

# Chapter 2

## The Development of Transportation Infrastructure and International Links in China's Southeast Region

**Zhao Minglong**

Guangxi Academy of Social Science

March 2010

**This chapter should be cited as**

Zhao Minglong (2010), 'The Development of Transportation Infrastructure and International Links in China's Southeast Region', in Zhang, Y. (ed.), *Development of China's Transportation Infrastructure and International Connectivity*. ERIA Research Project Report 2009-7-5, Jakarta: ERIA. pp.18-36.

## CHAPTER 2

### **The Development of Transportation Infrastructure and International Links in China's Southeast Region**

Southeast China includes ten provinces of Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Hubei, Hunan, Guangdong, Guangxi, Hainan, and Shanghai. It covers 15% of China's total land area and 42.17% of China's total population. In 2008, GDP in this region reaches ¥1.585 billion (48.4% of China's total GDP).

In general, the level of transport infrastructure in Southeast China is above the average. There are many inland waterways and sea ports in Southeast China. Seven provinces in this region and Shanghai are along the coastline. In addition, four out of five port groups<sup>2</sup> are in Southeast China, including port groups in Yangtze River Delta Area, Southeast Coast Area, Chu Chiang Delta Area and Southwest Coast Area.

By the end of 2008, highways in operation in Southeast China had reached 1,301,300 km (34.88% of the total in China), including 25,400 km expressways (42.08% of the total in China). Railways had a length of 21,300 km (26.76% of the total in China).

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<sup>2</sup> There are five port groups in China—Surrounding Bohai Area, Yangtze River Delta Area, Southeast Coast Area, Chu Chiang Delta Area and Southwest Coast Area.

- Surrounding Bohai Area includes the ports in Liaoning Province, Tianjin, Hebei Province and Shandong Province.
- Yangtze River Delta Area is based on Shanghai International Shipping Center. It focuses on Shanghai, Ningbo and Lianyungang. At the same time, it emphasizes the function of ports in lower reaches of Yangzi River, such as Zhoushan, Wenzhou, Nanjing, Zhenjiang, Nantong and Suzhou.
- Southeast Coast Area focuses on ports in Xiamen and Fuzhou. It also includes Quanzhou Port, Putian Port and Zhangzhou Port.
- Chu Chiang Delta Area is composed of ports in East Guangdong and Chu Chiang Delta. It consolidates the status of Hong Kong International Shipping Center. It focuses on Guangzhou Port, Shenzhen Port, Chu Chiang Port and Shantou Port. It also develops Shanwei Port, Huizhou Port, Humen Port, Maoming Port and Yangjiang Port.
- Southwest Coast Area includes ports in West Guangdong, Guangxi and Hainan. It focuses on Zhanjiang Port, Fangcheng Port and Haikou Port. It also develops Beihai Port, Qinzhou Port, Yangpu Port, Basuo Port and Sanya Port.

**Table 2-1. Highway and Railway Indicators in Southeast China in 2008 (km)**

Indicator Area	Highways	Classified Highways				Non- Classified	Railways
		Expressways	Class-I	Class- II			
					Southeast China		
China	3730164	2778521	60302	54216	285226	951642	79687.3
% of the total in China	34.88	37.01	42.08	47.92	37.66	28.69	26.76

Sources: Yearbook of China Statistics (2009), China Statistics Press.

## 1. The Land Transportation Infrastructure

### 1.1. The Development of Highway Networks

Southeast China is one of the areas where a number of transportation hubs concentrate. The first expressway, Hujia Expressway (Shanghai-Jiading), was established in October 1988. Many expressways designed in *The National Expressway Network Plan* are located in this area, including three expressways from Beijing—Jinghu Expressway (Beijing-Shanghai), Jingtai Expressway (Beijing-Taipei), Jinggong Expressway (Beijing-Hong Kong-Macao), seven north-south expressways—Shenhai Expressway (Shenyang-Haikou), Changshen Expressway (Changchun-Shenzhen), Jiguang Expressway (Jinan-Guangzhou), Daguang Expressway (Daqing-Guangzhou), Erguang Expressway (Erenhot-Guangzhou), Baomao Expressway (Baotou-Maoming), Lanhai Expressway (Lanzhou-Haikou), and twelve east-west expressways —Lianhuo Expressway (Lianyungang-Korgas), Ningluo Expressway (Nanjing-Luoyang), Hushan Expressway (Shanghai-Xian), Hurong Expressway (Shanghai-Chengdu), Huyu Expressway (Shanghai-Chongqing), Hangrui Expressway

