



Section Three: Upper Reaches

a. Overview of the Upper Reaches

- Companies are relocating westward to the Upper Reaches; examples include Hewlett Packard, APL and Maersk.
- Upper Reaches container traffic is expected to grow more than four times 2009 throughput by 2015, a CAGR of 26.9 percent.
- Three port groups are driving this growth: Sichuan Port Group, Chongqing Port Group and Shanghai International Port Group.
- Financial crisis will expedite the westward movement as costs rise in coastal regions and as companies seek to cut costs.
- Most Upper Reaches container movement is direct to Shanghai via either the Waigaoqiao or Yangshan terminals in Shanghai.
- Upper Reaches infrastructure is being rapidly built up to support port growth, while rail intermodal is lagging several years behind and is not expected to represent a significant portion of Upper Reaches container movements until at least 2015.
- Chongqing government will subsidize logistics companies which move into one of the development zones.

Container throughput along the Upper Reaches of the Yangtze River (from Yibin to Wanzhou) is anticipated to grow significantly as indicated by massive capacity additions now in planning or actual construction. From the central government in Beijing down to local city governments, a significant westward migration of investment, manufacturing and outsourcing is anticipated as supporting the development and expansion of container terminals in the coming decade and beyond. The expected growth in terminal design capacity gives some indication of the growth in container volumes that may be coming. From total TEU capacity of 1.9 million TEUs in 2009 (when 526,151 TEUs were handled in the Upper Reaches), planned expansion is projected to bring capacity in the Upper Reaches to nearly 7 million TEUs in 2015 and more than 12.5 million TEUs by 2020. For argument's sake, if volumes hit capacity by those years, it would mean that a CAGR of 53.8 percent by 2015 and 33.4 percent by 2020 will have been achieved.



Figure 3.1: Upper Reaches of the Yangtze River (Source: Jon Monroe Consulting)

In spite of the optimistic projections, our estimated container throughput after reviewing port plans and capacity growth is more conservative at 2.2 million TEUs by 2015. Given the nature of changes in the Yangtze River and elsewhere in developed regions of China, such as in the Pearl River Delta, this appears to be a realistic number. Labor and land costs in the coastal areas are rising at the same time that the global financial crisis and resulting slowdown has forced companies to cut costs and re-evaluate their current supply chains. In the meantime, vessel services between ports on the Upper Reaches and Shanghai's Waigaoqiao and Yangshan terminals are improving, with both transit times and costs being reduced. The central government is acting quickly to incentivize companies to relocate and migrate to western areas along the Yangtze. Given the attention and support at this critical time, a large scale migration upriver may very well occur during the period of the 12th Five-Year Plan (2011-2015). Nevertheless, capacity will lead demand for a number of years, at least through 2015.



The China central government recently enacted a relocation policy to provide incentives and financial support to companies willing to relocate inland from the coastal areas. The Upper Reaches of the Yangtze River is possibly the most attractive inland region considering both cost and accessibility given improved navigation for containers. Inland locations elsewhere in China are landlocked with currently no efficient access to coastal ports with which to connect to overseas markets. Since 1997, more than 35 bridges have been built in the Upper Reaches to improve the transportation network and access to river ports from Upper Reaches land locked cities such as Chengdu. If China's plans for port development are any indication of the future potential, the Upper Reaches cities like Yibin and Luzhou will be converted from sleepy river towns to bustling port cities. In 2009, container throughput of the Upper Reaches ports was 526,151 TEUs, but it is expected to jump to nearly 2.2 million TEUs by 2015.

Key Upper Reaches Cities

Four cities are highlighted in Figure 3.3 below as playing a critical role in the development of the Upper Reaches: Chengdu, Yibin, Luzhou and Chongqing. The large cities of Chengdu and Chongqing are obvious catalysts for Upper Reaches development – one being the provincial capital of Sichuan Province and the other being a standalone municipality located along the Yangtze River. Luzhou and Yibin are not as obvious though important nonetheless. Luzhou will play a key role in the new Luzhou-Yibin-Leshan Port Complex that is being coordinated and developed by the Sichuan provincial government. Though handling only 60,681 TEUs of throughput in 2009, the general port plan for Luzhou projects a container handling capacity of 3 million TEUs by 2020.

