only 53 percent of the total berth-line resources. Consequently the other 47 percent of berth-line resources contributed only 25 percent of total throughput.

### 11.2.2 Equilibrium Analysis on Container Terminal Demand and Throughput Capacity

The construction of container terminals in China has restarted in order to keep pace with the fast growth of container throughput. In 2008-9 the nation completed building or reconstruction of more than 25 container berths with a throughput capacity of over 16m TEU as projects were postponed or slow-tracked over the period, thereby just falling short of the 17m TEU growth of 2007. Recent data suggests that China's container terminal capacity is keeping up with the growth of port throughput.

In 2009 there were 251 specialised container berths in China with a combined container throughput of 117.5m TEU and an average berth throughput capacity of 468,000 TEU. These numbers do not include multi-functional terminals at inland river ports and some coastal ports whose totals contribute to the total container



throughput volume. Given China's total 2009 throughput of around 121m TEU, the country's container port capacity shortages are likely to re-emerge as an issue as demand returns to and ultimately exceeds pre-crash levels.

Container terminal construction requires significant investment. Most ports have accelerated container terminal construction in an effort to keep up with predicted international container transport growth, as port operators are unwilling to lose customers due to insufficient capacity. Over-development carries its own risk; should terminals be over-developed, insufficient demand will cause a large waste of resources and intense, often price based, competition. Both situations are not unfamiliar in the recent history of Chinese port development.

Thus port managers and researchers must answer the following questions. How can they evaluate the supply-demand equilibrium of the container terminal market? How can they maintain a reasonable speed of container terminal development? And how can they decide the right time to launch terminal construction projects? These issues can be discussed both theoretically and practically.

Theoretically speaking, the throughput capacity of container terminals has several features.

- Objectivity. Terminal throughput capacity is the nature of port production, and relies upon more than the simple will of the people to change.
- Terminal throughput capacity refers to the maximum freight volume which can be handled by a terminal with reasonable and advanced techniques under a certain condition- such as vessel type, equipment, freight type, transport arrangement- within a certain period.
- Flexibility. Terminal throughput capacity will change alongside its surrounding environment, including factors such as the large-scale trend of vessel development, the amount of equipment available, and operation efficiency. Changes of these factors require a new evaluation of terminal throughput capacity.
- Cask effect (weakest link effect). Terminal production consists of multiple activities such as loading/unloading, transport, yard operations, consolidation and distribution. Because each of these activities has its own capacity, overall terminal capacity is restricted by the link with the minimum capacity.

Terminal throughput capacity and port production have a close relationship, with the former greatly influencing the latter. When a given terminal has a higher throughput volume than its designed capacity, its overall capacity is likely underestimated. This derives from, for example, a port operator failing to adjust and evaluate capacity in respect to changes in the operating condition. Port operators must then evaluate terminal throughput capacity on a regular basis so as to make daily operation more practical.



Likewise while analysing terminal loading/unloading production and throughput capacity equilibrium, one needs to understand throughput capacity on a regional as well as a national level.

The Following chart illustrates 2010 Container Development in China (Region & Port)

Port	Terminal No.	Berth Length (metres)	Throughput (Jan-Nov 09) (in 10,000 TEUs)	Throughput per 100 metres	Throughput per crane
Total	53	68,944	8,951.88	14.37	15.06
Bohai Rim	13	14,167	2,268.68	14.94	16.66
Inc.: Tianjin	4	3,086	794.76	13.31	12.83
Dalian	2	3,235	415.83	13.19	16.4
Qingdao	2	4,837	939.59	20.29	21.81
Yantai	3	1,886	118.5	7.27	8.57
Yangtze River Delta	16	20,807	3,487.35	18.79	17.93
Inc.: Shanghai	7	10,783	2,255.10	23.22	20.19
Ningbo-Zhoushan	6	6,850	958.18	15.62	15.98
Lianyungang	1	1,660	274.07	17.83	12.89
West Coast of Taiwan Strait	7	6,902	535.85	8.60	8.86
Inc.: Xiamen	3	4,638	424.95	8.55	9.02
Fuzhou	2	719	110.90	10.64	13.08
Pearl River Delta	9	22,085	2,660.00	13.36	13.85



Inc.: Shenzhen	4	15,233	1,649.26	13.77	13.36
Guangzhou	3	4,836	1,010.74	16.39	16.16

Source: Compiled from CPHA statistics

As shown in the above table, throughput per 100 metres averaged 147,300 TEU and throughput handled per crane averaged 150,600 TEU. The performance of terminals in the Bohai Rim and the YRD region rates were above this average, yet even still performances vary greatly amongst individual ports. For example, throughput per 100 metres at Shanghai Port reached 232,200 TEU and that of Qingdao registered 202,900 TEU. Ports such as Lianyungang and Guangzhou also enjoy a high average throughput per unit berth-line. These regions and ports therefore are most suitable for container terminal construction.

An additional new feature of national container transport is that domestic-trade container volume growth is far higher than foreign-trade volume growth, a trend expected to widen in the future. Port operators have therefore begun taking domestic-trade container volume and development features into consideration in building new terminal berths.

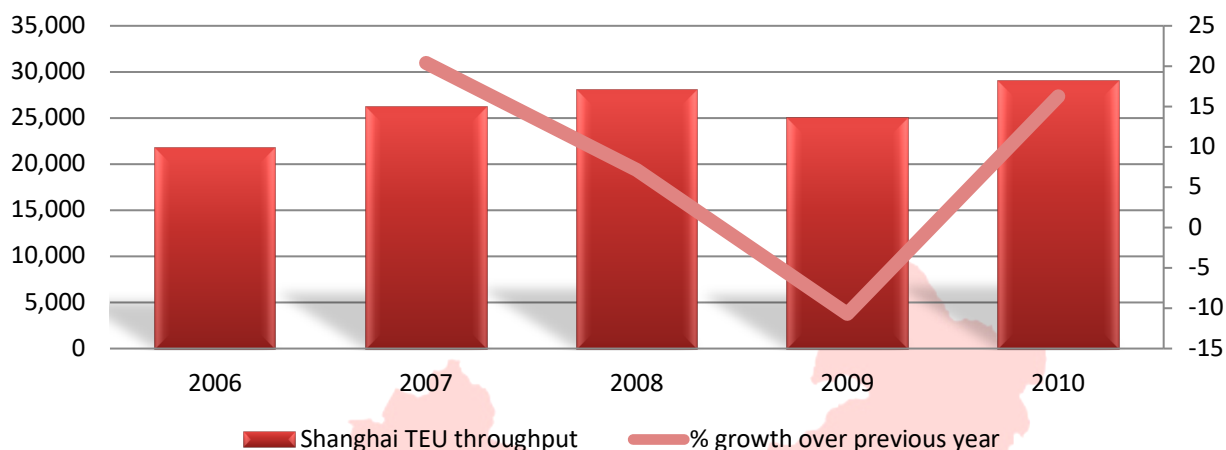




## 11.3 Port Analysis

### 11.3.1 Shanghai

#### Shanghai container throughput 2006-10



In 2010, Shanghai Port handled 29.05m TEUs, exceeding both Singapore and Hong Kong to emerge as the world's largest container port. Foreign trade throughput January to November reached 276m tons. In January, TEU throughput reached 2.7m, a growth rate of 20.4 percent over the same period the previous year.

In recent years, Shanghai has been actively developing the Shanghai International Shipping Centre project, which will see substantial development of hardware facilities at the port, various shipping-related services, such as a special registration system for ships, introduction of foreign shipping companies in local operation and development of the cruise industry, as well as ship brokerage and ship finance services.

The Waigaoqiao Port Region remains Shanghai's largest, while the Yangshan Deepwater Port—for which around half was transhipped by water transport—is Shanghai's second largest.

Shanghai Port currently accounts for about a fifth of China's entire foreign trade throughput. Phase 4 of the Yangshan Deepwater Port project, which begun in 2002, is presently under construction. By the year 2012, Shanghai Yangshan port will boast a 10 km long quay length, over 30 deepwater container berths, and a projected annual output of over 13m TEU.

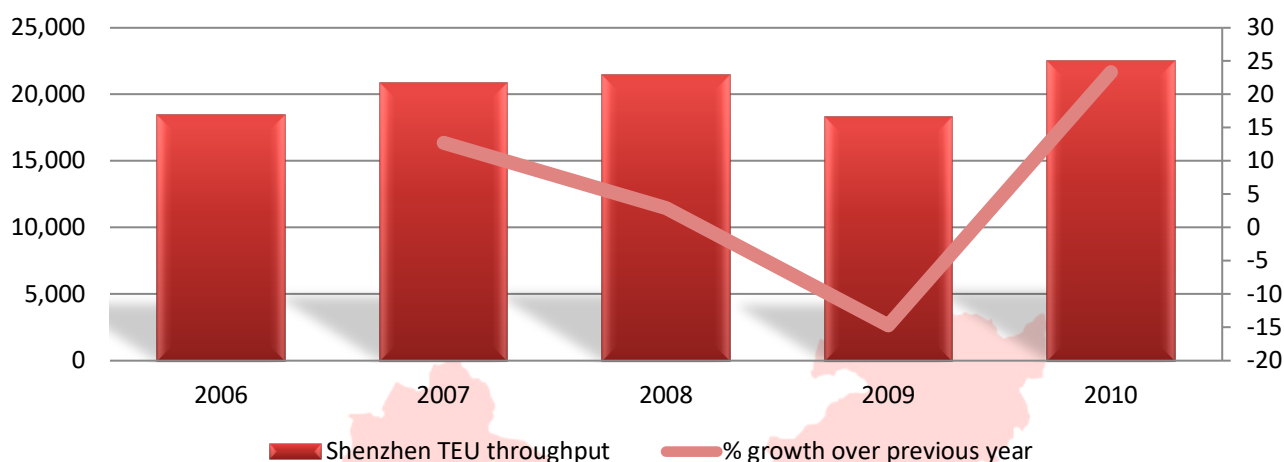
During the financial crisis, Shanghai Port registered a container throughput of 25m TEU in 2009 a drop of 3m over the previous year, or 10.7 percent; import and export volume through Shanghai to and from the three



major economies, saw a large decline. In contrast, export volumes through Shanghai to Latin America, Africa and other emerging economies performance was relatively well.

### 11.3.2 Shenzhen

#### Shenzhen container throughput 2006-10



Shenzhen Port, one of China's busiest ports, saw its container throughput in 2010 hit a record high of 22.51m TEUs, an increase of 23.34 percent over 2009, according to Transport Commission of Shenzhen Municipality; 770,000 TEUs higher than the port's historical high. January to November the port registered a foreign trade volume of 156m tons. In January, container throughput reached 2.06m, an increase of 16.1 percent over the previous January.

Shenzhen Port consists of the following major areas: Shekou, Chiwan, Mawan, Yantian and Dachan Bay. The former three, all in part invested by China Merchants Holding International, have joined together to cope with the current financial crisis and in order to forge the present expansion of the Qianhai Bay Bonded Port Region. By the year 2010, Shenzhen port container throughput is projected to reach 26m TEU and 38m TEU by 2020, at which point 67 new container berths will have been added.

Shenzhen Port was hit hard by the financial crisis. Container throughput fell universally at the port, dropping nearly 20 percent at both Chiwan and Shekou, both results of Shenzhen's heavy reliance on foreign trade flows. The outlook though over the next several years remains positive as container throughput at the port is projected to grow again in 2010 and beyond.

Container throughput statistics were universally grim for all parts of Shenzhen Port in 2009. Yantian District fell 11.4 percent to 8.6m TEU, Chiwan fell 19.39 percent to 4.76m TEU, and Shekou dropped 18.07 percent to



4.66m TEU. These figures are expected to improve markedly in 2010 as the foreign trade volume at Shenzhen Port expands.

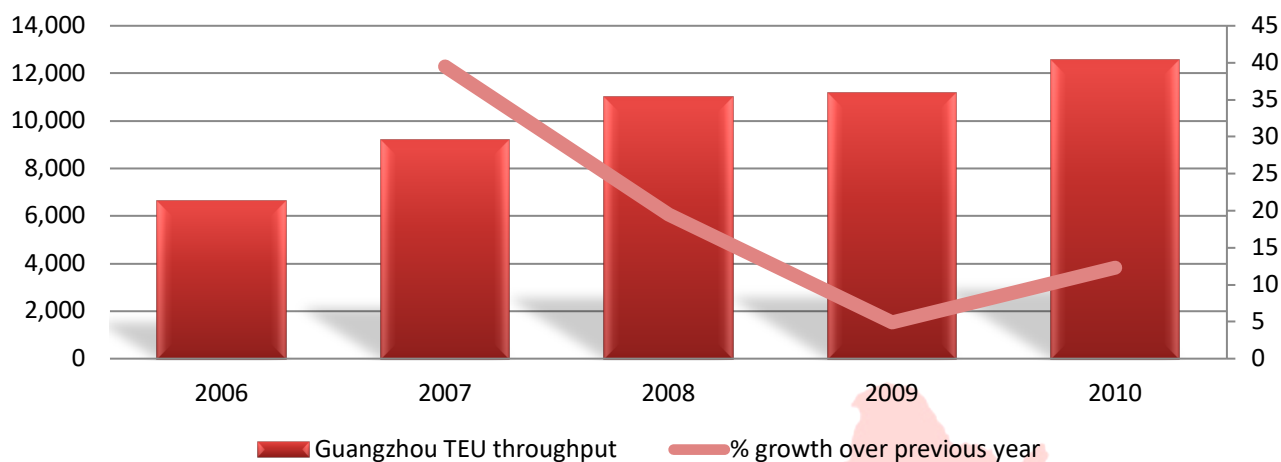
2008 marked a negative year for Shenzhen's processing trade as imports fell 17.7 percent to USD 3.36bn. Hong Kong remains Shenzhen's largest trading partner and export market, with bilateral trade holding largely steady at USD 88.17bn. In 2009, according to Shenzhen Customs, foreign trade value fell to USD 352.673bn, down 10.13 percent over 2008; with exports USD 216.921bn, down 9.24 percent and imports of USD 135.752bn, down 11.51 percent.





### 11.3.1 Guangzhou

#### Guangzhou container throughput 2006-2010



In 2010, Guangzhou Port achieved a cargo throughput of 411m tons ranking third in the country; with TEU throughput reaching 12.55m TEUs, an increase of 12.3 percent over 2009, making it the country's fourth largest container port. January to November, foreign trade throughput at the port reached 81m tons. In January, container throughput reached 1.028m, a decrease of 6.5 percent over the previous year.

Guangzhou Port, the largest comprehensive Port in South China has sustained its growth on the back of the vast industrial growth of Guangdong Province in general. It now ranks among the top ten ports in the world, having overtaken more well-established ports such as Rotterdam.

Last year, Guangdong's foreign trade growth rate was lower than the national average. Last year, the nation registered a 34.7 percent growth in foreign trade while Guangdong's import and export value grew by just 28.4 percent. Analysts believe that the growth rate of Guangdong's foreign trade in January this year, which was higher than the national average, which many analysts believe was due to the low starting point at the end of last year.

Export commodities, machinery and electronic products and hi-tech exports were higher than the corresponding increase in total exports, with main labor-intensive products achieving a growth rate upwards of 30 percent.

During the 11<sup>th</sup> five-year plan the port invested about RMB 24bn in establishing twenty 10,000 DWT navigational channels and 39 deepwater berths in order to expand capacity by 69.24m tonnes and 6.04m TEU.





Guangzhou Port Group has also invested in over RMB 10bn in establishing 14 specialised deepwater bulk and container berths (50,000-150,000 DWT), including Nanshan Phase 1 and Phase 2. In general, Guangzhou weathered the financial crisis better than its cousins to the south in Shenzhen showing better 2009 growth figures than many of its counterparts, growing 4.9 percent to 11.19m TEU through the year. This is in large part due to the fact that the port is much less dependant on the trans-pacific consumer good container trade that forms the backbone of many other major terminals in the Pearl River Terminal.

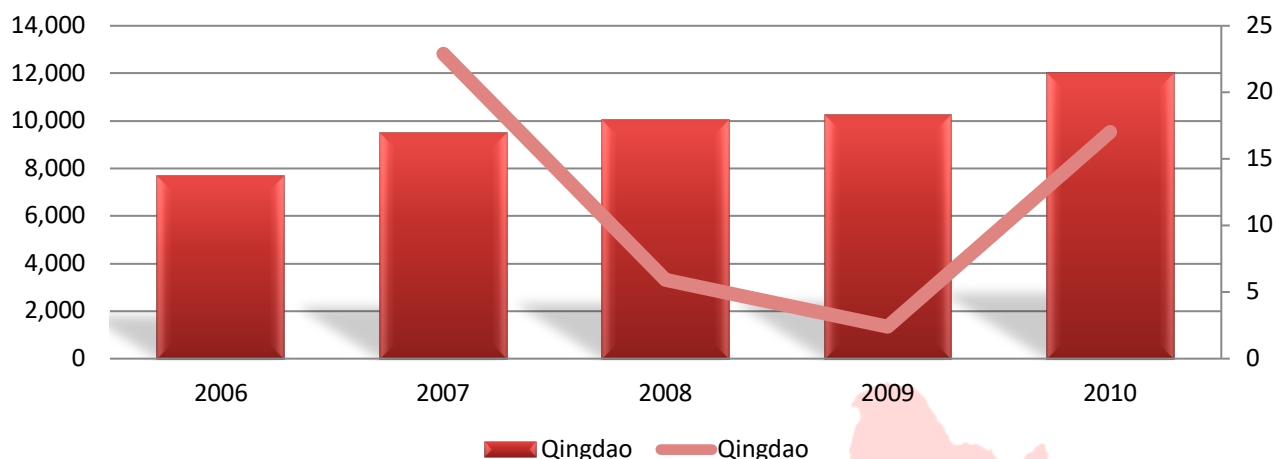
10 of Guangzhou's 19 berths with a 10,000 ton capacity are located at the Nansha Phase I and Phase II terminals. This district has successfully attracted nine of the world's Top 10 container line companies to establish operations there, and the port's list of infrastructure development projects in planning indicate its bright future.