(Hangzhou-Ruili), Hukun Expressway (Shanghai-Kunming), Fuyin Expressway (Fuzhou-Yinchuan), Quannan Expressway (Quanzhou-Nanning), Xiarong Expressway (Xiamen-Chengdu), Shankun Expressway (Shantou-Kunming), Guangkun Expressway (Guangzhou-Kunming). Moreover, 29 out of total 70 national trunk highway network expressways are also located in this area, including four highways from Beijing (104、105、106、107), nine north-south highways (204、205、206、207、209、210、223、224、225) and 16 east-west highways (310、311、312、316、318、319、320、321、322、323、324、325、327、328、329、330).

**Table 2-2. Highways in Southeast China in 2008 (km)**

Area	Highways	Classified Highways				Non-Classified
			Expressway	Class-I	Class-II	
Shanghai	11497	11497	637	364	2775	0
Jiangsu	140930	129326	3725	7423	20590	11603
Zhejiang	103652	97349	3073	3795	8596	6304
Anhui	148827	134669	2506	385	10077	14158
Fujian	88607	66461	1767	509	6988	22146
Jiangxi	133815	77343	2284	1199	8561	56472
Hubei	188366	153665	2719	1566	16043	34701
Hunan	184568	118717	2001	660	6089	65852
Guangdong	183155	154878	3823	9052	18272	28277
Guangxi	99273	73052	2181	819	8115	26222
Hainan	18563	11264	660	210	1315	7300
Southeast China	1301253	1028221	25376	25982	107421	273035
China	3730164	2778521	60302	54216	285226	951642
% of the total in China	34.88	37.01	42.08	47.92	37.66	28.69

Sources: *Yearbook of China Statistics* (2009).

By the end of 2008, highways in operation in Southeast China had reached

1,301,300 km (34.88% of the total in China), including 25,400 km expressways (42.08% of the total), 26,000 km Class-I highways(47.928% of the total), 107,4000 km Class-II highways(37.66% of the total), 869,4000 km Class-III and Class-IV highways (36.55% of the total) and 273,000 km Non-Classified highways (28.69% of the total in China). In general, highway networks in Southeast China have a relatively wide radiation scope and a relatively large share of high-class highways comparing with other regions in China, especially those highways in Guangdong, Jiangsu and Shanghai.

## 1.2. The Development of Railway Network

Railway networks in Southeast China have developed very fast. Trunk railways include six out of “eight vertical railways”<sup>3</sup> (Southeast Coastal Corridor (Shenyang-Zhanjiang), Jinghu Corridor (Beijing-Shanghai), Jingjiu Corridor (Beijing-Kowloon), Jingguang Corridor (Beijing-Guangzhou), Dazhan Corridor (Dalian-Haikou), Baoliu Corridor (Baotou-Liuzhou)) and four out of “eight horizontal railways”<sup>4</sup> (Ningxi Corridor (Nanjing-Xian), Corridor along the Yangzi River(Chongqing-Nanjing), Hukun Corridor (Shanghai-Kunming), Southwest Corridor to Sea(Kunming-Nanning)). Meanwhile, many cities in Southeast China are transportation hubs. Shanghai, Guangzhou and Wuhan are three out of six national passenger transportation hubs, and Nanchang, Fuzhou and Nanning are regional passenger transportation centers of China.<sup>5</sup> Moreover, there is a railway line linking

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<sup>3</sup> Eight vertical railways include Jingha Corridor (Beijing-Harbin), Southeast Coastal Corridor (Shenyang-Zhanjiang), Jinghu Corridor (Beijing-Shanghai), Jingjiu Corridor (Beijing-Kowloon), Jingguang Corridor (Beijing-Guangzhou), Dazhan Corridor (Dalian-Haikou), Baoliu Corridor (Baotou-Liuzhou) and Lankun Corridor (Lanzhou-Kunming).