Yibin is even more ambitious given its location even farther upriver from Luzhou and the fact it has no container facilities operating today. Yet Yibin Port officials project 4 million TEUs in spite of the fact that it only recently obtained approval for the port project. In December 2008, Shanghai International Port Group signed an MOU with Yibin city government to invest in Yibin Port which ultimately will help Yibin manage this change.

The two most important cities in the Upper Reaches that might be considered key to the development of this region are Chengdu and Chongqing. The approval in 2008 by the Ministry of Transportation of a new container port in Yibin may change the transportation landscape but has not done so yet. Luzhou Port is positioning itself to become a gateway to Sichuan Province, and thus Luzhou and Yibin will compete to shift cargo from Chongqing to their ports. It is unclear what impact they will have on the Chongqing port; however, it is not expected to be significant, as overall anticipated growth in cargo volumes in the Upper Reaches should provide ample opportunity for growth at all three ports.

The terrain in the Upper Reaches presents the greatest infrastructure challenges of anywhere along the Yangtze River. High mountain passes create a logistical nightmare for the movement of goods within the Upper Reaches, while variable river water levels can complicate river transportation during the November to May dry season when water levels typically drop. Completion of the Three Gorges Dam in 2009 has made navigation along the Upper Reaches more consistent, but adequate precipitation in the Yangtze River watershed is required to ensure that water levels remain sufficiently high. When water levels do not reach sufficiently high levels, considered to be 175 m/574.1 ft above sea level, it could result in insufficient

Key City	Population in million	2009 GDP in billion RMB	Importance
Chengdu	11.25	450.26	Capital city of Sichuan Province and intermodal hub of southwest China.
Yibin	5.31	72.08	The westernmost emerging container port on the Upper Reaches of the Yangtze River. Gateway of south Sichuan. No. 1 in the economics index of south Sichuan and No. 4 of Sichuan.
Luzhou	4.93	58.76	Currently, the only developed container port in Sichuan Province. The port hub of southeast Sichuan supporting the Chengdu economic corridor. Adjacent to Chongqing, Yunnan Province and Guizhou Province.
Chongqing	28.39	652.87	The largest population municipality among the four standalone municipalities in China. The largest container port in the Upper Reaches of the Yangtze River. The commercial and industrial center of southwest China.

Figure 3.3: Key Cities of Upper Reaches (Source: Jon Monroe Consulting)



Figure 3.4: Fengjie City in the Upper Reaches (Source: Jon Monroe Consulting 2009)



c. Port Development

There are five ports in the Upper Reaches of the Yangtze River. Three of these – Chongqing, Wanzhou and Fuling ports – are operated by the Chongqing Port Group. The remaining two – Luzhou Port and Yibin Port – are operated respectively by Sichuan Changtong Port Co. Ltd. (formed in 1997 by Sichuan Province Transportation Bureau and Luzhou city government) and Yibin Shipping and Navigation Bureau. Additionally, Shanghai International Port Group has invested in two container terminals in the Upper Reaches; the new Yibin Container Terminal and the new Chayuan Container Terminal in the Nan'an District of Chongqing. The Chayuan Terminal is a joint venture between SIPG and the Nan'an District Government.