### 11.3.2 Qingdao

#### Qingdao container throughput 2006-10



Container throughput at Qingdao expanded 20.5 percent in 2010 to reach 12.01m TEU. January to November, foreign trade throughput at the port reached 236m. In January, TEU throughput reached 1.12m, an increase of 20.5 percent over the previous January.

The port was also one of the few ports to maintain positive growth figures in 2009; attributing growth to a decision to offer free stack service for empty containers as well as using containers to deliver bulk cargo, such as steel.

Qingdao Port, formed by the Old Port Region, Huangdao Oil Port Region and Qianwan New Port, currently consists of 72 berths and 15 world-class ports for containers, iron ore, crude oil, coal and grain.

In 2008, Qingdao Port invested RMB 2.35bn in building five 10,000 DWT dock berths. At the end of 2010, 19 container berths in the Qianwan bonded Port Region were in operation with an annual container capacity of 11.5m TEU.

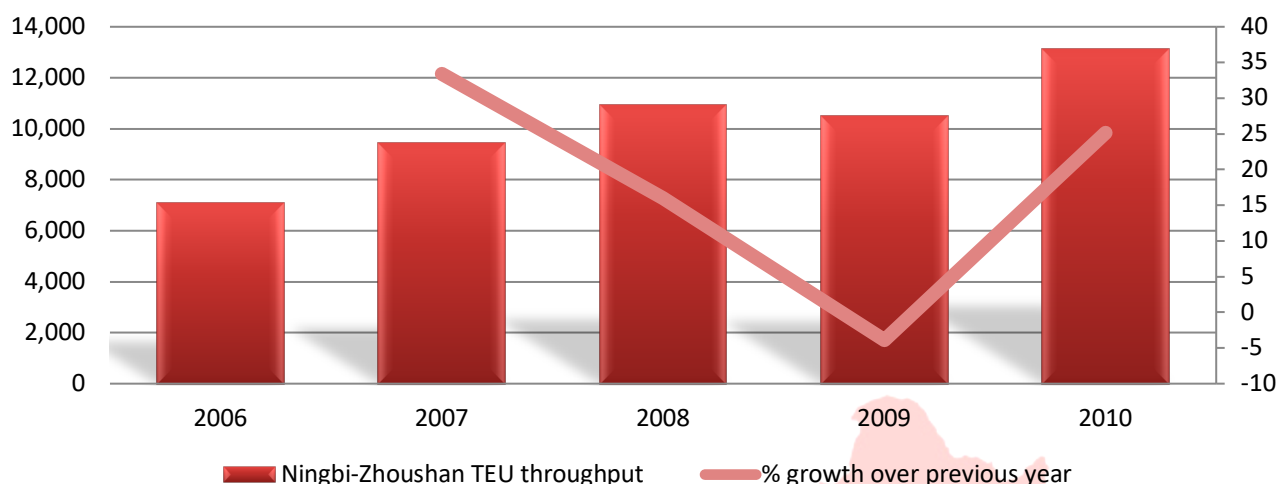
Infrastructure improvements are intended to help Qingdao Port become an international maritime centre in northeast Asia within the next 2 or 3 years.

In 2009, Qingdao Qianwan Container Terminal, a joint venture of Maersk, DP World, COSCO and Port of Qingdao extended the partnership to Hong Kong-based Pan-Asia Investment Group and China Merchants Group (Hong Kong). The extended joint venture invested USD 1.4bn for the fourth stage of Qianwan dock, including 10 deep-water berths and expanding the total dock length to 3.41 km.



### 11.3.3 Ningbo-Zhoushan

#### Ningbo-Zhoushan container throughput 2006-10



Statistics for 2010 indicate that container port throughput in 2010 reached 13.1m TEU for Ningbo-Zhoushan Port; an increase of 25.1 percent. Foreign trade throughput at the port reached 255m tons between January and November. In January, TEU throughput reached 1.31m TEUs, an increase of 34.6 percent over last January.

In 2010, Ningbo-Zhoushan Port seized the opportunity rebounding trade to increase routes and infrastructure. In terms of route expansion, by the end of 2010, a Ningbo serviced a total of 228 routes representing a net increase of 12 over 2009; more than doubling the total number ocean routes. Much of the port's cargo expansion is thanks to efforts to consolidate cargo hold over the hinterlands of Zhejiang, and southern Jiangxi.

Development and construction of rail transport in Ningbo in 2010 saw great progress in 2010. Through establishment of the Jiangxi-Ningbo railway transport public service platform, the port hinterland continued to expand in depth to the interior.

2010, rail-sea transport volume reached 28,000 TEUs, 16 times the 2009 volume. In addition, since the beginning of 2010, various units of Ningbo Port have made efforts to streamline and optimise the port's 'soft operating environment'; this has also played an important factor in the driving continued growth.

There are 19 Port Regions in Ningbo-Zhoushan Harbour, eight of which are located in Ningbo with the other eleven belonging to Zhoushan. At present, the port is the biggest iron ore transshipment base in China and in an agreement with Shanghai Harbour is set to be the main trade port for containers and transport. Overall, Ningbo-Zhoushan is to receive an investment of RMB 58.9bn over the next five years.



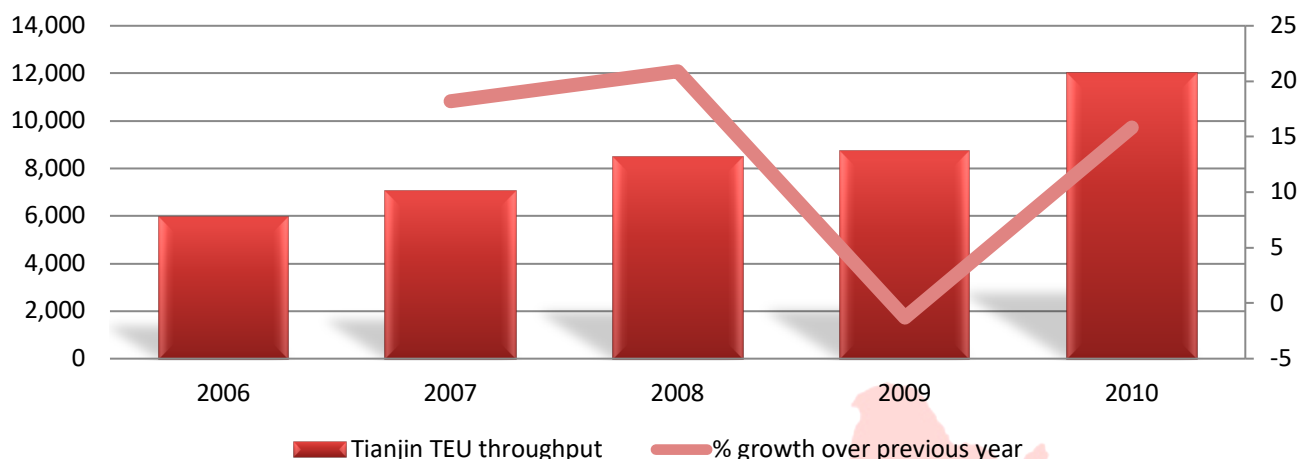
In 2009, Ningbo Port achieved a total foreign trade volume of USD 116.92bn, down 16.7 percent over the previous year. Mechanical and electrical products and high-tech exports dropped by 21.7 percent and 30.1 percent respectively; imports of electromechanical products and high-tech products dropped by 18.2 percent and 15.0 percent. Processing trade imports and exports amounted to USD 13.97bn, down 23.5 percent; general trade import and export volume fell to USD 44.21bn, down 4.7 percent.





### 11.3.4 Tianjin Port

#### Tianjin container throughput 2006-10



In 2010, Tianjin Port throughput reached a total of 400m tons of cargo throughput; with annual container volume reaching 12.01m TEUs. Foreign trade throughput reached 188m tons between January and November. In January the port achieved a container throughput of 927,000 TEU, a growth rate of 21.5 percent over the same period the previous year.

Tianjin Port is an artificial port and plays a crucial role in China's shipping industry due to its proximity to Beijing. In recent years the government has worked hard to promote the region with aggressive spending on infrastructure in an attempt to draw investment from the Yangtze and Pearl River Deltas with Tianjin Port and the adjacent Binhai Free Trade Zone at the heart of the strategy.

Tianjin Port is currently accessible to more than 180 countries and regions via more than 500 ports around the world. As such Tianjin Port has become the economic centre of the region, and a logistics hub linking together a logistics network consisting of 10 Provinces and municipalities

Under the previous 5-Year-Plan, Tianjin Port increased infrastructure investment to complete construction of 13 container berths, adding an additional container capacity of 7.4m TEUs greatly enhancing port container handling capacity.

This year, Tianjin Port, driven by the global economic recovery, will further intensify efforts to develop routes, with a total of 28 new routes bringing the total to 115.



According to Tianjin Port Group, Tianjin is currently in the process of realising a RMB 27.3bn (USD 3.4bn) investment in 30 major ongoing construction projects including completion of a 200,000 DWT vessel lane raising the status of the port to the 200,000 DWT level and speeding up development of the southern Port Region's deep water berths.

At present, construction and improvements are being carried out at six terminals. Construction is nearing completion on 20 new container berths which have raised Tianjin's annual TEU throughput to 12m. In addition to this, supporting infrastructure, including the new high-speed rail link, linking the city with the capital at a breakneck 350 km/h have all added to the attractiveness of the region from a investor's perspective boding well for future port throughput development.

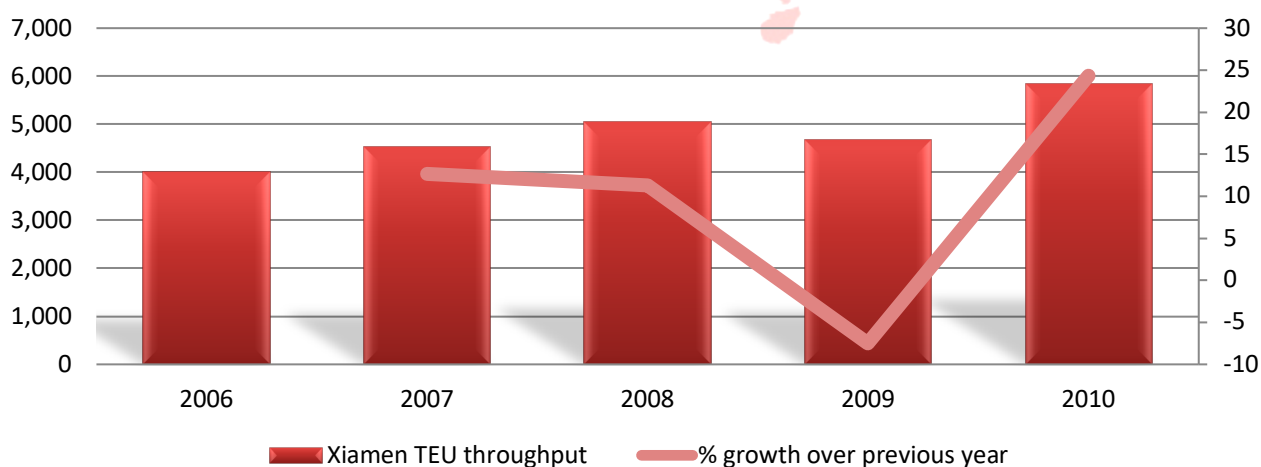
In general, Tianjin has weathered the financial crisis far better than its southern counterparts largely because Tianjin's port throughput is less reliant on the purely export driven consumer good cargoes in part due to the higher value, high-tech processing industries that Tianjin has managed to attract to its Free Trade Zone.

Recently the port revealed that the port will invest the equivalent of RMB 121bn on upgrading facilities in the next five years and is aiming at a container throughput of 20m TEU and an overall volume of 600m tonnes by 2015.

In the coming years, the port plans to deepen its navigation channel, upgrade handling facilities to raise throughput and further develop distribution and other services.

### 11.3.5 Xiamen Port

#### Xiamen container throughput 2006-10





In 2010, container throughput at Xiamen port reached 5.82m TEUs, an increase of 24.34 percent. Foreign trade throughput reached 547,000 tons between January and November, an increase of 16.5 percent. In January, TEU throughput reached 547,000 TEU, an increase of 16.5 percent over the same period the previous year

The largest container terminal in Fujian Province, Xiamen has undoubtedly benefitted greatly from the advent of direct cross-Straits trade – to the detriment of Hong Kong.

In the last five years, Xiamen cargo throughput has grown 192 percent. Over the same period, container throughput at the port has grown 74 percent bringing the port from 24<sup>th</sup> largest world-wide to 19<sup>th</sup>.

To remain competitive, Xiamen is investing heavily in developing inland 'dry port' zones in the cities of Nanchang, Ganzhou and Longyan with direct access to the port consolidating its regional position with the hinterland cargo generation regions.

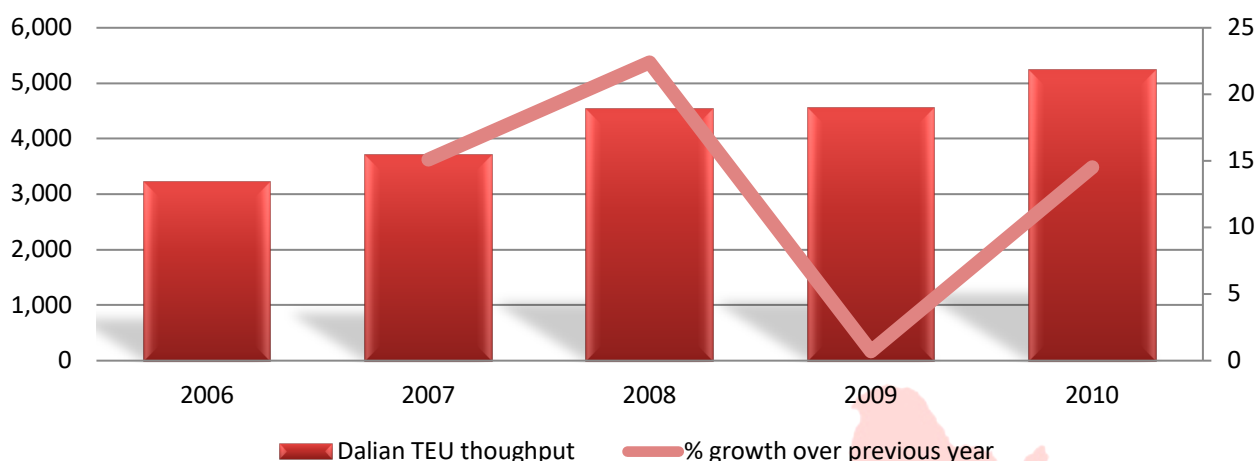
In coming years, ease of access to mainland labour pools by Taiwanese hi-tech manufacturing firms is likely to drive continued growth at the port as Fujian is integrated into the manufacturing cycle of Taiwanese exports. Prior to direct cross-Straits Taiwanese manufacturers were forced to tranship through Hong Kong and make use of the PRD industrial base. Fujian offers the option of accessing cheaper rents and lower labour costs.





### 11.3.6 Dalian Port

#### Dalian container throughput 2006-10



In 2010, Dalian Port achieved a TEU throughput of 5.24m, an increase of an increase of 14.54 percent over the previous year. January to November the port recorded a foreign trade throughput of 99m tons. In January container throughput reached 480,000 TEU, an increase of 13.3 percent over the previous January.

Dalian Port is a natural deepwater port and is China's largest port for bulk grain and oil import and exports. The port has over 80 modern berths for containers, crude oil, refined oil, grain, coal, chemical products, and other goods. The container transport activity of Dalian Port is mainly in the Dayao Bay Port Region, which is one of the four major international deepwater transit ports in China and bears more than 90 percent of the foreign trade container transport of Northeast China. Container terminals along the south shore of Dayao Bay are being built and 18 container berths at Dayao Bay are expected to be completed by the end of 2010, giving Dalian port a handling capacity of 10m TEU.

### 11.3.7 Lianyungang Port

In 2010 Lianyungang container throughput reached 3.87m TEUs, an increase of 25.41 percent over 2009. Between January and November, foreign trade throughput reached 70m tons. In January, TEU throughput reached 350,000 TEU, an increase of 12 percent over the previous January.