<sup>4</sup> Eight horizontal railways include Jinglan Corridor (Beijing-Lanzhou), Southern Corridor for Transporting Coal, Northern Corridor for Transporting Coal, Taiyuan-Qingdao Corridor, Ningxi Corridor (Nanjing-Xian), Corridor along the Yangzi River (Chongqing-Nanjing), Hukun Corridor (Shanghai-Kunming) and Southwest Corridor to Sea (Kunming-Nanning).

<sup>5</sup> According to The Eleventh Five-Year Plan of Railways, the layout of passenger stations is as follows: There will be six passenger transportation centers—Beijing, Shanghai, Guangzhou, Wuhan, Chengdu and Xian. There will also be modern national centers to repair and distribute trains. There will be ten regional passenger transportation centers—Harbin, Shenyang, Jinan, Zhengzhou, Nanchang, Fuzhou, Kunming, Nanning, Lanzhou and Urumqi. There will be regional centers to repair and prepare trains.

China and Vietnam in Southeast China—Xianggui Railway (Hengyang-Pingxiang), which leads to Hanoi, the capital of Vietnam.

The railway networks have been well developed in Southeast China. Double-track rate and electrified rate are high in most parts, except a few provinces and autonomous regions, such as Guangxi, Fujian, Hainan. Mountainous terrain and poor railway foundation are the main reasons leading to low double-track rate and electrified rate in Guangxi Zhuang Autonomous Region and Fujian Province. By the end of 2008, Guangxi merely had 2,731.4 km railways in operation, one electrified single-track rail—Nankun Railway (Nanning-Kunming) with a length of 513.91 km and 483 km double-track railways. Fujian Province had 1,618 km railways in operation, 821 km electrified sing-track railways, but no double-track railways yet. Hainan Province, surrounded by sea on four sides, had 387.3 km railways in operation. The only railway in operation was a single track one—West Ring Railway, which was an important part of Yuehai (Zhanjiang-Hainan) Railway and an integrated railway line in Hainan into national railway network.

## 2. International Transportation Infrastructure in Southeast China

International transportation infrastructure in Southeast China mainly connects Guangxi Zhuang Autonomous Region and Vietnam. There are eight counties and cities in Guangxi share a total of 1,020 km border with Vietnam.

**Table 2-3. The Length of Railways In operation in Southeast China in 2008**

Indicators	Route Length (km)
Shanghai	316.10
Jiangsu	1657.00

**(Table 2-3. Continue)**

Indicators	Route Length (km)
Shanghai	316.10
Jiangsu	1657.00
Zhejiang	1319.30
Anhui	2871.00
Fujian	1618.40
Jiangxi	2650.50
Hubei	2711.00
Hunan	2894.80
Guangdong	2164.80
Guangxi	2731.40
Hainan	387.30
China	79687.28
Southeast China	21321.50
% of the total in China	26.76

Sources: *Yearbook of China Statistics*, 2009, China Statistics Press

### **2.1. Highways linking Guangxi Province and Vietnam**

In terms of highway infrastructure in Southeast China, there are highways to Vietnam in all of the border ports and border trade points. More specifically, there are twelve border ports in Guangxi, including five category-1 ports<sup>6</sup> (Dongxing Port, Youyiguan Port, Shuikou Port, Longbang Port, Pingxiang Port) and twenty-five border trade points with classified highways to border ports (Table 2-4). Nanyou Expressway (Nanning-Youyiguan), connecting No.1 highway of Vietnam at Youyiguan, is the most convenient and fast way to Vietnam. It was established in December 2005 with a total

<sup>6</sup> The category 1 refers to the national management level.

length of 179.2 km.