Upper Reaches ports posted a total container throughput of 526,151 TEUs in 2009, a decline of 4.2 percent from 2008. This contrasts with 2008 growth of 19.2 percent over 2007. The largest container port in the Upper Reaches is Chongqing, with most of the throughput concentrated in two terminals: the old Jiulongpo Terminal, posting a throughput of 170,900 TEUs in 2009, a 16.5 percent decline over 2008; and the new Cuntan Terminal, Phase I, posting a throughput of 246,000 TEUs, a 6.6 percent increase over 2008. The future of Chongqing's container development will certainly be focused on Cuntan Terminal, designed with an extended quay to allow containers to be lifted straight up from the vessel with overhead gantry cranes as opposed to the old tram method at Jiulongpo Terminal. With the exception of Wanzhou Port and Cuntan Terminal in Chongqing, all terminals' container throughput declined in 2009. Fuling and Wanzhou are included as a part of the larger Chongqing Port Group, giving Chongqing Port Group 88 percent of all Upper Reaches container traffic in 2009. Though Sichuan has ambitious plans for the Luzhou and Yibin ports, it may be some time before either poses a threat to the Chongqing terminals. The more likely threat may be the completion of Chayuan Terminal managed and operated by SIPG. The terminal opening is expected by the end of the first quarter of 2011.

Port and Terminal Development

Nine container terminals are being developed, expanded or built in the Upper Reaches in anticipation of the shifting of China's economy westward. These include the new terminal in Yibin, expansion in Luzhou, the Jiulongpo, Cuntan and Guoyuan terminals in the city of Chongqing (as opposed to the hinterlands of Chongqing municipality), the Fuling and Wanzhou terminals within the greater Chongqing municipality that are managed by Chongqing Port Group, and the new Chayuan Terminal being built by SIPG, which is technically also in Chongqing. Figure 3.8 and Figure 3.9 illustrate the aggressive development taking place in the Upper Reaches, representing projected port capacity and throughput, respectively.

Obviously for a time there will be a wide gap between volumes and a larger available capacity. Nine terminals are slated to be operating by 2015, stretching from Yibin to Wanzhou. Of these nine, only five

Port	Draught	2008 TEUs	2009 TEUs	2008 tonnage	2009 tonnage	Size Vessel
Yibin	-2 m/6.5 ft	NA	70	7.72 mil	8.52 mil	1,000 ton
Luzhou	-3 m/9.8 ft	66,237	60,681	11.21 mil	11.64 mil	1,000 ton
Chongqing	-5 m/16.4 ft	434,797	416,400	14.71 mil	13.00 mil	2,000 ton
Fuling	-5 m/16.4 ft	30,086	28,000	2.41 mil	5.50 mil	2,000 ton
Wanzhou	-6 m/19.6 ft	18,010	21,000	8.22 mil	8.78 mil	2,500 ton

Figure 3.6: Key ports of Upper Reaches (Source: China Ports Association)

Port	Port Group	2007	2008	Growth	2009	Growth
Yibin	Sichuan	NA	NA	NA	70	NA
Luzhou	Sichuan	52,407	66,237	26.4%	60,681	-8.4%
Chongqing	Chongqing	351,350	434,797	23.8%	416,400	-4.2%
Fuling	Chongqing	40,131	30,086	-25.0%	28,000	-6.9%
Wanzhou	Chongqing	16,861	18,010	6.8%	21,000	16.6%
Total	--	460,749	549,130	19.2%	526,151	-4.2%

Figure 3.7: Upper Reaches container port throughput in TEUs (Source: China Ports Association)

Port	2009	2010	2015	2020
Yibin I	0	215,000	215,000	215,000
Yibin II	0	0	405,000	405,000
Yibin III	0	0	0	1,080,000
Luzhou	500,000	1,000,000	3,000,000	3,000,000
Chongqing	1,390,000	1,670,000	3,340,000	7,810,000
Jiulongpo	200,000	200,000	200,000	200,000
Cuntan I	280,000	280,000	280,000	280,000
Cuntan II	420,000	420,000	420,000	420,000
Cuntan III	0	0	560,000	560,000
Guoyuan I	0	280,000	280,000	280,000
Guoyuan II	0	0	280,000	280,000
Guoyuan III	0	0	0	1,440,000
Huangqian I	0	0	100,000	100,000
Huangqian II	0	0	0	1,400,000
Fuling I	200,000	200,000	200,000	200,000
Fuling II	0	0	300,000	300,000
Wanzhou	290,000	290,000	550,000	1,050,000
Chayuan: I (SIPG)	0	0	170,000	170,000
Chayuan: II (SIPG)	0	0	NA	1,130,000
Total TEU Capacity:	1,890,000	2,885,000	6,960,000	12,510,000