Lianyungang, located in northern Jiangsu Province, is a fast-growing port that focuses on containers and the large cargo transit business. Lianyungang is also positioning itself as a regional international hub port linking Qingdao, Shanghai, Japan, Korea and Central Asia through a transcontinental railroad. Maoyao, Miaoling and Xugou are main running Port Regions in Lianyungang, which has a total of 35 berths for containers, gains, coal, ore and chemicals. The port also has over 40 container courses to Europe, America, the Middle East, Northeast Asia and Southeast Asia. Lianyungang port container terminal handling capacity is projected to reach 3.4m TEU in 2010 and 8m in 2020.

### 11.3.8 Suzhou Port

Suzhou Port was formed by the amalgamation of three previously separate ports – Taicang, Zhangjiagang and Changshu. The port currently consists of three areas, each of which has their own distinguished features. The Taicang Port Region is the main container trade port in Jiangsu Province, the Changshu port specialises in steel imports, while the Zhangjiagang port is the region's largest waterage lumber import base. Like other parts of the region, Suzhou is expected to invest significant sums—around RMB 13.5bn—as part of the 11<sup>th</sup> Five-Year Plan. Port container terminal handling capacity is projected to reach 4.5m TEU in 2010 and 12m in 2020.

### 11.3.9 Yingkou Port

In 2010, Yingkou port achieved a container throughput of 3.33m TEU, an increase of 31.55 percent. Between January and November, foreign trade throughput at the port reached 45m tons. In January, container throughput reached 398,000 TEU, an increase of 28.7 percent over the previous January.

Yingkou Port is located at the checkpoint of the Bohai Economic Sphere and the northeast economic region and is the nearest outgoing sea port to the northeast three provinces and the Inner Mongolia hinterland. This location confers many advantages on the port, as it services a region growing in economic significance. In June 2009 the Xianrendao Port Region at Yingkou opened and a 300,000 DWT crude oil terminal officially began construction.

### 11.3.10 Yantai Port

Yantai Port spreads along Jiaodong Peninsula's 200 km coastline and includes four areas: the Zhifu Bay Port Region, Western Port Region, Penglai Port Region and the Longkou Port Region. Most recently the Western Port Region has been the site of significant investment, a RMB 1.5bn project covering a 500 square km water area and a port industrial park of 26 square km.

### 11.3.11 Quanzhou Port

Quanzhou Port is located in the southeast of Fujian Province and now has four Port Regions: Meizhou Bay, Quanzhou Bay, Shenhu Bay and Weitou Bay. According to the general plan, the Quanzhou Bay Port Region will



be developed into a modern logistics port for container, general and bulk cargo, as well as passenger and tourism services. The South Meizhou Bay Port Region is a new project under construction and when completed will be a major oil and chemical industrial base and a multi-functional international transshipment trading port in China. Shenhui Bay and Weitou Bay Port Regions will provide services for local economic development. By 2010, Quanzhou Port will have built 37 berths of 10,000 DWT capacity, handling cargos of over 100m tonnes and 2m TEU. By 2020, the port is projected to have 80 berths of 10,000 DWT, handling cargos of over 200m tonnes and 10m TEU.

#### **11.3.12 Fuzhou Port**

Fuzhou Port, also in Fujian Province, consists of 118 productive berths and is significant due to its position directly opposite the island of Taiwan. The merger of Fuzhou and Ningde Port came into effect at the end of 2009. Local officials hope the port consolidation allows for more effective resource allocation and that the port will surpass 100m tonnes earlier than expected by the end of 2010.

#### **11.3.13 Zhongshan Port**

Zhongshan Port, located in Guangdong Province, is undergoing a major renovation at the moment; by the end of 2010, the port will add two more berths while by 2020 Zhongshan will consist of nine 1,000 DWT berths with a total loading and unloading capacity of 4.5m tonnes. In accordance with Zhongshan's 11th Five-Year Plan, by 2010 Zhongshan port cargo throughput is projected to reach 40m tonnes and container throughput is projected to exceed 2m TEU.





## 12 Inland Ports

### 12.1 Introduction

In stark contrast to Mao's devotion for great waterway projects, the last few decades of last century witnessed an almost ambivalent approach to inland waterway (IWW) management in China.

Underfunding caused infrastructure and floating equipment to deteriorate badly and the navigable network fell from 172,000km in 1960 to around 125,000km by 2010. Hydropower dams, an inadequate multi-purpose infrastructure development approach, and a lack of overall coordination between administrative organs have all contributed to the decline.

This said though, in the first few years of the twenty-first century, as China's fragmented administrative structure impeded development of road transport networks, IWW transport was identified as a vital component of China's national comprehensive transport system and the integrated utilization of water resources, as well as a strategic resource for the sustainable development of the economy.

In part a drive to open the vast hinterland of China to investment and in part an effort to maximize cost efficient, relatively environmentally friendly transport networks the State Council approved the National Plan for Inland Waterways and Ports.

The plan outlines the blueprint for IWW development highlighting the relative inefficiency of road transport in Provincial China and the relative low environmental impact of IWW transport compared with the highway network.

### 12.2 Content of the National Plan for Inland Waterways and Ports

Under the Plan, inland waterways are classified into two categories; higher-classed waterways, i.e. Class 3 and above, which are navigable to vessels of up to 1,000 dwt; of which at present there are altogether over 10,000 km of waterway; and other-classed waterways, i.e. Class 4, which are navigable to vessels of up to 500 dwt.

Under the auspices of the '11<sup>th</sup> Five-Year Plan', the Phase 3 deepwater channel of the Yangtze River estuary will connect the 12.5 metre-deepwater channel to Taicang Port, thereby enhancing the river system's mainstream-branch shipping capabilities.

Other areas earmarked for development under the plan include the development of mainstream-branch direct shipping, sea-river shipping and container transportation, and increased development of specialized transportation systems for coal, ore, container, oil and gas, roll-on/roll-off vehicles all of which would greatly



benefit from improved IWW access to China's interior.

In addition, China has also focused on the water transportation development in the non-waterborne network areas and minority areas, as well as inland port development and technological reform, so as to facilitate the upgrading of inland port industry.

Under the IWW development plan, the Yangtze River, the Pearl River, the Beijing-Hangzhou Grand Canal and Huaihe River, Heilongjiang River, and Song-Liao waterways will form the main trunk of the network. With the Xijiang River, the sub-networks of the Yangtze and the Pearl River Deltas, combining with 18 other main and branch river systems completing a network of waterways navigable to 1,000 dwt vessels covering 20 provinces and administrative regions, connecting 56 cities of population 500,000 and above.

The 18 major inland waterways include the Minjiang River, the Jialingjiang River, the Wujiang River, the Xiangjiang River, the Yuanshui River, the Hanjiang River, the Jiangnan Canal, the Ganjiang River, the Xinjiang River, the Heyu Route, the Huaihe River, the Shayinghe River, the Youjiang River, the Beipanjiang-Hongshuihe River, the Liujiang-Qianjiang River, the Heilongjiang River, the Songhua River, and the Minjiang River.

The overall layout of the network will ultimately create two West-East Arteries – the Yangtze and Xijiang River Systems; One North-East Artery - the Beijing-Hangzhou Grand Canal; and two regional sub-networks – the Pearl and Yangtze River Deltas.

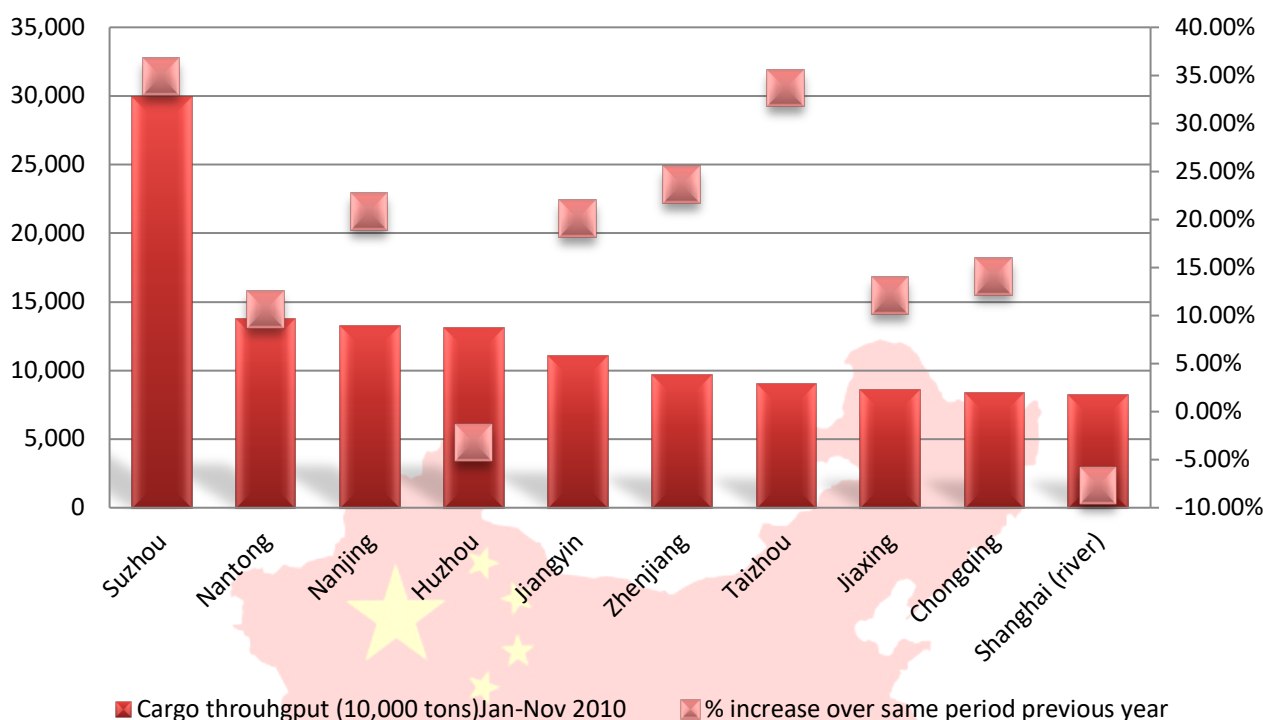
### 12.2.1 A port network of 28 major inland ports

- 16 ports on the Yangtze River: Luzhou Port, Chongqing Port, Yichang Port, Jingzhou Port, Wuhan Port, Huangshi Port, Changsha Port, Yueyang Port, Nanchang Port, Jiujiang Port, Wuhu Port, Anqing Port, Ma'anshan Port, Hefei Port, Huzhou Port and Jiaxing Inland Port.
- 5 ports on the Pearl River: Nanning Port, Guigang Port, Wuzhou Port, Zhaoqing Port and Foshan Port.
- 5 ports on the Beijing-Hangzhou Grand Canal and the Huaihe River: Ji'ning Port, Xuzhou Port, Wuxi Port, Hangzhou Port and Bengbu Port.
- And 2 ports on the Heilongjiang River and the Songhua River waters: Harbin Port and Jiamusi Port.
- China's inland ports are classified into three levels, namely, main ports, regional critical ports and standard ports.



## 12.3 Performance of Inland Ports 2010

### IWW Cargo Throughput and Growth



Inland ports achieved a container throughput of 10.63 million TEUs in the first three quarters of 2010. Over the course of 2010, river ports, for the most part, grew much faster than coastal clearly illustrating the growing trend for river sea transfer.

After integration into Suzhou Port, Taicang Port, Changshu and Zhangjiagang port throughput reached 299m tons or more, easily set to exceed 300m tons this year. In 2010, Zhenjiang Port throughput broke the 100m ton mark to reach 104m tons; this development brings the total number of 100m ton ports in Jiangsu province to six, the highest number of any province in China. At present, in Jiangsu Province, more than 90 percent of foreign trade is transported ports, with more than 90 percent and 60 percent of iron ore and coal respectively transferred via ports.

Added to this, with the Yangtze Estuary Waterway now successfully dredged to a depth of 12.5 meters, Jiangsu Taicang Port has been effectively transformed from a river port to a de facto sea port.

Nanjing Port cargo throughput exceeded 70m tons, as of the end of 2010 up 20 percent, a record high, but also achieved the first annual growth rate exceeding 10m tons a year.



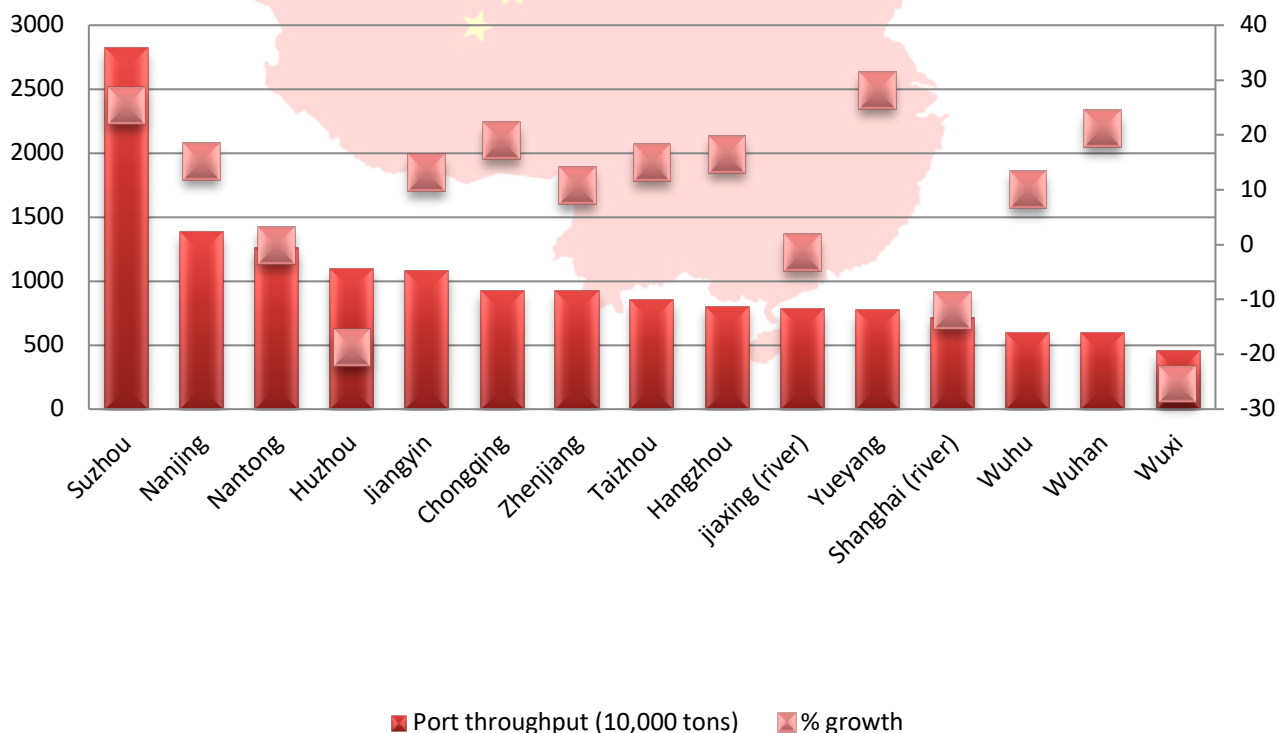
Nanjing has opened up this year, Anhui container transport routes to South Korea to open the container near Nanjing foreign international routes.

Sea to river coal transport showed good development prospects, as Nanjing Port Group, National Electric Power Group and Sinopec Group continue implementation of their strategic cooperation, namely construction of the State Power Fuel Logistics base in Nanjing and the China Petrochemical Chemical Coal Logistics Base.

Up river, port development momentum is fierce with rapid acceleration of river port-based bonded logistics zones and joint development zones. In line with this the Chongqing and Wuhan shipping centres have speeded up construction; Jiangsu Zhangjiagang bonded port zone, Taicang and Jiangyin bonded logistics centres and other listed operations; Chongqing, two - Cuntan Bonded Port operation, Shipping Exchange has been launched.

By the end of the year, navigable inland waterway in China reached 150,000 km. The length of classed waterway exceeded 62,000 km, accounting for almost 50 percent of the total, among which almost 9000 km are of class 3, accounting for around 7 percent of the total.

### IWW port throughput Jan 2011





## 12.4 Yangtze River

### 12.4.1 Yangtze River Overview<sup>1</sup>

The Yangtze River, over 6300km long, is the longest waterway in China and flows through 7 provinces and 2 municipalities across the western, central and eastern regions of China, with main tributaries stretching both north and south of the river basin.

The Yangtze River carries 80 percent of the nation's IWW freight transport volume, making the Yangtze River the world's busiest river with the largest cargo transport volume.

The 7 provinces and 2 municipalities that the Yangtze River flows through enjoy abundant resources and concentrated industries. The area has established industry belts and clusters along the river, accounting for over 41 percent of the nation's total economy. In particular, the region's steel output accounts for up to 36 percent of the nation's total; petrochemicals 28 percent; automotive and part manufacturing 47 percent; installed capacity of thermal power 16 percent.

Given the uneven economic development caused by economic and geographical differences across the eastern, central and western regions, the upper, middle and lower reaches of the Yangtze River have distinct and unique industrial patterns. To be specific, the upper reaches tend to be characterized by mining resources, mechanical and agricultural products; the central reaches are characterized by agricultural product processing, petrochemicals, forging, automotive parts and assembly and building materials; while the lower stream depends on equipment manufacturing, electronics, IT and hi-tech industries.