**Table 2-4. Cross-border Highway Infrastructure in Guangxi**

Line	Section in Guangxi			Section in Vietnam
	Route No.	Route Section	Route Length (km)	
Line1	G7211	Nanning—Youyiguan (Expressway)	209	Lang Son—Hanoi—National National Road 1A (Class-II and above)
Line2	G7511	Nanning—Dongxing (153 km expressway, 54km Class-II)	207	Mong Cai— Halong Bay—Hanoi (Class-III and above)
Line3	G7211	Nanning—Chongzuo— Shuikou (122 km expressway)	226	Ta Lung—Cao Bang—Hanoi (Class-III and above)
Line4	the fourth horizontal expressway of <i>The Guangxi Expressway Network Plan</i>	Baise—Jingxi (98 km Class-III), Jingxi—Longbang (32 km Class-II) expressway covers the whole section is under construction	130	Bao Anh—Cao Bang (Class-III and above)
Line5	G7211、 S325	Nanning—Ningming—Aidian (162 km Nanyou (Nanning-Youyiguan) Expressway, 52 km Class-II Ningming-Aidian	214	Chi Ma—Loc Binh (Class-II)

(Table 2-4. *Continue*)

Line	Section in Guangxi			Section in Vietnam
	Route No.	Route Section	Route Length (km)	
Line6	Country Highway 256	Fangcheng—Tongzhong (Class-III)	68	Tongzhong—Qizhou—Quang Ninh (Class-IV)
Line7	G322、 S219	Nanning—Beijiang—Banlan (Nanning—Beijiang 136 km, Beijiang—Banlan 82km, Class-III)	218	Na ran—Dinh Lap (Class-IV)
Line8	S325、 Country Highway 458	Pingxiang—Pinger (Class-III)	22	Pinger—Nahui—Banbo (Class-IV)
Line9	Country Highway 533	Longzhou—Kejia (Class-III)	35	Mihe—Bankou (Class-III)
Line10	S316、 S325	Daxin—Shuolong (Class-III)	50	Nandou—Banbang dou—Ha Lang (Class-IV)
Line11	S325、 Country Highway 771	Jingxi—Yuewei (Class-III)	58	Ha Quang—Son Duong—Cao Bang (Class-IV)
Line12	Country Highway 781	Napo—Pingmeng (Class-III)	71	Pingmeng—Ha Quang (Class-III)

*Note:* According to highway technological standards in China

*Source:* *Guangxi's Chorography: Transportation.*

It is possible to reach to other Southeast Asia countries through Vietnam by the international transport infrastructure in Southeast China. For instance, National Road 1A of Vietnam links Cambodia directly. It also connects National Road 6, National Road 9, National Road 12 and other highways in Vietnam, via which people could reach Laos and Thailand. By the end of 2008, many transportation lines to Vietnam from Guangxi were open for operation.

## **2.2. Railways Linking Guangxi and Vietnam**

In terms of railway infrastructure, there is a 401 km standard gauge railway to Vietnam—Nanning-Hanoi Railway (Nanning—Pingxiang—Dong Dang—Hanoi, 181km). Nanning—Pingxiang line, with a length of 220 km, was established in 1954. It was part of Xianggui Railway (Hengyang-Pingxiang) and linked railways in Vietnam at Youyiguan (Friendship Gate). However, passenger trains from China could not pass through the section of Hanoi—Dong Dang—Youyiguan directly due to its narrow gauge railway at that time. Passengers on the international trains from Beijing to Hanoi had to change trains at Pingxiang. China and Vietnam agreed to rebuild the railway between Hanoi and Youyiguan to dual-gauge railway (1000mm and 1435mm) in 1964. Since then, trains from China could go to Hanoi directly. In recent years, the establishment of the China-ASEAN FTA promotes trade growth of China with ASEAN, especially with Vietnam. A new international passenger train from Nanning to Hanoi (GIA LAM) started on January 1, 2009.