Figure 3.8: Upper Reaches container terminal capacity in TEUs (Source: Jon Monroe Consulting 2010)



previously announced maximum capacity figures. Local ports must gain approval from the Ministry of Transportation, and often the local port authorities will try to underpromise and overbuild. For example, published terminal design capacity plans do not often match the discussions and responses supplied by the local port officials in face to face discussions. In other words, the design capacity published is often below the actual design capacity that is built. Every port city wants a large container port to help fuel growth. In many cases, cities that publicly announce cooperative agreements for port development are in reality competing for business. This will happen between Yibin and Luzhou ports, as well as with both ports in Sichuan competing with Chongqing ports. As the ports expand their access to the hinterland areas – a necessary development in order to achieve their volume targets – they will invariably overlap and compete for business.

d. Transportation Infrastructure

Modern transportation infrastructure along the Upper Reaches was almost non-existent until recent years. Passengers and freight moved via small boat or barge, and travel was rarely encouraged beyond local towns. Goods were mainly delivered via river barge. Unfortunately, the stretch of river known as the Upper Reaches, from Yibin to Yichang, is the most dangerous and rugged stretch of the Yangtze River. The river winds through narrow gorges with steep and high banks, and many stretches run along cliffs rather than riverbanks. Prior to completion of the Three Gorges Dam, the Upper Reaches was a swiftly flowing and treacherous stretch of river, making navigation very difficult. As early as 1950, the Chinese government began planning infrastructure to provide better access to towns along the Upper Reaches. Since 1960, the Upper Reaches have been the beneficiary of a number of projects supported by the Central Government to improve and facilitate access. Progress has been slow, and the open market reforms shifted the development focus to the coastal areas. Significant development in the Upper Reaches did not begin to take place until the 9th Five-Year Plan (1995-2000). In 2000, the government's "Go West" policy stimulated renewed interest in western provinces and cities. Most cities targeted under the government's "Go West" policy were, and still are, landlocked, with limited access to the coastal ports.

The exceptions to this rule are cities located along the Yangtze River. The renewed emphasis on the "Go West" policy as of 2006 comes at a time when the Central Government is placing its priorities on completing infrastructure aimed at supporting relocation of companies to western cities. This makes cities located in the Upper Reaches more attractive options for foreign investment. Since 2000, development along the Upper Reaches has moved fairly quickly. The completion of the first phase of the Three Gorges Dam in June 2003, when the water level rose to 135 m/443 ft, provided new hope for economic development upriver. The 10th (2001-2005) and 11th Five-Year Plans (2006-2010) included funds and incentives designed to stimulate and encourage further development. Bridges, ports and highway and rail infrastructure projects were coordinated and funded as one massive project aimed at integrating western cities with the new commercial infrastructure. The Yangtze River was to be the new focal point to connect the upriver towns, cities and provinces.

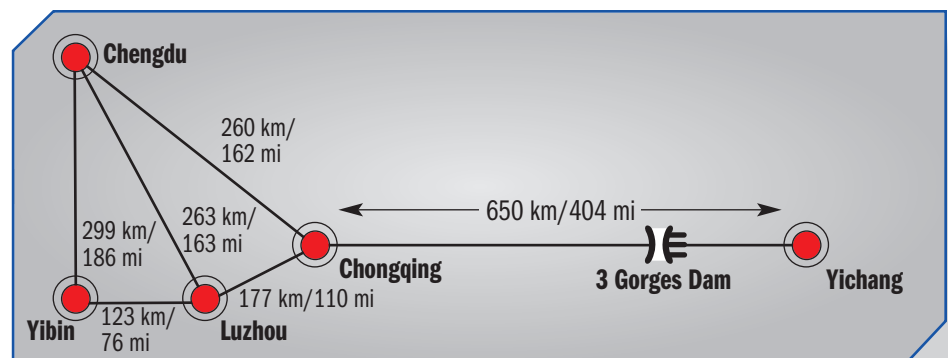


Figure 3.19: Upper Reaches layout: key cities (Source: Jon Monroe Consulting)

