



**WORLD BANK-FUNDED PROJECT IN CHINA
- TRADE AND LOGISTICS DEVELOPMENT
IN 8 INLAND LAGGING PROVINCES**

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EXECUTIVE SUMMARY

The objective of this study is to examine the trade logistics impediments that will affect the growth of exports from 8 inland provinces in China namely Inner Mongolia, Gansu, Shaanxi, Hunan, Chongqing, Guizhou, Yunnan and Guangxi. This study will support the broader regional effort of the East Asia Poverty Reduction and Economic Management Division (PREM) of the World Bank in its current review of the East Asia Region's trade and services competitiveness and its impact on poverty reduction.

The key findings and summarized recommendations are outlined in the sections that follow.

Key Findings – Trade Development

- As a consequence of accession to the WTO, China will be compelled to reduce tariffs and trade barriers over a wide range of products. Therefore there will be an influx of foreign imports resulting in increased competition for local producers. The consequential issue is how the existing producers in the 8 inland provinces will be able to face this competition, especially with the domestic market accounting for a sizeable share of their exports.
- Although there may be some impact on the existing industry structure, it is expected that over the medium and long term, some of these local producers would be able to develop sustainable industrial competencies based on their access to nearby resources and critical industry mass. In addition, face with such competition, these local enterprises, especially those in consumer goods like motorcycles, automobile, consumer electronics, cigarettes and liquor products, may need to develop more creative marketing strategies to preserve their share of the national market.
- On the other hand, the accession into the WTO offers the 8 inland provinces improved market access to other WTO member countries. For instance, quotas for textiles and garments will be abolished as per the Agreement on Textiles and Clothing (ATC). Therefore, joining the WTO offers export opportunities.
- It is expected that the joining of WTO, will make China an attractive location for foreign direct investment (FDI). The 8 inland provinces should similarly benefit from this FDI trend as local investment would be a boost to these provinces, particularly in the development of downstream and value-adding activities.
- Most of the 8 inland provinces are well endowed with agricultural and mineral resources. Therefore, developing value-adding secondary activities is important in improving the economic foundations of the provinces. In provinces such as Inner Mongolia, Hunan, Guangxi and Shaanxi, primary agricultural activities would progress towards more value-added processing activities in order for the provinces to maximize the economic benefits retained. Other provinces such as Gansu, Inner Mongolia, Guizhou and Guangxi, have also embarked on value-adding existing resources such as capitalising on their coal and water resources to generate electricity for transmission to the Eastern province.

- For international exports, producers in the 8 inland provinces would have to overcome the disadvantage arising from the additional costs required for transportation of their goods to the coastal export seaports. Such additional cost for transportation of containerised cargoes from Guiyang, Guizhou to seaports in Guangzhou can be as high as USD818 per TEU and USD1,532 per TEU by trucking and railway respectively.
- Some of the provinces, particularly Guangxi and Yunnan, may see their export sectors like sugar, textiles, tobacco & garments decline in significance. The provinces are aware of these changes in their economic structures and have already embarked on diversifying into newer export sectors such as traditional Chinese medicine, cut flowers and higher-value food processing clusters.
- The border trade with neighbouring countries has seen dramatic increase in recent years. In light of the improving economic situation especially in Russia and Southeast Asia, border trade will form an important component of overall trade for Inner Mongolia, Yunnan and Guangxi.
- The tourism sector will continue to expand for all the provinces, especially for those provinces with unique tourist attractions and are easily accessible. The domestic tourist market (i.e. tourist traffic from other provinces) has tremendous growth potential given China's increasing affluent population. We also anticipate an increase in the international tourist traffic into China, due to the prominence of China's tourist attractions as well as its recent publicity in hosting of major events like the 2008 Olympics in Beijing.

Key Findings – Logistics Development

- All the major cities in the 8 inland provinces are well served by a fairly comprehensive railways and/or highways network that connect almost all the major cities in the 8 inland provinces with key cities and seaports in other provinces.
- The key challenge that many provinces face, particularly those with vast outlying rural regions such as Hunan and Yunnan, is the connection of their key outlying villages and counties to the main cities and transportation links, so as to facilitate their economic and social developments. Such connectivity is important as it allows for the effective collection and distribution of their local products to other local markets.
- Local producers/exporters seem not to have a full grasp of the shortcomings in their current logistics management. There is a limited level of awareness on the benefits of how a more holistic and integrated logistics management system will serve to assist them lower transaction costs and hence sharpen their cost competitiveness. Currently, most producers are contented to use one mode of transportation for delivery of their products to other domestic provincial markets or export seaports. Their requirement of a warehouse is just for storing their products.

In most cases, the producer is engaged in separate transactions with different logistics service providers for different types of services. The demand for better logistics services like multi-modal transportation or inventory management services is lacking. In other more developed markets overseas, the trend is for such producers to outsource such activities i.e. transportation, warehousing and inventory management to 3PL service providers, while they concentrate on their core business activities.

- Logistics service providers offer limited scope of services, normally only one specialized service. Full-fledged 3PL service providers, on the other hand, lack the adequate knowledge and experience to harness the strengths of the full scope of services to assist clients in more integrated logistics planning and management.
- However, China's accession to the WTO will liberalise practically all logistics services sectors, with the exception of the airfreight service sector. This will lead to more foreign logistics players entering the market and introducing better industry practices and technology to the local market. The resulting competitive forces will shift the logistics industry towards a more market-oriented one. This will lead to an overall improvement in the standard of logistics services offered by both foreign and local logistics service providers.

The recommendations proposed by the consulting team are broad-based but center on building up the foundations for long-term development of the trade logistics in the inland provinces to support and facilitate export trade growth. These recommendations are,

- Focus on selected transportation routes as the main export corridors for the development of transportation and trade logistics infrastructures.
- Identify and develop regional logistics centers in strategic province(s) on the export corridors identified, in order to serve as a catalyst for effective logistics development to support trade growth in whole inland region.
- Focus on selected provinces to expand and upgrade existing highways network to link key outlying villages and counties to the main cities to promote social and economic developments.
- Establish a national agency for developing and co-ordinating national and inter-provincial strategies and policies for the development of the trade logistics system in China.
- Strengthen the institutional capabilities of the relevant ministries involved in trade logistics administration to provide strategic leadership and effective management of the trade logistics system.
- Provide continuous education and training in modern logistics concepts and models for the private sectors that are involved in logistics management. This will include logistics service providers as well as producers in the 8 inland provinces.

However, to achieve a balanced trade, economic and social development in these inland provinces, any developmental programmes must take into careful consideration the plight of the relatively poorer minorities who typically inhabit the less accessible areas.

Abbreviations used in the report

ASEAN	Association of Southeast Asian Nations
ATC	Agreement on Textiles and Clothing
CAAC	General Administration of Civil Aviation
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GATS	General Agreement on Trade in Services
GDP	Gross Domestic Product
ITA	Information Technology Agreement
JV	Joint-venture
MoR	Ministry of Rail
MoC	Ministry of Communications
WTO	World Trade Organisation
3PL	Third Party Logistics

CHAPTER 1 - OVERVIEW OF STUDY

Since the late 1970s, when it pursued “market socialism”, China’s growth in trade mirrors its rapid economic development. China’s recent accession to the World Trade Organisation (WTO) holds both opportunities as well as issues for its economic structure. In that respect, we can expect implications for China’s domestic trade (i.e. trade among provinces) and international trade (i.e. trade with overseas markets).

This study has examined the 8 inland lagging provinces namely Inner Mongolia, Gansu, Shaanxi, Hunan, Chongqing, Guizhou, Yunnan and Guangxi, to assess these changes to their existing trade structures either in terms of competition from imports or opportunities for existing and new export products.

Given the magnitude of China in terms of its population and size, neighbouring provinces can suffice as important domestic markets for some of the lagging provinces under study. Therefore, WTO or any other market access initiative will have ramifications on this form of domestic trade. To some of the lagging provinces, exports to overseas markets (i.e. international trade) are important components of their trade structure. Therefore, with WTO, there will exist potential opportunities.

Regardless of the direction of trade, for the provinces concerned to benefit from such trade liberalization initiatives, they need to be supported by an efficient trade logistics system, both the hardware (i.e. logistics infrastructure) which will cover railways, highways, airports, seaports and warehouses as well as the software (i.e. logistics services) covering trucking services, third party logistics service providers and so forth. The logistics sector in China which includes both the logistics hardware and software components, is still evolving. China’s entry into WTO will bring about gradual liberalization of the logistics service industry for foreign participation. This is expected to lead to influx of foreign technologies and management expertise, which will greatly enhance the standard of logistics services in China.

1.1 TERMS OF REFERENCE

Given the wide geographical coverage of the study, the study provided a broad overview of each province’s economic and trade structure as well as potential exports within the short to medium terms. The study has also assessed the existing logistics system in the 8 provinces and determined its suitability and readiness to support the current and future trade flows of the provinces concerned.

The Terms of Reference (TORs) of the project are:

- i) Conduct a broad review of the trade patterns in the 8 provinces to identify a list of key products, which will drive export growth in these provinces. Such export growth would encompass both exports to other provincial markets (domestic trade) and to overseas markets (international trade). A review was also made on the growth of tourism services in these provinces.

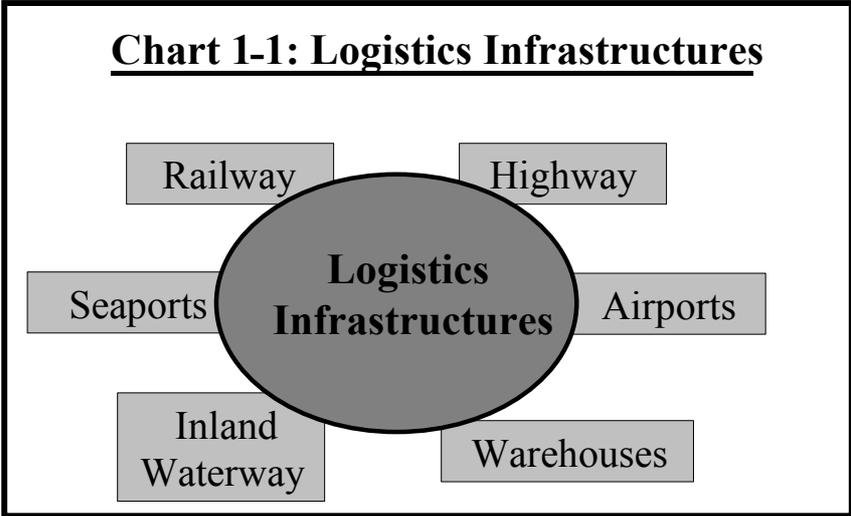
- ii) Review the existing logistics infrastructure and services to support the growth of the identified products as well as tourism services.
- iii) Propose recommendations to the World Bank with regards to the logistics-related impediments to trade growth.
- iv) Examine the implications of the above recommendations on the probable distribution of the benefits of trade and wealth among different geographic sub-regions and social groups within the lagging provinces.

1.2 SCOPE OF STUDY

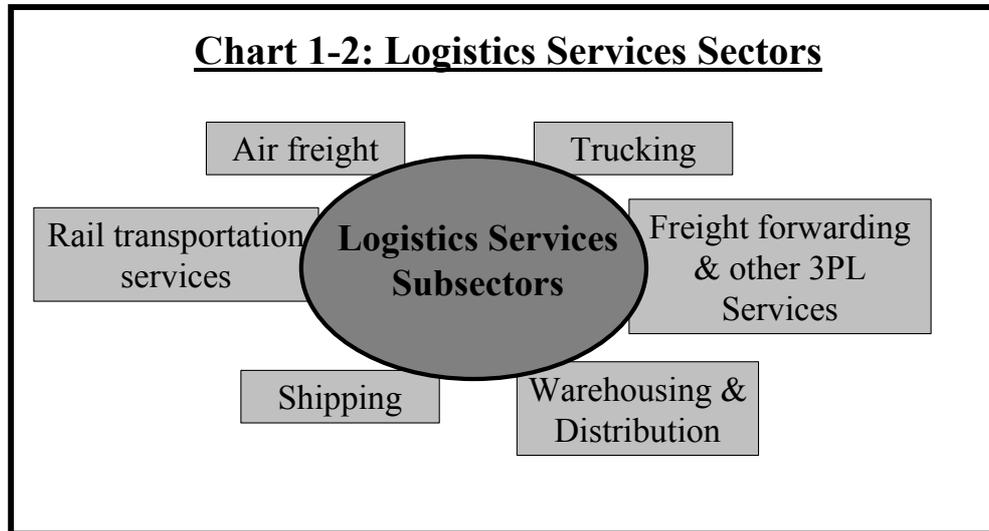
The study started with an analysis of the 8 inland lagging provinces’ trade structure and growth. As part of the exercise, the consulting team conducted a trade flow analysis, using annual reports and provincial five-year plans published (where available), to identify key export products that have been contributing to the export growth in the 8 provinces. In addition, assessment was made to determine whether these export products would continue to be important to these provinces’ export trade in view of the changes likely to be brought about by international trade developments such as WTO accession and the impending China-ASEAN Free Trade Agreement.

On that note, certain distinctions need to be made clear for analytical purposes. Trade growth within local market or local trade refers to trading activities within the mentioned province. Domestic export refers to export outside the said province to other provincial markets in China. Overseas exports or international exports, on the other hand, occur when goods are exported out of China. The team also drew distinction between international and domestic tourists to refer to foreign tourists from other countries and tourists from other domestic provinces respectively.

Secondly, the consulting team reviewed the existing logistics infrastructure and services in the 8 provinces and how they support their existing and future trade. This encompassed identifying the trade patterns and making assessments of the existing gaps in the physical logistics and transportation (Chart 1-1) linkage between these provinces and their target domestic and overseas markets.



The other crucial area of the study was assessment of the availability and capabilities of the various logistics service providers (the private sector) and the regulatory agencies (the government) to ensure cost effective and efficient services to exporters so that they could compete effectively at competitive pricing (Chart 1-2).



Finally, the project team proposed recommendations on how these areas could be improved to support the growth of key export products identified and tourism services in these provinces. In line with the objectives, the study team addressed the issue of streamlining and harmonizing of both the logistics hardware (physical infrastructure) and the related software (logistics services and related administration) to meet the needs of enterprises in the provinces.

1.3 METHODOLOGY

Three basic approaches were used in the study:

- i) Review of previous plans and studies (Annex 1-1) relating to:
 - The logistics situation in China, particularly those relating to the 8 provinces
 - Central government and provincial economic and social development plans
 - Documents relating to China's accession to the WTO
- ii) Comparative analysis of key trade sectors.
- iii) Involving the concerned government agencies and the private sector players, both foreign and local, through one-to-one interviews and focused group discussions to surface challenges/issues and identify effective solutions. A field trip to the 8 provinces was conducted during March and April 2002 to (i) understand the logistics-related issues and (ii) to verify the earlier findings. During these trips, discussions were held with the relevant government departments, manufacturing, trading and logistics companies. The list of organisations interviewed is enclosed in Annex 1-2 of this report.

CHAPTER 2 - CURRENT ECONOMIC AND TRADE SITUATION IN THE 8 INLAND LAGGING PROVINCES

2.1 ECONOMIC STRUCTURE OF THE 8 PROVINCES

The economic characteristics of the 8 lagging inland provinces are fairly similar. Specifically,

- The secondary industry is increasingly becoming a major contributor to their Gross Domestic Product (GDP). Provinces such as Chongqing, Shaanxi, Gansu and Yunnan have fairly established automobiles, electronics, petrochemical and tobacco and liquor sectors respectively.
- The tourism sector together with the secondary sector, are driving the growth of the tertiary sectors in these 8 provinces.
- Compared to the coastal provinces, the primary sectors in the 8 inland provinces are relatively more important, accounting for an average of about 20 percent of the provincial GDP (Table 2-1).
 - As most of the 8 provinces are endowed with abundant mineral resources, production of base metals is, thus, an important economic activity. Yunnan and Guangxi provinces are big producers of aluminum, tin and several other base metals while Guizhou and Inner Mongolia are the biggest producers of coal in China.
 - Provinces such as Hunan, Yunnan and Inner Mongolia, on the other hand, have fairly established agricultural sector.

Table 2-1: Economic Structures of the 8 Provinces (2000)

	GDP (USD billion)	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
Beijing	29.86	3.6	38.1	58.3
Tianjin	19.75	4.5	50	45.5
Guangdong	116.41	10.4	50.4	39.3
Hunan	44.48	21.3	39.6	39.1
Guangxi	24.70	26.3	36.5	37.2
Yunnan	23.56	22.3	43.1	34.6
Chongqing	19.15	17.8	41.4	40.8
Shaanxi	20.01	16.8	44.1	39.1
Inner Mongolia	16.88	25.0	39.7	35.3
Guizhou	11.97	27.3	39.0	33.7
Gansu	11.85	19.7	44.7	35.6

Source: China Statistical Yearbook, 2001;

Foreign Direct Investments (FDI)

A key element of the Tenth Five-Year-Plan (2001 – 2005) is the greater emphasis to further open and strengthen China's central and western region. In support of this developmental emphasis, the 8 inland provinces are stepping up their efforts to attract FDI for the development of the agriculture, mineral resources mining and industrial sectors. The numerous incentives being offered will serve to increase the amount of capital invested in the western region, especially in the construction of infrastructure. However, it will be more difficult for the inland provinces to attract non-infrastructure investments until basic infrastructure and the logistics sectors are further developed to provide cost-effective channels for the transportation and distribution of goods domestically and internationally.

Table 2-2: Foreign Direct Investment (FDI) in the 8 Provinces

Provinces	Foreign Direct Investment (Year 2000)		
	No. of projects	Contracted amount (USD billion)	Utilized amount (USD billion)
China	22,534	62.68	40.73
Beijing	1,145	3.5	1.7
Shanghai	1,814	6.4	3.2
Tianjin	625	3.5	1.2
Guangdong	5,317	13.4	13.0
8 Inland Provinces			
Chongqing	190	0.36	0.24
Gansu	76	0.12	0.06
Guangxi	246	0.71	0.52
Guizhou	55	0.07	0.03
Hunan	320	0.70	0.7
Inner Mongolia	95	0.26	0.11
Shaanxi	215	0.50	0.3
Yunnan	106	0.29	0.13
Total	1,303	3.01	2.09

Sources: <http://www.tdctrade.com/main/china.htm> & <http://www.tdctrade.com/mktprof/china.htm>

In 2000, the 8 inland provinces attracted USD3.01 billion worth of FDI, a mere 4.8 percent of the total FDI contracted to flow into China. Provinces such as Gansu and Guizhou, which are further from eastern coastal seaports will likely require very attractive incentive package comprising both financial and non-financial ones, in order to attract foreign investments. In 2000, Guizhou and Gansu together attracted only USD0.19 billion worth of FDI.

Targeted Export Sectors of Inland Provinces

Development of the transport logistics infrastructures and services industry would enhance the attractiveness of these provinces in attracting foreign investments. In addition, to promote the development of more international export trade, inland provinces far from the export seaports should focus on:

- **Developing and promoting investments in areas that can capitalize on its existing strengths in order to offset the disadvantage of distance from the seaports. For instance, Yunnan has a climate that is ideal for the development of the cut flower industry. Inner Mongolia with its big grassland, on the other hand, is ideal for the development of cashmere and processed meat industries. Please refer to Table 2-4 for the comparative advantages of the 8 inland provinces and potential export sectors.**
- **Secondary processing of raw minerals and agricultural products abundance in these regions, as part of their short to medium term strategy. The processing of these raw products will also enhance the market values of these products. Several inland provinces which have already developed a mass of such value-adding activities are Hunan and Shaanxi. Presently, there are a number of export-oriented factories in these provinces which are producing high-quality fruit juice concentrates and canned fruits for domestic and international exports.**

2.2 EXISTING EXPORTS OF THE 8 PROVINCES

The main export products from the 8 inland provinces are agricultural and mineral-related (Table 2-3). The major producers of agricultural products among the 8 provinces are Inner Mongolia, Yunnan and Hunan. The key agricultural products from these provinces are grain, fruits, fresh vegetables, processed meat and wool. Practically, all the 8 provinces export base metals given their endowment of minerals like coal, zinc, aluminium, tin and copper.

**Table 2-3: Total International Export (in USD billion)
and Major Export Products of the 8 Inland Provinces**

Provinces	1996	1997	1998	1999	2000	Existing export products (to other provinces and overseas markets)
Hunan	2.22	2.32	2.20	1.28	1.65	<ul style="list-style-type: none"> • Base metals mainly zinc • Chemicals • Agricultural products mainly grains & live pigs • Fireworks & firecrackers • Garments • Porcelain
Guangxi	1.92	2.38	2.42	1.20	1.49	<ul style="list-style-type: none"> • Base metals • Electronic products • Textiles & garments • Cement • Food including sugar
Shaanxi	1.27	1.35	1.18	1.15	1.31	<ul style="list-style-type: none"> • Electronic products • Textiles & garments • Fruits & fruit juices
Yunnan	1.10	1.17	1.17	1.03	1.17	<ul style="list-style-type: none"> • Base metals mainly aluminium & tin • Chemicals • Tobacco & cigarettes • Fresh vegetables
Chongqing	0.64	0.78	0.51	0.49	1.00	<ul style="list-style-type: none"> • Base metals • Chemicals • Transportation equipment • Textiles • Mechanical & electrical equipment
Inner Mongolia	0.69	0.74	0.82	0.91	1.02	<ul style="list-style-type: none"> • Minerals including coal • Cashmere textiles & garments • Food • Animal products
Guizhou	0.43	0.48	0.39	0.36	0.42	<ul style="list-style-type: none"> • Base metals • Chemicals • Minerals mainly coals and phosphate • Liquor & tobacco
Gansu	0.27	0.38	0.35	0.32	0.41	<ul style="list-style-type: none"> • Base metals • Petrochemicals • Textiles & garments • Chemicals • Traditional Chinese Medicine
Total	8.54	9.60	9.04	6.74	8.47	

The international export values of all the 8 provinces, with the exception of Inner Mongolia, experienced decline during 1998 and 1999. This could possibly be due to the impact of the Asian financial crisis. International exports from all the provinces, however, recovered in 2000. In 2000, the combined international export trade from the 8 provinces was worth USD8.47 billion.

All the 8 provinces also export some manufactured products. These manufactured products include garments, chemicals, automobiles, consumers' electronic appliances, cashmere products, liquor and tobacco products.

Table 2-4: Export Sectors With Growth Potential

Provinces	Comparative advantages	Limitations	Potential export products for further development and Promotion
Hunan	<ul style="list-style-type: none"> Fertile soil. Availability of water. Relatively nearer to the eastern seaports, compared to the other 7 inland provinces studied. 	<ul style="list-style-type: none"> Outlying counties and villages lack transportation support. 	<ul style="list-style-type: none"> Food & animal products Fireworks & firecrackers Chemicals Porcelain
Chongqing	<ul style="list-style-type: none"> Strong base for automobiles manufacturing. Huge population in Chongqing City. Served by the Yangtze River to Shanghai. 	<ul style="list-style-type: none"> Far from export seaports. 	<ul style="list-style-type: none"> Base metals Chemicals Transportation equipment particularly motor cycles & motor cars Textiles materials
Guizhou	<ul style="list-style-type: none"> Rich high-quality coal reserve. Mineral reserves. Unique karsts geography. 	<ul style="list-style-type: none"> Mountainous Far from seaports. 	<ul style="list-style-type: none"> Base metals Chemicals Minerals mainly coal and phosphate Liquor & Tobacco
Yunnan	<ul style="list-style-type: none"> Cool climate. Rich water and coal resources for electricity generation. Mineral reserves. Long border with Vietnam, Myanmar and Laos. 	<ul style="list-style-type: none"> Huge minority populations living in outlying counties and villages. Far from seaports. 	<ul style="list-style-type: none"> Base metals mainly tin & aluminum Chemicals Fresh vegetables Tobacco & cigarettes Cut flowers Chinese medicine
Guangxi	<ul style="list-style-type: none"> Have own seaports in the South. Share a border with Vietnam. 	<ul style="list-style-type: none"> Huge minority populations living in outlying counties and villages. 	<ul style="list-style-type: none"> Electronic products Food Base metals
Shaanxi	<ul style="list-style-type: none"> Huge pool of research expertise in IT and other high-tech. areas. Fruits production. 	Far from seaports.	<ul style="list-style-type: none"> Electronic products Fruits and fruits processing Textiles and Garment
Gansu	<ul style="list-style-type: none"> Existing petrochemical base. Proximity to Xinjiang and Central Asian countries which have huge reserve of natural gas and oil. Gateway to Central Asia and Europe by rail. 	Far from export seaports.	<ul style="list-style-type: none"> Petrochemical Traditional Chinese medicine (See case box) Base metals Textiles & garments
Inner Mongolia	<ul style="list-style-type: none"> Huge grassland Huge reserve of coals and minerals Share border with Russia and Mongolia. 	<ul style="list-style-type: none"> Mountainous. Internal road networks between cities and counties are narrow and steep. 	<ul style="list-style-type: none"> Cashmere textiles & garments Minerals including coal Food and animal products

New emerging export products - Traditional Chinese Medicine

China's traditional medicine industry is stepping into the modern global market. According to estimation by Hong Kong Trade Development Council, the global market for traditional Chinese medicine, which include such remedies as amber, peach pits and pine pollen, is seen growing to more than USD23.2 billion for 2001, up from USD19.6 billion as at end-2000, as their popularity among ageing Western populations grow. The same report also estimated sales growth of about 8 percent a year since 1994. Today, Europe is the biggest single market for traditional Chinese medicine, contributing 35 percent of worldwide demand, with Germany being the biggest buyer. North America, on the other hand, accounts for 15 percent of global demand while the China's home market accounts for only 10 percent of sales. The home market, however, is expected to grow by more than 22 percent per annum.

The Chinese government's Tenth Five-Year Plan (2001 – 2005) also lists the development of biotechnology and the modernization of traditional Chinese medicine as priority areas. Many experts around the world, thus, expect China to emerge as a global player in this area. The growing awareness and acceptance of Chinese medicine as an effective cure for certain illnesses or healthcare products for human general well being would benefit a number of these inland provinces.

Provinces which will benefit from this trend are Gansu and Yunnan. These provinces already possess the raw materials necessary for the production of effective cures and health products. China's WTO accession has also put many existing drug markets under severe pressure in the coming years as international patent scrutiny forces them to abandon manufacturing copies of Western drugs. Hence, they may be forced into producing traditional Chinese medicine.

2.3 IMPACTS OF INTERNATIONAL TRADE DEVELOPMENT

With China's accession to the WTO in end-2001, a number of changes are expected to take place, particularly in its trade patterns with other WTO members as well as the competitive structures of numerous local industries. The sections that follow will discuss the impacts that are likely to be felt by the 8 inland provinces as post-WTO changes are gradually phased in.

One immediate impact of China's entry into the WTO is the reduction of import tariff rates on a wide range of products and the removal of non-tariff barriers and quotas protection given to national producers. According to estimations¹, import tariff rates on imported manufactures, on average, would drop from 27.4 percent to about 8 percent. Listed in Table 2-5 are the existing and expected tariff rates following WTO accession, on a group of products that are produced by the 8 inland provinces.

¹ Assessing the Implications of Merchandise Trade Liberalization in China's Accession to WTO by E. Ianchovichina, W. Martin and E. Fukase.