Major ports along the Yangtze River include: Yibin, Luzhou, Chongqing, Yichang, Zhicheng, Jingzhou, Chenglingji, Honghu, Wuhan, Huangshi, Jiujiang, Changsha, Anqing Chizhou, Tongling, Wuhu and Ma'anshan.

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<sup>1</sup> A full listing of Yangtze river port throughputs is available in the appendix of this report



### 12.4.2 Review of 2010<sup>2</sup>

In 2010, foreign trade cargo throughput reached new high, with imports far exceeding export growth rate. Driven by the growth in foreign trade, Yangtze River port foreign trade cargo throughput reached 169m tons, an increase of 16.5 percent. Of this figure, foreign trade exports reached 45.915m tons, an increase of 44.1 percent, accounting for 27.2 percent of foreign trade throughput; imports reached 122.85 million tons, an increase of 8.7 percent, accounting for 72.8 percent of foreign trade throughput.

It is predicted that in 2010, Yangtze River port cargo throughput will reach 1.55bn tons, an increase of 12 percent.

In decomposition, cargo throughput breaks down as such: Coal represented the largest proportion at 22.5 percent; metal ores in second place, at 21.5 percent; mine construction materials, was third at 13.8 percent; iron and steel took fourth place at 7.6 percent; Cement fifth, at 5.8 percent; oil, gas and products, ranked sixth, accounting for 5.5 percent.

By geographic distribution, the upper section of the river completed 113.736m tons, accounting for 8.2 percent; the middle section completed 134.551m tons, accounting for 9.7 percent; the downstream section completed 1.13bn tons, accounting for 82.1 percent.

Compared with the previous year, Sichuan, Chongqing, Hunan and Jiangsu's proportion rose, with Jiangsu and Chongqing rising substantially; Hubei, Jiangxi, and Anhui's proportion decreased, with Anhui decreasing greatly.

Last year, the number of the Yangtze River 100m ton ports increased to 5, from the previous year's total of one. All of these ports in Jiangsu Province and among them, Zhenjiang Port ranks first.

For a full listing of Yangtze River port throughputs, please see the appendix.

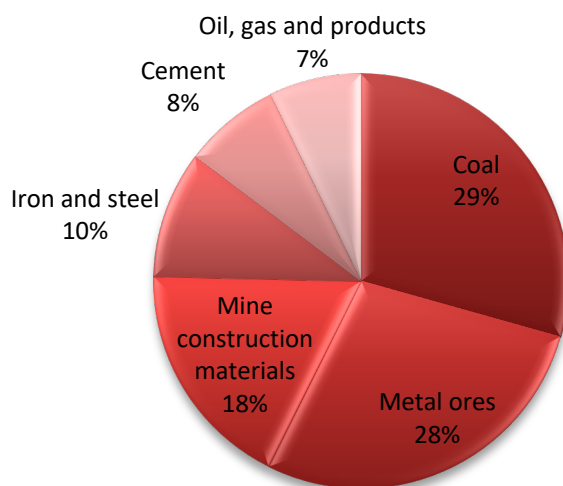
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<sup>2</sup> A full listing of Yangtze river port throughputs is available in the appendix of this report

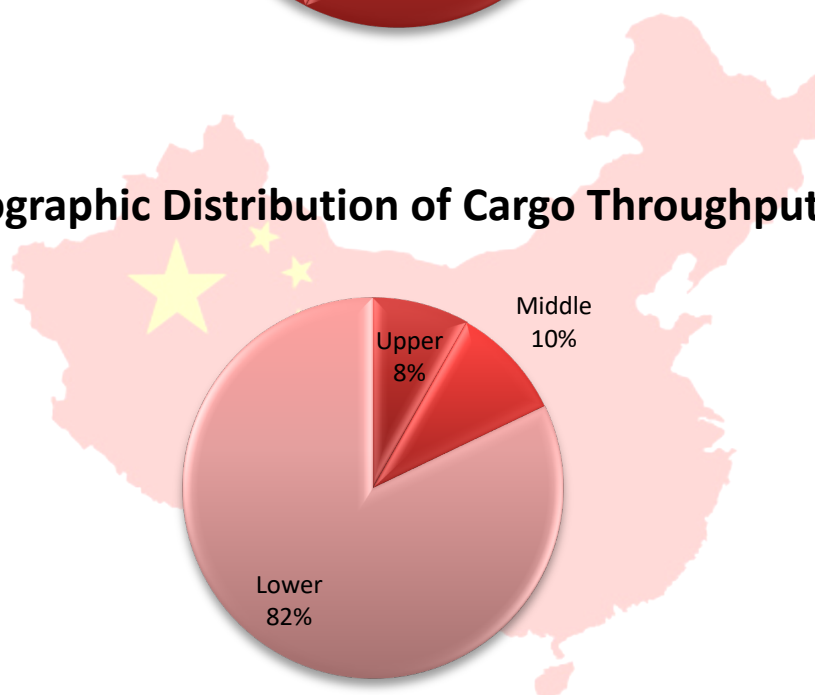




## Yangtze River Cargo Composition



## Geographic Distribution of Cargo Throughput





#### **12.4.2.1 Container traffic**

The period also witnessed rapid growth in container throughput, largely driven by increased internal trade. In 2010, Yangtze River port container throughput reached 9,083,000 TEU, an increase of 26.2 percent. Of this figure, foreign trade container throughput reached 3.6m TEU, up 19.4 percent; representing 39.6 percent of total; domestic container throughput reached 5.483 TEU, an increase of 31.2 percent, representing 60.4 percent of the total Yangtze container throughput.

In part this rise in container throughput is driven by the transformation development mode in China, a shifting in industrial structure with a shift toward higher value-added products. This shift has facilitated increased demand for intermediate good transmission as higher value-added goods tend to be more geographically distributed in their production process due to an increased specialisation in production processes.

Secondly, container throughput growth has been driven by a substantial growth in imports and exports in general, driven by stimulus spending and nascent economic recovery. This growth includes finished products, high-tech products, import and export of raw materials and specialist equipment.

#### **12.4.2.2 Coal**

Last year, large-scale ports along the Yangtze handled a throughput of 311m tons of coal, an increase of 37.3 percent. Main reasons for this increase include a general growth of energy demand, resulting in increased demand for coal. Secondly, extreme weather conditions drove demand for both domestic and industrial heating led to demand growth at coal fired power stations; in addition to this, drought conditions in Southwest China led to a shortage of hydropower, further driving thermal power demand. Also, a number of new power plants along the river have been put into production, increasing coal demand significantly. Added to this, new coal storage facilities on the river have greatly increased the efficiency of coal transport on the river.

#### **12.4.2.3 Oil**

Last year, Yangtze River port throughput of oil, gas and related products reached 76.307m tons, an increase of 14.7 percent.

#### **12.4.2.4 Iron Ore**

Yangtze River port throughput of iron ore reached 298m tons, an increase of 19.6 percent, over 2009; this growth however represents a growth rate decrease of 6.3 percentage points. As direct river to sea transport creating increasingly competitive cost structures for steel producers, more and more companies are realising the value of river transport with steel throughput reaching 106m tons, an increase of 7.6 percent. However,



with major steel mills along the Yangtze River increasingly affected by the dramatic rise of iron ore prices, the growth rate of iron ore slowed as the year drew to a close.

### 12.4.3 Outlook for 2011

Estimates from the Yangtze River Management Authority estimate transportation and production will continue to show steady growth.

In 2011, the internal driving force of economic growth in China will remain strong at 8 percent. Externally, the trend of overall economic recovery will continue, particularly in emerging markets and developing countries, economic growth remains relatively strong. However, the debt crisis in Europe, trade friction, increases in the uncertainties of foreign trade, labor prices, export tax rebates, and exchange rate changes may lead export growth to be lower than expected.

With increased growth for river-sea transfer rates and the general growth of imports and exports creates a huge potential for container throughput growth at Yangtze ports in 2011.

In terms of coal, despite the fact the overall national picture looks very much like stabilising at a growth rate below 10 percent – in part due to structural shifts in the Chinese industry, imposed emission targets and increased efficiency – this overall levelling of growth is unlikely to create a growth ceiling on river transport of coal as natural efficiency and cost advantages will continue to drive growth for the foreseeable future.

Despite continued strong demand in the steel sector driven by domestic real estate and auto sector growth, rising process in the sector coupled with a domestic production squeezes will likely mean a continued narrowing of steel throughput growth rates.

It is predicted that the Yangtze River is expected to reach a total cargo throughput of 1.55bn tons, an increase of 12 percent; in terms of foreign trade, container throughput is expected to reach 200m tons, 11m TEU, representing year on year growth of almost 20 percent; coal and iron ore throughput is likely to reach a throughput of 380m tons and 3.5m tons, an increase of 22 percent and 18 percent respectively.



### **12.4.3.1 Channel Regulation**

Apart from the Phase 3 project of deepwater channel regulation at the Yangtze River estuary, China will continue increase investment for large-scale regulation along the bottleneck stretches of the River.

The Regulatory Plan for the Yangtze River System divides the River into 5 sections – Yichang Dabujie-Chenglingji, Chenglingji-Wuhan, Wuhan-Anqing, Anqing-Nanjing and Nanjing-Liuhekou – focusing on 42 identified bottleneck stretches in need of increased regulation.

The middle and lower reaches of the River, starting from Yichang in Hubei Province and ending at Liuhekou in Jiangsu Province, totalling a distance of 1645 km. The Yichang-Wuhan section has historically been a bottleneck for navigation, due to its sand riverbed which causes frequent changes in the channel. After implementing regulation projects at Jiepai, Nianziwan and Luohuzhou channels the Yangtze River Waterway Bureau has now turned its attention to improving regulation of the middle and lower reaches, which is planned for completed by 2013.

At present, many regulation projects have been launched, including Jiangwu, Upper Zhangnan and Taiziji channels in the lower reach; as well as Daijiazhou Phase 1, Yaojian Phase 1 and Shashi Phase 1 at the middle reach.

### **12.4.4 Yangtze River Major Ports**

#### **12.4.4.1 Luzhou Port (Sichuan Province)**

In 2010, total port cargo throughput reached 17.72m tons, up 52 percent over 2009. Of this figure, container throughput reached 7024 TEU, an increase of 16 percent over the previous year; coal throughput reached 8.416m tons, up 12 percent over 2009; iron ore throughput reached 167,700 tons, 38 percent over the same period last year; crude oil throughput reached 546,400 tons, up 38 percent over 2009; mine construction material throughput reached 6,491,600 tons, up 374 percent over 2009.

As the largest port in Sichuan Province, Luzhou Port is the most convenient sea-going channel in the Sichuan, North Yunnan and Guizhou regions as well as the nearest major logistics centre on the upper reach of the Yangtze River.

With 166 berths, Luzhou Port achieved a cargo throughput of 11.128 m tons in 2008, up 9.4 percent on year; in 2009, Luzhou Port achieved a cargo throughput of 11.64 m tons in 2009, up 3.8 percent on 2008.

Sichuan Province, at present, handles about 700,000 TEUs for export and import annually, which are transported to coastal ports like Shanghai, Qingdao, Tianjin, Shenzhen and Lianyungang by train or to the ports



in the lower reach of the River through ports in Sichuan and Chongqing. The development of container terminal at Luzhou Port has been an enormous spur to the river-sea container shipping business between Sichuan and Shanghai.

Thus far, China Changjiang National Shipping, China Shipping, CMAL Chongqing, Chongqing Pacific Ocean International Logistics, and COSCO have established Luzhou-Shanghai container liners (20 shuttles per week) and developed a close relationship with ports in the lower reach of the River as well as ports in East China and North China. In 2008, container throughput at the port reached 66.2 thousand TEUs; in 2009, container throughput at the port fell to 60.681 thousand TEUs.

As the primary river-sea hub in the Province, Luzhou Port has become increasingly important in Sichuan's economic development. It benefits the surrounding areas to a distance of between 360km and 500km, covering most areas in South, West and North Sichuan, Yunnan and Guizhou. The development of Luzhou Port has also promoted the development of cargo sectors such as chemicals, heavy machinery and energy industries, which are currently developing into modern industry belts on both sides of the Yangtze River. Luzhou Port International Container Terminal has been under construction since 2007, and has an estimated annual throughput design capacity of up to 1 m TEUs.

#### **12.4.4.2 Chongqing Port (Chongqing Municipality)**

In 2010, Chongqing Port achieved a cargo throughput of 28.85m tons in the year, up 32 percent on 2009; container throughput reached 482,900 TEUs, up almost 20 percent over 2009. In 2009, Chongqing port cargo throughput reached 26.443 m tons and a container throughput of 402,670 TEUs; up 22 percent and down almost 17 percent respectively.

Of the port's total, 40 percent of container throughput was contributed by Yunnan, Guizhou and Sichuan Provinces. The rapid development of Chongqing Port has been instrumental in facilitating the process of developing Chongqing into an economy centre on the upper reaches of the Yangtze River.

In recent years, Chongqing has integrated three major ports on the upper reaches of the Yangtze River – namely Chongqing Port, Fuling Port and Wanzhou Port – into a new port group named Chongqing Port Logistics Group with total assets of RMB 5.3bn. The organization is divided into four main arms – port operations, shipping, trade logistics and trade and comprehensive) and formed five companies (port operation, shipping, logistics, trade and investment). The aim is to build the largest and the most competitive modern logistics group in West China, making Chongqing Port the largest comprehensive transshipment port and container hub port on the upper reach of the Yangtze River.

On November 12, 2008, the State Council approved establishment of the Chongqing Cuntan Bonded Port



Region as part of the further development of Chongqing Port. The port group has now become a listed company which is likely to improve financial performance, enhance profitability. According to the government's logistics development plan for Chongqing Port, the port will achieve a cargo throughput of over 60 m tons and a container throughput of 1.5 m TEUs by the end of 2010.

Chongqing municipal government plans to invest RMB 40bn for port and terminal construction projects, including the construction project of the 68km long channel near Jialing Jiangcaojie, vessel standardisation, as well as the key port projects including Cuntan Container Terminal Phase 2 and Fuling Huangqi Terminal.

According to the Ministry of Transport by the end of 2010 the local expressway network around Chongqing will be 3 times its current size, and Chongqing port is expected to have a throughput capacity of 1.2m TEU. Chongqing is adjacent to 30 waterways of navigable size and there are 100 IWW ports planned, among them fifteen with an annual throughput of 500,000 tonnes and twelve on the main Yangtze trunk. Via the ship lock on the Three Gorges Dam, vessels of up to 10,000 tonnes can now reach Chongqing from the coast.

At present, the Chongqing port has 114 berths, a 160,000 square metre warehouse yard, a 25.6 km long port railway, 257 sets of various material handling machines, 142 barges, and the largest roll-on roll-off operation line in Southwest China. This, along with an annual turnover of 14m tonnes, makes Chongqing port the biggest and busiest along the upper reaches of the Yangtze River.

According to a report by the Chongqing Academy of Social Science entitled 'The Industry Planning Research for Donggang Industrial Park', the Chongqing Municipal Government in 2007 chose a new port location at the Chayuan New Zone in Nan'an District. On April 21<sup>st</sup>, 2008, the Chongqing Nan'an Municipal Government signed a letter of intent for cooperation with SIPG for the construction of the Chongqing Port Chayuan Operation Area Project.

As part of this RMB 2.4bn project, 2.3 km of waterfront will be utilised and 13 new berths of 3000 DWT capacity are to be built, including 12 multi-functional berths and 1 roll-on-roll-off berth. After completion of the project, throughput is expected to reach 170,000 TEU annually starting in 2011.

Elsewhere, the Chongqing Cuntan Container Co. invested RMB 700m in a project, of which the first stage funds the construction of 2 container terminals and 1 roll-on roll-off terminal. This Phase was completed in 2009.

#### **12.4.4.3 Nanjing Port**

By the end of 2010 overall throughput is expected to reach 3m TEU.

In 2010, cargo throughput at Nanjin Port reached 132m tons, an increase of 20.8 percent.



At present, more than 25 percent of the containers along the Yangtze River come in and go out through Nanjing, a number that will only increase as the development of transit shipments solidify Nanjing port's status as the key transit hub in the upper Yangtze area.

Nanjing Port is the most favourable port along the Yangtze River for transmitting containers. At present, more than a quarter of containers along the Yangtze River transit through Nanjing; as the port has become a key transit point to the upper stream area of the Yangtze.

The Longtan Port Region is at the heart of Nanjing Port. Out of the seven total planned Phases of the project, Phases 1-3 have been completed. These include the container port region, general cargo port region, and the bulk cargo port region.

The RMB 2.4bn Longtan Port Phase 4, completed at the end of 2010, consists of 5 container berths and an annual throughput capacity of 1.2m TEU. Completion of the project brought Nanjing port an additional 11 container terminals and an annual container handling capacity of 3m TEU.

Under the 12<sup>th</sup> Five Year-Plan, Nanjing port is set to become the international shipping and logistics center of the Yangtze River.