There is Xianggui Railway (Hengyang-Pingxiang) to Vietnam in Southeast China. At the same time, Vietnam is the only country in Southeast Asia that connected China directly by railway.

### **3. Networks Linking China and Southeast Asia**

Guangxi Zhuang Autonomous Region and Yunnan Province share the border with Southeast Asia countries. Guangxi shares a land border of 1,020 km with Vietnam. Yunnan shares a land border of 4,060 km with Myanmar, Laos, and Vietnam. Both of Guangxi and Yunnan have highways and railways to Southeast Asia. The most convenient and fast highways from China to Southeast Asia are Nanning-Bangkok Highway and Kunming-Bangkok Highway.

#### **3.1 Highway Connections**

There are highways to Southeast Asia in all of the border ports and border trade points in Guangxi and Yunnan. Most highways are interconnected with each other among Southeast Asian countries. Highways in Thailand, Malaysia and Singapore are widely spread with advanced technology, while, those highways in Laos, Cambodia, Vietnam and Myanmar are relatively backward with low technology.

There are five Category-1 ports, seven Category-2 ports, twenty-five border trade points in Guangxi along the border line with Vietnam. There are twelve major highways (Table 2-4) and several international transportation corridors to Vietnam (Table 2-5) in Guangxi. Furthermore, it is possible to reach to other Southeast Asia countries through highway infrastructure linkages of Guangxi and Vietnam. For instance, National Road 1A of Vietnam links Cambodia. It also connects National Road 6, National Road 9, National Road 12 and other highways in Vietnam, via which people could reach Laos and Thailand. There are also two cross-border bridges, Vientiane-Nong Kha and Savannakhet-Mukdahan, from Laos to Thailand. So far, the most important corridor from Guangxi to Southeast Asia is Nanning-Bangkok Highway, an alternative one is Nanning-Dongxing-Mong Cai-Hanoi-Phnom Penh.

**Table 2-5. Cross-border Transportation Routes in Guangxi Province in 2008**

Destination	Transportation Mode	Route(China-Vietnam)	Number of Routes
Vietnam	Waterways	Beihai—Hanoi Beihai—Halong Bay	2
	Highways	Nanning—Hanoi Chongzuo (Longzhou) —Cao Bang Pingxiang—Lang Son Nanning—Halong Bay Nanning—Hai Phong Nanning—Da Nang	6

Source: *Guangxi Transportation Yearbook* (2009)

There are twelve Category-1 ports (mainly land ports), eight Category-2 ports, 90 border trade corridors, 103 border trade points, 20 cross-border highways (including four major international corridors, Table 2-6) in Yunnan Province. The part of these highways in Yunnan, from Kunming to Bangkok, Vientiane, Rangoon and Hanoi, are basically high-class ones at present.

So far, the major corridors from Yunnan Province to Southeast Asia and South Asia are Kunming-Bangkok Highway, Kunming-Hanoi Highway and Kunming-Rangoon Highway. Among them, Kunming-Bangkok Highway is the most convenient one.

**Table 2-6. International Connection of Transport Infrastructure in Yunnan Province**

Destination	Route Section	Route Class	Route Length (km)
Vietnam	Kunming(China)-Hekou(China)-Hanoi (Vietnam)	China: Expressway Vietnam: Class-I	Total:756 Yunnan: 400 Vietnam:356
Laos, Thailand	Kunming(China)-Mohan(China)-Laos- Bangkok(Thailand)	China: Expressway Laos: Class-II Thailand: Expressway and Class-I	Total:1818 Yunnan:688 Laos:240 Thailand:890

**(Table 2-6. Continue)**

Destination	Route Section	Route Class	Route Length (km)
Myanmar	Kunming(China)-Ruili(China)-Muse(Myanmar)-Mandalay(Myanmar)-Rangoon(Myanmar)	China: Expressway Myanmar: Class-IV and above	Total:1899 Yunnan:732 Myanmar:1167 Muse—Mandalay:460 Mandalay—Rangoon: 707
Myanmar	Kunming(China)-Tengchong(China)-Myitkyina(Myanmar) –Ledo(India)	China: Expressway Myanmar: Class-II India: Class-III	Total:1220 Yunnan:698 Myanmar:477 India:45