Table 2-5: Weighted average tariffs in China with and without WTO accession for targeted products

	Baseline tariff rate (%)	With accession (%)	Provinces that will be directly affected	Remarks
Beverages & tobacco	123.45	20.34	<ul style="list-style-type: none"> ▪ Yunnan ▪ Guizhou 	
Textiles	57.12	9.38	<ul style="list-style-type: none"> ▪ Guangxi ▪ Shaanxi ▪ Chongqing ▪ Gansu ▪ Inner Mongolia 	<ul style="list-style-type: none"> ▪ Quotas and other non-tariff barriers on textiles and apparel exports to US & EU will be phased out in accordance with the WTO Agreement on Textiles & Clothing (ATC) by 1 Jan 2005.
Wearing apparel	76.00	14.85	<ul style="list-style-type: none"> ▪ Guangxi ▪ Hunan ▪ Shaanxi ▪ Gansu ▪ Inner Mongolia 	
Petrochemicals	20.20	6.95	<ul style="list-style-type: none"> ▪ Gansu 	
Automobiles	129.03	13.76	<ul style="list-style-type: none"> ▪ Chongqing 	<ul style="list-style-type: none"> ▪ By 2006.
Electronics	21.69	3.44	<ul style="list-style-type: none"> ▪ Shaanxi ▪ Guangxi ▪ Chongqing 	

Tariff protection on textiles and apparel products, automobiles, electronics and petrochemicals will fall dramatically as a result of accession.

Specific Sectoral Impact Following China's Accession to WTO

(i) Automobiles

For the automobiles sector, besides tariff reduction from 130 percent to less than 15 percent by 2006, the protection by quota for this sector would also be phased out. The province of Chongqing, which has a big automobile manufacturing industry would likely face fierce competition from foreign automobile imports as a result.

The development of an efficient transportation network, comprising both railways and highways, linking Chongqing to the domestic markets in China would to a certain extent, render Chongqing's automobile and motorcycle exports more competitive. This sector would also have to become more export-oriented and engage in international exports to tap on overseas markets to sustain its growth.

(ii) Tobacco and Liquor

For Guizhou and Yunnan, competition is expected in the export of its tobacco and liquor to other domestic provincial markets as import tariffs will be reduced from 123 percent to 20 percent. The tobacco and liquor market as it is now, is already a highly competitive one with hundreds of brands of beer, wine and cigarettes. Coupled by other limitations such as limited size and purchasing power of the local markets, Guizhou in particular, it appears unlikely that

trade logistics improvement alone will enable them to fend off the impending competitions from foreign imports. The industry would need to develop better marketing strategies such as building strong brand names for their products like the famous *Maotai wine* from Guizhou.

(iii) Textiles

For the textiles sector, national producers from inland provinces such as Shaanxi, Gansu, Chongqing and Inner Mongolia have traditionally supplied textile raw materials to coastal provinces like Shenzhen for the manufacturing of wearing apparels. With the reduction in tariff on textiles from 57 percent to less than 10 percent after WTO accession, coastal enterprises may now find it cheaper to import the textiles directly from Japan, South Korea and Taiwan.

(iv) Electronics

Tariff protection on electronics products is also expected to decline due to China's agreement to implement the Information Technology Agreement (ITA) as part of the accession package. Shaanxi, Guangxi and Chongqing provinces which manufacture electronics and electrical products would be affected by this agreement and would certainly face stronger competition from foreign imports of these electronic products. In addition, due to the unique characteristics of these technology products which have product life cycle of less than six months nowadays, local Chinese manufacturers will have to respond more quickly to changes in consumer demand in the national market in order to have a competitive edge over foreign competitors. The competitiveness of Chinese producers will eventually boil down to the quality and cost competitiveness of their products.

Furthermore, under a post-WTO environment, foreign invested companies would be able to import inputs for their manufacturing needs as most import restrictions as well as local content requirements would be phased out over the next three years. Gradually, non-tariff barriers dictating how foreign firms can operate such as technology-sharing obligations will also be removed. As a result of these developments, these national producers would now have to compete more directly with foreign suppliers, many of which are more efficient and could supply products competitively to the Chinese market.

Implications from increased foreign imports

The reduction of tariff protection implies that local producers in the 8 provinces must now focus more attention on the competitiveness of their products, both in product features (and quality) and costs, the latter ranging from the cost of production to the costs associated with the delivery of the final products to the market.

One important area in which local manufacturers can lower their costs is through effective integrated logistics management. Integrated logistics management will require local producers to develop seamless transportation and delivery chains.

Export Opportunities

In terms of international exports, WTO accession is expected to have a positive effect on the garments sector. In 2000, China exported about USD30 billion worth of garment products (Table 2-6). With WTO's entry, all quotas fixed for China by the US, EU and South American nations will be phased out before 2005 as per the Agreement on Textiles and Clothing (ATC). This would likely lead to an increase in Chinese international garment exports to USD50 billion per annum, according to estimation made by China's Ministry of Foreign Trade and Economic Cooperation (MOFTEC),

Table 2-6: Export of garments from China, 2000

	Number of pieces (billion)	Year on year change (%)	Values (USD billion)	Year on year change (%)
Woven Garments	4.395	21.31	17.226	21.23
Knitwear	7.248	17.95	12.054	12.37
Total	11.643	19.20	29.28	17.42

Source: Asia Pulse, "China's Export of Garments Reaches New High in 2000", 3 Mar 2001

Implications for Garment Exports

China's WTO accession is likely to benefit the following provinces which have fairly huge garments exports internationally – Guangxi, Hunan, Gansu, Shaanxi and Inner Mongolia. However, garment enterprises in these provinces must quickly upgrade their existing technologies and manpower productivity in order to fully capitalize on the overseas opportunities arising from China's accession to the WTO.

Besides garment products, the 8 inland provinces are also expected to export more goods to WTO member countries. Such goods are mainly (i) goods which producing enterprises in these provinces already have competitive advantages arising from track records in selling to both domestic and international markets, and (ii) goods which provinces have unique natural conditions for such development e.g. cut flowers in Yunnan.

These export products would likely include high-technology products from Shaanxi and automobile and motorcycles from Chongqing. However, the extent by which these provinces will benefit from heightened international trade opportunities of this nature will hinge substantially on the cost competitiveness of these supplying enterprises in the near future and for enterprises in the 8 inland provinces, a major component of their product cost is trade logistics-related, mainly transportation and inventory. The estimations made by an established foreign 3PL service provider in China on the additional cost of inland transportation to the export port, which an exporter in the 8 inland provinces have to incur is outlined in Table 2-7.

**Table 2-7: Cost per TEU for Transporting Goods
in Containers from Major Cities in 8 Inland Provinces**

Source of goods for international export	Nearest Export Port	By truck (RMB)	By train (RMB)	By truck (USD)	By train (USD)
Xi'an, Shaanxi	Qingdao	13,090	5,005	1,577	603
Xi'an, Shaanxi	Tianjin	9,350	4,950	1,127	596
Lanzhou, Gansu	Lianyungang	12,155	6,160	1,464	742
Lanzhou, Gansu	Qingdao	9,350	5,610	1,127	676
Hohhot, Inner Mongolia	Tianjin	4,114	3,453	496	416
Hohhot, Inner Mongolia	Qinhuangdao	4,675	3,879	563	467
Nanning, Guangxi	Guangzhou	5,610	4,290	676	517
Kunming, Yunnan	Guangzhou	6,545	5,720	789	689
Changsha, Hunan	Shanghai	13,090	4,730	1,577	570
Guiyang, Guizhou	Guangzhou	12,716	6,792	1,532	818
Guiyang, Guizhou	Shanghai	15,895	7,260	1,915	875
Chongqing City, Chongqing	Shanghai	14,586	5,555	1,757	669

Source: Foreign 3PL service provider operating in these provinces.

As a result of the inland locations, enterprises in inland provinces such as Shaanxi for instance, would have to incur additional costs of USD1,577 (by truck) for the transportation of 1 TEU of electronic goods to Qingdao Port for export overseas, compared to their coastal rivals. If these goods are not exported overseas but sold in the Shandong Province where Qingdao is, this additional cost of transportation may also render the products less cost-competitive against similar foreign imported electronic products after WTO.

Another inland province, Guizhou, is also greatly disadvantaged as it is far from the coastal seaports in Shanghai and Guangzhou. Transportation of 1 TEU of liquor to these coastal ports/provinces would incur additional cost of more than USD1,500 or USD800 by truck and train respectively.

Besides the disadvantage arising from such direct transportation costs, there is also substantial time delay for the delivery of goods from the inland provinces to the coastal provinces. Presently, the time required for the transportation of goods from Guiyang, Guizhou to Shanghai is 144 hours and 288 hours for transportation using rail and truck respectively. This time required for delivery of goods from inland provinces to coastal seaports/provinces would lead to increase inventory costs for the inland enterprises.

Based on a comparison of the time required for the delivery of goods in North America, for the delivery of goods from Winnipeg in Canada to New York, which is about the same distance between Guiyang and Shanghai, the transportation time by truck and train is halved and a quarter respectively of that required in Inland China (Table 2-8). This relatively longer delivery time is attributed to the lower quality of the transport infrastructures in China and the lower efficiency in the logistics services in China. These are clearly areas, which the inland region as a whole, would have to further improve in order to enhance the competitiveness of the enterprises based there.

Table 2-8: A comparison of delivery times between North America and Inland China

Source	Destination	Distance (km)	Delivery Time required (hours)	
			Rail	Trucking
North America¹				
Winnipeg	New York	2,200	72	72
Montreal	New York	600	18	48
Inland Province in China				
Guiyang, Guizhou	Shanghai	2,300	144	288
Hohhot, Inner Mongolia	Tianjin	700	72	144

1. Source: Canada Investment Development Program (IDP)

Border Trade

The volume and values of border trade are increasing and provinces which share borders with other countries are likely to benefit from this significant trend. These provinces include Guangxi, Yunnan and Inner Mongolia. In 2000, Russia and Mongolia were the second and third largest export markets of Inner Mongolia with export values totaling USD143 million and USD85 million respectively. Yunnan and Guangxi, on the other hand exported about USD600 million to ASEAN countries in the Mekong Region.

It is envisaged that such border trade would continue to grow and become very important for these 8 inland provinces, particularly the 3 provinces that are bordering these markets namely Inner Mongolia, Yunnan and Guangxi. Yunnan and Guangxi will also be able to benefit substantially from the conclusion of the China-ASEAN Free Trade Agreement (FTA) as it will offer Chinese manufacturers ready access to the whole ASEAN market. Inner Mongolia, on the other hand, will benefit from the strong economic growth (> 4 percent in 2001) and impressive economic reform in Russia. The Russian market is still not fully tapped, hence, there is room for rapid expansion in many sectors.

Implications of Logistics Development /Trade Facilitation on Border Trade

The continuous growth of such border trade, however, would depend substantially on the development of transportation logistics linkages at the borders as well as the effectiveness and reliability of the trade facilitation and administrative procedure at the customs. This would include rationalization of the customs transit system aiming at the reduction of customs inspection and the simplification of the declarations and documentation process.

Tourism Development

Tourism has grown significantly over the last ten years in the 8 inland provinces. The number of international tourists who visited these 8 inland provinces grew more than four-folds from 1.1 million in 1990 to 4.45 million in 2000.

Domestic tourism has also developed very fast during this period, as the local population became more affluent following recent years of rapid economic growth in China. In 2000, more than 151 million domestic tourist arrivals were recorded in these 8 inland provinces (Table 2-9).

Table 2-9: Number of Domestic and International Tourists by Region (10,000 person-times)

	Total			International			Domestic		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
Guangxi	3,505	3,745	4,074	52.3	77.0	122.9	3,453	3,668	3,951
Yunnan	NA	NA	NA	76.1	104.0	100.1	NA	NA	NA
Shaanxi	2,605	2,663	3,131	55.0	63.0	71.3	2,550	2,600	3,060
Hunan	4,234	4,338	4,695	34.86	38.58	45.4	4,200	4,300	4,650
Inner Mongolia	NA	687	774	36.9	37.2	39.2	NA	650	735
Chongqing	NA	NA	NA	16.4	18.4	26.6	NA	NA	3,071
Gansu	597	646	753	12.2	14.5	21.3	585	632	732
Guizhou	1895	1,926	1,998	15.13	16.70	18.4	1,880	1,910	1,980
Total	NA	NA	NA	298.9	369.4	445.2	NA	NA	>15,108

Source: China Statistical Yearbook, 2001;

The tourism sector in all the 8 provinces would likely continue to boom with more visitors traveling to China, not only for vacations but also for exhibitions, convention and business. In addition, the growing affluence among the local people would lead to the growth of domestic tourism.

Implications for Tourism Development

The key to successful tourism development lies in accessibility. Hence, the further development of logistics in air travel, rail and roads is important to support the growth of the tourism sector which has substantial spin-offs to other economic sectors such as retailing, construction, village-based handicraft sector and other hospitality services.

Guangxi, Yunnan, Hunan and Shaanxi have consistently been the top four destinations among the 8 provinces. Tourism development has earned substantial foreign exchange for these provinces. Guangxi, for example, earned USD307 million in 2000. Yunnan and Shaanxi, on the other hand, received USD339 million and USD280 million respectively. These provinces would likely witness the fastest growth in tourism among the 8 provinces. Other provinces such as Gansu and Inner Mongolia also have their own unique attractions. In the case of Gansu, Dun Huang Grotteos in the west is a popular tourists' destination while Inner Mongolia is well known for its big, natural grasslands.

CONCLUSION

All these envisaged changes spell the importance of various provinces reviewing their key export products for the local, domestic and international markets in order to sustain their trade growth. The emerging international trade trends also point to increasing opportunities in border trade, new growth sectors such as Traditional Chinese Medicine and heightened growth of the tourism service in China.

In the face of fiercer foreign competition following liberalization of the Chinese market, it would become increasingly critical for provinces to select and focus on products that are unique to the province as well as products, which the said province has already established a historical reputation and the core competency to produce competitively. Such products include cut flowers from Yunnan, niche liquor products from Guizhou, tobacco from Yunnan, electronic products from Shaanxi, automobiles from Chongqing and cashmere from Inner Mongolia.

In addition, continuous improvement to overall logistics development (both hardware and software) within these inland provinces will become even more crucial to facilitate the local producers in these provinces to continue exporting their product to other provincial and overseas markets competitively.

**CHAPTER 3 - OVERVIEW OF PHYSICAL
LOGISTICS INFRASTRUCTURE AND SERVICES SECTORS**

**3.1 OVERVIEW OF PHYSICAL LOGISTICS INFRASTRUCTURES
(HARDWARE)**

In terms of connectivity, all the 8 provinces have fairly comprehensive railway and highway networks, linking all the major cities within the provinces and the major cities in neighbouring provinces. All the provinces also have numerous domestic airports, which are very critical for the movement of passengers to and from the provinces. Key statistics of the existing transportation infrastructures in the 8 provinces are highlighted in the next few tables.

The northern provinces rely substantially on the railway for the transportation of goods as inland waterways is almost non-existent. In 2000, freight turnover of 161 million ton-km was recorded for rail transportation while 46 million ton-km was recorded for transportation by highways. However, in terms of freight traffic, the volume transported by highways was significantly higher. For the highways, 799 million tonnes of freight was recorded while for the railway, 157 million tonnes was recorded. This suggests that the railway is a very important mode of transportation over the long distance for the northern provinces of Inner Mongolia, Shaanxi and Gansu.

The southern provinces of Hunan, Chongqing, Guizhou, Yunnan and Guangxi on the other hand, are endowed with more transportation options. In 2000, the 5 Southern provinces recorded 156 million tonnes of railway freights, 150 billion tonnes of highway freights and 72 million tonnes of freight by inland waterways.

Hunan, for example, which has the highest freight traffic among the 8 provinces have the option of inland waterways (through Yangtze River to Shanghai) as well as railways and highways for the transportation of goods to export seaports. In 2000, Hunan province transported 47 million tonnes, 429 million and 34 million tonnes of freight using the railways, highways and inland waterways respectively. Internally, the main cities in Hunan such as Changsha and Yueyang are also very well connected by railways and highways, hence able to offer shippers many options for the transportation of goods and passengers to other cities and provinces.

Table 3-1: Length of Transportation Routes (km) (End 2000)

Provinces	National railway		Length of navigable inland waterways	Total length of highways
	Length of railways in operation	Extension length of the trunk lines		
National Total	58655.9	81736.3	119325	1402698
Beijing	1140.9	1815.3	-	13597
Shanghai	256.5	397.2	2100	4325
Guangdong	693.8	1383.6	13696	102604
Southern Provinces²				
Hunan	2312.7	3528	10041	60848
Guangxi	2012.3	2431.6	5618	52910
Chongqing	598	597.4	2324	29252
Guizhou	1641.7	1711.6	2132	34643
Yunnan	1872.5	1931.1	1580	109560
Sub-total	8437.2	10199.7	21695	287213
Northern Provinces³				
Inner Mongolia	5011.1	6223.7	1164	67346
Shaanxi	2204.6	2638.1	998	44006
Gansu	2318	3274.2	1306	39344
Sub-total	9533.7	12136	3468	150696
Total (8 provinces)	17970.9	22335.7	25163	437909

Source: China Statistical Yearbook, 2001

Table 3-2: Utilization of the different transportation modes for goods (2000)

Provinces	National Railway		Highways		Navigable Inland Waterways	
	Freight traffic (10,000 tonnes)	Freight Ton-kilometres (100 million ton-km)	Freight traffic (10,000 tonnes)	Freight Ton-kilometres (100 million ton-km)	Freight traffic (10,000 tonnes)	Freight Ton-kilometres (100 million ton-km)
National Total	165498	13336.1	1038813	6129.4	122391	23734.2
Beijing	2612	280.3	28010	82.6	-	-
Shanghai	1055	43.6	28369	56.4	17365	6187.0
Guangdong	4522	211.2	59288	487.2	19393	2249.6
Southern Provinces						
Hunan	4668	624.6	42868	297.8	3406	143.8
Guangxi	2815	401.3	23514	209.4	1910	76.0
Chongqing	1613	110.6	23646	72.5	1392	105.7
Guizhou	3577	334.1	11684	65.9	354	4.1
Yunnan	2891	180.8	48789	296.7	134	1.0
Subtotal	15564	1651.4	150501	942.3	7196	330.6
Northern Provinces						
Inner Mongolia	9174	658.3	34979	211.9	-	-
Shaanxi	3279	418.5	25200	143.6	73	0.3
Gansu	3235	530.1	19799	109.4	36	0.1
Subtotal	15688	1606.9	79978	464.9	109	0.4
Total	31252	3258.3	230479	1407.2	7305	331

Source: China Statistical Yearbook, 2001

² South of the Yangtze River.

³ North of the Yangtze River.

Table 3-3: Utilization of the different transportation modes for passengers (2000)

Provinces	National Railway		Highways		Navigable Inland Waterways	
	Passenger traffic (10,000 person)	Passenger-kilometres (100 million passenger-km)	Passenger traffic (10,000 person)	Passenger-kilometres (100 million passenger-km)	Passenger traffic (10,000 person)	Passenger-kilometres (100 million passenger-km)
National Total	101847	4414.7	1347392	6657.4	19386	100.5
Beijing	4600	65.4	13009	52.8	-	-
Shanghai	2980	35.4	1282	34.1	913	4.1
Guangdong	6316	187.9	99417	685.4	2022	9.2
Southern Provinces						
Hunan	5247	388.6	81005	318.4	1094	3.5
Guangxi	2012	99.8	39321	347.9	766	2.5
Chongqing	1257	41.4	53170	170.1	2240	31.1
Guizhou	2251	120.8	50397	116.5	468	1.0
Yunnan	1422	33.5	31586	171.2	241	0.8
Subtotal	12189	684.1	255479	1124.1	4809	38.9
Northern Provinces						
Inner Mongolia	3237	82.5	20061	116.3	-	-
Shaanxi	2605	177.8	25600	151.0	234	0.4
Gansu	1088	155.2	11624	70.6	192	0.2
Subtotal	6930	415.5	57285	337.9	426	0.6
Total	19119	1099.6	312764	1462	5235	39.5

Source: China Statistical Yearbook, 2001

Railway Infrastructure

In terms of quantity and connectivity, the 8 provinces seem fairly well served by railway lines. In total, the 8 provinces have 18,000 km of railway lines, accounting for 30 percent of the total railways network in operation in China. Furthermore, most of the major cities in the 8 provinces are connected to the main railway system. As such, it is plausible to transport goods by rail from Kunming of Yunnan in Southern China all the way to Hohhot of Inner Mongolia in the far North and even to Russia through Manzhouli in Inner Mongolia (Map 3-1).

However, the existing railways network does not adequately cover wider areas within the inland provinces. In addition, the orientation of the rail connectivity seems to be eastwards, that is, towards the coast, thus there is very limited rail connection to link up the whole western region with other parts of China. Furthermore, most of the railway lines in the western region are single track and hence not able to support massive volumes of rail freight.

The Chinese Government has made it a top priority to upgrade and expand railway facilities in the Tenth Five Year Plan (2001 – 2005) in view of the importance of the railway for the economic and social development of the inland provinces which are mineral-rich. This has probably led to the Ministry of Rail (MoR) launching restructuring exercise in recent years in order to achieve higher levels of efficiency and win more commercial business. Major tasks that the Government will be undertaking include the following:

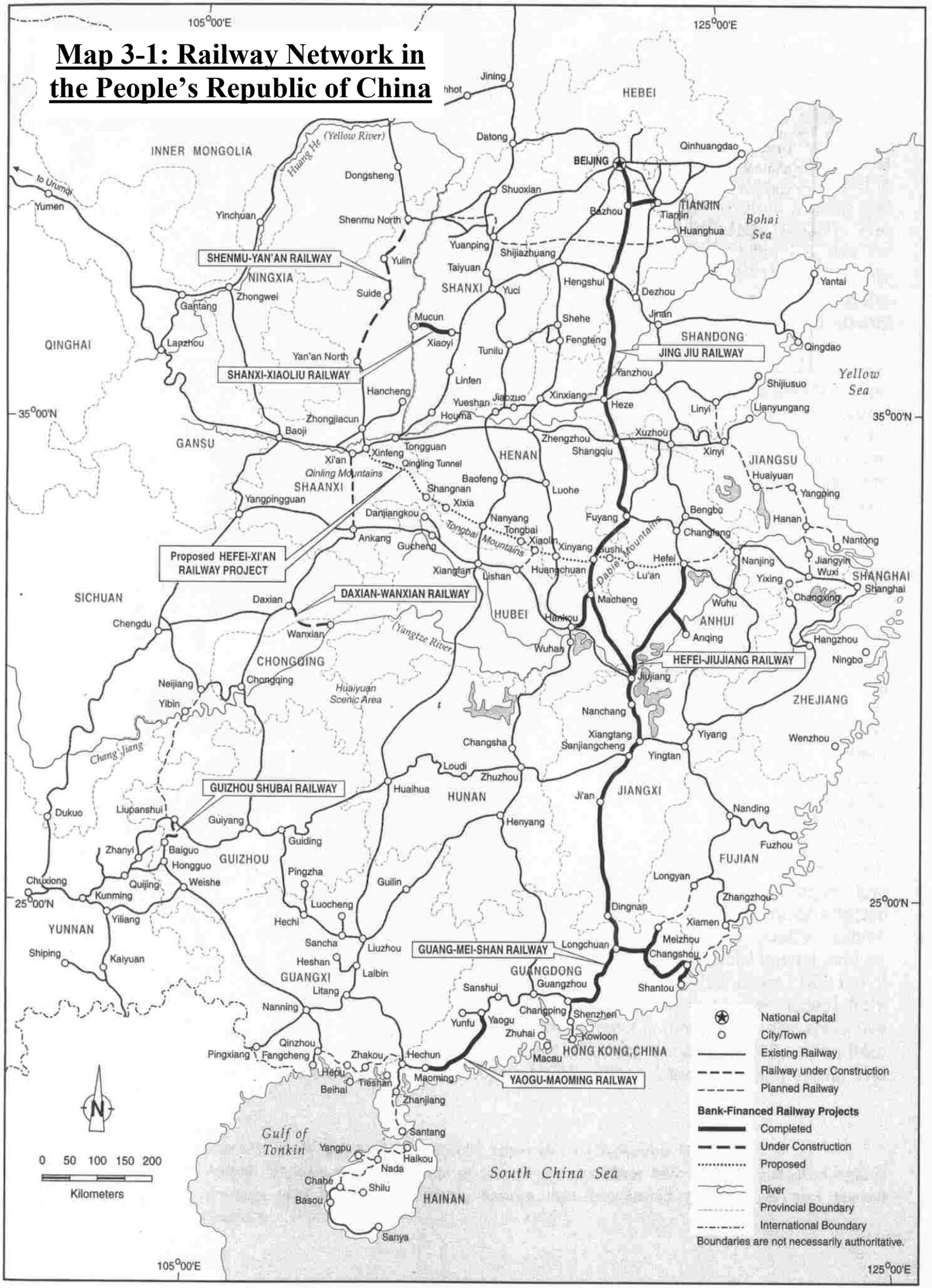
- Strengthen the railway link between the Eastern and Western parts by adding a double line between Baoji (Shaanxi) and Lanzhou (Gansu) that is a section of the Longhai Railway. Other lines to be constructed or upgraded include double line between Lanzhou (Gansu) and South Wuyi (Zhejiang), and Suining (Sichuan)-Chongqing-Huaihua (Hunan) line. The handling capacity of the Nanning-Kunming Railway will also be increased.
- More intra-region railway lines will be built or upgraded for Western China. These include railway lines between Xi'an and Ankang (both in Shaanxi) as well as Kunming and Zhanyi (both in Yunnan). The Litang-Nanning (both in Guangxi) line will also be doubled.
- More railway lines will link up with overseas destinations including those in the central Asian countries such as Kirghizstan, Uzbekistan and overseas links to ASEAN countries via Yunnan Province.
- More efforts will be made to upgrade the technical standards of existing railway facilities. Advanced technologies will be introduced to raise the speed of trains.
- China is also in the process of drafting laws and regulations to facilitate foreign investments and cooperations and attract foreign fund and advanced technologies.

Economic and trade significance of rail infrastructure

Development of the rail infrastructure will facilitate economic and trade developments in the inland provinces as (i) all these provinces are far from the coastal seaports, which are crucial for international exports; and (ii) most of the provinces produce and export mineral ores, which can be transported in bulk relatively cheaply by rail over long distances. New rail tracks can also be built to link up new mineral mines to the main railway lines for transporting the minerals out of the mining area.

Besides bulk resources, the use of containerized rail wagons for the transportation of high-value manufactured goods e.g. cashmere garments and electronics, over rail is another option to reduce delivery costs for manufactured products and hence enhance export competitiveness. As China's move to market economy gathers speed, the pace and depth of railway reform/development will need to be deepened and accelerated.

Map 3-1: Railway Network in the People's Republic of China



Highway Infrastructure

The 8 provinces are inter-connected and linked to the Eastern coastal provinces through the National Trunk Highway System (NTHS). Through NTHS, the northern provinces namely Gansu and Shaanxi are linked to the port in Tianjin and Lianyungang while Hohhot is linked to the seaports in Tianjin and Qingdao.

As a result of the NTHS, producers from provinces in the South namely Guizhou, Yunnan, Hunan and Chongqing have options to choose several seaports to export their products overseas. These seaports include the one in Shanghai, those in Guangzhou as well as the Southern seaports of Fangchenggang, Beihai or Qinzhou in Guangxi province.