Under an agreement signed by Nanjing and Sinotrans CSC Group, the Yangtze Estuary Waterway will be improved to reach a depth of 12.5 meters all the way to Nanjing, meaning 50,000 ton-class seagoing vessels will reach. The primary purpose of this is to link the port with Shanghai for transshipment significantly reducing freight costs to the port.

In early 2008, the Nanjing port opened new container routes to Japan and Korea.

#### **12.4.4.4 Hubei Province: Wuhan Port, Jingzhou Port, Yichang Port, and Huangshi Port**

Wuhan Port, Jingzhou Port, Yichang Port and Huangshi Port are the four major ports in Hubei Province, playing an important role in regional economic development.

Cargo throughput at Wuhan, Jingzhou, Yichang, and Huangshi Ports collectively reached 48.3 m tons in 2008. In 2009 this figure fell to 43.5 m tons, down 9.93 percent. In decomposition 2009 throughput at Wuhan, Jingzhou, Yichang and Huangshi reached 30.029 m tons (down 5.24 percent on year), 3.77 m tons (up 16.9 percent), 6.53 m tons (down 7.8 percent) and 3.21 m tons (down 50 percent) respectively. In 2009, Wuhan port achieved a container throughput of 314,950 TEUs.





The break bulk cargo terminal in Wuxue Port, Guosheng comprehensive terminal in Huangzhou Port, Xinyegang terminal extension project in Huangshi Port and Xinhuaixin cement terminal in Huangshi Port, which are all in Wuhan, began construction in 2009. The total annual throughput of the 4 terminals is expected to be 15 m tons with the investment of RMB 392 m.

The break bulk cargo terminal in Wuxue Port is to have two 3000-DWT berths, with the annual throughput of 700,000 tons (including 20,000 TEU). The Guosheng comprehensive terminal in Huangzhou Port is to have one 3000-DWT bulk cargo loading berth, two 3000-DWT bulk cargo unloading berths and one 1000-DWT chemical and dangerous cargo unloading berth, with an annual throughput of 2,350,000 tons.

Xinyegang terminal extension project is to build a 5000-DWT bulk cargo berth with the annual throughput of 1,900,000 tons. Xinhuaixin cement terminal in Huangshi Port is to have three 3000-DWT berths with the annual throughput of 10,000,000 tons.

Once these four terminals are completed, the Provincial government will prioritise development the traffic network infrastructure agglomeration in Wuhan to facilitate integration of local facilities.

Wuhan Port Group Co. was jointly established by SIPG and the State-owned Assets Supervision and Administration Commission of Wuhan. Wuhan Port is Hubei's transshipment hub in the upper and middle reaches of the Yangtze River. In 2009, Wuhan port achieved a container throughput of 314,950 TEUs, 30 percent of which was deadweight cargo from Wuhan.

In addition, COSCO have recently launched a new service – Wuhan-Yangshan direct shipping, triggering further economic development along the Yangtze River and further improving the strategic position of Wuhan Port as a key hub port in Central China.

During the current '11<sup>th</sup> Five-Year Plan' period, Wuhan Port will invest RMB 1.4bn to accelerate the development of the new Port Region and the reconstruction of the original Port Region. 16 projects have been launched recently and another 42 projects will be launched in the next five years. The 16 projects include Yangsi Port Container Terminal Phase 2, Hanyang Container Terminal Phase 2, Yangluo Container Terminal Phase 2, the 800,000 tonnage ethylene terminal and Huanggang Tangjiadu Terminal.

Wuhan port is comprised of the Hanyang, Hankou, Yangluo, Dunkou, Qingshan, and Zuoling port zones, comprising a total area of 122.45 square km. Within this port complex are 43 berths with a total length of 5,868 metres with a maximum berthing capacity of 5,000 tonnes. In addition, Wuhan port has a maximum hoisting capacity of 50 tonnes and has a throughput potential of 30m tonnes. Last year, throughput at the port reached 25m tonnes with container throughput exceeding 250,000 TEU. The port specialises in containers, coal, iron and steel, petroleum, ore, and crops as well as passenger transshipment.





Wuhan port is located on the middle stretches of the Yangtze. Roughly 1000 km equidistant north of Guangzhou, east of Chongqing, west of Shanghai, southwest of Beijing - as such it in many ways functions as the capital of central China.

Under the current five year plan, Wuhan is in the process of developing all of its main five Port Regions: Dunkou comprehensive Port Region, Hanyang container Port Region, Hankou, which is primarily reserved for passengers, Yangluo container and bulk Port Region and Zuoling dangerous goods area. Wuhan Port Group is also investing RMB 1.4bn (USD 182m) in 8 major projects. The current level of investment is five times as much as it was during the last five year plan, an amount roughly equal to building another Wuhan Port.

Yichang Port is not only an important port for Yichang, but also a key gateway for the eastern area of Chongqing and the western area of Hubei. According to the General Plan of Yichang Port, the Yunchi Terminal Project, which was started in October 2007, now has an annual container throughput capacity of 100,000 TEUs. Once completed in 2010, the annual container throughput capacity can reach 400,000 TEUs. As Yichang Port is accessible by water, road and rail transportation, the port will focus primarily on the movement of containers, coal, roll-on/roll-off as well as passenger transport; and secondarily, actively promote general and bulk cargo transportation in terms of oil products, raw materials and mining material by speeding up the development of oil, chemical and bulk cargo and passenger terminals.

Jingzhou Port is an import transshipment centre for bulk cargo and containers in the north-western area of the region, meeting the import, export and transshipment needs for oil products, coal, mining materials (ore), and grain, steel and machine products to the surrounding hinterland. Jingzhou Port has recently launched an expansion and construction project at its terminals. Its container terminal is planned to have an annual throughput capacity of 100,000 TEUs after the completion of the projects.

Huangshi Port is the most import platform and gateway for the economy and trade development in the eastern area of the region, focusing on metal ore, steel and cement. The general plan for the port is to develop both the Urban Port Region and Xingpanzhou Port Region.

#### **12.4.4.5 Hunan Province: Yueyang Port and Changsha Port**

Yueyang Port and Changsha Port are the two most important modern ports in Hunan Province, which are also major inland ports in China. As the national Class 1 port for foreign trade, Yueyang Port plays a key role in developing the export-oriented economy in Hunan Province. The port has 41 operation areas in its 11 Port Regions, with 53 berths able to accommodate up to 1000 tonnage vessels. Changsha Port is located beside the Xiangjiang River. It has 14 berths capable of accommodating up to 1000 tonnage vessels.

In particular, the cargo throughput of Yueyang Port reached 55 m tons in 2008, up 34.15 percent on year,



rising to 65 m tons in 2009, up 9 percent, accounting for one third of the province's total volume. In 2009, Changsha Port achieved a cargo throughput of 4.36 m tons in 2009, an increase of more than 45 percent over the previous year. Changsha Port also exceeded the 100,000 TEUs for the first time.

Yueyang Port is located near Dongting Lake, connecting various rivers and lakes. It is also well accessible by rail and road. Therefore, most materials from Hunan as well as the upper and middle reaches of the Yangtze River will be transshipped at Yueyang Port. The major cargo categories are oil, coal, ore, steel and grain. Yueyang Chenglingji (also known as Songyanghu New Port) is one of the first approved cross-strait direct shipping ports and is the only direct shipping port in Hunan.

Changsha City is the primary hinterland of Changsha Port. Hubei Province plans to establish Xianing Port Region as Changsha Port's central area. The Phase 1 project has started operation. The port also established a joint venture with SIPG – Changsha Jixing Container Terminal Co. Ltd. Xianing New Port Project has three Phases, planning to build 14 freight berths. The designed cargo throughput capacity of the port is 10 m tons.

#### **12.4.4.6 Jiangxi Province: Jiujiang Port and Nanchang Port**

Jiujiang Port and Nanchang Port are the two key gateways in the area. In 2009 Jiujiang Port cargo throughput reached 7.46m tons, up 35.4 percent over 2008; cargo throughput at Nanchang Port reached 11m tons, an increase of 108 percent.

Jiujiang Port is the only transshipment port for river-sea and water-land transportation in Jiangxi Province, which is situated at the convergence of the Beijing-Kowloon Railway, Fuzhou-Yinchuan Expressway and Ganjiang River. The port now has 68 berths. With the implementation of the national strategic plan for the development of the central region, Jiujiang Port achieved great progress in terms of cargo and container throughput, with an average annual growth rate of 30 percent and 62 percent, respectively, playing an increasingly important role in fuel, ore, building material and container transportation.

According to the General Plan of Jiujiang Port approved by the Ministry of Transportation in March 2008, the port will be developed into a comprehensive port which focusing on containers, building materials, ore and fuel transportation, providing passenger services as well as warehousing, transshipment, repackaging, distribution and other modern logistics and trade services.

As an investor, SIPG participated in the reform of Jiujiang Port in 2007 and built the container terminal in the western Port Region. The Phase 1 project started operation in December 2008, with 2 container berths of 5000 tonnage-class. The annual throughput capacity is designed to be 300,000 TEUs. The Phase 1 project of the logistics park at the port covers an area of 15 hectares, which can handle 1.29 m tons of containerised cargo and 0.86 m ton of non-containerized cargo.



Nanchang Port is located at the lower reaches of the Ganjiang River where the Wu River, Hsin River, Rao River, Xiu River and Poyang Lake converge. The port now has four public Port Regions, with 47 terminals and 97 berths, providing services for Shanghai, Jiangsu, Zhejiang, Anhui and Hubei among others.

#### **12.4.4.7 Anhui Province: Ma'anshan Port, Wuhu Port, Anqing Port, and Hefei Port**

Total cargo throughput of ports in Anhui Province amounted to 265 m tons, down 2.9 percent over the previous year. Of this figure Wuhu Port accounted for 57.09 m tons a rise of 3.5 percent; Ma'an shan accounted for almost 38 m tons, up 46.6 percent; and Anqing Port accounted for 8.654 m tons, up 61.5 percent.

Ma'anshan Port is located in Ma'anshan City on the south bank of the lower reach of the Yangtze River, neighbouring Wuhu and Nanjing. The port has 44 berths, among which 13 5000 tonnage-class. The designed annual throughput capacity totals 31.2 m tons, enabling the port to be the most important ore import port and ore product export port for Angang Steel Co. Ltd.

Wuhu Port is the first Class 1 port opened to foreign trade in Anhui Province. It is located at the convergence of the Qingyi River, Yuncao River and Yangtze River. The port mainly provides transshipment services for coal, foreign trade containers, bulk cargo and general cargo, as well as roll-on/roll-off and logistics distribution services. Wuhu Port now has 166 berths, including 9 berths of 10000 tonnage-class and 25 of 5000 tonnage-class. In 2008, the port achieved a cargo throughput of 15.19 m tons and a container throughput of 164,100 TEUs.

Wuhu Port has the largest coal terminal along the Yangtze River and the largest foreign trade terminal in Anhui Province. The coal transshipment demand mainly comes from the power plants and companies along the River and in Anhui Province. The foreign trade demand is mainly contributed by shippers in the central and northern part of Anhui Province. To be specific, timber and steel are the major bulk cargoes imported through the port, while ore and electrolytic coppers are a major export. In recent years the local government has attached great importance to Yuxikou Coal Distribution Centre Project and Zhujiqiao Container Terminal Phase 1 Project, including the construction of 2 container terminals of 5000 tonnage-class with a designed annual container throughput capacity of 100,000 TEUs. The annual throughput capacity of Yuxikou Coal DC is designed to be 3 m tons.

Anqing Port is the only deepwater inland port on the north bank of the Yangtze River in Anhui Province. The port is divided into 4 areas: Central Port Region, Xusong Port Region, Huayang Port Region and Zongyang Port Region. There are 220 berths available at the port, including 1 berth of 5000 tonnage-class and 3 container berths. The general throughput capacity of the port is planned to reach 30 m tons per year.

Hefei Port is the major hub port in Hefei and the surrounding area and the largest water freight distribution



centre in the central area of Anhui Province. The port's hinterland has developed economy, strong industry and abundant agricultural resources. The port has 4 operation areas: Hefei New Port Region, Daxingji Port Region, Feidongcuozhen Port Region and Feixishangpai Port Region. There are 13 berths at the port, 2 of which are 1000 tonnage-class.

In 2009, Hefei Port achieved a cargo throughput of around 10 m tons, a figure which remains essentially static over the previous year. At present, the Phase 1 project of Hefei Comprehensive Terminal is under construction, which is a comprehensive Port Region focusing on general cargo and modern logistics. The project includes 4 general cargo berths of 1000 tonnage-class and related facilities. In addition, Hefei-Yuxikou channel regulation project will be launched soon. After the regulation project, the channel will be suitable for 500 tonnage to 1000 tonnage vessels all year.

#### **12.4.4.8 Zhejiang Province: Huzhou Port and Jiaxing Inland Port**

Huzhou Port throughput in 2009 reached 49.45 m tons up 14 percent over 2008. In 2009, total port cargo throughput Jiaxing reached 34.847 m tons, an increase of almost 23 percent; container throughput rose to 200.38 thousand TEUs, up 100 percent year on year. In 2008 Jiaxing achieved a TEU throughput increase of 172 percent over 2007.

Huzhou Port is divided into 5 Port Regions, Wuxing, Nanxun, Changxing, Deqing and Anji, with 446 terminal operators and 1,125 berths. The largest berthing capacity reaches 1000 tonnage.

Jiaxing Inland Port is the key logistics centre and water-land intermodal transportation hub in Jiaxing. With the rapid economic and social development in Jiaxing as well as the Yangtze River Delta region in general, Jiaxing Inland Port achieved steady throughput growth and is developing its inland container transportation. The port is divided into 6 Port Regions, Suburban, Haining, Haiyan Inland, Pinghu, Jiashan and Tongxiang, providing transport services for domestic trade containers, the import and export of liquid bulk cargo and grain industries in Jiaxing. The port also provides inland transshipment service for some sea ports.



## 12.5 Pearl River Waters

### 12.5.1 Major Ports in the Region

The Pearl River is the fourth largest river in China. The inland waterway network that makes up the Pearl constitute 36,000 km of waterways, which primarily consist of the Xijiang River, the Beijiang River and the Dongjiang River. The year-round navigable channel is 12,000km long. The Pearl River ranks second in the nation in terms of water transportation volume behind the Yangtze River. The Xijiang River is the mainstream of the Pearl River Waters, which flows through Yunnan, Guizhou, Guangxi and Guangdong with a length of 2,217 km. In particular, 868 km of its mainstream is navigable all year. The drainage area of the Xijiang River is about 350,000 square km, making up 77.8 percent of the Pearl River's total drainage area.

Major ports in the Pearl River include Nanning, Guigang and Wuzhou in Guangxi and Zhaoqing, Foshan, Guangzhou and Zhongshan in Guangdong. Nanning Port has 99 terminals and berths in its four Port Regions – Nanning Urban Port Region, Long'an County Port Region, Yongning County Port Region and Heng County Port Region. Beida Container Terminal is the first vertical stacked container terminal in Nanning. Guigang Port is divided into four areas, i.e. Chengbei, Chengnan, Guiping and Pingnan. There are 171 berths at the port, including 3 berths of 2000 tonnage-class, 12 berths of 1000 tonnage-class and 156 berths of 500 tonnage-class.

Zhaoqing Port has 153 terminals, including 4 container terminals with over 10,000 ton throughput capacity, 11 berths, 140 bulk cargo terminals and 7 oil and dangerous goods terminals. Zhaoqing New Port was established at the end of 2007 and is located on the lower reaches of the Xijiang River with 10 berths of 5000 tonnage-class and 2 berths of 1000 tonnage-class.

Wuzhou Port has 3 comprehensive terminals; Hexi, Fumin and Lijiazhuang, which has attracted 35 shipping companies and 28 terminal operators.

#### 12.5.1.1 Regional Port Throughput

In 2008, total cargo throughput in the Pearl River reached 360 m tons, with total container throughput of 6.2 m TEU. In 2009, total cargo throughput for the whole river fell to 272 million tons, down 24 percent.

Of this figure, major ports in the Pearl River system handled in excess of 140m tons. Foreign trade throughput reached 35.37 m tons, up 2.2 percent on year but 8.2 percentage points lower than that of 2007. The container throughput of major ports totalled 4.328 m TEUs, down 1.8 percent on year; 14.4 percentage points lower than that of 2007.

Cargo volume on the Pearl River fell in 2009 to 272 m tons, a fall of almost 26 percent; although cargo turnover



rose to 51.433 billion tons km, from 46.029bn ton-km the previous year. Despite this fall in aggregate annual cargo volume, this figure belies a substantial rise in cargo volumes as the year drew to a close.

Due to the global financial crisis of 2008, many regional companies reduced production lines, transferred or closed, which brought about a negative growth in power consumption. The demand for bulk cargo like coal, steel, oil and gas etc., shrank sharply. As a result, import and export growth slowed down in Guangdong Province, which in turn caused a slowdown in port throughput growth. In particular, foreign trade cargo throughput volume dropped significantly in the period. In 2009, the growth of the region's water freight volume recovered by the end of the year to exceed pre-crash levels.

Water transportation has become an indispensable part of the regional transportation system. 33 percent of incoming coal, 50 percent of the imported oil and gas, and 66 percent of the imported grain are transported through inland waterways. In addition, 22 percent of Hong Kong maritime container throughput is shipped through the Pearl River waterways.