Source: Transportation resources of Yunnan Province

Besides the corridors to Southeast Asia and South Asia, Yunnan Province also built many international transportation routes with its neighboring countries. There are eighteen such routes to Vietnam, Laos and Myanmar. (See Table 2-7)

**Table 2-7. International Transportation Routes in Yunnan Province, 2008**

Destination	Major Routes from China	Number of Routes
Vietnam	Mengzi- Van Ban Gejiu- Van Ban Gejiu-Sapa	3
Laos	Kunming- Vientiane:The longest passenger line, total length 1,380 km Simao- Vientiane Jinghong—Vientiane Kunming-Luang Prabang	9

(Table 2-7. *Continue*)

Destination	Major Routes from China	Number of Routes
Laos	Menla—Houayxay Menla—Muong Say Menla—Phongsali Menla—Louang Namtha Menla—Mengsing	9
Myanmar	Kunming(China)-Jinghong(China)-Daluo(China)-Keng tung(Myanmar) Kunming(China)-Dali(China)-Ruili(China)-Myitkyina(Myanmar)-Mandalay(Myanmar)- Rangoon(Myanmar)	2

Source: Transportation resources of Yunnan Province

### 3.2 Railway Connections

In terms of international connection of railway infrastructure in China, Guangxi and Yunnan have one railway respectively to connect Vietnam. One is Xianggui Railway (Hengyang-Pingxiang), and the other is Yunnan-Myanmar Railway (Kunming-Hai Phong). Vietnam is the only country in Southeast Asia connecting China's railway system.

Nanning-Hanoi Railway, a standard gauge railway with a total length of 401 km, consists of two sections. One of them is Xianggui Railway (Hengyang-Pingxiang) in Guangxi, which was built in 1954 with a length of 220km. The other is Dong Dang-Hanoi Railway in Vietnam with a length of 181 km. Yunnan-Myanmar (Kunming-Hekou-Lao Cai-Hanoi) Railway, as the first international railway in China, was established in 1903. It is a meter gauge railway with a total length of 855 km, including 466 km in Yunnan and 389 km in Vietnam. The traffic volume was 7,140,000 tons in 2009.

These two railways are too old to satisfy the demand of transportation with booming economic and social exchanges between China and ASEAN. Both Guangxi and Yunnan have plan to increase transportation capacity of these two railways.

China participates actively in the Tran-Asian Railway (TAR) project. The construction of TAR sections (eastern route, central route and western route) was listed into China's *Mid-long Term Railway Network Plan* and *Eleventh-Five Year Plan of Railway*, and they are under construction now.

At present, 261 km coastal railways in Guangxi are being rebuilt into high-speed ones with a speed of 250 km/h, which will be complete by 2013. Guangxi-Pingxiang Railway, as part of eastern route of TAR, has been put into the rebuilding project to increase the capacity of Xianggui Railway, which will begin in December 2010, which will make the railway speed reaching to 200 km/h. Meanwhile, Fangcheng-Dongxing Railway (52 km), also as part of eastern route of TAR, has been listed into *Major Transportation Projects of Beibu Gulf Economic Region*, which will begin in 2013 and aims at connecting railway networks in Chinese with Vietnam. At the same time, Guangxi is planning to build Laibin-Tiandong Railway (185 km) via Debao, Jingxi and Longbang Port. This railway, as a crucial part of eastern route of TAR, will establish a corridor from Guangxi to Vietnam.