Table 3-4: Lengths of Highways⁴ (2000)

Provinces	Expressway	First Class Highways	Second Class Highways	Highways Below Class IV
National Total	16314	20088	152672	186685
Beijing	267	298	1444	454
Shanghai	98	390	982	-
Guangdong	1186	5391	13396	8911
Southern Provinces				
Hunan	449	239	3761	27468
Guangxi	812	442	2628	7480
Chongqing	199	123	2951	7509
Guizhou	258	26	718	17609
Yunnan	517	77	1722	7010
Subtotal	2235	907	11780	67076
Northern Provinces				
Inner Mongolia	-	140	3865	3724
Shaanxi	349	175	3420	6547
Gansu	13	75	3280	9951
Subtotal	362	390	10565	20222
Total (8 provinces)	2597	1297	22345	87298

Source: China Statistical Yearbook, 2001

As at the end of 2000, the highways network in the 8 provinces totalled 437,909 km in length, accounting for about 31 percent of the total highway network in China.

However, the quality of most of these highways is lacking. For instance, the 8 provinces have less than 16 percent of the country's expressway and 7 percent of the country's first-class highways (Table 3-4). On the other hand, the 8 provinces have about 46 percent of the country's "Below Class 4" Highways.

The quality of the highways in the 8 inland provinces clearly needs to be further upgraded as highways below Class IV do not allow smooth passage of heavy road vehicles, especially on days of heavy rain. As a result, many outlying counties and villages in the 8 provinces are not easily accessible from the capital and major cities within the province. Without these highway facilities, economic benefits will not be easily spread among the rural areas and outlying counties of the provinces concerned.

⁴ Details of classifications are in Annex 3-1.

Rural Connectivity - Xiangxi County

One such county that was identified in the study is Xiangxi in Northwestern Hunan. Xiangxi County is a major producer of kiwi fruits and tangerines.

However, due to the absence of good quality highways, it is difficult for Xiangxi County to sell their products in the market. This is because the lack of efficient road connections, results in late delivery of these fruits to the market. Given the perishable nature of these products, the freshness of the fruits would have somewhat diminished when they finally reach the market and therefore, would not be able to fetch good prices. Investors are also not keen to set up fruit processing plants there because of the high cost of transportation which would adversely impact on the cost competitiveness of their products.

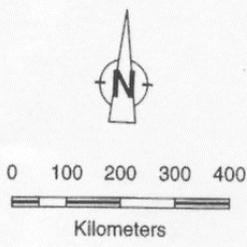
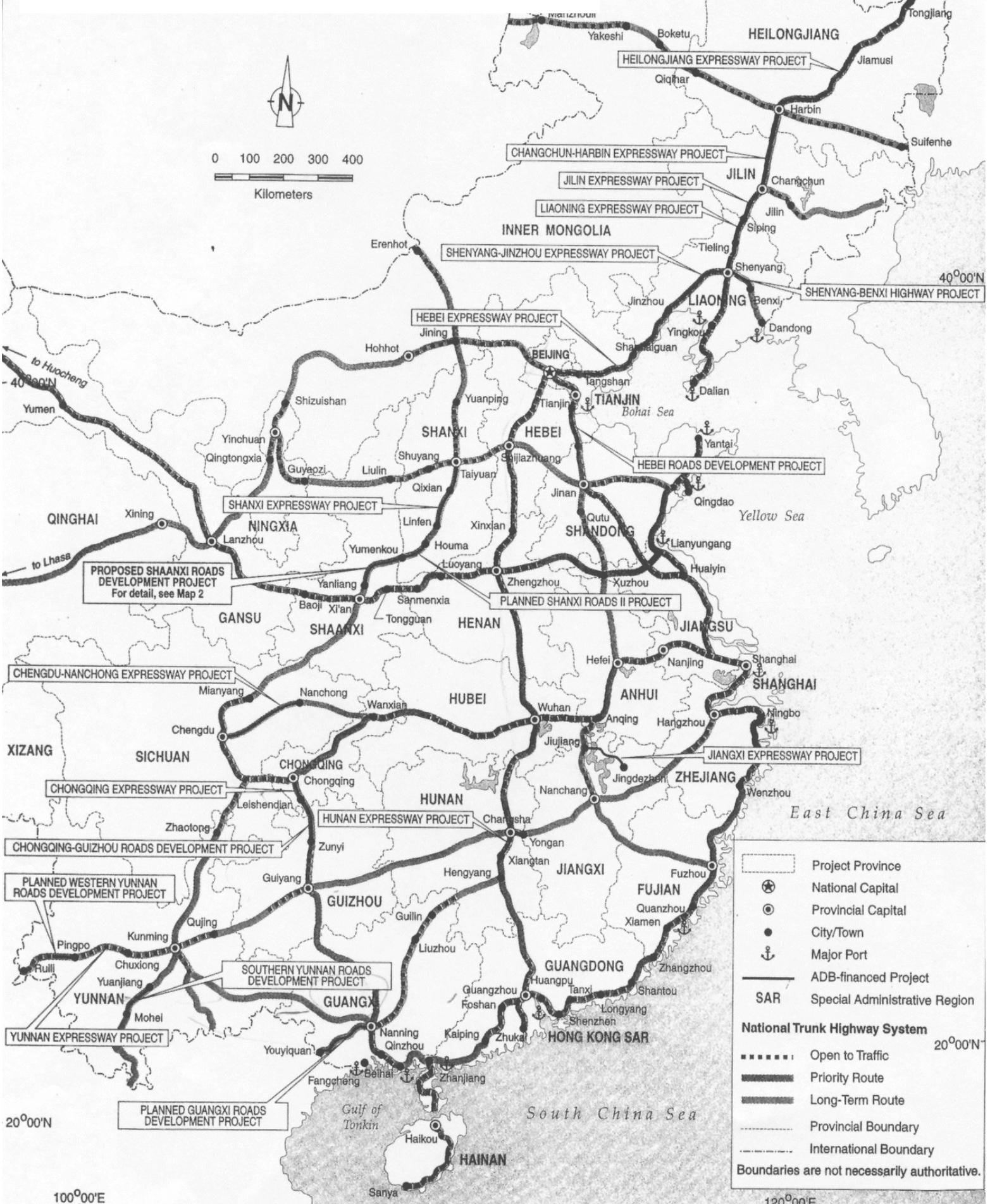
Under the umbrella of its NTHS plan, China plans to construct approximately 36,000 km of highways, linking all of China's large and medium-sized cities, by 2020. The project involves the construction of 12 inter-provincial expressways – seven of which will run from East to West and the remaining from North to South ([Map 3-2](#)). Of significance to the 8 inland provinces are the following projects:

- The 2400 km Beijing-Zhuhai (Guangzhou) Expressway that crosses the provinces of Hebei, Henan, Hubei, Hunan and Guangdong, is the most important highway. When completed, the highway will connect Beijing with Guangdong's Pearl River Delta and Hong Kong, benefiting inland provinces of Hunan, Guizhou and Guangxi.
- The 2000 km Shanghai-Chengdu Highway, which will connect Shanghai, Jiangsu, Anhui, Hubei and Sichuan, is also considered highly important. This is a major trunk highway which Chongqing and Hunan, can benefit directly by linking up with.

100°00'E

120°00'E

Map 3-2: National Trunk Highway System in the People's Republic of China



- Project Province
 - National Capital
 - Provincial Capital
 - City/Town
 - Major Port
 - ADB-financed Project
 - SAR
 - National Trunk Highway System**
 - Open to Traffic
 - Priority Route
 - Long-Term Route
 - Provincial Boundary
 - International Boundary
- Boundaries are not necessarily authoritative.

20°00'N

20°00'N

100°00'E

120°00'E

Economic and trade significance of highways

Highway transport is an essential link of the logistics chain and plays the most important role in this aspect compared to other transport modes for the 8 provinces. This is because, unlike the other modes of transportation, highway networks are instrumental in providing the rural and outlying counties the necessary connectivity to the local markets and export points. In this respect, the highways provides the essential linkage from the source i.e. farms to the railway stations, as well as from the railway stations to the shipment or export destinations.

Highway transportation is also necessary for the transfer of consumer goods from warehouses to distribution outlets in different cities.

In addition, highway transportation is relatively flexible in terms of scheduling. For instance, it can take up to 4 days to transport a container of cashmere garment from Hohhot to other provinces by railway after taking into account the waiting time at the station. Alternatively, if trucking is used to transport the same cargo, the goods can be delivered within 24 hours. The highway sector is, thus, the fastest growing one among the four main modes of transportation.

Inland Waterways and Seaports Infrastructure

In general, not all the 8 provinces have substantial inland navigable waterways. The 8 provinces have only 21 percent of the navigable waterway in China. The northern provinces, in particular, have only less than 14 percent of all the navigable waterways in the 8 provinces. In Inner Mongolia, Shaanxi and Gansu where the Yellow River flows past along the borders, the river is too shallow to allow commercial transportation of goods. River transport is thus not important for these northern inland provinces. In 2000, only 1 million tonnes of freight were recorded for the provinces of Shaanxi and Gansu while for Inner Mongolia, no freight transported by inland waterways was recorded. This freight volume was small compared to the 72 million tonnes of freight recorded for the other 5 southern provinces in 2000.

For Chongqing, Hunan and Guizhou, the Yangtze River is an important route for goods to be exported via Shanghai. For Guangxi, where the Xijiang flows through the Pearl River Delta in Guangdong Province, overseas shipments are exported through the port of Guangzhou. For the period of 2000, Hunan registered 34 million tonnes, Chongqing 19 million tonnes while Guangxi registered 14 million tonnes of freight transported via inland waterways.

In terms of passenger traffic, Chongqing Province registered the largest passengers volume by the inland waterway. This could be attributed to the large number of tourists who went for ferry cruise along the Yangtze River to view the Three Gorges Site and the use of the Yangtze River for internal transportation of passengers.

In Yunnan, a small volume of goods is transported via the Lancang-Mekong River to countries in the Mekong region namely Vietnam and Laos. The upstream portion of the Lancang-Mekong is presently being upgraded under Asian Development Bank (ADB)-funding to address some constraints such as rapids and shoals. The Lancang-Mekong would

likely become an important export route to ASEAN markets for Yunnan with the completion of the project.

Provinces in the South, namely Hunan, Yunnan, Guizhou and Guangxi use mainly the seaports in Guangzhou for exports. The Southern Seaports of Fangcheng, Qinzhou and Beihai in Guangxi are gradually becoming very important export seaports for both bulk and containerized cargos from these provinces as more shipping lines start calling at these seaports. Chongqing, on the other hand, relies more on the Shanghai Port for export due to the convenience of the transporting goods there via the Yangtze River.

For the Northern provinces of Shaanxi, Gansu and Inner Mongolia, the major export seaports commonly used are Tianjin, Lianyungang and Qinghuangdao (for the export of coals).

Economic and trade significance of inland waterways

Shipping is still the most economical mode of transportation for transporting goods over long distance especially from the source of production right through to the overseas market.

Typically, goods are transported over land by railways or highways to the seaports before the goods are loaded onto the ships. However, this form of multi-modal transportation normally results in delays during the transit, reflecting the lack of seamless logistics management systems in China.

In this respect, inland waterways, particularly those which allows large shipping vessels to travel right up to the inland seaports, where loading and unloading can take place, would have more advantages over the other modes of transportation. Such benefits would be further enhanced if all the custom procedures and inspection of the containerized cargoes can be conducted at the inland river port where the goods are loaded.

3.2 OVERVIEW OF LOGISTICS SERVICES SECTORS (SOFTWARE)

This section provides an overview of the existing status of the logistics service sectors and the envisaged developments in the short to medium term.

Railway Transportation Service Sector

Railway transportation service is very crucial for the inland provinces, which produce and export a lot of heavy mineral ores and are far from the eastern seaports.

Northern provinces: Railway transportation service is particularly important for freight transportation in the 3 northern provinces studied. Substantial freight volume, particularly in Inner Mongolia, is transported over land by the national railways. In terms of utilization, the three northern provinces of Inner Mongolia, Gansu and Shaanxi recorded high freight turnover of more than 53.5 billion tonnes-km in 2000, compared to the southern provinces which averaged less than 35 billion tonnes-km. The railway service also provides an

important mode for goods from China to be exported to Central Asia and Europe through Gansu and to Russia and Mongolia, through Inner Mongolia.

Southern provinces: In 2000, the southern provinces transported 155 million tonnes of freights and more than 121 million of passengers using railway transportation service. In terms of national railway freights, Chongqing recorded the lowest volume of 16 million tonnes among the 8 provinces which averaged 39 million ton. This could be attributed to the excellent river access which Chongqing has to the eastern Shanghai Seaports, through the Yangtze River.

At present, the provision of railway service is still monopolized by the Government. In terms of service quality, there are rooms for upgrading the service of the railway operators. Many enterprises, particularly those that do not have huge volume of freights, face difficulties when transporting by rail. Some of the problems that are commonly encountered by these enterprises using railway services are as follows:

- i) The rail capacity is extremely stretched, particularly during the post-harvest seasons and lunar New Year period. Rail priority is always given to the basic commodities such as coal or agricultural products, the distribution of which is controlled by the State Planning Commission. Planning priority is also given to passenger traffic. As a result, during certain times such as just after major harvests, commercial capacity is not available. This means that booking of freight wagons generally need to be made as early as 30 or 40 days in advance, which is not realistic for some local companies as orders from customers may not come in that early. Due to priority given to commodities and agricultural products, China railways have, thus, also been slow in promoting the transport of containers.

Furthermore, the delivery time taken by train in inland China is also much longer, compared to that typically required for similar rail transportation in more advanced countries such as the North America. Referring to Table 2-8 in the previous chapter, a comparison of rail transportation over the same distance in North America and Inland China, the delivery time required to transport goods between Montreal and New York is only one quarter of that required to transport goods between Hohhot, Inner Mongolia and Tianjin which is about the same distance as the former journey.

- ii) An inherent problem frequently raised by enterprises is the apparent lack of control and transparency in the management of railway service. Officially, it seems the MoR has the jurisdiction for railway service transportation but the regional railway bureaus do not always operate or set policies that are in line with the MoR. Many enterprises have thus switched to trucking in order to avoid dealing with the rail authorities.
- iii) In some inland provinces such as Guizhou and Yunnan, there is a shortage of empty rail containers due to the low volume of containerised inbound goods. As a result, the cost of containerised railway transportation service is higher. In addition, freights are also delayed due to the need to wait for empty inbound container wagons and the delays resulting from waiting for the containers to be filled before the container wagon proceed to its destinations.
- iv) China's railways still charge a very high rate for moving containers. This could possibly be related to the shortage of empty rail containers or wagons in inland provinces as

highlighted in the previous point. Whilst reduced in the last three years, the cost of products transported by containers is still 30 percent higher than the same products transported uncontainerized.

- v) There is little service reliability for freight. Services such as notification of arrival at rail stations, automated wagon tracking and integrated information technology between the provincial railways, do not yet exist in China. Some companies have also chosen to use trucking instead of railway services because of the greater predictability of goods transported by lorry fleets. Besides, companies with high-value products such as cashmere garments are concerned about poor security and frequent pilferage on railways.

Post-WTO

With WTO's accession, China will be opening up the railway transportation service sector for foreign participation in the form of joint-ventures. However, majority foreign ownership will be permitted only three years after accession and foreign companies are allowed to set up subsidiaries in China only six years after accession.

This commitment shows that the sector is meant to be liberalised. The liberalization process is however still slower than that of the highway transportation services sector. One of the reasons for this is because some of the routes for freight transport are more profitable than other routes. Hence, foreign firms will likely take interest in only the profitable lines or region. There is a crucial need for the MoR to set policies that will balance the two parts.

Implications of liberalisation of rail transportation

The gradual opening up of the railway transportation service sector will benefit companies in the inland provinces substantially, in terms of maintaining cost competitiveness. New operators given licence to operate the freight services will likely bring about overall improvement in the services standard of the industry. This will enable more products companies to develop cost competitiveness by capitalising on this cheaper mode of transportation for long distance transportation (as compared to trucking), particularly heavy low-value minerals.

Highways Transportation Services Sector (mainly Trucking and Coaching)

For the 8 provinces, highway is the most important form of transportation for transporting both goods and passengers. It has proven to be the most flexible mode in term of geographical reach and schedule. For 2000 alone, 2.3 billion tonnes of goods and 3.13 billion passengers were transported on highways in the 8 provinces. The use of highways, however, is more intensive in the Southern provinces. Average freight recorded for the Southern provinces in 2000 was 301 million ton while that for the Northern provinces averaged 267 million ton. The latter provinces rely more on railway service for the transportation of goods.

Trucking is an important mode for intra and cross-provinces highways transportation. This sector is now very competitive with low margins since it was subjected to domestic

deregulation in 1986. A large majority of the trucking companies involved in inland transportation are small domestic firms with limited geographical network. Many local enterprises, particularly large State-owned Enterprises (SOEs) also have their own fleet of trucks.

Highway transportation service is also very important for the development of the tourism services in many of the inland provinces. Most of the tourist attractions outside the major cities such as Huang Guo Su Waterfall in Guiyang and Dazu ShiDiao in Chongqing can only be accessed by tour coaches or cars. Such coaches and rental cars, however, are readily available in all these tourism cities. Trucking and “coaching” are also relatively cheap modes of transportation for short distances.

Some of the problems currently faced by enterprises using trucking service for the transportation of goods are as follows:

- i) High transportation costs because of high toll charges. On average, the toll payable at each toll collection centre is more than USD1. Furthermore, it is not uncommon for there to be two toll stations within a distant of 50 km on the highways. This situation is particularly critical for firms in the inland provinces because of the long distances goods have to be transported to and from the coastal seaports. According to an estimate by the World Bank (Table 3-7), the cost of transporting goods by highways is only economical for traveling distances of less than 250 km, which is usually within a given province. It becomes relatively more expensive, compared to the other two modes, when the distant transported is longer.

**Table 3-7: Comparison of Freight Transport
Costs by Mode and Distance (US cents per ton km)**

Mode/ Distance	Up to 250 km	250 km to 500 km	500 km to 750 km	750 km to 1000 km	More than 1000 km
Inland waterway	5.0	4.0	3.0	1.8	0.8
Railway	4.6	3.5	3.0	2.5	2.2
Highway	4.5	4.1	3.7	3.3	3.0

Notes: Estimates are for products transported door to door using 500 dwt vessels, 1000 net ton unit trains or 35 ton semi-trailers.⁵

- ii) Some privately-owned trucking companies are inadequately organized and their fleets of trucks are old. These companies have not expanded beyond trucking to offer comprehensive logistics packages for their customers. In addition, a comparison of the time taken for truck delivery in North America and Inland China outlined in Table 2-8, indicates that there is substantial room for improvement to overall highway infrastructures and trucking services to reduce the delivery time in inland China.
- iii) There is a relative shortage of containers in inland provinces because of the low volume of containerized inbound cargos to provinces such as Gansu, Guizhou and Yunnan. This relative shortage is also due to the lack of an “information exchange” on containers availability and demands in these provinces.

⁵ Estimated by the World Bank.

- iv) Relating to point (iii), the typical cost for containerized cargos can be more than 30 percent as compared to non-containerized ones. One of the reasons for the higher cost is because very often, containers are only filled one-way, that is, outbound only. However, exporters are still charged for both inbound and outbound journeys. This makes it uneconomical to transport using containerized trucks. In addition, highway tolls are also higher for containers carriers than for normal trucks.
- v) Management of the traffic system, particularly in the major cities, has to be improved in order to cut down traffic congestion, hence, cost and time wastage. This situation is particularly severe with the increasing car populations in the cities due to the increasing affluence of the urban populations.

With the completion of the NTHS in 2020, there will be 15,000 km of four-lane divided highways, allowing the extensive use of large semi-trailers for inter-urban trips. This should bring down the cost of trucking, reduce transit time and make it more predictable to transport goods. The intense competition in this sector and better vehicles acquired by the operators have also raised the average trucking distance from 300 km two years ago to around 600 km today.

Post-WTO

In three years after China's accession to the WTO, foreign companies would be allowed to set up wholly-owned trucking subsidiaries or buy existing trucking firms.

However, it is unlikely that foreign entities would venture purely into the trucking business because this is a very competitive sector and profit margin is low. Any foreign interest in this sector could be among 3PL service providers who will be looking to provide a comprehensive package of logistics services to their clients.

Airfreight Service

In the 8 inland provinces, airfreight is not the most widely used mode of transportation, except for the transportation of a few products produced in Xi'an, Shaanxi and Kunming, Yunnan. Xi'an exports high-value electronic products which airfreight cost constitutes only a small fraction of the total product cost. For Kunming, one of its main exports is cut flower. Given the perishable nature of this product, airfreight is an important mode for transporting them to overseas markets. Increasingly, provinces like Hunan and Inner Mongolia, which produce processed meat would also require more airfreight service to facilitate the export of these perishable products to both domestic and international markets.

Airfreight service, however, is critical for all the 8 inland provinces to develop their tourism sectors. For instance, the famous tourist destination in northwestern Gansu, Dun Huang Grotteos is about 1,200 km from the capital city, Lanzhou. Without any form of air transportation, tourists will have to travel 20 hours by train (plus a short distance by coach) or more than 12 hours by coach to reach that destination.

The China's airline industry is the latest target of the government's economic restructuring plan to develop world-class airlines. According to the unveiled CAAC's consolidation plan,

- The ten domestic airlines are to be merged into three conglomerates. The plan calls for:

- Beijing-based Air China to merge with China Southwest Airlines and China National Aviation.
- Shanghai's China Eastern Airlines to take over Yunnan Airlines and China Northeast Airlines.
- China Southern Airlines of Guangzhou to take over China Northern and Xinjiang Airlines.
- The CAAC will cut free from the airlines it regulates.
- Small regional airlines such as Hainan and Xinhua will be encouraged to join one of the groups above.

Approval from the State Council has been granted in February 2002 and the initial stages of restructuring in the industry, are currently taking place.

Post-WTO

Like the railway transportation service, airfreight service is a sector in which foreign participation is most restricted. Freight forwarders are required to obtain a CAAC sales agency license before they can carry any air cargo. Designated foreign carriers are given a maximum entitlement of 50 tonnes per week.

The current consolidation of the airline industry, on the other hand, will result in the remaining mega airlines developing more sustainable growth strategy to capture and retain market share through better service, instead of the apparent low price strategy as it is now. In addition, unsustainable competitive current practices such as two different airlines offering flight services to the same destination within a time span of twenty-minutes, are expected to reduce. Local enterprises exporting goods using airfreights will be able to benefit from the overall improvement in the services offered by the airlines.

Shipping

Shipping is the logistics sector most open to foreign investors and wholly-owned foreign participation is possible. Large players, including the two state-owned giants, Sinotrans and COSCO, dominate this sector. Many shipping lines like COSCO and Sinotrans have also contracted with land transport companies so that they could offer door-to-door transport services. Today, with their subsidiaries, they are China's largest local providers of transport services.

Foreign shipping lines often also have their own inter-modal logistics units which offer comprehensive logistics services including warehouse booking and distribution. Some of the leading foreign players in China are APL, Maersk, P&O and Sealand.

Some shipping lines have also engaged in "river trade", that is, cargo movements via inland waterways. The two most active inland waterways are the Yangtze River and the Pearl River. The cargo volume along the Yangtze River is expected to rise to 300 million tonnes by 2010, compared with 186 million tonnes in 1999. Presently, goods such as chemicals transported between Chongqing & Hunan and Shanghai rely substantially on the Yangtze River for transportation.

Some of the challenges faced in the shipping and inland waterways freight transportation sector are as follows:

- i) Containers, typically have to be in seaports for a long time awaiting various customs, tax and other clearances as the various departments are not well co-ordinated. This waiting period can range from 3 to 24 days.
- ii) Numerous inland water channels are not suitable for freight movement because of shallow water during the dry season. These unimproved water channels include upstream of the Yellow River in Gansu and Inner Mongolia, the Yunnan's stretch of the Lancang-Mekong River and the Xiangjiang between Changsha and Yueyang in Hunan.

Post-WTO

China's WTO entry will boost two-way trade between China and its overseas trade partners, leading to more cargoes for shipping lines serving China. Today, almost all the big foreign shipping companies are already operating in China. These existing players will likely engage in more inter-modal logistics services in order to offer their clients more comprehensive services. Alternatively, they may also tie up with some local 3PL service providers to capitalize on the established local networks of these players.

It is envisaged that shipping companies would also likely establish joint-ventures with local companies to build container stations and provide depot services in some of the more strategic inland provinces. This will benefit the local enterprises in the 8 inland provinces in the international export of their goods.

Warehousing Service Sector

China's warehousing is in the midst of significant transformation. From 1949 until the mid-1980s, SOEs were each responsible for meeting their own warehousing needs. Since the mid-1980s, these enterprises have developed their warehousing capacity into commercial operating units, competing directly with one another as warehousing entities. Currently, these operators cover a limited geographical area, with capacity in urban areas highly constrained.

At present, the government (usually at the provincial level) retains more than 90 percent of warehousing capacity and the quality and sophistication of warehousing service is generally poor. Some manufacturers, wholesalers and 3PL service providers also operate their own warehouses.

Some of the problems associated with existing warehousing service in the 8 inland provinces are as follows:

- i) The majority of warehouse buildings are single-storey, poorly lit brick structures built in the 1950s. They are prone to flooding, have no temperature control, minimal or no fire protection and poor pest control. Typically, goods are floor stacked, with no racking. This uses space inefficiently and leads to damaged cartons.
- ii) The use of warehousing is not strategically planned to lower cost of inventory and logistics. Warehousing is treated by many enterprises simply as a space to store components, goods after manufacturing and before deliveries. Its importance as a link for integrated logistics management has not been fully capitalized by companies to build competitive edge. Many warehouse operators also do not have the expertise to offer such value-added services to their clients.

- iii) There is a shortage of warehouse facilities for special storage requirements. For instance, cold chain facilities for perishable products are crucial for provinces such as Inner Mongolia and Yunnan that export processed meats and fresh vegetables & flowers respectively.
- iv) Information Technology is uncommon, hence, there is little advanced inventory management in place.

Photo 3-1A: A Typical Warehouse in the 8 Provinces



Photo 3-1B: A Typical Warehouse in the 8 Provinces

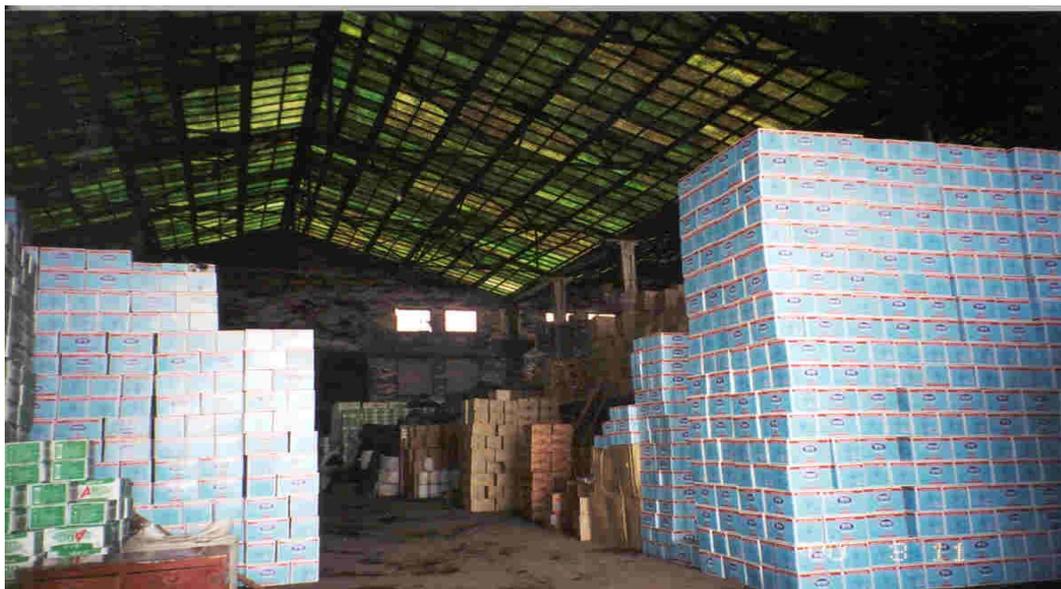


Photo 3-2A: Picture of a Better Managed Warehouse in Yunnan



Photo 3-2B: Picture of a Better Managed Warehouse in Shaanxi



Post-WTO

The profit margin in this sector is low. Although there appears to be excess capacity, the standard of service offered is low. Presently, foreign participation is permitted in the form of joint ventures, but with foreign equity share capped at 49 percent. Within one year of accession, foreign majority ownership will be permitted and three years after accession, the sector will be further liberalized and wholly foreign-owned subsidiaries will be permitted.