The regional water transportation system and the industries alongside now far more integrated and better coordinated than in previous years attracting many new industries. The region is now famous for its industrial parks and manufacturing bases for building materials, sugar refining, paper, chemical, ceramic, electric appliances and electronic products.

In 2009, Guangzhou Port developed container feeder barge services in the PRD region and the Xijiang River waters. This new development greatly increased overall efficiency, benefiting both shipping companies and port operators. In addition, with the improvement of the waterway system in Guangdong and Guangxi, the Pearl River System will become increasingly important in the development of China-ASEAN Free Trade Area and the regional cooperation of the Pan-Beibu Gulf Economic Zone, the Greater Mekong Sub-region (GMS) and the Pan-PRD region.

### 12.5.2 Regional Port Performance

According to the national plan for the development of the Pearl River ports, a series of projects have been or will be launched, including the capacity expansion project of Xijiang River channel; the regulation project of Guigang-Zhaoqing and the construction of Guiping Second-Line Shiplock; the all-round development of high-classed network in the PRD region; the regulation project of Shunde Channel, Hongqili Channel, the Lower Channel of the Dongjiang River, Baini Channel, Dongping Channel and Yamen Channel; the construction of shipping-power-generating hubs of Youjiang Naji, Yuliang, Laokou; the recovery project of the Hongshuihe River; as well as additional berth construction at Nanning, Guigang, Wuzhou, Zhaoqing and Foshan among others.





In November, 2008, Guangdong and Guangxi signed an agreement on accelerating the joint development of Xijiang Golden Channel. This was another strategic movement for the opening and development of the Beibu Gulf Economic Zone and regional cooperation between the two provinces.

#### **12.5.2.1 Guangxi Zhuang Autonomous Region**

According to the '11<sup>th</sup> Five-Year Plan' for Guangxi's water transportation development, the region will invest in RMB 5bn over the five years for inland waterway infrastructure construction, including 291 km new Class 2 channel and 420 km Class 3 channel. By the end of 2010, the length of the regional navigable channel reached 5591 km, including 291 km Class 2 channel and 700 km Class 3 channel. The throughput capacity of inland ports will be expanded by 30 m tons, thus the regional port throughput capacity will reach 61 m tons.

As the leading port along the Xijiang River, Nanning Port is the hub port connecting the Beibu Gulf port cluster, Xijiang Channel and Nanning-Kunming Railway. The Nanning-Guangzhou section of the Xijiang Channel is now navigable for 1000 tonnage vessels. With the port throughput growth and the urban development of Nanning, major port operation areas in the urban area will be removed soon, replaced by Liujiang Port Region currently under construction.

Connecting Southwest China and South China, Guigang Port is the major transshipment port for sea-going cargos. It is a key gateway for the development of regional export-oriented economy, economic cooperation with Guangdong, Hong Kong and Macau and the logistics system development of China-ASEAN Free Trade Area. Guigang is focusing on bulk cargo and container transportation by better integration and utilization of port resources and further development of its transportation system. The port has established Luopowan Operation Area for container and general cargo, and Mao'ershan Area for bulk cargo operation. So far, Guigang has established various inland transportation lines across the Pearl River System, including 'feeder barge' lines to Guangzhou Port, scheduled container liners to Nansha, Hong Kong and Shenzhen, domestic container lines to Huangpu and regular freight lines to ports in the PRD, Hong Kong and Macau.

Wuzhou Port has combined the industry development of Wuzhou City with the regional development. The current priority is to accelerate the regulation projects of the Guijiang River, the Xijiang River and the Guigang-Zhaoqing Class 2 channel; as well as optimize the utilization of water resource and upgrade channel class in the region. Wuzhou Port contains 3 Port Regions, i.e. Central Port Region, Cangwu Port Region and Tengxian Port Region.

#### **12.5.2.2 Guangdong Province**

Guangdong's key inland waterway development project—the regulation of the 168 km 'Zhaoqing-Tiger Leaping Gorge' channel navigable for 3,000 ton vessels—has been completed. The regulation of the 171 km



Zhaoqing-Jieshou channel is presently under construction. The Guigang-Zhaoqing Class 2 Channel, a project jointly organised by Guangxi and Guangdong Provinces, will enable 2,000 ton vessels to reach the Pearl River estuary. When completed the channel will connect Zhaoqing Port to the coast more directly thus improving the competitive advantage of its logistics industry. Development of the waterway is a key component in the development of the Pan-Pearl River Economic Region.



Four of the six navigable waterways cross Zhaoqing are the Xijiang River, the Suijiang River, the Beijiang River with a navigable length of 529 km. The Zhaoqing section of the Xijiang, classified as a Class 1 and Class 2 channel, extends over 218 km and accounts for 35.1 percent of Guangdong's total channel length. Supported by the local government, Zhaoqing is making better use of its Xijiang Golden Channel advantage in order to develop port logistics with the aim of developing Zhaoqing into a logistics centre along the Xijiang River and correspondingly accelerate the development of the local economy. Annual throughput at Zhaoqing Port is projected to reach 15m tons by 2011.





Foshan Port has developed a shipping network of 391 berths using its optimised port location and advanced vessel technology. The port is well connected to various other transport nodes.

## 12.6 The Beijing-Hangzhou Grand Canal and Huaihe River Waters

### 12.6.1 Major Ports in the Region

#### 12.6.1.1 The Beijing-Hangzhou Grand Canal

The 1794-km long Beijing-Hangzhou Grand Canal starts from Beijing (Zhuojun) in the north and ends at Hangzhou (Yuhang) in the south, flowing through Beijing, Tianjin as well as Hebei, Shandong, Jiangsu and Zhejiang, connecting five water systems – the Haihe River, the Yellow River, the Huaihe River, the Yangtze River and the Qiantang River. The Grand Canal has 1442 km of navigable channel, among which 877 km is navigable all the year. Currently, the major navigable section of the Grand Canal is the 833-km long section south of the Yellow River, which mainly goes through Shandong, Jiangsu and Zhejiang. Therefore, major ports along the Grand Canal are clustered in the above three provinces.

#### 12.6.1.2 The Huaihe River Waters

The Huaihe River starts from the Tongbo Mountain at the southern part of Henan Province. The mainstream extends over 1000 km, flowing from west to east through the south area of Henan, the central area of Anhui and Jiangsu into Hongze Lake for flood regulation; and then the mainstream flows into the Yangtze River at Yangzhou Sanjiangying. The Huaihe River Waters have various branches, including 4 branches with a drainage area of above 10,000 square metres, 16 branches with a drainage area of above 2000 square metres, and 21 branches with a drainage area of above 1000 square metres.

Major ports in the Beijing-Hangzhou Grand Canal and Huaihe River Waters are: Jining Port in Shandong Province, Bengbu Port in Anhui Province, Xuzhou Port and Wuxi Port in Jiangsu Province, as well as Hangzhou Port in Zhejiang Province.

### 12.6.2 Regional Port Performance

#### 12.6.2.1 The Shandong Section of the Beijing-Hangzhou Grand Canal

At present, Jining and Zaozhuang are two major inland ports in Shandong Province. The navigable channels, ports and water transportation operations are concentrated at the Jining-Tai'erzhuang section of the Grand Canal and its branches. There is a complex river network in the province and the length of regional inland



waterways accumulate to 2,182 km and the length of navigable waterways totalled 1012 km. Waterways of Class 4 and above take up 12.8 percent of the total length of the waterways. Shandong Province also has 17 inland ports, among which 12 ports are in Jining, 3 in Zaozhuang, with a throughput capacity of 17.70 m tons. In addition, the whole Jining-Tai'ierzhuang section of the Grand Canal meets the requirement of the Class 3 navigation standard.

Located to the west of Jining City in the southern area of Shandong Province, Jining Port is situated at the convergence point of Jiangsu, Shandong, Hebei and Anhui. The port contains 10 operation areas. There are 5 berths of 300 tonnage-class, which are equipped with belt conveyor and loading systems mainly for coal transportation. So far, a general terminal has been built at Guozhuang Port Region, with a designed throughput capacity of 300,000 tons. The port also started to develop container transportation and currently handles around 30 TEUs a year.

#### ***12.6.2.2 The Jiangsu Section of the Beijing-Hangzhou Grand Canal***

The Jiangsu Province section of the Beijing-Hangzhou is 690 km long, with the total length of navigable channels in the province around 24,000 km. Xuzhou Port and Wuxi Port are the two major inland ports in the province.

#### ***12.6.2.3 Xuzhou Port***

Situated at the convergence of Jiangsu, Shandong, Henan and Anhui, Xuzhou Port is a key water-land transportation hub connecting North, South, East and West China. With such a strategic location, the port has formed a comprehensive system of rail, road, water, air and pipe transportation. Xuzhou Port is also a key energy transshipment centre (especially for transporting coal from north to south) in East China and a strategic logistics centre in the Yangtze River Delta. The port is primarily made up of 4 operation areas, i.e. Wanzhai, Pizhou, Shuanglou and Mengjiagou, with 333 terminals of all kinds and 719 berths. The port's coal transshipment volume accounts for over 15 percent of the total consumption volume in Jiangsu Province. Jiangsu Coal Exchange Market under the port is one of the top 4 coal markets in China, making coal the most important cargo category to Xuzhou Port. Of cargo throughput of Xuzhou Port in 2009 over 90 percent was bulk cargo – coal, mining materials, cement and non-metallic ore.

#### ***12.6.2.4 Wuxi Port***

Wuxi Port is an important inland port in Jiangsu Province, which is also one of the national Class 2 ports. The port has 30 berths of 500 tonnage-class and 75 berths of 200 tonnage-class along the 2000 metre long main channel of the Beijing-Hangzhou Grand Canal, operating 8 direct container liners per week to Shanghai Yangshan Port where goods are transshipped to major ports in the world.



The port was severely impacted by the the international financial crisis in 2009, however throughput has since rebounded significantly.

#### ***12.6.2.5 The Anhui Section of the Beijing-Hangzhou Grand Canal***

Anhui Province has launched a regulation project for the 41.04 km long section of the Wuhu-Shanghai Canal in accordance with the restricted Class 3 double-channel standard. Once the project is completed, the canal will be navigable for 1000 tonnage vessels. The Canal connects Anhui and the upper and middle reaches of the Yangtze River directly to Jiangsu, Zhejiang and Shanghai, which saves over 100 km voyage mileage.

Bengbu Port is the largest port along the Huaihe River. It is the main gateway of the Beijing-Hangzhou Grand Canal and Huaihe River waters. At present, the port is divided into 4 areas – Central, Huaiyuan, Wuhe and Guzhen, with 58 berths.

#### ***12.6.2.6 The Zhejiang Section of the Beijing-Hangzhou Grand Canal***

The Zhejiang section of the Beijing-Hangzhou Grand Canal is 100 km long and flows through Hangzhou, Huzhou and Jiaxing, with 94 berths alongside. There are more than 20 bridges over the 14.7 km long Hangzhou section of the Grand Canal creating a bottleneck section for large vessels. The old canal can no longer satisfy the fast-growing demand for freight transportation. Therefore, Zhejiang Province is planning to build a second channel for the Hangzhou section of the Grand Canal, which is 39.6 km long, beginning from Qiantang River and meeting the Grand Canal at Wulong Bridge in Deqing County. The second channel will be built according to the Class 3 channel standard, so that it can replace the Hangzhou section of the Grand Canal for freight transportation and the capacity could be increased by 40 percent. The original canal will be preserved as a historical cultural heritage site, focusing on tourism development.

Hangzhou Port is divided in to 9 areas, i.e. Qiantangjiang, Canal, Xiaoshan, Yuhang, Fuyang, Tonglu, Jiande, Chun'an and Lin'an.



## 12.7 The Heilongjiang River and Song-Liao Waters

### 12.7.1 Major Ports in the Region

The Heilongjiang River and Song-Liao Waters contain four river systems: the Heilongjiang, Songhua, Usuli, and Suifen Rivers. The length of the regional navigable waterways total 5,057 km. There are also 356 berths in the region, of which 297 are along the Songhua, 55 along the Heilongjiang, and two each along the Nenjiang and Usuli Rivers.

At present there are 15 waterway ports opened in the province, including Heihe, Wuyuan, Xunke, Huma, Jiayin, Luobei, Mohe and Sunwu along the Heilongjiang River, Harbin, Jamus, Tongjiang, Fujin, Huazhuan and Suibin along the Songhua River and Raohe along the Usuli River.

### 12.7.2 Regional Port Performance and Future Plans

In 2009, the cargo volume in the Heilongjiang River Waters reached 13 m tons; the cargo turnover totalled 795 million ton-km

Located on the middle reach of the Songhua River, Harbin Port is the largest water-land hub port on the Heilongjiang waters, connecting Russian ports through the Heilongjiang River. The port covers a land area of 1,328,400 square metres and a water area of 640,000 square metres. The port has 16 terminal operators, 44 berths and a 4108 metre long berth line. With a maximum berthing capacity of 1000 tons, the port's annual throughput capacity is designed to be 7.87 m tons and the annual passenger throughput capacity is 100,000 person-times.

Jamus Port is situated on the lower reach of the Songhua River, from where vessels can access Harbin Port by voyaging 444 km along the Songhua River; or reach the Heilongjiang River by voyaging downwards 254 km along the River. As the second largest water-land hub port on the Heilongjiang waters, the port covers a land area of 563,000 square metres and a water area of 802,500 square metres. The port has 34 terminal operators, 53 berths and a 3989 metre long berth line. With a maximum berthing capacity of 1000 tons, the port's annual throughput capacity is designed to be 3.568 m tons.





## 13 Port Developments

### 13.1 Infrastructure Overview

Data indicates that in the last five years, China constructed 661 deep-water berths bringing the national total to 1774. Over the same period China added 300m tons of additional capacity, to reach 5.51bn tons, greatly improving the distribution systems for coal, oil, ore, container and grain.

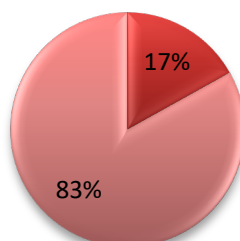
By 2010, China possessed 413 ports; of these 413, 87 ports achieved a throughput above 2m tons; and 36 above 10m tons. Collectively these 413 operate some 31,429 productive terminal berths; 1554 of which are classified as 10,000 ton and above. China's coastal ports constitute more than 5320 of the national total of productive berths; of which 1261 are classified as 10,000 ton and above.

Total Productive Berths 2010	
Total berths	31429
Coastal	5320
IWW	26109
IWW	
Below 10,000 DWT Class	29875
Above 10,000 Class	1554
10,000-30,000 DWT Class	682
30,000-50,000 DWT Class	276
50,000-100,000 DWT Class	427
Above 100,000 DWT Class	169
Coastal ports	
Below 10,000 DWT Class	4059
Above 10,000 DWT Class	1261
10,000-30,000 DWT Class	533
30,000-50,000 DWT Class	193
50,000-100,000 DWT Class	371
Above 100,00 DWT Class	164



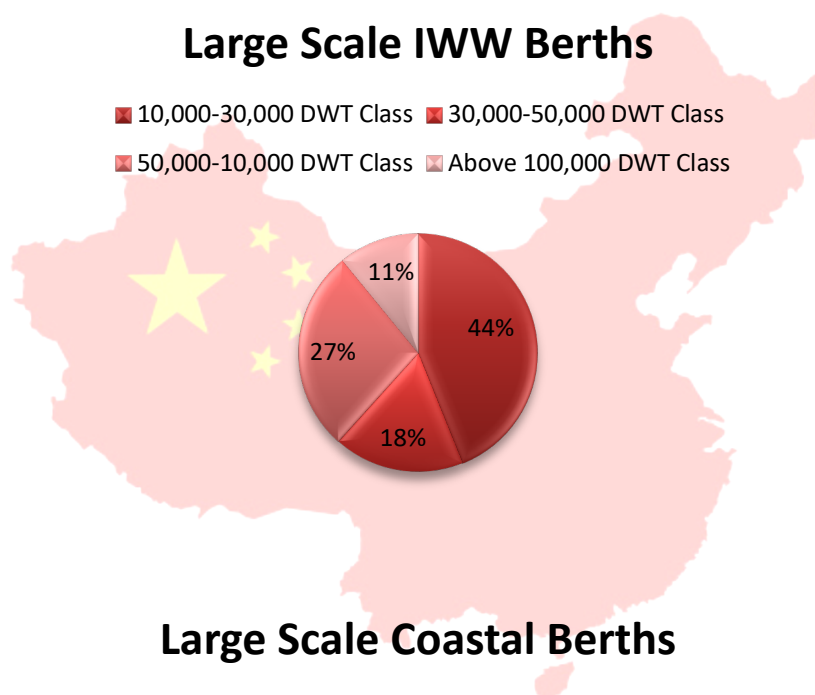
## Distribution of Productive Berths

■ Coastal ■ IWW



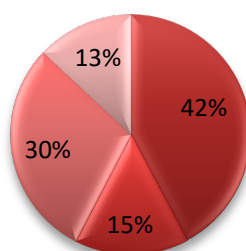
## Large Scale IWW Berths

■ 10,000-30,000 DWT Class ■ 30,000-50,000 DWT Class  
■ 50,000-100,000 DWT Class ■ Above 100,000 DWT Class



## Large Scale Coastal Berths

■ 10,000-30,000 DWT Class ■ 30,000-50,000 DWT Class  
■ 50,000-100,000 DWT Class ■ Above 100,000 DWT Class





## 13.2 Structure of port investment

At present, there are three primary modes of investment in China's ports:

- First, domestic capital cooperates with port enterprises or builds and operates by itself; for example, Shenhua Group invested over RMB5 billion in Huanghua, Hebei to build a large coal export port; Baosteel Group built up a 250,000-ton ore transfer terminal, which is the largest of its kind in China, in Zhoushan, Zhejiang.
- Second, joint venture; for example, Port Hutchison Whampoa invested in Shanghai, Shenzhen Yantian, Ningbo Beilun, Shantou, Zhuhai, Jiangmen, Xiamen and Nanhai ports; Singapore PSA in Dalian, Fuzhou and Guangzhou ports; British P&O in Qingdao and Shenzhen Shekou ports. In addition, China Merchants Holdings (International), Maersk, Encinal Terminals, Port Modern Terminals, Port Pacific Basin, Port Swire (Tai Koo), Kerry Properties (Port), Port Henderson, and Masahiro Trading Company Limited also invested in Chinese ports to operate container terminals.
- Third, private capital participates in port construction and operation through shareholding structure reform or acquisition of state-owned capital. As China's private enterprises are in general weak, private capital investment is mainly concentrated in small and medium-sized coastal ports and inland ports. In large ports, private capital mainly focuses on businesses such as warehousing, freight forwarding, container truck transportation, customs clearance, and packaging. A large part of China's import and export goods is loaded and unloaded at private terminals, and about 60% of the loading and unloading equipment in coastal ports is owned and operated by private enterprises.