In terms of international corridors in Yunnan, the part of eastern route of TAR in Yunnan is under construction now. Specifically, the Yuxi-Mengzi section (141 km) and Mengzi-Hekou section of this railway (141 km) are under construction. In addition, all the necessary preparations for rebuilding Kunming-Yuxi section (50 km) are nearly completed, and the project will start in 2010. It is estimated that Yunnan section of TAR will be in operation in 2013. The Yuxi-Mengzi section will be in operation by steps: Yuxi-Tonghai section will be in operation early by the end of 2010, while the whole section will be in operation by the end of 2011. Newly upgraded Kunming-Yuxi Railway will be the first high-speed railway in Southwest China. It will cost only three hours to travel 334 km from Kunming to Hekou by train.

The New Yunnan-Myanmar Railway (Kunming-Rangoon 1,920 km), as the western route of TAR, including 690 km of Kunming-Lijiang section in China. With respect to the Kunming-Ruili Railway, Kunming-Dali section (Kunming-Guangtong-Dali 350 km) has been established and will be double-tracked by 2010. The construction of Dali-Ruili section (Dali-Baoshan-Dehong-Ruili) began in March, 2007. This 338 km railway will cost about ¥15.3 billion and is designed to be a standard gauge electrified one. Its construction will take six years and to be finished by 2013.

Yuxi-Mohan Railway, as part of the Kunming-Singapore Railway in TAR Network, has been listed into the *Mid-long Term Railway Network Plan*. It starts from Kunming, through Yuxi, Puer, Xishuang Banna, and enters into Laos at Mohan, and then goes through Thailand to Singapore. The Kunming-Singapore section of the TAR Railway totals 3,894 km, with 599 km in China. It will become an economic trunk line of the Kunming-Bangkok international corridor. It will also be a trunk line to promote the Greater Mekong Sub-region (GMS) cooperation and economic relations between China and ASEAN. At present, preparations for the construction of the Yuxi-Mohan Railway are under way. It is expected to be started in 2010.

#### **4. The Outlook of International Transportation Infrastructure**

The China-ASEAN FTA was fully implemented in 2010 on time, which speeds up the process of economic integration between China and ASEAN countries. With the fast development of trade, social and cultural relations between China and ASEAN, the countries in the region have actively built international transportation linkages, transportation hubs and transportation service networks. They also adopt cooperative measures to facilitate transportation. All of these measures aim at establishing a

convenient, fast and safe international transportation system to push forward the transportation integration between China and ASEAN.

China proposed to develop “seven vertical and one horizontal corridors, three networks and one hub”<sup>7</sup>, which will connect China and ASEAN closely by sea, land and air. This transportation framework will make the flow of labors and goods between China and Southeast Asia safer and faster. Moreover, many major cities along the transportation corridors will absorb numerous labors, resources and industries. Many regional economic corridors will take shape because of this framework, which integrate sea, land and air transportation.

According to the proposal, the “seven vertical corridors” are: Nanning-Singapore Corridor, Nanning-Phnom Penh Corridor, Guiyang-Bangkok Corridor, Kunming-Hai Phong Corridor, Kunming-Bangkok Corridor, Kunming-Rangoon Corridor, and Kunming-Ledo Corridor. “One horizontal” corridor is Hong Kong-Ruili-Mandalay Corridor. In fact, this is the Third Asia-Europe continental land bridge. (See Table 2-8)

The development of “seven vertical corridors and one horizontal corridor” will increase the existing transportation capacity significantly and cost less time traveling from China to Southeast Asia. Those international connections will help to build a comprehensive, efficient, modern transportation system linking China, Southeast Asian countries and South Asian countries.

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<sup>7</sup> Seven vertical corridors are: Nanning-Singapore Corridor, Nanning-Phnom Penh Corridor, Guiyang-Bangkok Corridor, Kunming-Hai Phong Corridor, Kunming-Bangkok Corridor, Kunming-Rangoon Corridor, and Kunming-Ledo Corridor. One horizontal corridor is Hong Kong-Ruili-Mandalay Corridor. Three Networks are International Shipping Network, Inland Waterway Network and International Aerial Network. One hub is Guangxi Province, as a Train-Air-Truck hub linking China and Southeast Asia.