The opening up of the market could help foreign-owned logistics service providers establish their own presence in this sector either by building new warehouses or buying the existing warehouses. In addition, foreign professional logistics operators would also gradually made in-route into the inland provinces where modern warehouse management is critical to lower inventory and logistics costs. Local exporters are expected to benefit from this trend as their cost of inventory and storage can be reduced further with more professional warehousing management offered by external professionals.

Third Party Logistics (3PL) Service Providers

According to research published by Morgan Stanley, it is estimated that 3PL service providers currently have a penetration rate of just 2 percent of China's overall logistics business, which is far lower than in the US (8 percent) and Europe (10 percent). This could be attributed to the lack of knowledge and understanding of the time and cost benefits that 3PL service providers could offer. This trend of logistics outsourcing, however, is expected to become more popular as (i) enterprises gain better understanding of inventory and logistics cost, and (ii) world's logistics giants setting up operations in China, offering better and cheaper services.

Presently, there are four main groups of comprehensive logistics service providers in China. These are:

- Foreign logistics service providers
 - DHL, Federal Express, TNT, Schenker, APL, Maersk etc.
- Traditional local logistics service providers
 - COSCO, SINOTRANS, China Shipping etc.
- Major company-owned logistics divisions
 - Haier Logistics, TCL Logistics etc.
- Emerging local logistics service providers
 - ST Anda, Da Tong, Bao Gong etc.

Another group of 3PL service providers that should be mentioned, despite their smaller scale of operations are the existing freight forwarders who represent the consignee for purposes of handling freight transportation and related affairs. International freight forwarders have traditionally been responsible for managing transportation and documentation for international shipments. Transporting freight, for instance, from the US to China, the international freight forwarder is responsible for the freight management from the US to China seaports. The inland transportation from the China seaports to the door of the

consignee is handled by the domestic freight forwarder who usually is sub-contracted by the international freight forwarders.

Some of the inherent challenges in the development of the 3PL Services Sectors are as follows:

- i) The various modes of transport in China are administered by different Ministries. Highway and water transportation is under the charge of the Ministry of Communication (MOC). Rail, on the other hand, is under the jurisdiction of the Ministry of Railway (MOR) while air transportation is under the General Administration of Civil Aviation (CAAC). This splitting of responsibilities for railway and inter-urban highway transport development between different ministries and with local highway infrastructure and services being managed by municipalities and provinces, will likely delay the progress on multi-modal transport integration. It will also hinder, if not delay the development of conducive policies, strategies and logistics hubs in strategic locations in China to support the growth of trade in the inland provinces.
- ii) It was only in very recent years that the bigger Chinese manufacturers begun to appreciate the need for reducing their logistics costs and the commercial advantage that this could bring to their business.
- iii) A number of the 3PLs service providers also do not have sufficient institutional experience and logistics specialists who are qualified to assist clients to apply integrated logistics management to build competitive advantages.

Post-WTO

Following WTO accession, foreign forwarding agencies which have at least three consecutive years of experience are permitted to set up joint venture freight forwarding agencies joint ventures in China, with foreign investment not exceeding 50 percent. The minimum registered capital of the joint venture shall be no less than USD1 million and the term of joint ventures shall not exceed 20 years. Within one year after accession, foreign majority ownership will be permitted. After one year of operation in China, the JV can set up branches but another USD120,000 shall be added to the original registered capital of the JV for the set-up of each branch. Foreign companies would be able to set up their own subsidiaries after 2005. A foreign freight-forwarding agency may also set up a second JV after its first JV has been in operation for five years.

The demand for integrated services or 3PL is increasing and the tendency is towards providing a total logistics services solution. 3PL service providers, thus, need to have access to all the relevant licenses, which could include international freight forwarding, different modes of transportation, storage and warehousing, container station and depot services and courier services.

The opening up of the different sectors would have a significant impact on the abilities of logistics firms to provide the whole chain of services. Some foreign and domestic firms which have had restricted access to some links of the services currently are expected to develop the whole integrated chain of services after the restrictions are lifted.

On the whole, such developments will benefit the local enterprises in the 8 provinces as professional 3PL service providers will be able to harness their experience and knowledge in integrated logistics management to assist these clients to better manage their logistics requirements, leaving them time to concentrate on their core business. In addition, these 3PLs can also capitalize on their large scale of logistics operations to negotiate for better pricing for clients while using the various trade logistics services. This is conducive to lowering logistics costs and facilitating the flow of goods.

CONCLUSION

In terms of physical transportation connectivity (hardware), all the 8 inland provinces are fairly well connected with the other provinces and the coastal seaports. However, many local producers in these provinces rely on only one main mode of transportation for exporting their products to other domestic provincial markets or coastal seaports to export their goods overseas. Warehouses are also not utilized as a strategic link in the process of logistics management but simply as a space for the storage of goods.

This inability to undertake integrated logistics management stems from the lack of knowledge and capabilities among the local producers on the benefits of integrated logistics management. Furthermore, most of the external logistics service providers only offer one type of transportation or logistics support. The bigger 3PL service providers which offer a full range of services, on the other hand, still lack the experiences and expertise to assist clients in the inland provinces to harness the benefits of integrated and multi-modal logistics management to sharpen clients' export competitiveness.

China's accession to the WTO will bring about gradual liberalization of the logistics services sectors, with the exception of airfreight services, for foreign participation. This is expected to lead to influx of foreign technologies and management expertise, which will lead to overall improvement in the standard of logistics services in the 8 inland provinces.

CHAPTER 4 - PROVINCIAL ANALYSIS

4.1 CHONGQING

4.2 GANSU

4.3 GUANGXI

4.4 GUIZHOU

4.5 HUNAN

4.6 INNER MONGOLIA

4.7 SHAANXI

4.8 YUNNAN



cost effectively. Therefore, the imperative is to upgrade the skills levels and standard of the



logistics services providers in Chongqing. In addition, the provincial government's plan to further bolster the transportation network in Chongqing is expected to facilitate the distribution of goods and support the growth of its export sectors as well.

ECONOMIC PROFILE**Table 4.1-1: Overview of Economy**

	1996	1997	1998	1999	2000
GDP (US\$ billion)	14.2	16.3	17.2	17.8	19.2
Per Capita GDP (US\$)	472	536	564	581	620
Primary Sector (% of GDP)	24	23	21	19	18
Secondary Sector (% of GDP)	42	42	41	41	41
Tertiary Sector (% of GDP)	34	36	38	40	41

Source: China Statistical Abstract, CEIC database.

Exchange rate used: US\$1 = 8.30 Chinese yuan.

Chongqing's provincial economy has grown by 35.2 percent, from USD 14.2 billion in 1996 to reach USD 19.2 billion in 2000. Its provincial per capita GDP has also risen by 31 percent between 1996 and 2000. Over the last five years, the relative importance of Chongqing's primary sector has declined while that of its tertiary sector has become more important. The primary sector's contribution to provincial GDP has declined from 24 percent in 1996 to 18 percent in 2000. On the other hand, the tertiary sector's contribution to provincial GDP has increased from 34 percent to 41 percent over the same time period.

The industrial sector has been the main economic driver of the Chongqing economy. Presently, three pillar industries have taken shape in the province. These are namely: i) the transportation equipment industry, such as the production of motorcycles and auto parts, ii) the chemicals industry, and iii) the metals industry. In addition, industries such as electronics, building materials, textile materials, and other light industrial sectors are also relatively well developed.

4.1.2 INTERNATIONAL TRADE STRUCTURE

Table 4.1-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (US\$ million)	636	780	514	490	995
Imports (US\$ million)	766	898	520	720	790
Top export partners	<ul style="list-style-type: none"> • Hong Kong • Japan • USA • Germany • South Korea 	<ul style="list-style-type: none"> • Hong Kong • Japan • USA • Germany • South Korea 	<ul style="list-style-type: none"> • Hong Kong • Japan • USA • Germany • South Korea 	<ul style="list-style-type: none"> • USA • Japan • Hong Kong • South Korea • Germany 	<ul style="list-style-type: none"> • Vietnam • Indonesia • USA • Japan • Hong Kong
Key export products/values (US\$ million)	<ul style="list-style-type: none"> • Textiles (173.9) • Chemicals Industry and medical Industry (149.4) • Hardware and Minerals (115.8) • Machinery and Equipment (81.8) • Light Industry Products (44.5) 	<ul style="list-style-type: none"> • Textiles (329.1) • Chemicals Industry and Medical Industry (147.9) • Hardware and Minerals (96.6) • Machinery and Equipment (61.6) • Light Industry Products (51.5) 	<ul style="list-style-type: none"> • Textiles materials & Related Products (151.6) • Chemical products (106.7) • Products, Artificial Jewelry, Coins, Base Metals & Related Products (61.6) • Mechanical & Electrical Equipment, Recorders (51.0) • Live Animals and vegetable produce (28.6) 	<ul style="list-style-type: none"> • Chemical products (112.3) • Textiles materials & Related Products (69.9) • Base Metals (68.4) • Transportation Equipment (63.2) • Live Animals and vegetable produce (23.6) 	<ul style="list-style-type: none"> • Transportation Equipment (403.9) • Chemical products (131.0) • Base Metals (115.4) • Textiles materials & Related Products (103.18) • Mechanical & Electrical Equipment Recorders, Video recorders & Accessories (83.3)

Source: China Statistical Abstract, CEIC database

Exchange rate used: US\$1 = 8.30 Chinese yuan.

Transportation equipment: automobiles, motorcyclers, aircraft, ships, & related transportation equipment

In 2000, Chongqing's exports increased by 102.9 percent, while imports increased by 9.7 percent. This was the first time in the last five that Chongqing exports value exceeded its imports value, giving rise to a trade surplus of USD 204.97 million in 2000. Between 1998 and 1999, there was a sharp decline in Chongqing's exports, possibly due to the impact of the Asian financial crisis. However, Chongqing's exports recovered strongly in 2000, driven primarily by the strong growth in motorcycle exports.

Chongqing's key export products are (i) Transportation Equipment, (ii) Chemicals, (iii) Metals, (iv) Textiles and (v) Electrical appliances. These top 5 export products accounted for 84 percent of Chongqing's total exports in 2000. This share of Chongqing's top 5 exports increased by 22 percent between 1999 and 2000, an indication of the growing importance of these export sectors in Chongqing's international trade.

Chongqing's main import products include mechanical and electrical equipment and accessories such as engine spares and lighting equipment of automobiles from international markets like Japan, Korea, Hong Kong and the USA. On the domestic front, Chongqing import products such as oils, grains and minerals like phosphate rocks from other provinces such as Guizhou and Hunan.

Key Export Products

With respect to [Table 4.1-3](#), the key exports of Chongqing are transportation equipment, chemicals, metals products, textiles and mechanical and electrical equipments. These sectors have consistently been the top export products from Chongqing in the last five years. On the other hand, agricultural exports of live animals and vegetables which were among the top export products in 1998 and 1999 have become less important in 2000 (see [Table 4.1-2](#))

Table 4.1-3: Key Export Products from Chongqing (USD million)

Product/ Year	1996	1997	1998	1999	2000
Transportation equipment	N.A.	N.A.	N.A.	63.2	403.9
Chemicals (e.g. polyvinyl alcohol) and related products	149.4 ^a	147.9 ^a	106.7	112.3	131.0
Base Metals (e.g. Steel & Aluminum)	115.8 ^b	96.6 ^b	61.6	68.4	115.4
Textiles materials	173.9	329.1	151.6	69.9	103.2

^a. Includes pharmaceutical products.

^b. Includes also minerals.

Note: The products are not listed in any ranking order.

Source: Chongqing Statistical Yearbook 1997 to 2001

(i) Transportation Equipment

Referring to Table 4.1-3, the transportation equipment sector of Chongqing only emerged as a major sector in 1999 and 2000. Prior to that, the international export of Chongqing's transportation equipment is almost negligible. Between 1999 and 2000, Chongqing's transportation equipment export values increased more than five-fold. Chongqing's export of transportation equipment, particularly motorcycles, accounted for a significant 40 percent of total exports in 2000. By 2001, Chongqing has gained itself the reputation as the "Motorcycle Capital" of China.

A number of Chongqing's automobiles enterprises have established nationally recognised brand names. The list includes:

- *Wushiling* light duty truck
- *Changan* mini-car
- *Qingling* light truck
- *Hongyan* heavy-duty truck
- *Jialing* Industrial Corporation Group
- *Lifan Hongda* motorcycles
- *Jianshe* motorcycles

Today, Chongqing has built up a pool of established automobiles and motor cycles manufacturers to be ranked among the four biggest motor vehicle manufacturing centers in China. Chongqing's production of motor vehicles has also taken leading positions in the national market over the past few years, among which are companies like Changan Auto Suzuki, Jialing Motor and Qingling Motor.

The importance of Chongqing's auto sector was also underlined by the fact that this sector was ranked first in China⁶ in terms of the total profits achieved and the tax paid by the sector in 1999. Two of the biggest twenty enterprises in China's auto industry, in terms of sales revenue, were also from Chongqing (see Table 4.1-4).

Table 4.1-4: Top 20 enterprises in China Auto industry in 1999

Rank	Enterprises (from Chongqing)	Main Products	Sales Revenue (USD million)
7	Changan Auto	Mini-bus, ALTO Car	6407
11	Qingling Auto	Light Truck	4800

Source: *China Auto Industry Yearbook, 2000*

(ii) Chemical products clusters

Chongqing is one of China's six key chemical production bases in the country. The chemical products cluster is another important export sector of Chongqing. The export of Chongqing's chemical products grew by 22.7 percent in export values over the last 3 years to USD 131 million in 2000.

⁶*Leicester City Council, 2000.*

Chongqing produces more than 1000 varieties of chemical products including paints, which has a wide consumer and industrial base of customers domestically and internationally. The methanol production from Chongqing also tops the country and the output of dyestuff ranks second in China. Other chemical products from Chongqing include acetic acids, strontium salts, barium salts, titanium dioxide, electrolytic manganese dioxide, ferrite oxide and others.

The major overseas markets for Chongqing's chemical products are Europe, Japan, USA and Southeast Asian countries. Besides international exports, chemical products from Chongqing are also distributed domestically to other provincial markets, such as Sichuan, Shanghai and Anhui.

(iii) Base Metals

Chongqing is one of the 9 biggest iron and steel production centres and one of the 3 major aluminum production bases in China. The export of Chongqing's metals grew by 87.3 percent over the last 3 years to reach USD 115.4 million in 2000. Chongqing produces more than 120 kinds of steel products and 13,000 kinds of aluminum goods. The steel industry in Chongqing produces an annual capacity of 1.8 million tonnes.

Some of the major enterprises in this sector are:

- Chongqing Iron and Steel (Group) Company
- Chongqing Special Steel (Group) Company
- Southwest Aluminum Processing Plant

China's iron and steel industry has undergone substantial changes in recent years as a result of industry consolidation, globalization, over capacity and price erosion. The remaining enterprises which have survived the industry consolidation would likely continue to grow with the growing demand arising particularly from the domestic market. In order for Chongqing's enterprises to better compete in the years ahead, especially in the wake of foreign competition, there ought to be continuously upgrading of its production capability in tandem with technological advancement and product quality requirements.

(iv) Textiles

Chongqing's textiles used to be a major export sector. However, this sector saw a sharp decline in export values in 1999, from USD 329 million in 1997 to USD 70 million. The decline in the sector was possibly due to the effects of the Asian crisis. The international exports of Chongqing's textiles are mainly for the Asian markets like Hong Kong, Taiwan and South Korea. Although there was a rise in Chongqing's textile exports in 2000, this sector is likely to face some difficulties from keen competition of domestic and foreign textiles producers. The textile sector could be relatively less important in the years ahead, as Chongqing focuses on other growing export sectors, particularly the export of motorcycles and chemical products.

Key Export Partners

Four of Chongqing's most important export markets in 2000 are in Asia, namely Vietnam, Indonesia, Japan and South Korea. In 2000, these markets accounted for 55 percent of Chongqing's total exports. The other major export markets of Chongqing are the USA and the European Union, specifically Germany and the Netherlands.

Hong Kong has been Chongqing's biggest export market in 1996, 1997 and 1998. The Hong Kong market accounted for 34 percent, 48.35 percent and 30.68 percent respectively of Chongqing's total exports in those years. Hong Kong's leading position however, was overtaken by Vietnam and Indonesia in 2000. Vietnam and Indonesia accounted for 28 percent and 11 percent respectively of Chongqing's international exports in 2000. This was attributed largely to the huge export volume of motorcycles from Chongqing to these two markets. Chongqing's motorcycles are selling well in emerging Southeast Asian, Latin American, South African and Middle East countries.

Chongqing's chemicals are exported to the USA, EU and Japan, typically via the Shanghai Ports. In addition, the province's chemical products are distributed to other parts of China, such as Sichuan, Anhui and Jiangsu for the production of final goods. Chongqing exports its metals to overseas markets of USA, Japan and South Korea. The province also distributed its metals products to the provinces of Sichuan, Nanjing, Guizhou, and Shanxi for the manufacturing of automobiles and aeroplanes. Its textile materials are exported to Asian markets such as Hong Kong, Taiwan and Japan and to other costal provinces such as Guangzhou and Shanghai as well.

Table 4.1-5: Distribution of Key Export Products Identified for Chongqing

Products	Distributed in other provinces	Distributed in other countries
Transportation equipment (e.g. Motorcycles and Motorcars, Mini-Vans & transportation parts & equipments)	Motorcycles to Zhanjiang (Guangzhou) and Behai (Guangxi) for exports, auto parts to Fujian and Guizhou.	Vietnam, Argentina, Indonesia, USA, Nigeria, Italy, UAE, Bangladesh, Japan.
Chemicals (e.g. polyvinyl alcohol, strontium carbonate, titanium, natural gas, agrochemicals, fertilizers, sulfuric acid) & Related products	Shanghai, Jiangsu, Anhui, Hubei, Sichuan and Shaanxi.	Japan, South Korea, Taiwan, European Countries and the USA.
Base metals (e.g. Steel, Iron and Aluminum)	Sichuan, Nanjing, Guizhou and Shanxi.	USA, Hong Kong, Japan and South Korea.

Note: The products are not listed in any ranking order.

Source: Chongqing Statistical Yearbook, 2001

Direction of Trade and Significant Trends

Taking into consideration the export trends (both domestic and international) of Chongqing and the developmental trends in domestic and international trade, the main export products in the short to medium term are:

- (i) Transportation equipment;
- (ii) Chemical products;
- (iii) Metals and related products; and
- (iv) Tourism.

(i) Transportation Equipment

The transportation equipment sector, comprising motor vehicles and parts, is currently the most important export sector of Chongqing. Based on its production volume between 1985 and 1998, the output of transportation equipment has increased by 17.6 times.

However, this sector faces the following challenges:

- Chongqing's largest motorcycle exports market, Vietnam, is raising its domestic production of motorcycles. This could pose a potential threat for Chongqing's future motorcycle exports to Vietnam.
- With the tariff reduction on automobile imports from 130 percent to 15 percent by 2006 following China's WTO entry, the automobile industry in general, is likely to face keener competition in the domestic market from foreign imports.

Chongqing's export of transportation products, especially motorcycles and automobiles, however, is expected to continue to grow significantly post-WTO in view of the following favourable factors:

- The spending power of the domestic market is expected to increase further. As a result, domestic consumer would be switching from bicycles to motorcycles and eventually to motorcars. In addition, the new opportunities to borrow money for auto loans in China will help increase the number of privately owned vehicles. Despite anticipated foreign competition post-WTO, Chongqing would be able to compete leveraging on its established brand names of motor-cycles and automobiles as well as lower production costs.
- Likewise in other emerging economies such as Vietnam, Myanmar, Indonesia and Laos, there is a trend of consumers switching from bicycles to motorcycles, implying potential market opportunities for Chongqing. Contingent upon a lower production cost in China, Chongqing's producers would be able to continue to supply to these markets at very competitive prices.
- On reinforcing a critical mass of established automobiles and motor cycles producers in Chongqing, an Economic & Technological Development Zone established in 1990 has most foreign-invested projects involved in automobiles, motorcycle and other hi-tech manufacturing industries. This industrial zone has become Chongqing's important base for attracting overseas investment and developing its export-oriented industries in the automobiles and motorcycles sector. Therefore, the growth of this industrial zone could add a further boost to Chongqing's automobile and motorcycles production.

In view of the eminent foreign competition post-WTO, several auto companies in Chongqing are turning challenges into competitive edges and have already embarked on a proactive strategy to reduce the adverse impact on their business. For instance, the Lifan Group, a leading motorcycle producer in China, has continuously maintained its ISO 9001 certification and a wide variety of product models, in addition to pursuing an affordable pricing strategy.

(ii) Chemical products

The chemical products cluster is expected to continue to play a strong export role for Chongqing. Substantial opportunities are present in the domestic market as chemical products are important upstream raw materials for the production of paints, agrochemicals and pharmaceutical products, whose demand are expected to increase with China's growing economy. According to BP Amoco's estimates⁷, Chinese demand for acetic acid, which is used in textiles, paints, dyes, herbicides and the electronics and food industries, is growing at around 6 percent a year. Many chemical companies in China and Chongqing such as the Chuanwei Acetic Acid Plant, have increased their production capacity in anticipation of this growing demand for chemicals. In the international markets, specialty chemicals such as those used in electronics sector and food industries are also expected to continue to grow further.

Despite these potential upside factors that could have a favorable impact on Chongqing chemical sales, in the years to come, China's tariff rates on chemical imports will be reduced in stages by 2006. Therefore, in anticipation of such developments, Chongqing's chemicals industry ought to prepare itself by strengthening its production capability and product quality.

(iii) Base Metals

Another key export sector of Chongqing is the base metals cluster. This cluster provides the base materials inputs for a variety of other major industries such as the transportation, construction and manufacturing industries. Therefore, Chongqing's base metals sector, mainly steel and aluminium, is expected to grow in tandem with the expansion of the automobiles assembly and aerospace industries in China. In addition, this product sector is poised to do well with the growing demand for metal products from the domestic construction business as the national income rises. In Chongqing alone, the number of construction enterprises had grown from 450 in 1990 to over 1700 in 1999.

However, the base metals industry in Chongqing could be vulnerable to adverse changes in import regulations of overseas export markets. For instance, the recent move by the American government to impose higher import tariff in order to protect its own domestic steel manufacturers has affected the export of steel from producers in China. In addition, Chongqing's steel producers import their raw materials for their production, hence, rendering the producers susceptible to large price changes in the raw materials which could affect their cost competitiveness.

Thus, metals enterprises in Chongqing need to continuously upgrade their manufacturing technology, streamline their organization, raise production efficiency and cut costs so as to stay ahead of domestic and international competitions.

⁷Source: <http://www.chemicals-technology.com/projects/chuanwei>

(iv) Tourism

Chongqing has a number of tourist attractions including the famous Three Gorges river cruise, the Dazu stone sculptures, and the Tiankeng and Difeng, two rare geological spectacles at the Fengjie.

The tourism sector has substantial economic spin-offs for Chongqing. Over the last five years, the number of international tourists to Chongqing has risen by 62 percent to reach 266,081 in 2000. The foreign exchange earned has risen over the years by 56 percent to reach USDS 137 million in 2000.

Table 4.1-7: Number of Tourists to Chongqing (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	16.4	18.5	26.6
Domestic Tourists	N.A.	N.A.	3,071
Total no. of Tourists	N.A.	N.A.	3,097.6
Foreign exchange earned (USD million)	88	97	137

Source: *Chongqing Statistical Yearbook*

Chongqing's tourism sector is expected to continue to be an important revenue earner for the province, in view of the following factors:

- The steady rise in the affluence of the domestic population, which would lead to higher travel demand. In 2000, the number of domestic tourists made up almost the entire tourist arrivals to Chongqing (see [Table 4.1-7](#)).
- The expected rise in the number of visitors to Chongqing for business, conventions and exhibitions.

4.1.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

Chongqing has a comprehensive transportation system which includes railway, highway, waterway, aviation and light railway. It is very convenient to travel to and from Chongqing by train. The city is linked by three electric railways: the *Chengyu* (Chengdu-Chongqing) railway, *Chuanqian* (Chongqing-Guiyang) railway and *Xiangyu* (Xiangfan- Chongqing) railway, and has further links with the national railway system. With the inclusion of the proposed Chongqing-Huaihua Railway, Chongqing will become the largest railway hub in southwest China.

Chongqing also has a relatively developed highways system and is easily accessible from all parts of China. There are 21 highways including Chengdu-Chongqing Expressway, and 17 of the expressways are connected with highways in Yunnan, Guizhou, Sichuan, Hunan, Hubei and Shanxi provinces. Some 212 roads in Chongqing also lead to other parts of the country.

Table 4.1-8: Freight Traffic (in 10,000 tonnes)

	1996	1997	1998	1999	2000
Railway	3,112	2,937	2,780	2,790	2,848
Highway	20,214	20,626	22,129	22,202	23,646
Waterway	2,946	1,729	1,582	1,395	1,392

Source: *Chongqing Statistical Yearbook, 2001*

Chongqing is an important trading point along the Yangtze River. The province features convenient land, rail and waterway transportation facilities. Chongqing's total freight has gradually grown over the years to reach 279 million tonnes in 2000. The highway is the most important transportation mode in Chongqing in terms of freight volume. Highway freight accounted for 85 percent of total freight volume, while rail and waterway freight accounted for 10 percent and 5 percent respectively.

Over the last five years, the utilization of highways has gained greater importance in Chongqing freight traffic, which grew by 17 percent to reach 236 million tonnes in 2000. On the other hand, the freight volume via railway and waterway has declined by 84 percent and 53 percent respectively over the period between 1996 and 2000. The increased popularity of highway in freight transportation could be due to the greater schedule flexibility, and also the convenience in travel with the opening up of more highways.

Most companies in the automobile industry use highways as their main transportation mode to other provinces and to the seaports due to the speed and convenience. However, the use of highway is expensive due to the large number of tolls collection. In order to save costs on highway transport, some companies use in bound trucks that enter Chongqing to transport their products out instead of specially trucks for this purpose, which costs more. [Box 4.1-1](#) depicts how automobiles could be transported in Chongqing.

Box 4.1-1: HOW CARS ARE TRANSPORTED



Cars can be transported via trucks or car carriers known as trailers. An enclosed trailer as compared to an open trailer is one of the safest ways to transport the vehicle (see picture on the top left hand). Car are typically transported from their production plants and loaded at the ports or rail stations to be delivered to its final destinations.



The picture below depicts how automobiles are typically transported in China.

In the case of chemical products, trucking services are engaged to transport the products within Chongqing or from Chongqing to other provinces as well. Specialized tankers are used for the transport of chemicals.