### 13.3 Overview of port development

The annual increase in the handling capacity of coastal ports exceeded 500m tons from 2005 to 2010, prompted by a surge in transport demand and thus coastal port construction. The development of industries such as petrochemicals, steel, electricity power generation, grain, and oil in the years after 2002 has led to a surge in related port infrastructure construction.

#### 13.3.1 Attempts to Rationalise the Pattern of Terminals in Port Regions

The aims of improving and expanding coastal ports include converting pontoon terminals into fixed terminals, upgrading berthing, and building infrastructure in order to specialise operations. Terminals that fail to adapt to development goals or lag behind modern ports are occasionally removed from urban areas, thus reducing the number of old berths in a particular area.

#### 13.3.2 Construction of Container Terminals

These are the projects were due for completion in 2010:

- Zhoushan Port Jintang Port Region Dapukou Container Terminal Project
- Fuzhou Port Jiangyin Port Region Berths No. 4 and 5
- Shantou Port Guang'ao Port Region Phase I Construction Project
- Yantian Port Extension Project Phase III
- Zhanjiang Port Baoman Port Region Project Phase I
- Huizhou Port International Container Terminal Project (scheduled for completion in 2010)
- Shenzhen Dachan Bay Port Container Terminal Phase II
- Tianjin Port Beigangchi Container Terminal Project

Projects commenced in 2010 and beyond include:

- Shenzhen Yantian Port Central Container Terminal Project Phase I
- Shenzhen Yantian Port Western Operating Area Container Terminal Project
- Wuhu Port New Container, and General Cargo Terminal



- Jinzhou Port Second Basin Container Terminal Project Phase III

### 13.3.3 Coal Terminal Construction

2008 and 2010 were years of significant achievements for coal terminal construction. Recently, northern Chinese coastal ports, 5 coal loading berths were built, adding a capacity of 60m tons. In addition, 5 unloading berths and 3 re-loading berths were built in the southern coastal area, increasing capacity by 36m tons and 15m tons respectively. As part of infrastructure realignment Shanghai Port transferred coal terminals from the Huangpu River to areas alongside the Yangtze River, relocating three unloading berths with a capacity of 6.4m tons. Coal unloading berths also increased capacity by 29.6m tons.

**In 2010, coal terminal projects under construction included:**

- Nantong Port Datang Lvsu Power Plant Coal Terminal Project
- Shantou Port Haimen Power Plant Coal Terminal Project Phase I
- Huizhou Port Daya Bay Power Plant Coal Terminal Project
- Humen Port Haichang Coal Terminal Project Phase I
- Jiangmen Port Taishan Power Plant Coal Terminal Expansion Project
- Ningbo Port Zhenhai Port Region No. 4 Specialised Coal Transfer Berth

**Projects commenced in 2010 and beyond include:**

- Guangzhou Port Nansha Coal Power Plant 70,000 ton Berth Expansion Project
- Humen Port Haichang Coal Terminal Phase II
- Huizhou Quanwan Port Coal Terminal Project
- Wuhu Port Yuxikou 3m ton Coal Terminal Extension Project
- Tianjin Port Nanjiang Port Region Shenhua Coal Terminal Project Phase II
- Caofeidian Port Coal Terminal 3 Project
- Jinzhou Port Coal Terminal Specialization Project



### 13.3.4 Crude Oil Terminal Construction

Coastal port construction of crude oil terminals reached its peak in 2008, as six 100,000 ton crude oil unloading berths were put into operation, increasing capacity by 76.5m tons. Completion of two crude oil terminal projects at Tangshan and Qinzhou ports increased capacity in Hebei and Guangxi Provinces. The completion of the Mabian crude oil terminals makes Huizhou Port the largest crude oil operating area in the entire coastal region. The port contains four crude oil unloading berths with a total capacity in excess of 50m tons.

Following the construction of the Ningbo-Shanghai-Nanjing crude oil pipeline, the Chenshan crude oil terminal at Jiaxing Port was transformed from a crude oil unloading port to an oil product loading-unloading and storage port. This change saw the removal of two 45,000 ton berths from the crude oil transport system with a capacity of 2.5m tons. 2008 saw the construction of 4 crude oil loading-unloading berths with a combined capacity of 74m tons. The main projects of crude oil terminal construction are:

#### In 2010, major crude oil terminals under construction included:

- Dalian Port 300,000 ton Crude Oil Terminal Project
- Yingkou Port Xianren Island Port Region Crude Oil Terminal Project
- Rizhao Port Crude Oil Terminal Project
- Zhoushan Port Aoshan Port Region 300,000 ton Crude Oil Terminal Project
- Ningbo Port Daxie Zhongyou Crude Oil Terminal Project
- Quanzhou Port Qinglanshan Crude Oil Terminals Project
- Tianjin Port 50,000 and 100,000 ton Crude Oil Berths
- Zhanjiang Port 80,000 ton Petrochemical Terminal, two 5,000 ton and one 20,000 ton Crude Oil Berths
- Qinzhou Port 300,000 ton Crude Oil Berth
- Xiamen Mineral Terminal Ocean Petrochemical Terminal (scheduled for completion in 2010)
- Yantai Port Western Oil Terminal Project (scheduled for completion in 2010)

#### Projects commenced in 2010 and beyond include:

- Zhanjiang Port Eastern Island Oil Terminal Port Project



- Beihai port Weizhou Crude Oil Terminal and Associated Works Project
- Tianjin Port Nanjiang Port Region No.29 300,00 ton Crude Oil Terminal Project
- Dalian Port Changxing Island Guanghui Oil Terminal Project
- Yingkou Port Xianren Island Port Region 300,000 ton Crude Oil Terminal Project

By 2009 there were 24 crude oil terminals with handling capacities in excess of 100,000 tons operating along China's coastline. In sum, annual loading-unloading throughput has the potential to reach 280m tons. Within the Bohai Rim the ports of Dalian, Tianjin, and Qingdao—as well as smaller ports at Qinhuangdao, Jinzhou, Tangshan, and Rizhao dominated crude oil shipment. Within the Yangtze River Delta the key port remained Ningbo-Zhoushan, while ports in Jiaxing, Shanghai, and Nanjing offered support. In the southern coastal area key crude oil transshipment ports included Quanzhou, Huizhou, Maoming, Zhanjiang, Qinzhou, and Yangpu.

### 13.3.5 Iron Ore Terminals

With the extension project of the Baosteel ore terminal in the Luojing Port Region, Shanghai Port achieved completion by 2009 the following projects:

- The extension project of the ore yard at Rizhao Port was basically completed
- The ore terminal project at Lianyungang port was nearly completed
- The project of the Wugang ore terminal at the Taicang Port Region at Suzhou port had entered the Phase of device testing and heavy load testing.
- The auxiliary project of the Liangshan Port Region ore berth project, Phase III at Nantong port was completed in 2009

**Projects scheduled for commencement in 2010 and beyond include:**

- Zhuhai Gaolan Port Region 150,000 ton Ore Terminal Project
- Tianjin Port Nanjiang Port Region New Specialized Ore Terminal Project
- Caofeidian Port Ore Terminal Phase II Project
- Qingdao Port Dongjiakou Ore Terminal Engineering Construction Project
- Zhoushan Liangtan Island Large Scale Iron Ore Transfer Terminal Project



In mid-2009 Tianjin Port collaborated with Ocean Line Holdings Limited and began construction of the Nanjiang No. 26, 300,000 ton specialised ore berth. The berth will be 400m in length and will have a designed throughput of 2.3m tons. With a co-investment of an estimated RMB 290m, the berth is to have an iron-ore carrier capacity of 300,000 tons upon its completion in 2011.

By 2009, 32 berths capable of loading and unloading 100,000 tons of iron ore and 330m tons altogether were in operation across China. Key iron ore loading and unloading ports in the Bohai Rim include the major ports of Dalian, Yingkou, Tangshan, Tianjin, Qingdao, Rizhao alongside smaller ports such as Qinhuangdao, Yantai, and Jinzhou. Within the Yangtze River Delta iron ore distribution is dominated by Ningbo-Zhoushan, Shanghai, Nanjing, Zhenjiang, Nantong, and Zhangjiagang.

In southern Chinese ports iron ore transport is dominated by specialised berths at Zhanjiang and Fangcheng's berths along with bulk cargo berths at Shenzhen, Zhuhai, and Guangzhou.

### 13.3.6 Bulk Terminal Projects

**Bulk terminal projects scheduled for commencement in 2010 and beyond include:**

- Zhanjiang Port Xiashan Port Region Bulk Cargo Terminal Project
- Qinzhou Port 5000 ton Bulk Terminal Expansion Project Phase II
- Huanghua Port Comprehensive Port Region Bulk Cargo Terminal Project
- Ningbo Port Guangming Bulk Terminal Engineering Project (scheduled for completion in 2010)

### 13.3.7 Multi-Purpose Terminals

**Multi-purpose terminal projects scheduled for commencement in 2010 and beyond include:**

- Quanzhou Weitou Port No. 2 berth 50,000 ton Multi-Purpose terminal
- Zhuhai Gaolan Port Region 5000 ton Multi-Purpose Warehouse and Storage Yard Project
- Jingzhou Port Libu Port Region Integrated Terminal Project Phase I
- Sichuan Luzhou Port Multi-Purpose Terminal Engineering Project Phase II
- Nantong Port Comprehensive Terminal Project



### 13.3.8 Liquid Chemical Terminals

Liquid chemical terminal projects scheduled for commencement in 2010 and beyond include:

- Jiangmen Port Xinhui Port Region Chemical Terminal Port Project
- Wuhan New Port Liquid Chemical, New City Chemical Engineering and Petrochemical Terminal Projects
- Tianjin Port Petrochemical Terminal Project
- Caofeidian Port 50,000 ton Liquid Chemical Terminal Project
- Dalian Songmu Island Mingyuan Liquid Chemical Terminal Project
- Ningbo Port 20,000 ton Liquid Chemical Terminal Engineering Project
- Qingdao Port Liquid Chemical Terminal Project

### 13.3.9 Construction of Emerging Transport System Terminals

#### Automotive Ro-Ro Terminals

In response to increasing car imports, Chinese ports have accelerated construction of ro-ro terminals. Thus far, Dalian, Yingkou, Tianjin, Shanghai, and Guangzhou ports have built their own.

Tianjin port completed the Beigangchi ro-ro terminal in 2008, a project financed to the tune of RMB 756m by Tianjin port, Nippon Yusen Kaisha and Wallenius & Wilhelmsen. With an annual throughput of 500,000 autos the terminal, measuring 565 metres and 75 metres, can accommodate two ro-ro vessels weighing 50,000 tons each.

Within the Yangtze River area several ro-ro terminals were under construction by 2009. These include:

- The Chery ro-ro terminal Phase I at Wuhu Port
- Foeryan commercial automotive ro-ro terminal at Chongqing Port

In southern China a project constructing a 5,000 ton ro-ro terminal in Nan'an, Fujian Province was completed in 2009. The terminal has an annual cargo throughput of 366,000 tons and covers a land area of 170,000 square metres. The terminal is capable of berthing 5,000 ton vessels.

#### LNG

**Completed LNG projects by 2009 included:**

- An LNG receiving station at Yangshan Deep Water Port at the Shanghai international shipping centre with an annual capacity of 6m tons. The problem consists of two Phases. The initial Phase, with a designed capacity of 300m tons, is comprised of a LNG receiving station, a special LNG wharf and a seabed pipelines project. The overall investment equals RMB 4.59bn.
- Phase I of a project at the Xiuyu Port Region, Putian, north of Meizhou Bay in Fujian Province. This project includes a LNG receiving station with an annual capacity of 2.6m tons, a LNG transmission pipeline, and a LNG power plant. Since its inception the project has supplied natural gas to 5 different cities.

**LNG projects still under construction:**

- A Xitaiyangsha Shoal LNG terminal at Yangkou Port. A LNG single-berth 120,000 to 160,000 cubic metre shipping terminal project is on the agenda. After Phase I construction capacity will equal 3.5m tons per year while following Phase II construction capacity will rise to 6m.
- A Gaolan LNG receiving station in Zhuhai won NDRC approval in 2008
- A feasibility report on a LNG receiving station project in the Beilun District of Ningbo has been submitted and approved

**Cruise Terminals**

China's first large-scale cruise terminal opened in Xiamen in 2006. With a wharf length of 463 metres, it can accommodate ships weighing up to 140,000 tons. The Shanghai Port International Cruise Terminal, which opened in 2008, hosted in the inaugural Seatrade All Asia Crude Convention. Its centre for passenger transport, located in the north Bund area, has become the new landmark building for the world cruise industry.

**Other cruise terminal projects include:**

- Phase I of Sanya Phoenix Island International Cruise Terminal launched in 2002 with a total investment of RMB 38.19m. One berth at the 10,000 ton level was put into operation in November 2006. Phase II, which includes a 50,000 ton and a 250,000 ton level berth, is currently under construction and is expected to be completed by the end of 2010.
- Construction begun on the Tianjin Port International Cruise Homeport in August 2008. Upon completion it will be able to accommodate the biggest cruise liners in the world.



- The Shanghai Wusongkou International Cruise Terminal is under construction. Upon its expected completion in late 2010 the terminal will be capable of accommodating three 100,000-150,000 ton cruise liners at the same time.

### 13.3.10 Additional Miscellaneous Port Projects

Projects currently under construction include:

- Jiangyin Port Berth 15-17 Project (scheduled for completion in 2010)
- Zhongshan Port Expansion Project Phase II
- Grand Canal Harbour East Pier Siyang Engineering Project (scheduled for completion in 2010)
- Dalian Dayaowan Port Project Phase III
- Qingdao Qianwan Port Terminal Project Phase IV
- Rizhoa Port Shijiu Western Port Region Project Phase III
- Shaoxing City Port Region Berth Project
- Jiaxing Zhapu Port Inland Waterway Project (scheduled for completion in 2010)
- Shaoxing City Port Region Berth Project
- Qingdao Qianwan Port Terminal Project Phase IV
- Rizhoa Port Shijiu Western Port Region Project Phase III
- Zhongshan Port Expansion Project Phase II
- Grand Canal Harbour East Pier Siyang Engineering Project (scheduled for completion in 2010)
- Dalian Dayaowan Port Project Phase III
- Jiangyin Port Berth 15-17 Project (scheduled for completion in 2010)

Projects scheduled for commencement in 2010 and beyond:

- Guangzhou Nansha Port Food Product and General-Purpose Pier Project





- Fangchenggang East Bay No. 403-407 Hydraulic Engineering Berth Project
- Qinzhou Port Dalanping No. 3-8 Berths Hydraulic Engineering Project
- Wuhan New Port Sanjiang Port Region Miscellaneous Steel Component Pier Berths 1 and 2
- Tianjin Port Beigangchi Mixed Cargo Terminal Project
- Zhenjiang Port Yangzhong Port Region Changwang Operating Area Engineering Project Phase I
- Wuxi Port Suburban Port Region Hudai Operating Area Terminal Engineering Project
- Changzhou Port Luan County Port Region Terminal Berth No. 1 Engineering Project
- Rizhao Port Lanshan Port Region Tonghai Port Industry Terminal Reconstruction Engineering Project
- Zhangjiagang Port Heavy Equipment Terminal Engineering Project
- Jiaxing Port Haiyan Port Region Area C Multi-Purpose Terminals No. 1 and 2 Engineering Construction Project
- Wuhan New Port Baihushan Port Region Huashan Pier Phase I
- Fuzhou Kemen Operating Area No. 4 and No. 5 berths

### 13.3.11 Development of Inland Ports 2009

At present, altogether, inland waterways currently exceed 123,000 km in length, of which 7 percent is capable of navigating vessels over 1,000 tons.