Development of bridges, ports, roadways and railways was timed to be completed as the final phase of the Three Gorges Dam was completed in 2009. By the end of the 11th Five-Year Plan (2006-2010), the Upper Reaches should see completion of new container ports, intermodal rail hubs, national highways and railways connecting cities like Chongqing, Chengdu and Wanzhou with Beijing, Shanghai and Guangzhou. Transit times for barge, rail and road transport will be reduced significantly by the new infrastructure. The western regions of China will be opened to the coastal cities, which in turn will attract foreign investment. While the timetable on completion of the infrastructure in the western regions may have been accelerated, the reality is that any real integration of transport modes in the Upper Reaches may not be possible until after 2013 or sometime during the 12th Five-Year Plan (2011-2015).



e. Strategic Cities along the Upper Reaches

The economic development of the Upper Reaches is dependent upon completion of infrastructure in four key cities: *Chengdu*, *Yibin*, *Luzhou* and *Chongqing*. Two of these, Chengdu and Chongqing, stand out as important economic centers as well as magnets for manufacturing and supporting services relocating to western China. The Chengdu-Chongqing corridor may very well emerge as one of the most important economic corridors in China. The development along this axis, indeed, will be the primary catalyst for growth in western China. The remaining two cities, Yibin and Luzhou, are important as potential port cities along the Yangtze River. Although the ports of both cities are relatively small, both have major plans for the construction of container terminals to serve the cities of Sichuan Province (including Chengdu) as economic activity migrates westward into the Upper Reaches region.





2) CHENGDU Economic Indicators

In 2009, Chengdu posted a 15.4 percent increase in GDP over 2008, jumping from 390.1 billion RMB/57.4 billion USD to 450.3 billion RMB/66.2 billion USD. GDP growth in 2009 was slightly off from 2008. Chengdu's GDP continues to be the largest contributor to the Sichuan provincial economy. In 2009, Chengdu accounted for 31.8 percent of total Sichuan GDP of 1,415 billion RMB/208 billion USD. Per capita GDP growth slowed in 2009, declining from 16.3 percent in 2008 to 14.9 percent in 2009 to achieve a per capita GDP of 35,437 RMB/5,211 USD. Conversely, retail sales growth was up slightly over 2008 at 20.2 percent in 2009, taking annual retail sales from 162.19 billion RMB/23.85 billion USD in 2008 to 195 billion RMB/28.67 billion USD. Retail sales growth in Chengdu has been climbing steadily since 2006 and is one of the bright sectors of Chengdu's economy. Contracted FDI dropped 67 percent in 2009 vs. 2008 to bring new foreign investment from 34 billion RMB/5.1 billion USD in 2008 down to 11.4 billion RMB/1.7 billion USD in 2009. Utilized FDI, on the other hand, grew 24.4 percent over 2008 to reach 19 billion RMB/2.8 billion USD. This follows a 97.3 percent growth in 2008 over 2007. Since 2006, utilized FDI has climbed from 5.2 billion RMB/760 million USD to 20.4 billion RMB/3 billion USD. Exports and imports represented another bright spot when compared to other cities in China, increasing 15.8 percent and 16.1 percent in 2008 and 2009, respectively. With the exception of contracted FDI, every economic indicator in Chengdu posted double digit growth in 2009, indicating a robust economy bucking the tide of the global recession much like China overall.