Box 4.1-2: TRANSPORT OF CHEMICALS

There are basically two types of tankers for the transport of chemicals, namely the road tankers and the International Standards Organisation (I.S.O.) tanks.

Road Tankers

The tank is affixed to its own tractor unit - as an integral part of the vehicle, together with the drivers cab and wheels array. Road tankers are generally used for transport within the province, or to nearby ports, when the tanker would be driven on and off a ferry by its own driver. They are also called RORO tankers, i.e. roll-on, roll-off the ferry.



I.S.O. Tanks, or Skeletals

This is basically a container - a tank within a skeletal framework. The same type of goods can be transported as in a road tanker, but the important difference is that the tank can be lifted off its tractor vehicle (i.e. its wheels assembly), by crane, and loaded onto the deck of a cargo ship.



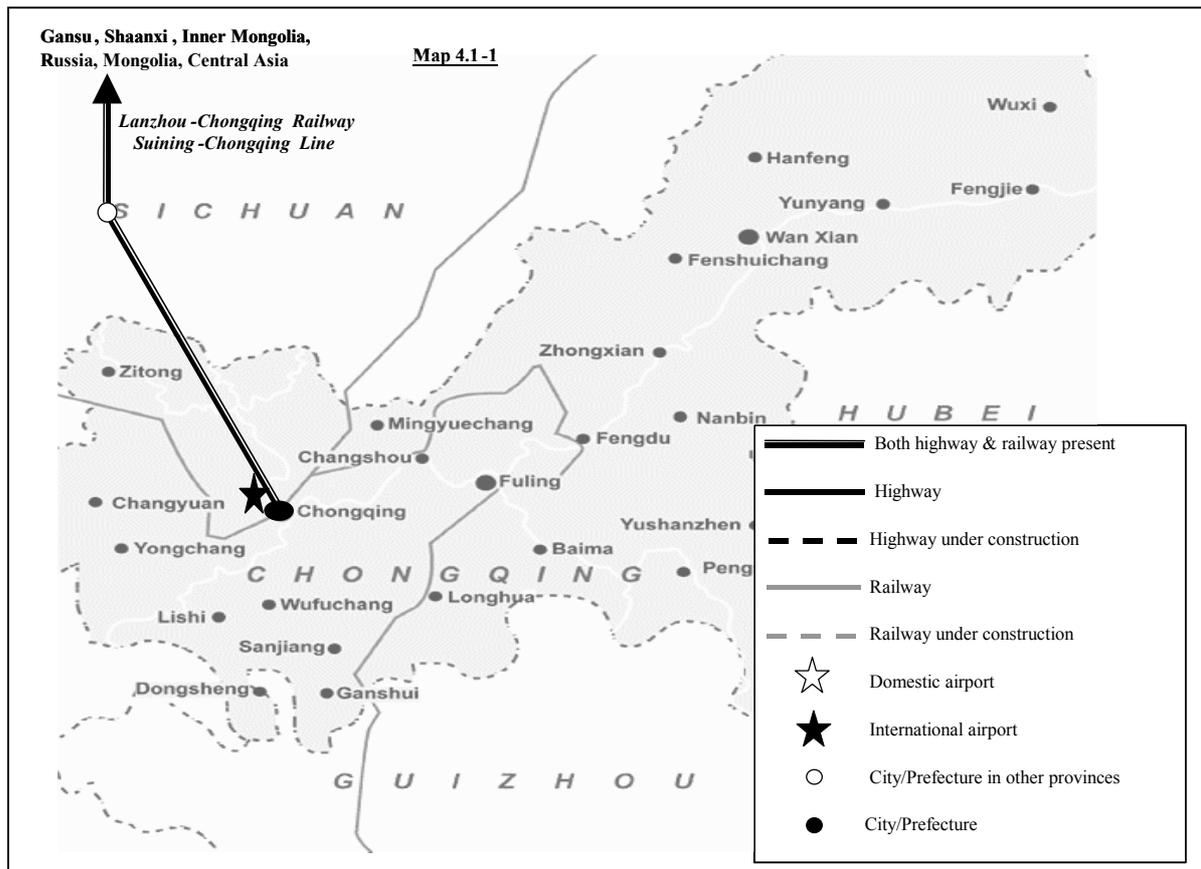
For land-based transport of low hazard products e.g. engine oil, spring water, polystyrene granules, there are no loading precautions. The tanker can be filled from an open pipe, with the delivery driver watching it fill. On the other hand, products which are hazardous to humans must be unloaded in a sealed environment, with unload and vapour return pipes, protective clothing and breathing apparatus.

Source: <http://www.btinternet.com>.

Box 4.1-2 depicts how chemicals can be effectively transported. However, trucking firms in Chongqing lack a modern fleet of specialized tankers to provide economical transport of chemicals. In addition, loading precautions for the safe transport of chemicals should be further improved in Chongqing.

In the case of metals and related products, railways and waterways have typically been used to transport the bulky products within Chongqing and to other provinces as well. The use of railways and waterways for the transport of heavy and bulky cargoes like metals are also more cost-efficient over longer distance travel.

Northern Direction

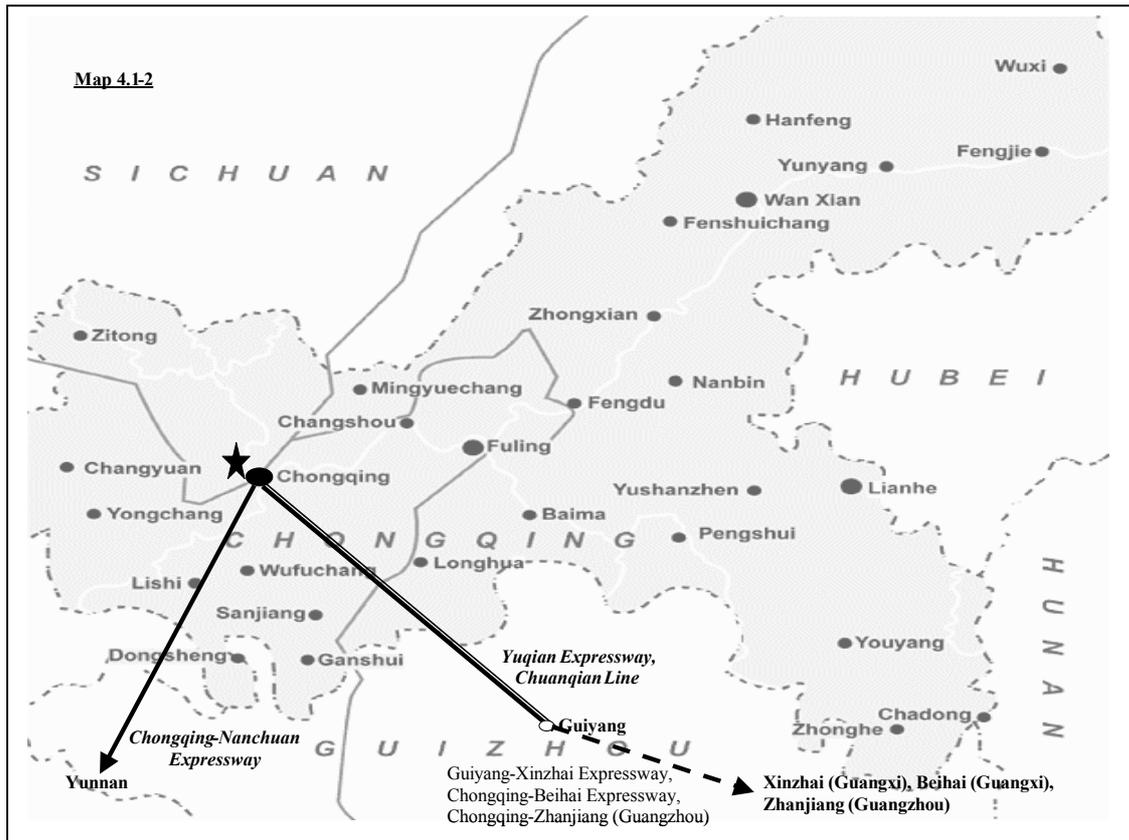


The routes linking Chongqing to the Northern provinces like **Shaanxi, Gansu** and **Inner Mongolia** provide a good outlet to reach the overseas markets of **Russia** and **Eastern Europe**. These routes include:

- Both railways and highways to **Shaanxi**, via Chengdu (**Sichuan**) (**Map 4-1-1**). Through Shaanxi, goods and passengers from Chongqing can also reach the other northern provinces of **Gansu** and **Inner Mongolia**. The national railway system spreading northward and westward from Gansu and Inner Mongolia have also provided a convenient mode of transportation for Chongqing's products to reach the overseas markets of **Russia, Mongolia** and **Central Asia**. Chemicals and base metals are typically transported from Chongqing to the Northern provinces of Shaanxi, Gansu and Inner Mongolia.
- Another railway from Lanzhou (**Gansu**) to Chongqing is proposed to be built and would be the shortest passageway between Southwest China and Northwest China⁸. The completion of this railway would enable direct access of goods and passengers from Chongqing to Lanzhou without the need to travel via Xi'an in **Shaanxi**.

⁸ Ministry of Railway's economic planning research institute (Source: China Daily Business Weekly, Beijing: 28 June 2000).

Southern Direction



From Chongqing, there are a number of transportation routes branching out to the Southern provinces, to **Guizhou**, and also down to the seaports in **Guangxi** and **Guangzhou**.

- The *Yuqian* Expressway connects Chongqing to **Guizhou**. This expressway is also part of the NTHS. Besides highways, Guiyang (Guizhou) is also accessible from Chongqing by the national railways via the *Chuanqian Line*. The total distance of this rail line is 463 km.
- The Chinese Government has also developed plans to further enhance the highway connection between Chongqing and **Guizhou** in order to cope with the increased demand for highway transportation. The first proposed project is the Chongqing-Guizhou road development project which comprises two contiguous expressways - the *Leichong* Expressway in Chongqing Municipality and the *Chongzun* Expressway in Guizhou Province and also a 826 km feeder road component. This expressway will link up in Zunyi (Guizhou) with the recently completed Zunyi-Guiyang Expressway, which also links to the ongoing Guiyang-Xinzhai (Guangxi border). Completion of this project will enable faster transportation of goods from Chongqing to Guizhou as well as Guangxi.
- The *Chongqing-Nanchuan* Expressway links Chongqing to **Yunnan**. This linkage with Yunnan is very significant to Chongqing as it is the transportation route used by some auto enterprises to transport motorcycles to the ASEAN market of **Vietnam**.

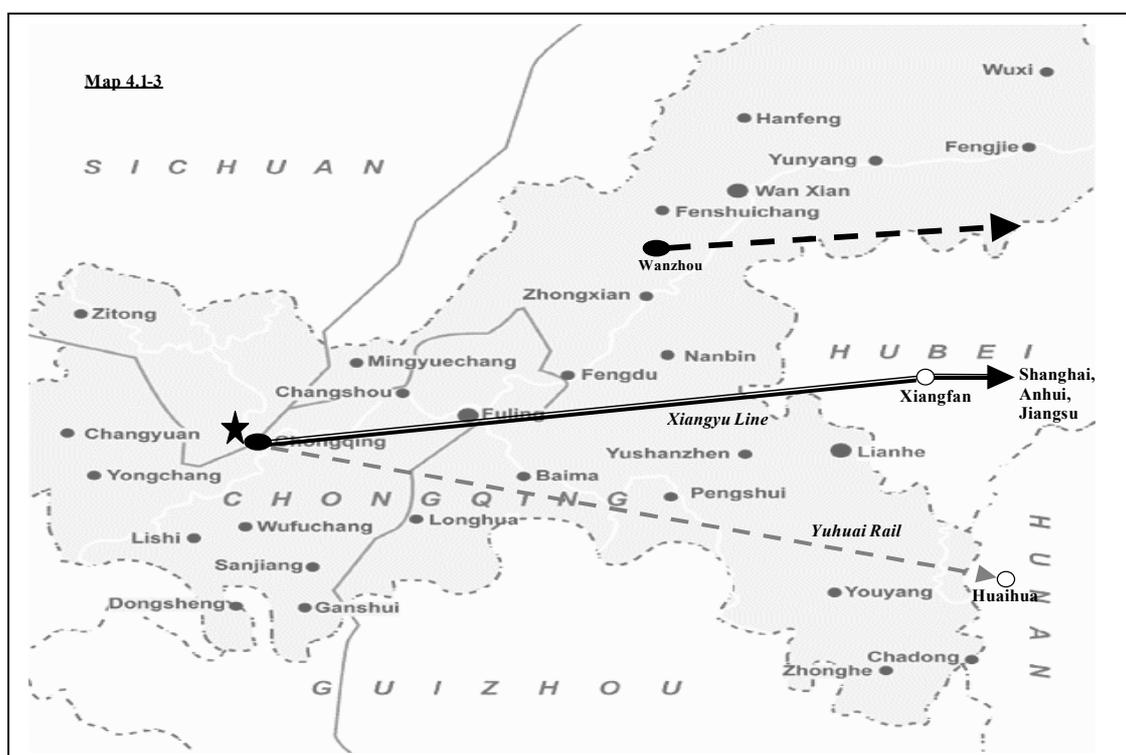
Two key projects are proposed in the 10th Five-Year Plan (i.e. 2000-2005) to improve urban transportation in Chongqing and neighbouring provinces towards the south. These projects are the: *Chongqing-Zhanjiang* Expressway (Zhanjiang is in **Guangdong**) and the *Chongqing-Beihai* Expressway (Beihai is in **Guangxi**). These two highways are key components of the

Southwest Sea Passage that are aimed to improve the linkage between Chongqing and the southern seaports.

- The 1,129 km *Chongqing-Zhanjiang* Expressway forms the northern portion of the one of the seven priority routes of the NTHS, and it is also part of the road development program of the Government's Western Region Development Strategy for alleviating road transport bottlenecks.
- The *Chongqing-Beihai Expressway* would enable goods from Chongqing to be exported through the seaports of **Guangxi**, which are geographically the nearest seaports for export to the overseas markets in the South of China, such as **Vietnam** and **Indonesia**.

The completion of these two projects, expected to be before 2005, will provide exporters from Chongqing convenient alternative ports of exports to the existing **Shanghai** seaports, currently used by Chongqing exporters.

Eastern Direction



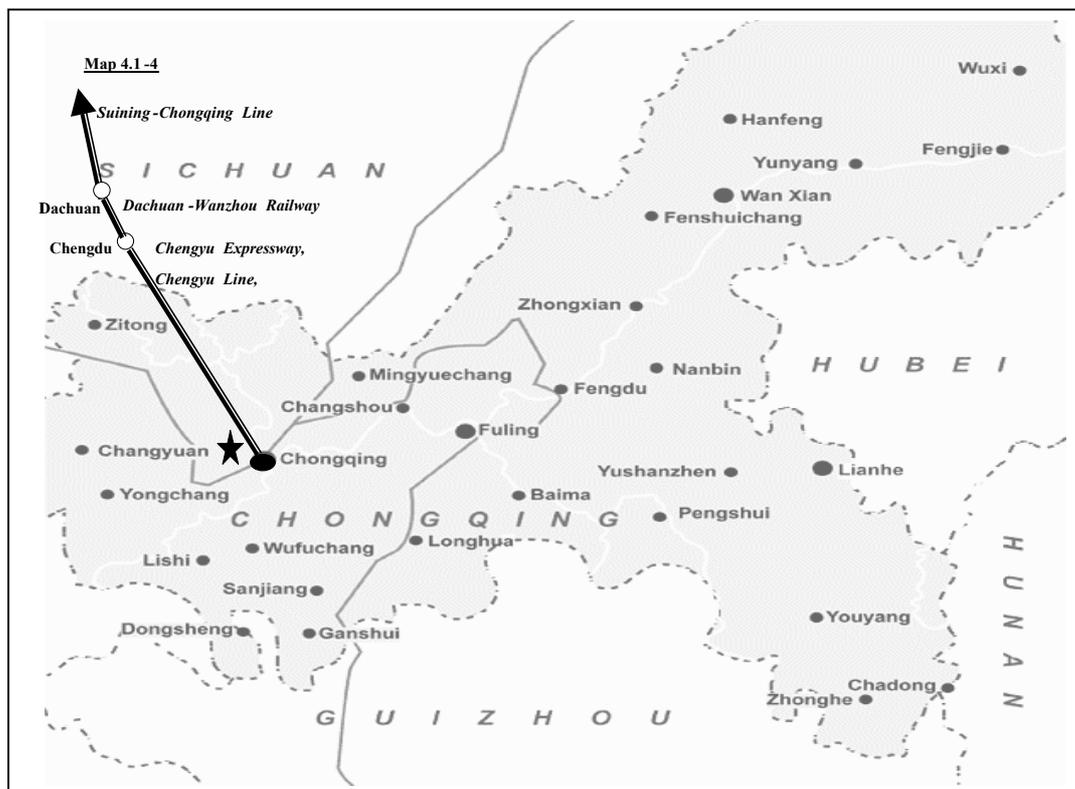
There are several transportation routes linking Chongqing to the Eastern provinces of **Hunan**, **Hubei** and eventually **Shanghai**. These linkages include:

- The Yangtze River which links Chongqing to **Anhui**, **Jiangsu** and **Shanghai** where goods from Chongqing are normally exported. Despite the decline in waterway cargoes to and from Chongqing over the years, the Yangtze River is still significant as one of the modes of transportation, particularly for the transportation of low value, heavy products over long distances. Coal, oil, natural gas, petroleum products, building materials and steel contributed for approximately 80 percent of the Yangtze River trade⁹.

⁹ Source: *Cargo News*, 20001 (<http://www.tpl.com.sg/timesnet/data/cnc/docs/cnc0349.html>).

- The central Government has included shipping along the Yangtze and its tributaries as one of the key focus of the 10th five-year plan (2001-2005) to overcome the crowded situation on the Yangtze River and the lack of container services and inland seaports. Chongqing is also building new facilities at Jiulongpo harbour, including container storage and two new berths capable of handling 1,000-dwt ships. When completed, the port will be capable to handle 50,000 TEUs in container traffic and 300,000 tonnes in general cargo.
- In addition, goods and passengers from Chongqing can also use the railway and highways to reach Shanghai via the other Eastern provinces of **Hubei** and **Anhui**.
- The *Xiangyu* trunk line connects Chongqing to Xiangfan in **Hubei**. This line stretches 895.3 km. In addition, the *Wanzhou-Yichang* railway line is proposed to be built that links Wanzhou city in Chongqing to Yichang City in central China's Hubei Province. This proposed line is 300 km long, with an investment of USD 1.92 billion.
- There are several provincial roads linking Chongqing with **Hunan**. Currently, there are proposals to build an electric rail from Chongqing to HuaiHua, Hunan¹⁰. The 625km *Yuhuai rail* project will link Chongqing municipality and Huaihua in Hunan province. This new rail artery is expected to boost the local economy and to contribute to the ambitious government-initiated program of developing the country's western areas. The *Yuhuai electric rail* is expected to be operational in June 2005 and to halve the travel distance between western and eastern China.

Western Direction



¹⁰ Source: People's Daily, 25 Nov 2001.

Chongqing is well linked to its Western neighbour **Sichuan**. Presently, access to Sichuan from Chongqing include:

- The *Chengyu Expressway*, which links Chengdu with Chongqing. This expressway also connects Chongqing with the national highway network.
- Chongqing is also connected to Sichuan by rail via the *Chengyu Line*. Besides providing access from Chongqing to the capital city of Chengdu, the *Chengyu* railway also provides access to other key cities of Jianyang, Neijiang and Longjiang in **Sichuan** province. This 504 km-long trunk line is the first railway constructed after the founding of New China in 1950 and officially opened to traffic on July 1, 1953. In 1987, the line was electrified and the transport capacity was increased by 13 million tonnes.
- A project plan has also been developed to build a single-track diesel line to link Chongqing to Suining City in Sichuan province so as to reduce the journey between Chongqing and Sichuan to less than four hours. The construction of this new railway will begin this year. The 160-km *Suining-Chongqing* line will cost six billion yuan (about USD 722 million) and when completed, will have a designated speed of between 140 and 160 kilometres per hour.

Intra-provincial Transport Network

From the capital city in Chongqing, the provincial transportation network branches out and links itself to Sichuan, Guizhou, Hunan and Hubei and other areas. The transportation network in Chongqing include three truck railway lines, three national highways and a number of provincial highways linking Chongqing to other regions. Therefore, the municipality is fairly well-connected in all directions externally.

Internally, there is a comprehensive road network that connects the capital city to the rest of the municipality. Due to the topography of the province that is mountainous and forming the basin of the Yangtze River, the population dispersion in Chongqing is fairly concentrated in the capital city.

The recent connection of the provincial Changfu (Changshou-Fuling) Expressway and Yuchang (Chongqing-Changshou) Expressway is also the first access road leading from Chongqing to the Three Gorges Dam areas. The passenger transportation system on waters, and the original main traffic route from urban area of Chongqing to the Three Gorges Dam regions will also gradually be reshaped into transportation lines for tourism purpose.

The municipality also has plans to invest more than USD 2.95 billion in building expressways and highways over the next ten years. As part of this plan, Chongqing will also build a trunk network of highways from Fuling to Xiushan and construct an outer ring and second ring freeways round the main urban area.

The Jialing River and the Yangtze River have traditionally been important modes of transportation over short distances within the municipality. Today, the use of this mode of transportation has gradually been replaced by transportation using the highways which is more flexible and convenient.

In addition, Chongqing plans to improve its urban transportation system through the construction of fast-speed light railways in the city. The State has invested 3258 billion-yuan

(USD 392.5 million) into the construction of light rail network. The first phase of construction currently underway is 13.5-kilometers long with 14 stations.

Presently, Chongqing has numerous air connections with domestic cities, such as Beijing, Guangzhou and Shanghai as well as international destinations. The Jiangbei International Airport, opened in 1990, has been recently upgraded. Besides servicing 46 domestic routes, the airport also runs flights to and from Hong Kong, Macau, Bangkok and Nagoya, Japan.

4.1.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

The exports of motorcycles, chemicals and metals are identified to be the main product sectors of Chongqing post-WTO. However, to gear up to the potential challenges and competition facing Chongqing firms post-WTO, particularly the automobiles and chemicals sectors, a pertinent issue that has to be tackled is that of efficient logistics management which could in turn affect the cost competitiveness of Chongqing's companies. However, Chongqing still faces several key logistics impediments that could hinder the growth of its exports. These impediments are as follows:

a) Lack of comprehensive automotive logistics management

Currently, there is limited application of comprehensive automotive logistics management for firms in the automobiles industry. Automotive logistics is the comprehensive management of the supply chain, from the sourcing and distribution of the components that make up a vehicle to the distribution of finished vehicles to dealers and consumers. It encompasses manufacturing, assembling and warehousing. Therefore, an area of improvement is the provision of customized logistics services for companies in the automobiles industry in Chongqing to help firms optimise their supply chain management, to save overall costs and to support the growth of this sector.

b) Lack of inter-modal transportation

The provision of an integrated trade logistics and transportation system would facilitate the movement of goods, help firms save overall costs, and possibly lead to lower product prices. Currently, many firms in Chongqing rely on only one mode of transportation for internal transportation of goods from the source to the export port or destinations. This implies that firms are not fully optimising the cost savings available in utilizing several transportation modes, which could in turn help to reduce overall costs. Cost savings through multi-modal is also crucial for the automobiles and chemicals sectors in Chongqing, which are expected to face keen competition from foreign imports post-WTO liberalization.

Currently, the cost of transporting motorcycles from Chongqing to the ports of Guangzhou is approximately RMB 100. This amounts to approximately 20 percent of the total cost of production and transportation (see [Table 4.1-9](#)). With improved logistics management in inter-modal transportation, it is hoped that the cost of transporting motor vehicles would be further reduced. This could in turn improve the cost competitiveness of automotive firms in Chongqing.

Table 4.1-9: Transportation Cost of Motorcycle

	Per motorcycle	Remarks
Production cost	400	
Transportation cost	100	From Chongqing to Guangzhou
Total Cost (incl. transportation)	500	
Market price	1,000	

Source: Based on estimation by an automotive firm in Chongqing.

c) Inadequate industry expertise and experience on logistics management

There appears to be a lack of adequate expertise and experience in the area of logistics management and delivery among the 3PL service providers. Many of these firms either engage in only trucking service to serve clients who have transportation needs or warehousing services to serve clients who have storage needs. There is little application of integrated logistics or supply chain management to enable clients to minimize transport logistics costs. In addition, most trucking companies in Chongqing do not connect to any sort of logistics information system to track the movement of goods and to provide customers timely information on the location of their goods.

As competition from foreign imports heightened post-WTO liberalization, the demand for improved logistics capacity and capability will continue to rise. Therefore, the provision of modern logistics services will be important for sustainable economic and trade development.

d) Shortage of warehouse management and expertise

In general, warehouses in Chongqing are largely labor-intensive in operations, with manual loading and unloading of trucks and railcars. In addition, where warehouse racking experience is limited and lighting is poor, forklift drivers could even crash into the racking. Therefore, there is a need to upgrade the standard of warehouse management and to modernize the warehouse facilities, to include the use of advanced operation technology, automated conveyor belts and better storage facilities. This is particularly crucial for the management of components for automobiles manufacturing as well as high-value specialty chemicals.

4.2 GANSU PROVINCE

Gansu province is located at the intersection of the Inner-Mongolian Plateau, Loess Plateau and Qinghai-Tibetan Plateau. It borders Shaanxi province in the east, Sichuan province in the south, Xinjiang Uygur Autonomous Region and Qinghai province in the west, Inner Mongolia-Autonomous Region and Mongolia in the north, and Ningxia Hui Autonomous Region in the northeast. The land area of the province is 455,430 square kilometers and its total population is 25.6 million by end of 2000.

Gansu has 7 prefectures (Jiuquan, Zhangye, Wuwei, Dinxi, Longnan, Pingliang and Jinyang), 5 municipalities (Lanzhou, Tianshui, Jinchang, Jiayuguan and Baiyin), 2 minority nationality prefectures (Gannan Tibetan Autonomous Prefecture and Lingxia Autonomous Prefecture) and 86 counties. The capital city of the province is Lanzhou. The population of the minorities living in Gansu is approximately 1,743,300.

Gansu's key export products include base metals, textiles and garments, chemical products and petrochemical products. The province has a wide range of Chinese herbs and medicines and it is also a large production base for traditional Chinese medicines. In addition to the export sectors, the tourism sector in Gansu is gradually gaining importance. In the short and medium term, Gansu's key export products would continue to be textiles and garments, petrochemicals and base metals. The tourism sector is expected to grow further due to the increased affluence of the local populations and increasing visitations by foreigners. Another potential export sector identified for Gansu is the traditional Chinese medicines. This sector is likely to develop further with the growing acceptance of Chinese herbs in the international market.

However, Gansu presently faces some trade logistics impediments. For instance, the province lacks good quality transportation network to facilitate the flow of tourists and products to and from the province. Being an inland province, Gansu faces shortage of inbound containers for freight transportation out of the province. The province also lacks cold chain facilities for its traditional Chinese medicines. On the other hand, as Gansu does not have any international air linkage, it is less accessible to foreign tourists from overseas. This inaccessibility will slow down the growth of Gansu's tourism sector.



4.2.1 ECONOMIC PROFILE

Table 4.2-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (USD billion)	8.51	9.30	10.48	11.23	11.83
Per Capital GDP (USD)	350	378	416	442	462
Primary Sector (% of GDP)	26	24	23	21	20
Secondary Sector (% of GDP)	44	44	44	45	45
Tertiary Sector (% of GDP)	30	32	33	34	35

Source: Gansu's Year Book 1997 to 2001.