**Table 2-8. Seven Vertical and One Horizontal Land Corridor**

Section		Details
Seven Vertical Corridor	Nanning(China)-Pingxiang (China)-Hanoi (Vietnam)-Vientiane (Laos)-Bangkok(Thailand)-Singapore	This corridor, including Nanning-Singapore Highway and Nanning-Singapore Railway, is one corridor going through the most countries, China, Vietnam, Laos, Cambodia, Thailand and Singapore, among the seven vertical corridors. It is also the most convenient and fast corridor from China to Southeast Asia. Moreover, it is the only international corridor that is part of Greater Mekong Sub-regional East-West Economic Corridor, North-South Economic Corridor and South Economic Corridor.
	Nanning(China)-Dongxing (China)-Hanoi (Vietnam)-Ho Chi Minh(Vietnam)-Phnom Penh(Cambodia)	This corridor includes Nanning-Phnom Penh Highway and Nanning-Phnom Penh Railway. This coastal corridor links Central-Southern Peninsular, Beibu Gulf, Pearl River Delta, Yangzi River Delta and coastal economic belt.
	Guiyang(China)-Longbang (China)-CaoBang(Vietnam)-Luan-Prabang(Laos)-Bangkok(Thailand)	This corridor includes highway corridor and rail corridor. There is an expressway corridor as follows: Guiyang-Luodian-Baise-Longbang-Cao Bang-Luang Prabang-Sukhotai-Bangkok. The construction of Guiyang-Luodian Expressway will start soon. Luodian-Baise Expressway has been listed into national transportation plan of China. Jingxi-Longbang Expressway is under construction. Highways in Vitenam and Laos are Class-III and Class-IV highway. Highways in Thailand are almost expressways. The rail corridor is as follows: Nanning-Tiandong-Jingxi-Longbang- Cao Bang. Tiandong-Jingxi Railway is under construction.
	Kunming(China)-Hanoi (Vietnam)-Hai-Phong (Vietnam)	Kunming--Hai Phong Highway is 861 km long with 400 km expressway in Yunnan Province. Hanoi-Hai Phong Expressway is under construction in Vietnam. So is Kunming-Hanoi Railway.
	Kunming(China)-Mohan (China)-HuayXai(Laos)-ChiangMai(Thailand)-Bangkok(Thailand)-Singapore	This corridor comprises Kunming-Bangkok-Singapore Highway and Kunming-Singapore Railway (part of TAR). It is an important north-south economic corridor in Greater Mekong Sub-region.
	Kunming(China)-Ruili (China)-Mandalay(Myanmar)-Rangoon(Myanmar)	This corridor comprises Kunming-Rangoon Expressway and Kunming-Rangoon Railway. It is one of the most important land corridors from Southwest China to Myanmar, and then to Indian Ocean, where this corridor could link strategic comprehensive transportation corridor of Indian Ocean.

**(Table 2-8. Continue)**

Section		Details
	Kunming(China)-Tengchong(China)-Myitkyina(Myanmar) -Ledo(India)	This highway corridor is a revival of Stilwell Road. It totals 1,220 km, including 689 km expressways in Yunnan Province, 477 km Class-II highways and 45 km Class-III highways.
One Horizontal Corridor	The Third Asia-Europe Continental Land Bridge: Hong Kong(China)-Guangzhou (China)-Nanning(China)-Funing(China)-Kunming(China)-Ruili(China)-Mandalay (Myanmar)-Bengal-Kolkata (India)-Hyderabad (Pakistan)-Quam(Iran)-Malatya(Turkey)-Istanbul (Turkey)-Rotterdam (Netherlands)	This corridor is from China to Southeast Asia, South Asia and Europe. It totals 15,000 km passing through 21 countries (including four countries in West Asia and North Africa: Syria, Lebanon, Israel and Egypt). It is 3,000 km shorter than the route from southeast coast of China to Strait of Malacca and then to Indian Ocean. In terms of the composition of The Third Asia-Europe Eurasian Land Bridge, highways are basics, railways are backbones, aviation is forerunner, waterways are complements, information network are hubs.

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