INDICATORS	2006	2007	%	2008	%	2009	%
GDP (billion RMB)	275.00	332.40	20.9	390.10	17.4	450.26	15.4
Per Capita GDP (RMB)	23,331	26,527	13.7	30,855	16.3	35,437	14.9
Retail Sales (billion RMB)	115.53	135.72	17.5	162.19	19.5	195.00	20.2
FDI: Contracted (billion USD)	2.05	3.42	66.8	5.06	47.9	1.67	-67.0
FDI: Utilized (billion USD)	0.76	1.14	50.0	2.25	97.3	2.80	24.4
Trade: Exports (billion USD)	4.14	5.1	37.9	9.07	58.8	10.50	15.8
Trade: Imports (billion USD)	2.81	3.81	35.6	6.34	66.4	7.36	16.1

Figure 3.25: Chengdu economic indicators (Source: Chengdu Government Statistics Bureau)

ECONOMIC INDICATORS

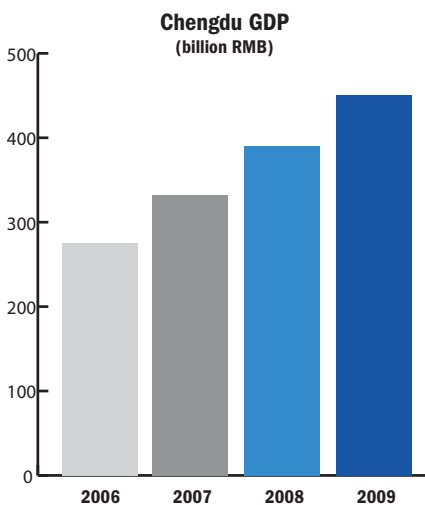


Figure 3.25a Source: Chengdu Government Statistics Bureau

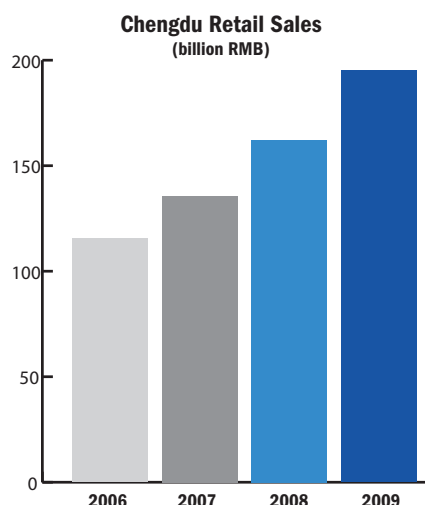


Figure 3.25b Source: Chengdu Government Statistics Bureau

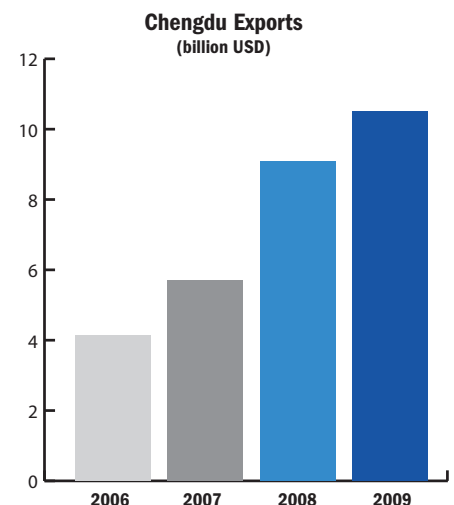


Figure 3.25c Source: Chengdu Government Statistics Bureau

Key Industries

Like most Chinese tier-one cities poised for growth, Chengdu has identified a number of key industries on which to focus development plans. Six pillar industries have been selected as critical components of Chengdu's growth for the future. These are manufacturing of electronics and telecommunication products, pharmaceuticals, food and beverage products (including tobacco), machinery, petrochemicals, and metallurgy and construction materials. Two of the pillar industries, petrochemicals and metallurgy and construction materials, were designated as pillar industries as recently as 2007, with the others designated earlier. In 2009, these six industries generated 112.8 billion RMB/16.6 billion USD of industrial value, accounting for 76.4 percent of the total industrial output of enterprises with revenue above 5 million RMB/737,000 USD. (China generally calculates only the contribution of companies with 5 million RMB/737,000 USD and more, which are called "above scale" enterprises).