Exchange rate used: USD1 = 8.30 Chinese yuan.

Gansu's economy has grown steadily over the last five years with Gross Domestic Product (GDP) increasing by more than 34.5 percent between 1996 and 2000. In line with GDP growth, the province's per capital GDP has also increased by 29 percent over the past five years. Gansu has been reducing its reliance on its primary sector with the sector's share of GDP decreasing from 26 percent in 1996 to 20 percent in 2000. The secondary sector, on the other hand, has consistently been the most important economic driver of Gansu, contributing about 45 percent of the province's GDP over the last five years.

Gansu is one of the earliest industrial bases of China and today, it has established several industries namely base metals, petrochemicals as well as textiles and garments. During the 1950s, the petrochemical and the textiles and garments industries were the most important contributors to the province's industrial output value. By the 1970s, these sectors have been overtaken by base metals industry, which emerged as one of the most important industries in Gansu today. Gansu's industries are concentrated in Lanzhou, Jinchang, Baiyin, Tianshui and Yumen.

4.2.1 INTERNATIONAL TRADE STRUCTURE

Table 4.2-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (USD million)	270	380	350	320	410
Imports (USD million)	200	130	100	80	150
Top export partners	<ul style="list-style-type: none"> • Hong Kong • Korea • Japan • US • Italy 	<ul style="list-style-type: none"> • Hong Kong • Japan • South Korea • US • Singapore 	<ul style="list-style-type: none"> • Japan • US • Hong Kong • South Korea • Singapore 	<ul style="list-style-type: none"> • Japan • US • South Korea • Taiwan • Singapore 	<ul style="list-style-type: none"> • Japan • South Korea • US • Singapore • Taiwan
Key export products/values (USD million)	<ul style="list-style-type: none"> • Base metals (125.29) • Textiles and garments (61.96) • Livestock (34.60) • Machineries (27.59) • Traditional Chinese Medicines (7.69) • Petrochemicals (1.00) 	<ul style="list-style-type: none"> • Base metals (140.94) • Textiles and garments (92.33) • Chemical products (42.40) • Electronic products and components (29.76) • Traditional Chinese Medicines (11.59) • Petrochemicals (0.06) 	<ul style="list-style-type: none"> • Base metals (143.53) • Textiles and garments (54.49) • Chemical products (30.48) • Plants (25.06) • Traditional Chinese Medicines (18.33) • Petrochemicals (2.00) 	<ul style="list-style-type: none"> • Base metals (153.68) • Textiles and garments (42.70) • Petrochemicals (36.31) • Chemical products and products (35.15) • Traditional Chinese Medicines (N.A.) 	<ul style="list-style-type: none"> • Base metals (229.4) • Petrochemicals (51.03) • Chemical products (49.43) • Textiles and garments (48.71) • Traditional Chinese Medicines (N.A.)

Source: Gansu Statistical Yearbooks 1997 to 2001

Gansu's international exports recovered in 2000 to reach USD410 million after declining in 1998 and 1999. The province's base metals have been the top export products for the previous five years, while livestock and plants have declined in importance.

The province's key export products today are (i) base metals, (ii) textiles and garments, (iii) petrochemicals and (iv) chemical products. Gansu's international export depends substantially on these four groups of products which accounted for 92 percent of Gansu's total exports in 2000.

Gansu's imports have declined by 60 percent from USD200 million to USD80 million from 1996 to 1999 but increased to USD150 million in 2000. The province imports textiles, machineries and plastic products from Hong Kong, Australia, Pakistan, the US, Germany and Japan.

Key Export Products

The key export products from Gansu are base metals, textiles and garments, petrochemicals, chemical products and traditional Chinese medicines. Base metals have been the province's top export products in the last five years.

Table 4.2-3: Key Export Products from Gansu (USD million)

Products	1996	1997	1998	1999	2000
Petrochemicals	1	0.06	2	3.63	5.10
Base metals	181.23	147.91	161.57	153.68	229.40
Textiles and garments	61.96	92.33	54.49	42.70	48.71
Chemical products	N.A.	42.40	30.48	35.15	49.43
Traditional Chinese Medicines	7.69	11.59	18.33.	N.A.	N.A.

Note: The products are not listed in any ranking order.

Source: Gansu Statistical Yearbooks 1997 to 2001

(i) Base metals

Gansu is an important production base for base metals such as copper, aluminum, nickel, lead and zinc and it has the largest reserves for 11 kinds of minerals in China. Presently, there are more than 200 base metals production bases in the province.

This industry started to take shape in Gansu during the 1970s, contributing about 16.19 percent of the province's industrial output at that time. Today, this sector is a major foreign exchange earner and is Gansu's largest export products sector. Between 1996 and 2000, the export value has increased by 26.5 percent from USD181.23 million to USD229.4 million. Some of the base metals exports from Gansu are aluminum, copper, lead, and zinc.

(ii) Textiles and garments

Gansu's textiles and garments industry took shape when the Central Government embarked on the development of the industry during the 1950s. In the 1970s, the industry was further strengthened when the Central Government allowed economic co-operation and exchange with foreign textile industries. This has led to many enterprises in the sector upgrading their technology, importing equipment from abroad, and also forming joint-ventures with foreign firms. As a result, this sector has become very well-established and has consistently been one of Gansu's top export sectors in recent years. The sector currently has several renowned and established enterprises such as Lanzhou Sanmao Textiles Group, which is one of the top ten textiles and garments enterprises in China. The sector currently employs more than 39,000 people in Gansu.

(iii) Petrochemicals

The petrochemical sector has emerged as a key export sector as recent as 1999. The many products produced include kerosene, natural gas, synthetic fibers, etc. Previously, most of the exports from this sector were distributed within the domestic market, with only a small amount exported overseas. In 1996, only USD1 million worth of petrochemical products were exported. However, the export from this sector has increased by five folds between 1996 and 2000.

In recent development, the Lanzhou Oil Refinery and Lanzhou Company of Chemical Industry, which are the main anchor companies in this sector in Gansu, merged and formed PetroChina Company Limited. This newly merged entity is likely to meet the competitive challenges brought about by China's accession to WTO. PetroChina presently ranks among the half-dozen largest oil companies in the world.

(iv) Chemical products cluster

Gansu is a major production base for the manufacturing of specialty chemical products like L-Amino Acids. Today, the chemical products cluster is one of Gansu's major export sectors. Despite sharp decline in international exports in 1998 and 1999, the chemical products sector remains important to Gansu. This sector's export value recovered by 41 percent to USD49.43 million in 2000.

(v) Traditional Chinese Medicines (TCM)

Gansu is a major production base for traditional Chinese medicine in China. Although the development of this industry in Gansu dated back to the 1950s, it was only in the 1990s that the industry started to develop rapidly, achieving annual production of 150 million kilograms of crude medicinal herbs. Key TCM products from the province include Cordyceps, Angelica, Dangsheng, Roots of Membranous Mile Vetch and Medlar. These products have been widely distributed in the domestic market.

Although TCM is not one of the top export products from Gansu, this sector is deemed to have tremendous growth potential. This is because the province is endowed with over 9,500 kinds of traditional Chinese medicines, of which more than 1,270 natural medicines have been exported to domestic as well as overseas markets.

Key Export Partners

Japan has been Gansu's top export partner since 1998. Exports from Gansu to Japan were worth USD153.68 million in 2000, representing 37 percent of the province's total export. Gansu's other major export markets are the US and several Asian markets namely, South Korea, Taiwan and Singapore.

Gansu exports its textiles and garments products to France, Italy and South Korea while base metals are usually distributed in the US and the European Union countries. While Gansu's chemical products are exported to Japan, Germany and France, its traditional Chinese medicines are exported to Asian countries and in countries with sizeable overseas Chinese communities such as the European Union and the US.

On the domestic front, Gansu distributes its textiles and garment products and traditional Chinese medicines in provinces such as Shaanxi and Beijing. In addition, it also supplies chemical products to provinces such as Ningxia and Inner Mongolia. Presently, most of its petrochemical outputs are distributed to domestic markets such as Yunnan and Sichuan.

Table 4.2-4: Distribution of Key Export Products Identified for Gansu

Products	Distributed in other provinces	Distributed in other countries
Petrochemicals	Yunnan, Sichuan, Xinjiang, Inner Mongolia, Ningxia	Japan, Singapore, Hong Kong
Base metals	Yunnan, Guangxi, Xinjiang, Ningxia	US, European Union
Textiles and garments	Guangdong, Shanghai, Zhejiang, Jiangsu, Shandong, Liaoning, Fujian, Beijing, Tianjin, Hubei, Hong Kong	Japan, United States, South Korea, Russia, Germany, Australia, Thailand, India, Vietnam, Italy, France
Chemical products	Shaanxi, Hong Kong, Beijing, Shanghai, Xinjiang, Inner Mongolia	Japan, Germany, France, Italy, US, South Korea and Singapore
Traditional Chinese Medicines	Shaanxi, Hong Kong, Beijing, Shanghai, Xinjiang	Singapore, South Korea, Europe, US, Japan

Note: The products are not listed in any ranking order.

Direction of Trade and Significant Trends

In the short and medium term, there are five products/sectors that will continue to contribute to the growth of international trade of Gansu:

- (i) Base metals;
- (ii) Textiles and garments;
- (iii) Chemical products focusing on petrochemicals;
- (iv) Traditional Chinese medicines; and
- (v) Tourism.

(i) Base metals

This is a sector that has potential to grow, particularly in the domestic market. With its existing critical mass of players in the sector, Gansu is well positioned to capitalize on the growing demand for base metals as a result of the growth in key industries such as construction, automobiles and national defense. In the case of the construction industry, many analysts are expecting a construction boom in the Chinese market in the years leading up to the 2008 Olympics.

Presently, the Gansu Provincial Government is also implementing developmental projects to prepare the industry for further growth. Specifically, the provincial government is implementing a project known as “Project 512”. This project encompasses,

- Constructing 5 production bases in Lanzhou, Jinchang, Baiyin, Xicheng and Jingyuan.
- Developing a production capacity of 1 million tonnes of base metals.
- Building a deep-processing capacity of above 200,000 tonnes of base metals.

The completion of “Project 512” would increase the production and processing capacity of Gansu’s base metals industry, thus increasing the supply of the metals to its export partners.

(ii) Textiles and garments

The textiles and garments sector is likely to continue to play export role in view of the (i) availability of raw materials, that is, wool in the provinces, (ii) the successful restructuring of the industry in the last few years, and (iii) new opportunities that would be brought about by China’s accession to the WTO.

The sector has gone through substantial transformation through the efforts of Gansu’s Provincial Light Industry Association in recent years, to build up the competitiveness of the local enterprises. Specifically, the association has closed down loss-making enterprises and focused efforts on the well-managed enterprises to help them develop more resilience to competition from foreign imports of textiles that is expected post-WTO.

On the other hand, China’s accession to WTO would also present Gansu with new export opportunities in anticipation of the phasing out of the quotas fixed for China by the US, EU and South American nations. However, it is important that the producers in Gansu continue to upgrade and acquire the latest technologies and production equipment so as to better compete in the global textiles and garments market.

(iii) Chemical products & petrochemical clusters

The central and provincial governments have planned to develop Gansu into a comprehensive high-technological petrochemical base. As part of their plan, a number of complementary projects have already been undertaken to ensure the smooth delivery of the raw materials and finished products to and from Gansu. Specifically, there are currently several ongoing projects for the construction of oil pipelines such as the one linking Lanzhou, Chengdu and Chongqing and another one that connects Xinjiang, Gansu, Henan, Hubei, Jiangsu, Jiangxi and Shanghai. The latter is expected to extend to Turkmenistan and East Siberia upon full completion to enable Gansu to gain access to overseas sources and markets.

In addition, Gansu's production capacities for oil refining and ethylene production have also been upgraded, with the intention to produce 17.8 million tonnes (by 2005) and 0.84 million tonnes (by 2010) respectively. With this increased production capacity, Gansu would be in a better position to export its petrochemicals to overseas markets, in addition to serving the growing domestic market. The domestic market demand is expected to grow at a rate of annual rate of 4 percent in the next 15 years, as China's rapid industrialization will generate increased demand for petrochemicals such as kerosene and lubricants.

(iv) Traditional Chinese Medicines (TCM)

Traditional Chinese medicine is another potential export sector for Gansu and it is likely to ride on the worldwide trend of increasing acceptance and recognition of the unique values of TCM. Currently, raw herbs from Gansu are exported to other provinces such as Shenzhen where they are processed into pills or tablet before exporting domestically and internationally. As a result, Gansu earns limited margins as its exports of herbs are in its raw forms.

There is, thus, a need for Gansu to set up processing bases for the raw medicinal herbs. In line with this, the provincial government has set aside a plan to develop Gansu into a traditional Chinese medicine-processing base. Specific initiatives such as the expansion of the plantation areas for selected types of herbs have already been launched.

(v) Tourism

Lanzhou is an important stop on the Silk Road, which connects the famous historic sites such as Dunhuang Grottoes, Labuleng Lamasery and Maiji Mountain Grottoes. The province has set aside plans to develop the Silk Road tour to attract more tourists. It would also be co-operating with 9 other provinces and autonomous regions which include Inner Mongolia and Shaanxi, to establish a tourism information network and organize a tourism fair bi-yearly.

Table 4.2-5: Number of Tourists to Gansu (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	12.2	14.5	21.3
Domestic Tourists	585	632	732
Total no. of Tourists	597.2	646.5	753.3
Foreign exchange earned (USD million)	30	37	55

Source: China Statistical Yearbook 2001

The tourism sector plays a strategic role for Gansu as it is an important revenue earner and it creates a lot of job opportunities for the locals. Between 1998 and 2000, the number of tourists to Gansu increased by 26 percent from 6.5 million to 7.5 million. Out of this, there were 210,000 international tourists, generating foreign exchange earning of USD55 million for the province in 2000. In addition, a total of more than 7.3 million local tourists visited the province in 2000. This sector is expected to continue to grow with the growing affluence of the local population driving domestic tourism.

4.2.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

Lanzhou has been selected by the Ministry of Rail as one of the container hub cities in China as it is a crossing point for Inner Mongolia, Ningxia and the other neighbouring provinces. The province has a three-dimensional transportation system combining rail, highway and air services, with Lanzhou serving as the hub. It is, therefore, widely believed that the logistics infrastructures would be further upgraded to turn Lanzhou into the logistics hub.

Presently, the Lanzhou Western Goods Station (the largest station for freight transport in northwest China) serves as the main transit and consolidation hub for containers on the New Asia-Europe Continental Bridge.

Table 4.2-6: Freight Traffic (in 10,000 tonnes)

Mode	1990	1995	2000
Rail	2,386	2,555	2,885
Highway	14,228	17,719	19,800
Waterway	-	-	-
Air	0.08	1	1.09

Source: Gansu Statistical Year Book 2001

The main modes of transportation for goods in Gansu are rail and highways. As depicted in Table 4.1-6, freight traffic on highway transport is 7 times more than that of railway transport. Hence, this mode is deemed to be the most important form of transportation in Gansu. One of the reasons for using highway transport could be that it takes a shorter time (usually 3 days) to send goods to the coastal seaports as compared to rail, which usually takes 4 to 5 days from Gansu. Nevertheless, rail transport is still important, as there has also been an average increase of 17 percent in its freight traffic on railway from 23.9 million tonnes to 28.9 million tonnes between 1990 and 2000.

Although the Yellow River flows through Gansu, the water is too shallow at this upstream section. Hence, there is no freight transportation using inland waterway. Air transport is also less important for Gansu, given the high costs involved and the nature of the export products.

In the past, textiles and garments producers relied on railway services for the transportation of their products but there were frequent delays at the railway stations. With the rapid development of the highway transportation network, many producers have switched to using highways to transport their goods to the other provinces and coastal seaports. The bigger textiles and garments enterprises normally have their own trucking fleet while the smaller players typically subcontract their transportation needs to third party trucking companies.

In the case of base metals, they are usually transported by highway to railway stations and then by railway to the export destinations. As for petrochemicals, they could be transported to and from Lanzhou via railways, trucks or pipelines. For instance, natural gas products would be transported via pipelines and unrefined oil would be sent to other provinces such as Tianjin port by either truck (tanked-trucks) or railway. Chemical products would usually be transported in tanked containers on highways and railways.

Exporters of traditional Chinese medicines would normally transport their goods to the other provinces and coastal seaports using trucks. However, railway transport would be used if the volume of the products were high. Airfreight is also used for high-grade TCM products such as Ginseng and Bird's Nest. Box 4.1-1 depicts how traditional Chinese medicines such as Chinese Cordyceps are harvested and transported.

Box 4.2-1: HOW CHINESE CORDYCEPS ARE HARVESTED & TRANSPORTED

Chinese Cordyceps (*Cordyceps sinensis*) is a compound body of the *Hepialus* moth's caterpillar and a special fungus. When winter approaches, a special kind of fungal spores will cover the moth's caterpillars and start eating away the caterpillar's interior body. The invading process is completed in the early summer where the end product is a plant-like stem geminating from the body of the dead caterpillars. For this reason, the Chinese Cordyceps is called 'Winter Worm, Summer Plant' or Dong Chong Xia Cao in Chinese.

Cordyceps are picked when the snow melts, between spring and summer in the high grassy plateau. On a lucky day, a harvester can pick about 30-40 pieces of Cordyceps. The plant-like stem (dark brown) that juts out of the ground is the fruiting body of the Cordyceps and light the golden brown in the ground is the remains of the caterpillar. The harvesting season lasts for approximately 1 month after which the Cordyceps stems will rapture, release the spores, wilt and dry-off. The released spores will further infest more upcoming caterpillars and the annual cycle continues. The dark shrunken Cordyceps (left) have no medicinal value.

Cordyceps picking is a tedious task, done primarily by the locals. The timing has to be accurate and the Cordyceps should ideally be dug with the long stems intact. Broken pieces carry less value. The cleaning process should be done carefully as the stem breaks easily. When dried, the Cordyceps will shrink to 3-4 times their original size.

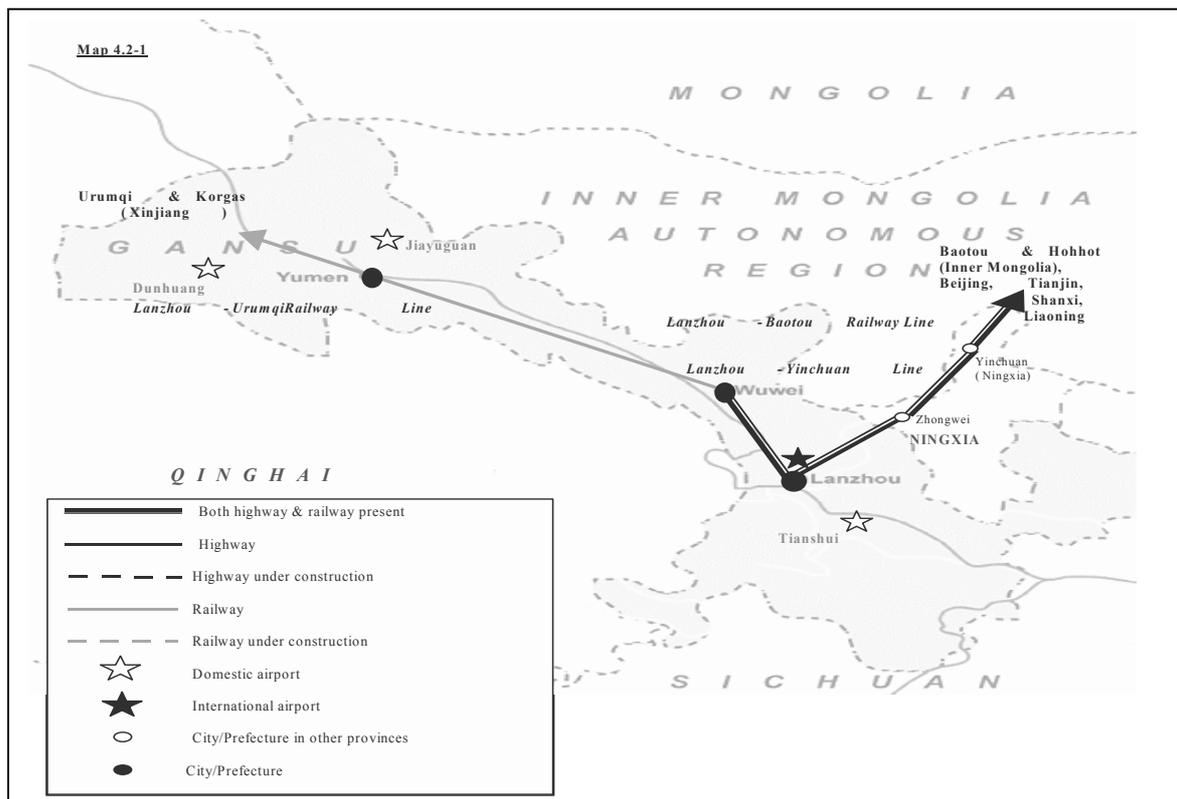
Cordyceps pickers sell their Cordyceps to collectors. Upon harvesting, the Cordyceps are sprinkle with water and cleansed off their impurities. Collectors will inspect their purchases to ensure no wires are used to joint broken pieces or increase their weight. Many will bring metal detectors to detect the presence of wires or nails or even lead.

Whole and broken pieces are sorted. After drying and sorting, the dried Cordyceps are tied with red threads and placed in bundles. Cordyceps already bundled up are placed in a rectangular mould, ready to be packed and sealed. Generally a rectangular sealed pack consists of 25-30 percent broken or fragmented pieces. The sealed packed are further cured in special air ovens to dry and bring out the aroma. The end product in herbal stores comes in bundles tied with red threads. Alternately some stores sell them by the piece, sorted by the available grades.

The sealed packs are then sent in containerized trucks or rail to export destinations. In some instances, airfreight is used to transport Cordyceps of higher grades.

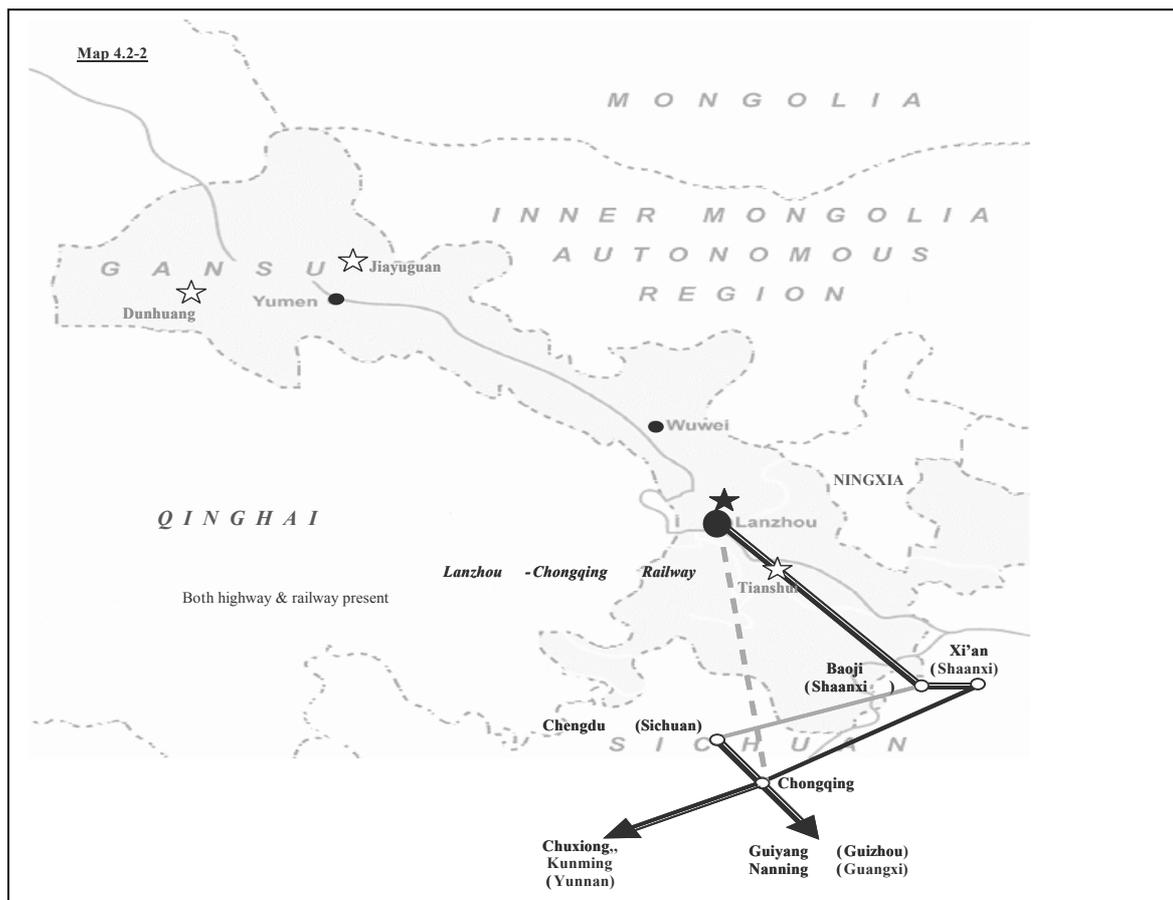
Source: <http://www.euyansang.com.sg>

Northern Direction



Presently, Gansu is connected by both highway and railway lines to numerous provincial cities such as Xinjiang, Ningxia and Inner Mongolia in the north. The linkages include the following:

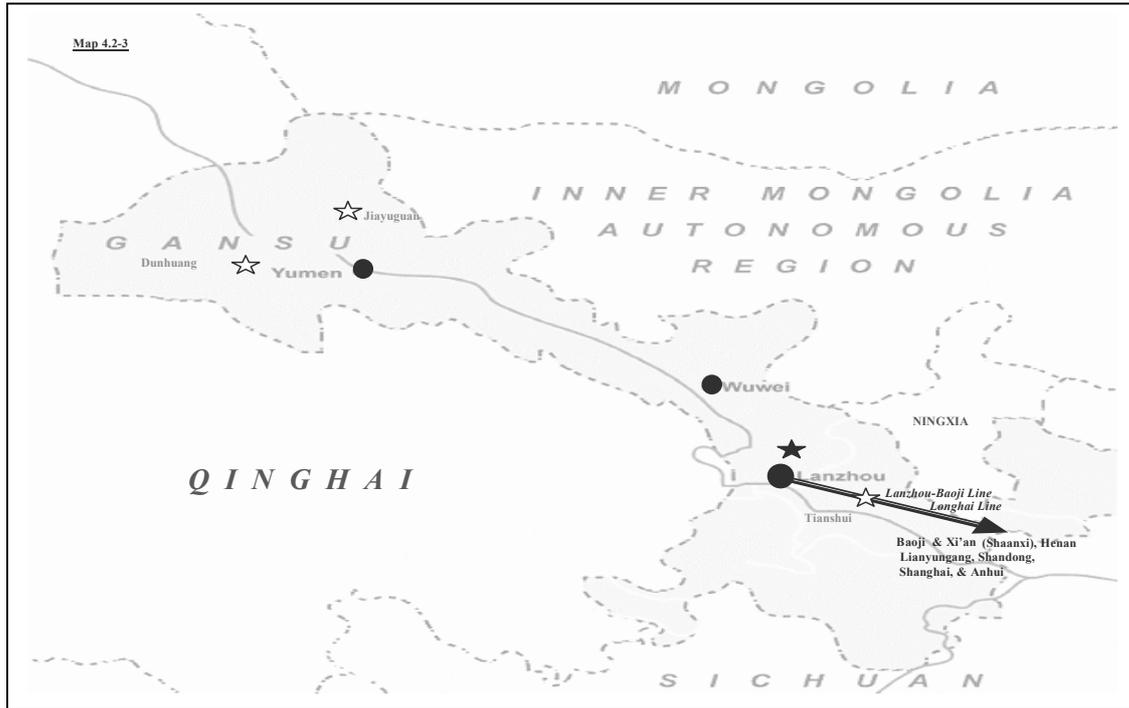
- The *Lanzhou-Urumqi Railway Line* connects Lanzhou to Urumqi in **Xinjiang**. The section of the railway line from Lanzhou to Wuwei (Gansu) is a single-track electrified line while that from Wuwei to Urumqi is a double diesel line. The types of products that are transported on the *Lanzhou-Urumqi line* include oil and base metals.
- The *Lanzhou-Yinchuan* line is single electrified and allows transportation of goods from Lanzhou to Yinchuan in **Ningxia**. There is also a national trunk highway that links the two provinces and this highway extends to Taiyuan of **Shanxi**, **Beijing** and Shenyang of **Liaoning**.
- A railway line that provides access to **Inner Mongolia** from Lanzhou is the *Lanzhou-Baotou railway line* which passes through Yinchuan in Ningxia. The *Yinchuan-Baotou* section of this line is a double-track diesel line. The main commodity transported on the *Baotou-Lanzhou railway line* is coal. A highway linking the two provinces is also open to traffic.