More than 250 inland berths were also built over the last two years, raising China's total number to 25,931 and increasing handling capacity by 73.36m tons. Of the newly built ports 8 comprised over 10,000 ton berths, bringing the total to 249. In addition, RMB 60m has been invested to improve and regulate channels linking Nanjing to Wuhu, Wuhu to Anqing, Anqing to Wuhan, Wuhan to Chenglingji and Chenglingji to Yichang.

#### Sichuan Province

- In an attempt to become a direct river-sea transport hub, Luzhou Port invested further to its container terminal project Phase I and launched its Phase II and Phase III projects
- Within the Chengdu Economic Zone, Leshan Port has become Chengdu Port, one that has the potential to



become the leading port of the upper reaches of the Yangtze River.

### Chongqing

- Assorted projects include the Cuntan container terminal Phase I and Phase II, the Nantuokou container terminal in Wanzhou District, the Hongxigou renovation and expansion project, the Maoertuo cargo expansion project and the Jiangnan container project Phase I

### Elsewhere along the Yangtze

- Ports of Yichang, Jingzhou, Wuhan, and Huangshi in Hubei Province as well as the ports of Yueyang and Changsha in Hunan Province all received significant upgrades
- Jiangxi Province's Jiujiang government established a company in cooperation with SIPG.

Within the Pearl River delta area the Xi River expansion project continued whilst the governments of Guangdong and Guangxi Provinces agreed to build a 'golden channel' intending to boost the Beibu Gulf's economic prospects in late 2008.

Nanning Port has established itself as a pivot centre linking other ports in the Beibu Gulf region with Xi River channels and the Nanning-Kunming railway. The port of Guigang along the Xi River is similarly noted as an important logistics centre in the just implemented China-ASEAN free-trade agreement. Projects under construction at Guigang include:

- Luobo Bay operating area Phase II
- Maoershan operating area Phase II
- A specialised white sand berth for the Taiwan Cement Corp.

The Wuzhou city government has identified improving and upgrading conditions in the Gui and Xi rivers as a catalyst for developing its local port and its local economy as a whole. Wuzhou Port has aspirations to be a major inland port in China.

Within Guangdong Province, the ports of Zhaoqing and Foshan have experienced increased handling capacity in the past year following the completion of a 168-km waterway project.

In accordance with the planning of the *Beijing-Hangzhou Grand Canal Waterway Improvement*, as compiled by the Ministry of Transport, Shandong, Jiangsu, Anhui, and Zhejiang provinces have pledged to invest heavily in inland waterway transport infrastructure in the coming years.



## 14 Appendix

### 14.1 Coastal Port Foreign Trade Throughput Jan-Nov 2011 (10,000 tons)

Port	Foreign trade throughput (10,000 tons)	Port	Foreign trade throughput (10,000 tons)	Port	Foreign trade throughput (10,000 tons)
Dandong	410	Lianyungang	7,058.46	Guangzhou	8,181.43
Dalian	9,912.50	Shanghai	27,661.00	Shenzhen	15,635.83
Yingkou	4,502.41	Jiaxing	411.4	Zhuhai	1,483.47
Jinzhou	629.74	Ningbo - Zhoushan	25,563.04	Zhongshan	666.53
Qinhuangdao	1,609.30	Taizhou	889.98	Maoming	963.41
Tangshan	10,371.00	Wenzhou	175.31	Zhanjiang	4,341.04
Tianjin	18,883.00	Fuzhou	2,466.28	Beihai	644.92
Huanghua	468.75	Putian	407.41	Yinzhou	1,017.70
Yantai	5,211.18	Quanzhou	1,724.67	Haikou	74.3
Weihai	1,017.30	Xiamen	6,342.37	Huizhou	1,924.70
Qingdao	23,627.00	Shantou	900.98	Rizhao	13,900.20



## 14.2 Yangtze River Mainline Port Throughputs Jan-Nov 2010

Port Name	Goods Total (tons)		Foreign Total (tons)		Total container (TEU)	
	November	Jan-Nov	Nov	Jan-Nov	Nov	Jan-Nov
Changtong Port Co., Ltd., Sichuan	9.52	79.56	2.51	19.7	8.03	63.83
Chongqing Port Logistics Group Co., Ltd.	257.4	2885.47	22.94	236.64	46.29	455.81
Yichang Port Group Co., Ltd.	78.08	722.75	3.84	23.89	5.02	45.84
Jinzhou Port Company	47.14	403.73	2.42	23.42	5.77	50.97
Yueyang Chenglingji Port Co., Ltd.	83.98	536.78	0	0	1.84	26.78
Honghu Port Tongda Industrial Company	1.94	37.3	0	0	0	0
Wuhan Port Group Co., Ltd.	324.43	3461.25	17.43	197.87	34.99	348.56
Huangshi Port Group	28.52	294.05	1.3	12.99	1.6	15
Wuxue Port Authority	7.43	93.89	0	0	0	0
Jiujiang Port Group Ltd.	80.72	809.86	11.82	97.91	13.62	106.92
Anqing Port Transportation Holdings Limited	80.2	778.8	0.62	8.68	1.34	13.35
Chizhou Port Corporation	32.13	345.66	3.21	40.54	0.38	5.64
Tongling Port (Group) Co., Ltd.	44.6	490.38	4.47	37.73	0.93	15.4
Wuhu Port Co., Ltd.	96.69	956.94	11.52	128.68	12.13	130.36
Maanshan Port (Group) Co., Ltd.	173.96	1802.69	1.27	12.26	0.34	1.98
Nanjing Port Group	703.36	6579.63	56.68	559.41	128.03	1279.96
Zhenjiang Port Group Co., Ltd.	518.53	4934.84	112.04	1142.22	25.72	233.71
Yangzhou Port Group Co., Ltd.	252.95	2618.28	33.71	340.38	24.28	264.97
Taizhou Port Co., Ltd.	366.42	3921.48	31.58	345.01	9.02	91.09
Jiangsu Jiangyin Port Group Co., Ltd.	173.84	1554.69	47.3	462.07	0	0
Zhangjiagang Port Group Co., Ltd.	523.55	5682.23	100.17	1275.35	103.03	999.1
Nantong Port Group Co., Ltd.	483.38	5076.02	183.17	2088.57	34.61	358.05
Changzhou Yangtze River Port Co., Ltd.	72	727.07	14.79	128.92	0	0
Changshu Xinghua Port Co., Ltd.	86.93	909.38	60.7	610.36	8.41	85.22
Taicang International Container Terminal Co., Ltd.	135.87	1292.46	53.29	472.45	53.87	533.81
<b>Total</b>	<b>4663.57</b>	<b>46995.18</b>	<b>776.78</b>	<b>8265.03</b>	<b>519.24</b>	<b>5126.35</b>



## 14.3 Small Scale and IWW Port Throughput

Port Name		Cargo throughput (10,000 tons)		Foreign Trade Cargo throughput (10,000 tons)		Container throughput (1,000 TEU)	
		Nov	Jan-Nov	Nov	Jan-Nov	Nov	Jan-Nov
Coastal	Ningde	165	1261	84	455		
	Zhangzhou	147	1061	1	46		
	Shanwei	46	450	3	28	2.8	35.8
	Humen	491	4,472	111	1143	14.6	229.1
	Jiangmen	290	2,766	10	132	20.5	229.82
	Yangjiang	72	700	32	207		0.3
	Yangpu	243	2523	112	1284	20.8	188.1
	Basuo	73	803	21	216		
Heilongjiang River	Harbin	8	58				
	Jiamusi	1	67				
Grand Canal water	Jining	407	4,024				
	Xuzhou	578	5,710.00				
	Lianyungang (river)	75	750				
	Suqian	141	1266				
	Huaian	385	3,853.00			3.1	31.7
	Yangzhou (river)	253	2,525.00				
	Zhenjiang (river)	33	461				
	Changzhou	259	2,870.00	13	282	9.5	99.4
	Wuxi	705	6,708.00	1	8	1.3	16.3
	Jiaxing (river)	814	8,552.00			0.4	1
	Huzhou	1,297.00	13,096.00				
	Hangzhou	869	7,871				
Yangtze River	Shanghai (River)	820	8,185				
	Hefei	252	1,884				
	Huainan	115	940				



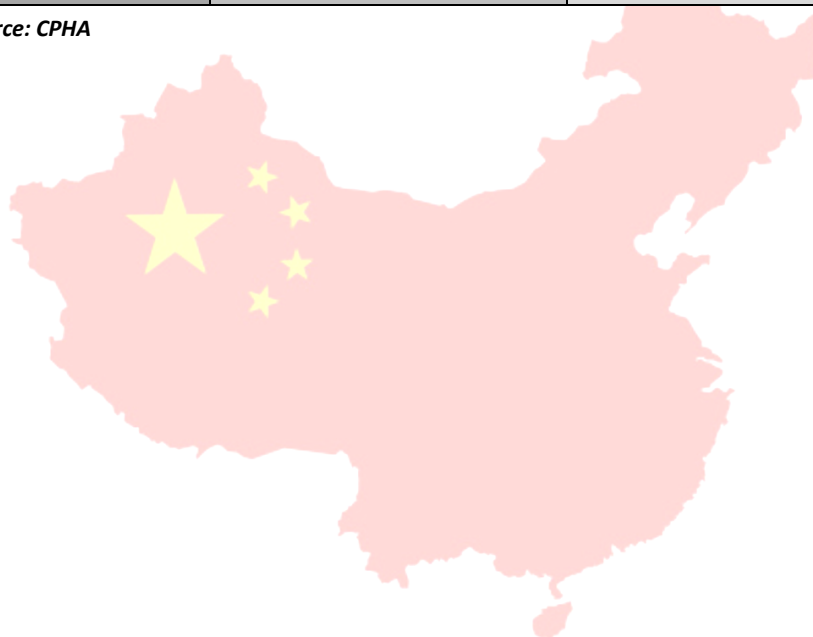
	Bozhou	63	348				
	Fuyang	88	324				
	Chuzhou	203	2023				
	Chaohu	412	3917				
	Nanchang	104	1055	2	25	3.5	45.6
	Changsha	342	3737	5	74	5.4	75.5
	Xiangtan	65	732				
	Zhuzhou	38	525				
	Yueyang	721	7400	19	112	12.1	110.3
	Liuzhou	1	189				
	Laibin	81	483			1.9	18.7
	Nanning	42	444			1.1	7.8
	Guigang	299	3505	1	18	5.9	64.5
	Wuzhou	157	1,320.00	4	47	20.9	176.2
	Zhaoqing	129	1408	11	130	37.2	396.5
	Foshan	463	4885	180	2037	244.4	2753.2
	Zhongshan (river)	230	2,590.00	20	220	40	389.6
	Jiangmen (river)	169	1,659.00	23	278	36.5	397.2
	Humen (river)	61	696	1	12	21.6	225.4
	Kaiping Sanbu	4	32	2	26	3	28.4
	Taishan public	2	30	2	30	2	21.3
	Huizhou (river)	11	124	2	22	3.5	38.6
	Guangzhou						
	Xintang	35	353	3	37	3.2	31.7
	Guangzhou Wuhe	37	433	4	48	8.5	98.6
Pearl River	Panyu	32	430		2	1	11.5



## 14.4 Coastal Port Container Throughput 2010, and Increase Over 2009

Port	TEU throughput 2010	% increase over 2009
Shanghai	2906.9	16.26
Shenzhen	2250.97	23.34
Ningbo-Zhoushan	1314.4	25.14
Guangzhou	1255	12.3
Qingdao	1201.2	17.04
Tianjin	1201.2	15.84
Xiamen	582	24.34
Dalian	524.2	14.54
Lianyungang	387	25.41
Yingkou	333.8	31.55

Source: CPHA





## 14.5 Coastal Port Container Throughput 2006-10

Port	2006	2007	2008	2009	2010
Shanghai TEU throughput	21,719	26,152	28,006	25,002	29069
% growth over previous year		20.4	7.1	-10.7	16.26
Shenzhen TEU throughput	18,469	20,813	21,416	18,250	22509.7
% growth over previous year		12.7	2.9	-14.7	23.34
Guangzhou TEU throughput	6,600	9,206	11,001	11,190	12550
% growth over previous year		39.5	19.5	4.9	12.3
Ningbi-Zhoushan TEU throughput	7,068	9,427	10,934	10,501	13144
% growth over previous year		33.4	16	-3.9	25.14
Qingdao TEU throughput	7,702	9,462	10,024	10,260	12012
% growth over previous year		22.9	5.9	2.4	17.04
Tianjin TEU throughput	5,950	7,033	8,503	8,700	12012
% growth over previous year		18.2	20.9	-1.3	15.84
Xiamen TEU throughput	4,013	4,523	5,035	4,680	5820
% growth over previous year		12.7	11.3	-7.5	24.34
Dalian TEU throughput	3,212	3,696	4,526	4,550	5242
% growth over previous year		15.1	22.4	0.7	14.54

Source:

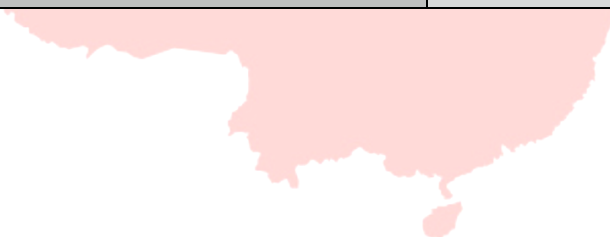




## 14.6 Coastal Port Throughput January 2011

Port	Throughput in Jan (10,000 tons)	% growth
Ningbo-Zhoushan	6107	5.2
Shanghai	5385	9.7
Tianjin	3562	11.8
Guangzhou	3444	3.9
Qingdao	3236	15
Dalian	2993	15.8
Tangshan	2688	54.3
Qinhuangdao	2437	8.5
Yingkou	2391	24.7
Rizhou	2163	19.4
Shenzhen	2064	9.7
Yantai	1565	23.9
Xiamen	1342	19.9
Lianyungang	1265	23.8
Zhenjiang	1165	7.1
Baybu Bay	1129	20.6
Huanghua	952	31.1
Quanzhou	630	6.9
Fuzhou	610	3.2

Source:





## 14.7 IWW Port Throughput January 2011

Port	Port throughput (10,000 tons)	% growth
Suzhou	2820	25.4
Nanjing	1380	15.2
Nantong	1260	-0.2
Huzhou	1098	-18.8
Jiangyin	1080	13.1
Chongqing	925	18.9
Zhenjiang	920	10.7
Taizhou	850	15
Hangzhou	801	16.5
Jiaxing (river)	782	-1.5
Yueyang	771	28.1
Shanghai (river)	710	-12
Wuhu	590	10
Wuhan	590	21.1
Wuxi	456	-25.4

Source:

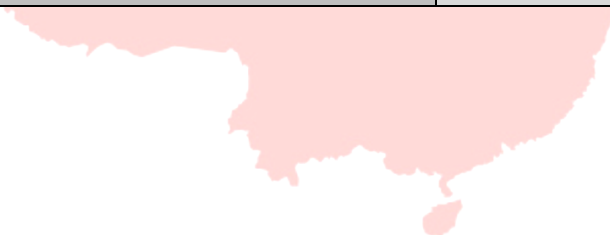
## 14.8 Coastal Port Container Throughput (10,000 TEU) January 2011

Port	TEU throughput Jan 2011 (10,000)	% growth over same period 2010
Shanghai	270	20.4
Shenzhen	206.2	16.1
Ningbo-Zhoushan	131.03	34.6
Qingdao	112.66	20.5
Guangzhou	102.8	-6.5
Tianjin	92.7	21.5
Xiamen	54.71	16.5
Dalian	48	13.3
Yingkou	39.8	28.7
Lianyungang	35.02	12
Suzhou	38.1	32.67
Foshan	24.03	-9.7



## 14.9 Foreign Trade Throughput Coastal Ports January 2011

Port	Foreign trade volume (10,000 tons)	% growth over same period 2010
Dalian	1025	3.4
Yingkou	528	23
Qinhuangdao	100	-51
Huanghua	63	39.3
Tangshan	1322	62
Tianjin	1855	9.7
Yantai	725	30.5
Qingdao	2405	9.5
Rizhao	1557	16.9
Shanghai	3025	18.5
Lianyungang	810	31.6
Ningbo-Zhoushan	2661	3.4
Fuzhou	246	7.2
Quanzhou	104	-35
Xiamen	721	33
Shenzhen	1627	16.8
Guangzhou	757	-8
Zhenjiang	450	29.6
Beibu Bay	676	17.1





## 14.10 Iron Ore Import Volume by Origin

	iron ore import volume 2009	iron ore import volume 2010	% increase over 2009
Australia	26198.06	26547.79	1.33%
Brazil	14259.16	13092.11	-8.18%
India	10750.01	9676.93	-9.98%
South Africa	3414.63	2955	-13.46%





## 15 Disclaimer

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