Southern Direction

Gansu has several highway and railway linkages that enable the exporters to transport their goods to cities in the south. These linkages are as follows:

- There is a national highway linkage between Gansu and **Chongqing** via Baoji and Xi'an in **Shaanxi** and Chengdu in **Sichuan**. The province will also be linked to Chongqing via the *Lanzhou-Chongqing railway* and this is the shortest passageway between Southwest China and Northwest China. The completion of this project would enable direct access of goods and passengers from Chongqing to Lanzhou, without the need to travel via Xi'an in Shaanxi.
- From Chengdu (Sichuan), the goods can also be further transported southward to Guiyang in **Guizhou**, Nanning in **Guangxi** or Kunming in **Yunnan** using either the national railway or the national trunk highways.

The linkage by railway and highway between Lanzhou (Gansu) and Fangcheng in Guangxi via Chongqing and Guiyang (Guizhou) could potentially be developed as a North-South Transport Corridor.

Eastern Direction

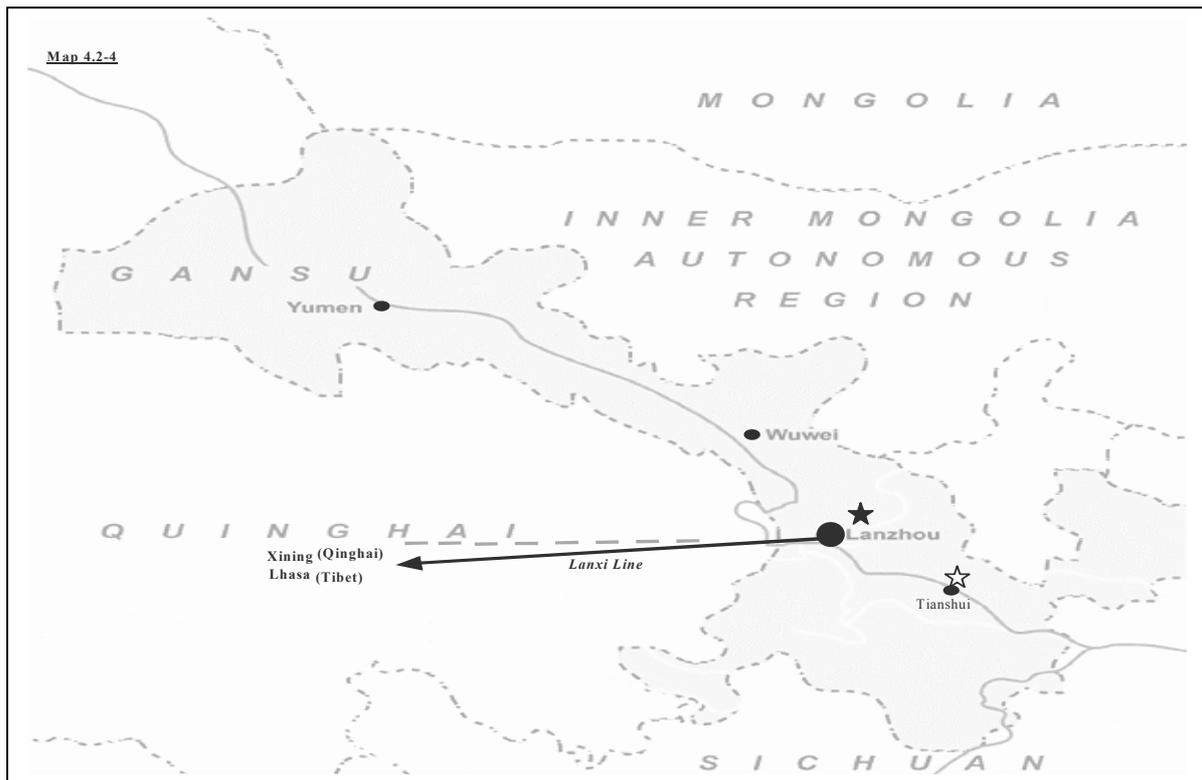
There are several railways and highways that facilitate the distribution of goods from Gansu to the coastal provinces and the richer urbanised domestic markets in the east. These linkages also provide access from these provinces to export seaports for international exports. These linkages include:

- A national highway that links Lanzhou to Xi'an via Baoji (**Shaanxi**). This is known as the *Baolan line*. There is also the international railway between Asia and Europe or the New Asia-Europe Continental Bridge which starts from **Lianyungang (Jiangsu)** (*Longhai line*) and joins with the Siberia Railway, passing through Gansu. To enhance the accessibility to coast/port areas (i.e. Lianyungang), the key section of the *Lanzhou-Baoji line* that provides access to Shaanxi and Sichuan (part of Eurasian corridor) would be completed in August 2002 and it would be expanded to double track and electrified by 2003. Travel time between the two cities is expected to shorten from the existing 9 hours to 5.5 hours upon completion. This will help to improve the trade flow.

This transport route comprising both railways and highways, can become an important East-West Transport Corridor in Northern China, linking Eastern China to Asia-Europe Continental Bridge.

- There are also highways and railways that link Lanzhou to other provinces such as **Henan, Shandong** and **Anhui** in the east. **Shanghai** is also connected to Lanzhou by highways and railways. Presently, it takes 3 days to travel on highways from Lanzhou to Shanghai, whereas on the rail, it will take more than 6 days.

Western Direction



Exporters from Gansu are able to transport their goods to main cities in the west via highways and railways. Specifically:

- Goods from Lanzhou can be transported to Xining in **Qinghai** via the *Lanxi* highway and national railway. Some of the products that are transported through this line are salt and potash fertilizer.
- There is a national trunk highway that links Dandong in Liaoning to Lhasa in **Tibet**. The Gansu section of this highway would soon be upgraded to provide better accessibility for the province to Tibet. Goods such as textiles and garments would thus be transported more effectively to from Gansu to Tibet. In addition, a railway line would also be constructed to link Lanzhou (Gansu) to Tibet.

Intra-provincial Transport Network

Gansu's capital city, Lanzhou is linked by highways and railways to other major cities and prefectures namely Xifeng city in the east, Tianshui City in the south, Wuwei City, Jiuquan City, and Jiayuguan City in the northwest. However, the important tourist attraction destination of Dunhuang City is not directly accessible by railway but only accessible via the highway from the nearest railway station in Yumen or by air, via the Dunhuang's domestic airport.

Although the Yellow River flows through Gansu, there is no usage of inland waterways in the province because the River at Gansu's upstream section is too shallow. The main export seaports in the east for the export of goods from Gansu are Tianjin (northeast), Lianyungang, Shanghai and Qingdao. About 60 percent of Gansu's trading products are transported by railway to the seaports. Among the four seaports, Lianyungang is the nearest port from Lanzhou (Gansu) and there is a direct railway line, the *Longhai line* and a highway route, from Lanzhou to Lianyungang.

Lanzhou's Zhongchuan Airport is the only international airport in Gansu. However, Gansu presently does not have any international connection. The Lanzhou international airport has services to 37 domestic destinations. There are daily flights from Beijing, Guangzhou and Shanghai to Gansu and it takes about 2½ hours to fly from Beijing to Lanzhou. The province has other domestic civil airports in Dunhuang, Jiayuguan, Tianshui and Qingyang. Two other domestic airports in Xiahe and Longnan (Chengxian) Airports would be opened as regional airports in 2005.

4.2.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

Gansu with its unique attractions such as the famous Dunhuang Grottoes and Maiji Mountain Grottoes is likely to experience growth in its tourism. The tourism sector plays a significant economic role for Gansu, as it creates substantial spin-offs in the forms of job-creation and growth in other tourism-related sectors.

Besides the tourism sector, Gansu's traditional export sectors such as base metals, chemicals (especially petrochemicals) and textiles and garments will continue to play significant roles in its economy. However, China's accession to WTO will present these sectors various challenges. For instance, the tariffs on foreign chemical imports would be gradually reduced hence, Gansu's chemical products will face strong competition from the foreign imports. Gansu's textiles sector is also like to face similar foreign competition in the near future. Hence, in order to prepare itself against the foreign competition and also further develop its potential sectors, it would be necessary for Gansu to look into alleviating the following logistics-related impediments to enhance the cost-competitiveness of enterprises there:

a) No direct access from overseas

At present, Gansu does not have any international flight connection. This means that tourists from overseas countries would have to go to the major cities in China and transfer to another domestic flight to go to Gansu. The hassle and long traveling time involved is likely to reduce the tourists' interest to visit the province. On the other hand, airfreight service would also be important to Gansu, which is a landlocked province. Goods such as high-value traditional Chinese medicines are less susceptible to damages and pilferages if they are sent by airfreight to overseas destinations.

b) Geographical dispersions of tourist attractions

Although Gansu has some unique tourism attractions, the development of the tourism industry will likely be hindered by the wide geographical dispersion of the attractions. For instance, the famous Dunhuang Grottoes is 1148 km away from Lanzhou and it would take at least 10 hours to travel from Lanzhou to Dunhuang on the highways or the railway. This makes it very time-consuming to travel to one attraction. The other way of accessing Dunhuang is by air from Lanzhou to Dunhuang domestic airport which makes it an expensive destination to travel. On the other hand, Gansu's other tourist attractions are also at least three hours from the Lanzhou City and are accessible mainly by highways only.

c) Shortage of empty containers for specialty chemical products

There is a shortage of empty containers for the transportation of goods from Lanzhou to other provincial markets or coastal seaports. The main reason for this is the lack of inbound containerized cargos to Lanzhou. As a result, the cost of transportation for containerized freights such as specialty chemical products is much higher. Furthermore, due to the need to wait for available containers or for half-containers to be filled up, transportation of such goods from Lanzhou are often delayed.

d) Shortage of cold chain facilities for Traditional Chinese Medicines

Some high-grade medicines require refrigeration in order to maintain their high quality, especially during transportation. However, there is a shortage of cold chain facilities for the storage of traditional Chinese medicines. Therefore, it would be necessary for Gansu to be equipped with more cold chain facilities such as refrigerated trucks and warehouses so as to effectively capitalise on its traditional Chinese medicine resources.

4.3 GUANGXI ZHUANG AUTONOMOUS REGION

Guangxi Zhuang Autonomous Region is situated in the southern China. It borders Vietnam in the southwest, Yunnan and Guizhou in the west, Guangdong province in the east, Hubei in the north and faces the Beibu Gulf in the south. The province is also linked to Hong Kong and Macau by the Xijiang River.

The autonomous region has a land area of 236,661 square kilometers and it has a population of 47.51 million, out of which 40 percent are minorities (12 ethnic groups). As it is the only western province that has a coastline, it assumes a very strategic role in the Western Region Development Program, as a major seaport for imports and exports.

Guangxi has 9 municipalities and they are, Nanning, Liuzhou, Guilin, Wuzhou, Beihai, Qinzhou, Fangchenggang, Guigang and Yulin. The autonomous region also has 7 prefectures (Bose, Hezhou, Nanning, Liuzhou, Guilin, Wuzhou and Hechi) and 81 counties. The capital city of Guangxi is Nanning.

The province's key exports include electronic products, textiles and garments, tin alloy, cement and food. Guangxi has traditionally attracted a large number of overseas and domestic tourists. It is envisaged that in the short and medium term, Guangxi's key export products will continue to be electronic products, base metals and food. Tourism would also be an important sector to Guangxi with the increasing affluence of the local Chinese.

They key trade logistics impediments related to trade in Guangxi are limited application of integrated logistics management, inadequate linkages among the autonomous region's outlying counties and villages and linkages with other coastal provinces. The autonomous region also faces a shortage of cold chain facilities for the storage and transportation of its food products.



4.3.1 ECONOMIC PROFILE

Table 4.3-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (USD billion)	20.46	21.89	22.93	23.53	24.7
Per Capital GDP (USD)	445	473	491	499	520
Primary Sector (% of GDP)	31	32	30	28	26
Secondary Sector (% of GDP)	38	37	36	36	37
Tertiary Sector (% of GDP)	31	31	34	36	37

Source: Guangxi Year Books 1997 to 2001.

Exchange rate used: USD1 = 8.30 Chinese yuan.

Guangxi's economy has been growing steadily between 1996 and 2000, with the GDP increasing by 21 percent from USD20.46 billion in 1996 to USD24.7 billion in 2000. In line with this growth, the per capita GDP has also increased by 17 percent over the last five years.

As depicted in [Table 4.3-1](#), the secondary sector has consistently been a major economic sector contributing an average of 37 percent to the province's GDP over the last five years. The primary sector has gradually reduced its contribution towards the provincial economy, showing a decline between 1996 and 2000. The tertiary sector, on the other hand, is steadily gaining importance in Guangxi's economy. By 2000, the tertiary sector, accounted for 37 percent of the province's GDP. This increase is possibly due to the growth of tourism and its related-hospitality industry.

Guangxi's pillar industries have traditionally been food processing, base metals, automobiles and machinery industries. In terms of food processing, the autonomous region is the largest sugarcane production base in China. Guangxi also has a fairly well developed light industry sector comprising textiles & garments and electronic products.

4.3.2 INTERNATIONAL TRADE STRUCTURE

Table 4.3-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (USD million)	1,920	2,380	2,420	1,200	1,490
Imports (USD million)	920	690	570	510	700
Border exports (USD million)	179	263	297	301	313
Top export partners	<ul style="list-style-type: none"> • Hong Kong • Japan • US • Netherlands • Singapore 	<ul style="list-style-type: none"> • Hong Kong • US • Japan • Netherlands • Singapore 	<ul style="list-style-type: none"> • Hong Kong • Vietnam • US • Netherlands • Japan 	<ul style="list-style-type: none"> • Hong Kong • Vietnam • US • Netherlands • Japan 	<ul style="list-style-type: none"> • US • Vietnam • Hong Kong • Netherlands • Japan
Key export products/ values (USD million)	<ul style="list-style-type: none"> • Sugar (100.63) • Tin alloy (50.98) • Porcelains (49.64) • Textiles and garments (48.48) • Cement (42.97) • Food including livestock (26.07) • Electronic products (N.A.) 	<ul style="list-style-type: none"> • Electronic products (179.35) • Tin alloy (59.56) • High-density stones (59.23) • Porcelains (58.39) • Cement (44.65) • Textiles and garments (18.10) • Sugar/0.33 	<ul style="list-style-type: none"> • Electronic products (163.26) • Tin alloy (75.40) • Fireworks (61.56) • Cannery (58.01) • Cement (30.59) • Textiles and garments (10.66) • Sugar (0.36) 	<ul style="list-style-type: none"> • Electronic products (167) • Textiles and garments (100.92) • Tin alloy (85.99) • Fireworks (60.57) • Cement (16.61) • Sugar (Negligible) 	<ul style="list-style-type: none"> • Electronic products (233.70) • Base metals (172) • Tin alloy (114.02) • Textiles and garments (69.47) • Food including livestock (62.45) • Cement (14.25) • Sugar (Negligible)
Key export products for border trade	<ul style="list-style-type: none"> • Cloth • Chinese medicines • Beer • Dried fruits 	<ul style="list-style-type: none"> • Cloth • Dried fruits • Chinese medicines • Beer • Cement 	<ul style="list-style-type: none"> • Cloth • Dried fruits • Chinese medicines 	<ul style="list-style-type: none"> • Cloth • Dried fruits • Food • Bicycles 	<ul style="list-style-type: none"> • Foods • Old scrapped products • Chinese medicines • Dried fruits • Sewing machines

Source: Guangxi Statistical Yearbooks 1997 to 2001

Referring to Table 4.3-2, Guangxi's total exports increased from USD1,920 million in 1996 to USD2,420 million in 1998. However, it saw a fall of 26 percent in 2000.

Guangxi imports items such as fertilizers, diesel and crude oil and steel products from sources like Hong Kong, Vietnam, Japan, US and Germany.

Key Export Products

The key export products from Guangxi are electronic products, base metals (specifically tin alloy), food, sugar and textiles and garments. Together, these export products accounted for more than 30 percent of Guangxi's total exports in 2000.

Table 4.3-3: Key Export Products from Guangxi (USD million)

Products	1996	1997	1998	1999	2000
Electronic products cluster	N.A.	179.35	163.26	167	233.70
Tin alloy	50.98	59.56	75.40	85.99	114.02
Textiles and garments	48.48	18.10	10.66	100.92	69.47
Food	26.07	N.A.	N.A.	N.A.	62.45
Cement	42.97	44.65	30.59	16.61	14.25
Sugar	100.63	0.33	0.36	Negligible	Negligible

Note: The products are not listed in any ranking order.

Source: Guangxi Statistical Yearbooks 1997 to 2001

(i) Electronic products cluster

The electronic products cluster is a major export sector of Guangxi. In 2000, Guangxi exported more than USD230 million worth of electronic products, which accounted for 16 percent of Guangxi's total exports.

Some of the major products exported were home electrical appliances such as refrigerators, air-conditioner, washing machines and calculators.

(ii) Textiles and Garments

Presently, the textiles and garments sector is an important export sector for Guangxi. Guangxi has successfully attracted foreign investments into the sector over the last twenty years. As a result, there has been management and technology transfer and the sector is now able to produce better quality products.

On the other hand, Guangxi's textiles and garments sector has been affected by strong local competition, and many loss-making enterprises have closed down in recent years.

(iii) Base Metals

Guangxi has a large reserve of high-quality base metals such as aluminum, tin, manganese and silver. Today, the autonomous region is one of the 10 important production bases for base metals in China.

Among the base metals, tin alloy is the one of the main metals produced in Guangxi. The provinces of Guangxi and Yunnan together account for 90 percent of total tin output of China.

Referring to Table 4.3-3, Guangxi has been increasing its tin alloy exports over the last five years. The export value has increased by 124 percent from USD50.98 million to USD114.02 million. The increase is phenomenal as it occurred despite fall in worldwide demand and price of tin in recent years.

(iii) Cement

Cement is another major export sector of Guangxi and the autonomous region has some of the largest cement producers in China such as Liuzhou Cement and Yu Feng Cement. In 1999, there were more than 300 cement producers in Guangxi and together, they produced 20.63 million tonnes of cement. A number of small plants in Guangxi has been closed down during 1998 and 1999 due to the oversupply situation in the industry. Hence, Guangxi's cement sector is left with a pool of relatively more competitive players today.

As shown in Table 4.3-3, the international export values of cements from Guangxi have been declining over the years. This was attributed to the fall in the price of cement during this period. This sector is expected to play a smaller export role for Guangxi in the future.

(iv) Food

Referring to Table 4.3-3, Guangxi's export of food was USD26.07 million in 1996. By year 2000, the export value saw a three-fold increase to USD62.45million.

Among its food products, sugar is an important export product of Guangxi. The autonomous region is the biggest producer of raw sugar, and its production accounted for half of China's total sugar crops. To date, Guangxi's sugar refineries have the capacity to produce 3.5 million tonnes of white sugar annually.

Referring to Table 4.3-3, Guangxi's sugar export saw a decrease from USD100.63 million in 1996 to USD0.33 million in 1997. One of the reasons for such decrease in export was the oversupply situation in the industry. The oversupply situation has led to the closing down of a number of small refineries in Guangxi. As depicted in Table 4.3-3, there were no stated figures of sugar exports in 1999 and 2000. This is because Guangxi's sugar outputs were greatly reduced due to serious floods during the two years. As a result, there was practically no export of processed sugar.

Key Export Partners

Guangxi's key export partners are the US, Hong Kong, Netherlands, Japan and Vietnam.

Guangxi's textiles and garments products are exported mainly to the Vietnam, US, Japan and the European Union. Base metals on the other hand, are exported mainly to Asian countries such as Indonesia and Malaysia. The food products are distributed to countries like Vietnam and Thailand.

On the domestic front, Guangxi's textiles and garments are distributed to Hong Kong, Guangdong and Macau, while its base metals are exported to Guizhou and Hunan. Guangxi's food products are distributed mainly to coastal areas such as Guangdong.

Vietnam has recently emerged as one of Guangxi's top export partners. More than 10 official border gateways such as Pingxiang, Dongxing, Shuikou along the Sino-Vietnam border have been opened up for border trade. Exports items from Guangxi include clothing, beer, bicycles, motorbikes, herbal medicines, cement, plastic sheeting and fertilizers. Guangxi also imports poultry, coal, timber and seafood from Vietnam.

Table 4.3-4: Distribution of Key Export Products Identified for Guangxi

Products	Distributed in other provinces	Distributed in other countries
Electronic products	Yunnan, Guizhou, Guangdong, Hunan, Hong Kong, Macau	Vietnam, Thailand, Netherlands
Base metals (including tin alloy)	Yunnan, Guizhou, Guangdong, Hunan, Shenzhen, Macau	Indonesia, Malaysia, Brazil, Australia, Vietnam
Food	Henan, Hubei, Hunan, Guangdong	Vietnam, European Union, US, Thailand

Note: The products are not listed in any ranking order.

Source: Guangxi Statistical Yearbook 2001

Direction of Trade and Significant Trends

The consulting team has identified 4 key export sectors that would be important to Guangxi in the short and medium term. They are as follows:

- (i) Electronic products;
- (ii) Base metals (especially tin alloy);
- (iii) Food including sugar; and
- (iv) Tourism.

(i) Electronic products

With China's accession to the WTO, the electronic products cluster is expected to face competition from foreign imports due to the drastic reduction in import tariff rate. Despite this challenge, Guangxi's electronic products cluster is expected to assume more important role for Guangxi's economy in the short to medium term in view of the following favourable factors:

- Guangxi with its strategic location at the southern coastal line is an attractive location for the establishment of more electronic products manufacturing plants. Taking into

consideration that production costs in the eastern coastal provinces are increasing, Guangxi with its lower production factor costs, thus, has potential to become another major manufacturing base of such products.

- The increasing consumers' affluence in China would drive domestic demands for consumer appliances.
- Guangxi's proximity to other major production centres along the Eastern coastline, provides it with potential to become major components suppliers to the former.

(ii) Base metals

In response to the current slowdown in demands for base metals, the Guangxi's base metals sector has been undergoing structural changes. Specifically, several loss-making enterprises were closed down recently. Many of the larger enterprises have also embarked on projects to upgrade their production technologies and facilities so as to produce higher-quality products more efficiently.

Considering the growth opportunities in this sector, the current rapid industrialization in China as well as the growth in the domestic construction industries would generate more demands domestically for these base metals. Therefore, in the long run, it is anticipated that this sector would likely remain as an important export sector for Guangxi, which has extensive reserves of minerals and a pool of experienced enterprises in this industry.

(iii) Food

The autonomous region's government has the intention to further develop its food sector, especially in food processing. Guangxi has abundant food resources that could be processed and value-added. For instance, its fruits such as lychees and mangoes could be processed into dried fruits or canned fruits. In line with this, the autonomous region government has already identified Nanning and Beihai as the two municipalities that will concentrate on food production and food processing businesses.

On the other hand, the prospect of international export of sugar does not appear bright in the short term. With China's accession to WTO, tariffs on imported sugar will gradually be slashed from the current 30 percent to 15 percent. Hence, local sugar producers are likely to face competition from foreign imports in the domestic markets. However, the Guangxi Autonomous Region Government has thus, taken measures to assist local sugar refineries upgrade their operations, in anticipation of the eminent competition post-WTO. For instance, Guangxi is using computerised agrotechnique information service to guide farmers on production targets and also the planting of high-quality sugarcane varieties.

(iv) Tourism

The four distinctive features of the tourist landscapes in Guangxi are: (1) the karsts landforms, along the Guilin-Yangshuo line; (2) the simple and unsophisticated ethnic custom of the minority ethnic groups; (3) the Beihai Silver Beach, which has become the national seashore resort in China; and (4) the border tourism zone (Sino-Vietnam border).

Tourism has grown to become one of the most important tertiary sectors in Guangxi in recent years. Referring to Table 4.3-5, in 2000, almost 1.23 million international tourists visited

Guangxi and generated foreign exchange earning of USD307 million for the autonomous region.

The tourism sector is expected to continue growing. This is because the Chinese consumers are getting more well-off and thus, they are more likely to be able to afford traveling to other parts of China, and drive the growth of domestic tourism in Guangxi. On the other hand, a sea tourist route from Ha Long in Vietnam's northeastern province of Quang Ninh to Fang Cheng in Guangxi has been opened recently. This will facilitate the arrival of tourists from Vietnam as well as foreign tourists outside the region who use Vietnam as a transition point into Guangxi.

Table 4.3-5: Number of Tourists to Guangxi (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	52.3	77.0	122.9
Domestic Tourists	3,453	3,668	3,951
Total no. of Tourists	3,505.3	3,745	4,073.9
Foreign exchange earned (USD million)	156	202	307

Source: China Statistical Yearbook 2001

Border Trade

Since 1998, Vietnam has been the second biggest export market of Guangxi. Border exports from Guangxi to Vietnam have also increased gradually over the years from USD179 million in 1996 to USD313 million in 2000. In 2000, exports to Vietnam accounted for more than 20 percent of Guangxi's total exports.

Besides product trade, Vietnam has also increasingly become an important source of tourists to Guangxi. Further development of the transportation infrastructures would likely serve to strengthen the trade relationships between these two regions.

4.3.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

Guangxi with its southern seaports has a very strategic role to play in the central government's plan to develop the central and western region of China. The three seaports in Beihai, Fangcheng and Qinzhou provide alternative outlets for goods from the central and southern provinces to be exported to overseas markets. To facilitate the Western Region Development Strategy, the Guangxi's autonomous region government will expedite the construction of highways that forms an integral part of the Southwest Sea Passage Expressway. The Southwest Sea Passage Expressway is expected to be completed within 5 years, making it the most convenient passage for the Southwestern provinces including Chongqing and Sichuan to access the sea from Southern Guangxi.

Railway, highway and inland waterway transports are the three main transportation modes used in Guangxi. Three important transportation centers in Guangxi are Nanning, Liuzhou and Guilin. A transport route for passengers linking Pingxiang port with Lang Son in Vietnam was also opened recently. The opening of the transport route will help boost Sino-Vietnamese border trade and tourism. In addition, Guangxi is also planning to open a water-

land transport route for passenger from Nanning to Vinh Ha Long in Vietnam. All these developments will serve to facilitate more border trades with Vietnam.

Table 4.3-6: Freight Traffic (in 10,000 tonnes)

Mode	1990	1995	2000
Railway	3,798	5,072	5,843
Highway	14,711	20,686	23,514
Waterway	1,338	2,862	1,910
Air	0.50	1.60	3.38

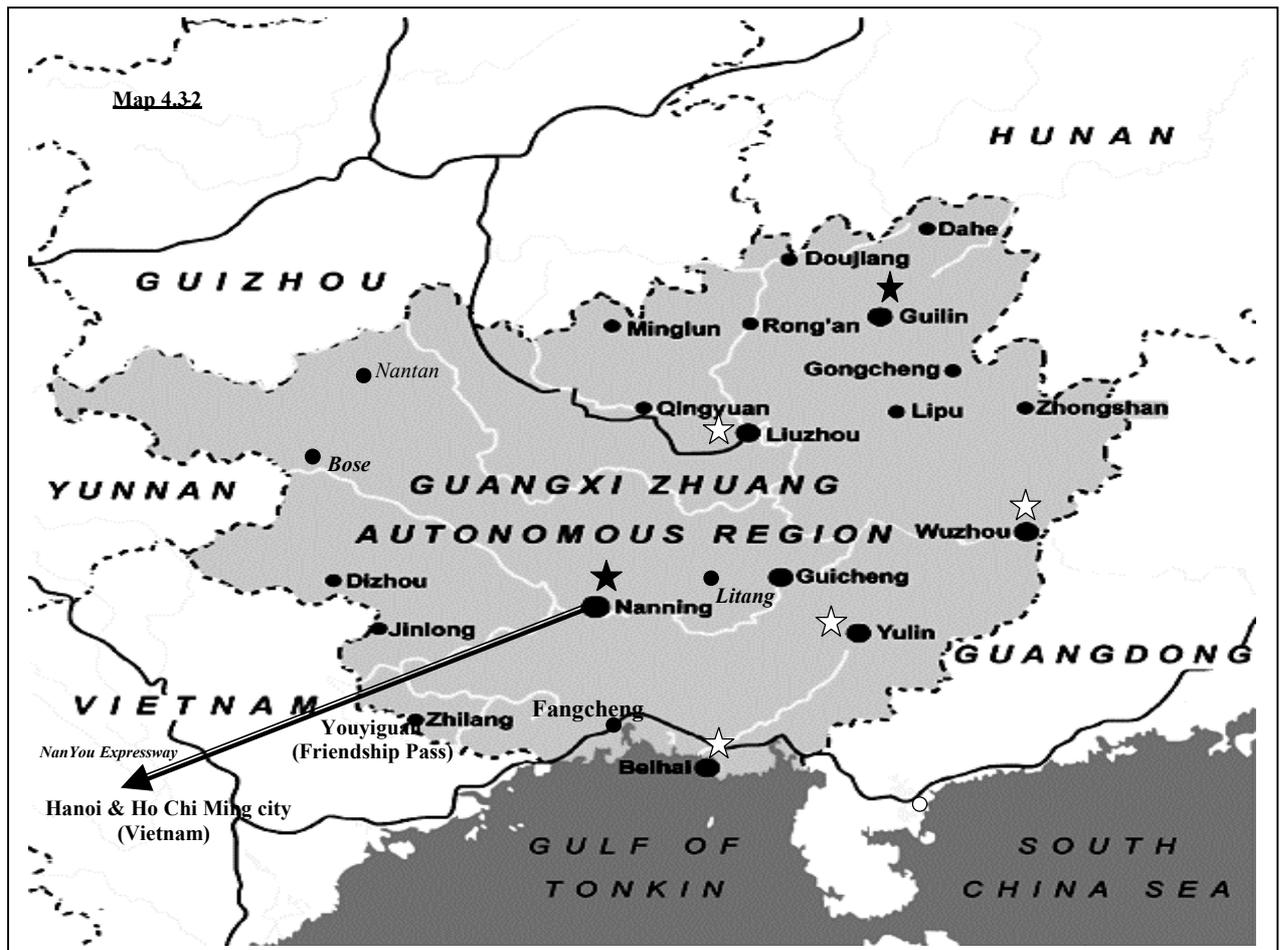
Source: Guangxi Statistical Year Book 2001

Today, highway is the most important mode of transportation in Guangxi, in terms of freight volume. In 2000, more than 235 million tonnes of goods were transported on the highway while about 5 million tonnes were transported by railway. Cements and food products are normally transported by highways to other neighbouring provinces or coastal seaports in the south or in the east for export overseas. For long distance transportation of minerals such as tin alloys, the railway is normally used.

Air transport is very important for the promotion of tourism in Guangxi. There are currently a number of domestic flights between Nanning and key cities such as Beijing, Guangzhou, Chengdu and Shanghai. In terms of freight traffic, there was more than six-fold increase in freights transported by air over the last ten years to more than 33,000 tonnes in 2000. In the case of waterways, the usage of Xijiang, has declined over the years. By 2000, only 19 million tonnes of freight was transported using the waterway.

Photo 4.3-1: Various Traditional Modes of Transportation in Inland Provinces

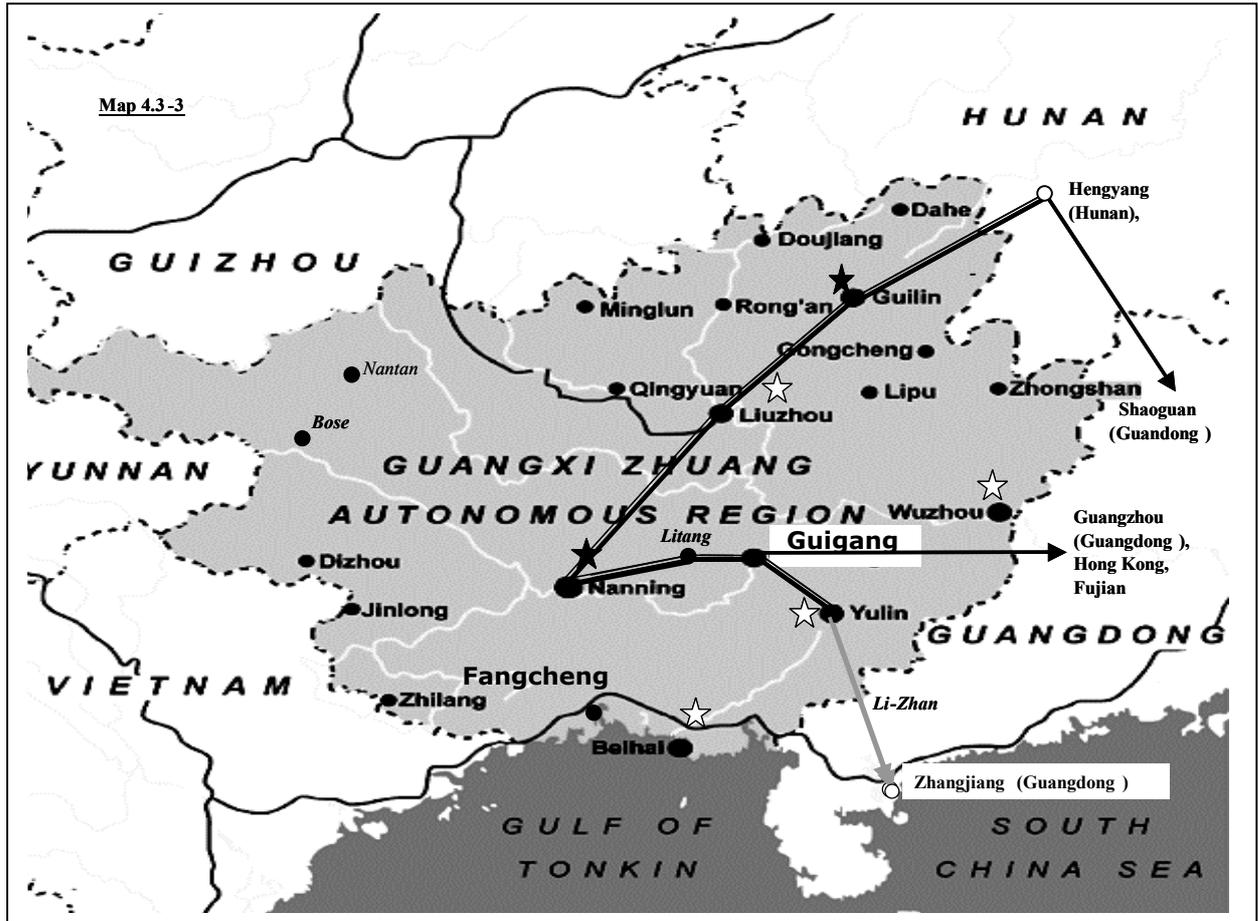


Southern Direction

One of the biggest export markets of Guangxi is Vietnam. Hence, the transportation linkage to the south is very vital to promote the growth of border trade between these two neighbours.

Presently, there are both highways (*NanYou Expressway*) and railways connection between Nanning of Guangxi and the border town of Vietnam at the Friendship Pass. The “NanYou Expressway” is the toll expressway which provides the highway link. Under a current expansion project, this expressway will ultimately connect to the main north-south Highway 1 in **Vietnam**, linking Hanoi and Ho Chi Ming city. These connections have been vital links for the export of products such as motorcycles, food and electronic products from Guangxi to Vietnam.

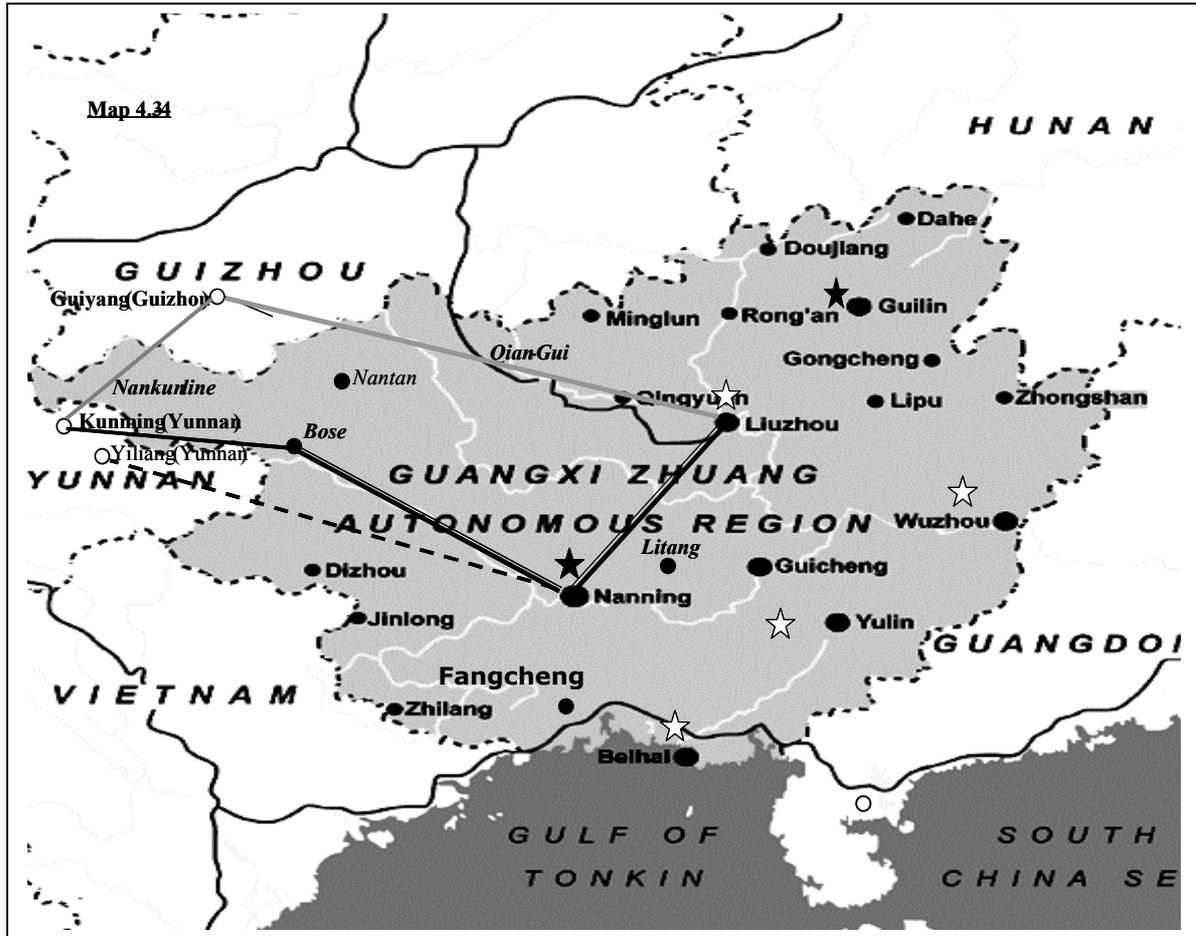
Eastern Direction



There are a few linkages between Guangxi and the main cities in the east.

- Exporters from Guangxi that are exporting goods from the coastal seaports in Guangzhou (**Guangdong**) can transport their goods via the highway that connects Liuzhou of Guangxi to Shaoguan of the Guangdong Province (passing through Hengyang of Hunan).
- Alternatively, they can also use a railway line that links Litang in Guangxi to Zhanjiang in **Guangdong** (*Li-Zhan*).
- There is also a priority NTHS route linking Nanning of Guangxi to Guangzhou of **Guangdong** province. This route also connects the province to **Hong Kong** and stretch to **Fujian**.

Western Direction



Guangxi is presently connected to **Yunnan** in the west via highways and railways. Specifically:

- Goods to be transported to Yunnan can be transported via a highway that links Kunming (Yunnan) to Nanning of Guangxi. There are also plans for a major national highway from Nanning westward to Yiliang of Yunnan Province.
- In terms of railway linkages, Guangxi is presently connected to Kunming of Yunnan by the *Nankun line*.

Intra-provincial Transport Network

All the main cities in Guangxi are extensively connected either by the railways or the highways. Highways in the eastern Guangxi radiate from Guilin, Liuzhou, Nanning, and Yulin to link up to other major cities of Wuzhou near the border of Guangdong Province, the three southern seaports of Beihai, Qinzhou and Fangchenggang, as well as Bose in the West. The expanded network forms a central rectangle, with Nantan, Liuzhou, Nanning, and Bose at its four corners. The railway lines that radiate from Nanning in the centre also serve the major cities such as Liuzhou, Guilin, Bose, Beihai, Fangchenggang and Pingxiang.

Table 4.3-7: Overview of River/Seaports for Guangxi

River/ Seaports	Provinces/Countries linked	Types of freights
Beihai	Guangdong, Hong Kong, Guizhou	Rice, manganese ore, cassavas, fire-crackers, fireworks, aquatic product, fruit, aniseed, cassia bark, starch, fertilizer, timber, petroleum, textiles and garments
Fangcheng	Hainan, Hong Kong, Vietnam	Grain, fertilizers, raw sugar, steel products, cement, timber, ores, coal, textiles and garments, petroleum
Qinzhou	Hainan, Hong Kong	Textiles and garment
Nanning	Yunnan, Guizhou, Sichuan	N.A.
Wuzhou	Guangdong, Hunan, Hong Kong	N.A.
Guigang	Guangdong	N.A.

Beihai, Qinzhou and Fangcheng are Guangxi's major export seaports with more than 23 berths for 10,000-tonnes vessels. Please refer to [Annex 4.3-1](#) for details of the seaports. Inland river seaports such as Nanning, Wuzhou and Guigang are also significant seaports for inland waterway transportation to and from the Pearl Delta. It is anticipated that by 2005, the entire Yangtze basin will be connected from Chengdu to Shanghai and the Western Yangtze region will become linked by expressways to coastal seaports in Guangxi and Guangdong, thus providing exporters with a wider choice of seaports.

There are five airports in Guangxi and they are located in Guilin, Nanning, Liuzhou, Beihai and Wuzhou. Guangxi now offers more than 100 domestic and international air routes. There are a number of domestic flights between Nanning and key cities such as Beijing, Guangzhou, Sichuan and Shanghai.

Ongoing projects to upgrade all the airports in the autonomous region are in place. For instance, the Beihai Airport's runway will be extended to 2,600 m to accommodate Boeing 757 aircraft. There are also plans to include a 3,200m runway to accommodate A-310, MD-12, and TU-154 aircraft at Guilin Liangjiang International Airport, which is crucial in facilitating the development of the tourism sector.

4.3.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

The four sectors in Guangxi that have growth potential in the short and medium term are base metals, food, electronic products and tourism sectors. Guangxi's tourism sector has been able to attract the highest arrivals among China's western provinces and it is likely to continue growing.

China's accession to WTO will have significant impacts on Guangxi's potential sectors. In the case of electronic products, it is anticipated that this sector will face competition from foreign imports due to the drastic reduction in import tariff rate under the ETA. Tariffs on imported sugar will also be slashed leading to increase in foreign imports. In view of these developments, Guangxi will need to prepare itself for the WTO challenges and strengthen its growth sectors by alleviating the following trade logistics impediments:

a) Inadequate linkages of outlying counties and villages

The major cities in Guangxi are well served by railways and highways. However, there are a number of outlying counties and villages which face limited accessibilities. Guangxi has a large number of minorities and most of them live in outlying villages. If these villages were linked to the main cities, it would be possible to bring tourists to some of these destinations. This might help to distinguish Guangxi's tourism attractions from other provinces and thus, enhance the tourist attractions in Guangxi.

b) Shortage of linkages between Guangxi and other important coastal provinces

Guangxi is presently linked to Guangdong in the east via railway and highway. In order for goods to be transported to other coastal provinces such as Fujian, Hong Kong and Shenzhen, the exporters must first go through Guangdong, as the autonomous region is not directly linked to these coastal provinces. However, direct linkages between Guangxi and these provinces are important as these could help to facilitate better trade flow of its export products and also strengthen Guangxi's base as a supplier for electronic components.

c) Lack of knowledge/capability to apply integrated logistics management

With several export seaports in the south, Guangxi will have strong cost-advantages over the other inland provinces, as exporters from Guangxi would incur lower inland transportation costs. However, most of the enterprises in Guangxi appear to lack knowledge on the application of integrated logistics management, including the management of inventory in the warehouse to optimise their logistics costs. As such, when facing competition from imported goods in the domestic markets, the enterprises in Guangxi may not be able to compete effectively due to their higher logistics costs.

d) Shortage of cold chain facilities for food products

There is currently a shortage of cold chain facilities in Guangxi. However, cold chain facilities are essential for the transportation and storage of perishable food products. In order for Guangxi to fully develop its food sector, it would have to increase its supply of cold chain facilities. In particular, its coastal ports such as Beihai and Fangcheng would have to be equipped with more of such facilities so as to store the food products before sending them to other destinations.

4.4 GUIZHOU PROVINCE

Guizhou is situated in the southwestern region of China. The province covers an area of some 176,000 sq km and has a population of some 37.6 million in 2000. Guizhou borders Sichuan and Yunnan to the North and West respectively, and Hunan and Guangxi to the East and South. The province has 3 autonomous prefectures, 8 cities, 61 counties, 11 autonomous counties and 3 special districts. The capital city of Guizhou is Guiyang and major cities in the province include Anshun, Bijie, Duyun, Kaili, Liping, Tongren, Xingyi, Zhenyuan, and Zunyi. The population of ethnic minorities in Guizhou accounts for 37.8 percent of the total, and major groups include Miao, Buyei, Dong, Tujia, and Yi.

Guizhou has a fairly well-diversified export base spread among several export products namely, mineral, metals, chemical, plastics and food and beverage. The province is rich in natural resources, and some of its minerals and metals include coal, phosphate, and aluminum. Guizhou's coal is exported to overseas and domestic markets. Guizhou's coal is also processed for the transmission of electricity to other provinces. In addition, Guizhou has several renowned liquor brands that have gained international and domestic fame. In the nearer term, Guizhou will continue to be a net exporter of metals and minerals, chemicals and plastics as well as food and beverage. In addition, the number of tourists to the Guizhou is expected to continue to rise in view of the increasing spending power of the domestic population as well as the number of foreign visitors for business and leisure.

Guizhou is a mountainous province that could pose obstacles to the development of transport infrastructure. Guizhou's mountainous terrain also affects the cost competitiveness of firms, as greater costs would have to be incurred in transporting the goods out of Guizhou. In addition, the shortage of available wagons could be an impediment to Guizhou's trade growth, as products are unable to be exported out of the province in a timely manner. In the years ahead, the Guizhou provincial government is planning to invest more into developing the railway and highway infrastructures that will bring upon greater connectivity to the other provinces.



4.4.1 ECONOMIC PROFILE

Table 4.4-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (US\$ billion)	8.6	9.6	10.1	11.0	12.0
Per Capita GDP (US\$)	243.5	266.9	279.3	298.2	320.7
Primary Sector (% of GDP)	36	34	32	29	27
Secondary Sector (% of GDP)	36	37	39	38	39
Tertiary Sector (% of GDP)	28	29	30	32	34

*Source: China Statistical Abstract, CEIC database.
Exchange rate used: US\$1 = 8.30 Chinese yuan.*

Guizhou's provincial GDP has grown by 40 percent, from USD 8.60 billion in 1996 to USD 12 billion in 2000. This amounted to a steady annual growth of 9.76 percent. In 2000, the primary sector contributed to 27 percent of the provincial GDP. The decline in the primary sector contribution to GDP over the last five years was correspondingly replaced by the increasing importance of the tertiary sector. Guizhou's tertiary sector contribution to GDP has seen a steady rise, from 28.2 percent point in 1996 to 33.7 percent point in 2000. Guizhou's secondary sector has consistently been the most important contributor to the provincial economy. This sector comprises mainly industrial and manufacturing activities, for instance in the production of cigarettes, liquors, tires, machinery and chemical products.

4.4.2 INTERNATIONAL TRADE STRUCTURE

Table 4.4-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (US\$ million)	436	482	388	358	421
Imports (US\$ million)	207	194	235	190	239
Top export partners ¹	NA	<ul style="list-style-type: none"> • Asia (e.g. HK, Japan, Korea) • North America (USA) • South America • Oceania (Australia) • Europe (Germany) 	<ul style="list-style-type: none"> • Asia (e.g. HK, Japan, Korea) • North America (USA) • Europe (Germany) • Oceania (Australia) • South America 	<ul style="list-style-type: none"> • Hong Kong • Japan • South Korea • USA • Taiwan 	<ul style="list-style-type: none"> • Hong Kong • Japan • USA • South Korea • Taiwan
Key export products/values (US\$ million) ²	<ul style="list-style-type: none"> • Iron & Gold (62.8) • Alloy Metals (39.5) • Gypsum & Cement (39.5) • Textiles (16.7) • Cigarettes (16.0) 	<ul style="list-style-type: none"> • Base Metals & Related Products (114.2) • Chemicals & Related products (89.6) • Minerals (77.4) • Food, Beverages, Liquor, Vinegar, Tobacco & Tobacco Substitutes (43.2) • Textiles Materials & Products (38.4) 	<ul style="list-style-type: none"> • Minerals (95.1) • Chemicals & Related products (78.2) • Base Metals & Related Products (77.4) • Machinery, Electrical Equipment & Accessories, Recorders, Video Recorders & Accessories (27.5) • Textiles Materials & Products (27.3) 	<ul style="list-style-type: none"> • Minerals (81.5) • Base Metals & Related Products (72.0) • Chemicals & Related products (67.2) • Plastic & Related products, Rubber & Related Products (36.8) • Machinery, Electrical Equipment & Accessories, Recorders, Video Recorders & Accessories (23.6) 	<ul style="list-style-type: none"> • Base Metals & Related Products (96.8) • Chemicals & Related products (87.3) • Minerals (77.7) • Plastic & Related products, Rubber & Related Products (57.5) • Machinery, Electrical Equipment & Accessories, Recorders, Video Recorders & Accessories (33.7)

Source: China Statistical Abstract, CEIC database.

Exchange rate used: US\$1 = 8.30 Chinese yuan.

¹ Detailed breakdown of export partners for 1997 & 1998 is not available, while data for 1996 is unavailable. As for 1999 & 2000, the specific export partners are inferred from various reports.

Guizhou international exports grew by 18 percent in 2000. Following a decline in exports in 1998 and 1999, possibly due to the Asian financial crisis, Guizhou's exports recovered in 2000 to reach USD 420 million. Guizhou's major export products include base metals, chemicals, minerals, tobacco and liquor. In 2000, Guizhou's top 5 exports accounted for a 84 percent of the province's total exports. This indicates that Guizhou has a substantial reliance on these sectors as main foreign exchange revenue earners.

Guizhou's international imports grew by a strong 26.1 percent in 2000, following a steep decline in 1999. Guizhou's major import items include raw materials, machinery and plant equipment, from overseas markets such as the USA, Hong Kong, Australia, Germany and India.

Key Export Products

Table 4.4-3: Key Exports Products from Guizhou (USD million)

	1996	1997	1998	1999	2000
Base Metals & Related Products	62.8 ¹	114.2	77.4	72.0	96.8
Chemical & Related Products	N.A.	89.6	78.2	67.2	87.3
Minerals	N.A.	77.4	95.1	81.5	77.7
Plastics & related products	N.A.	18.1	23.2	36.8	57.5
Food, Beverages, Liquor, Vinegar, Tobacco & Tobacco Substitutes	22.5	43.2	26.4	22.5	19.6

¹ Refers only to Iron & Gold.

Note: The products are not listed in any ranking order.

Guizhou has a fairly well diversified export base that is spread among several sectors. The most important ones are:

- (i) Minerals, mainly coal and phosphate;
- (ii) Base metals;
- (iii) Liquor and Tobacco;
- (iv) Chemicals products; and
- (v) Plastics products.

(i) Minerals

The minerals sector has been a significant export sector of Guizhou. This sector has generated foreign exchange earnings of more than USD 77 million over the last 5 years (see Table 4.3-3).

In particular, Guizhou has an abundant reserve of coal, at 241.9 billion tonnes. Guizhou has capitalized on its rich coal reserves well. Guizhou exports its coal to international markets such as Japan, for the production of steel products. In addition, Guizhou exports processed

coal in the form of electricity to other provinces to meet their power generation requirements. Guizhou is capable of supplying more than 10,000 mega-volts (mv) of electricity to the other provinces¹¹. For instance, Guangxi currently imports 6.6 million tonnes of coal from Guizhou annually. This figure is expected to rise to 8.5 million tonnes by 2005.

Besides coal, there are more than 80 different mineral deposits in Guizhou. The province's deposits of mercury, silica and optical crystals in Guizhou are the largest among all provinces in China. At the same time, Guizhou's current phosphorus reserve accounts for 44 percent of the national total. Guizhou's phosphorous reserve is an important ingredient for the production of phosphate fertilizers and phosphoric chemicals.

(ii) Base metals

Guiyang, the capital city of Guizhou, is one of China's largest aluminum industrial bases. The metals sector, mainly aluminum, has consistently been among Guizhou's most important export products in the last five years. In 2000, base metals were the top export product of Guizhou. The use of aluminum as a production input has several advantages. Aluminum does not rust, hence an aluminum vehicle body is more durable. The use of aluminum for truck and automobile engine blocks and cylinder heads, heat exchangers, transmission housings, engine parts and automobile wheels has been increasing in China.

With China's demand for aluminium increasing faster than global demand, aluminium plants in China are increasing their production capacity to tap on the market opportunities. According to *China Metals*, *Guizhou Aluminium* will see capacity rise of 74 percent to 400,000mt per year when its new production lines are established in 2005.

(iii) Liquor and Tobacco

The liquor and tobacco cluster has been an important export sector of Guizhou. The entire cluster exported more than USD 19 million worth of products in 2000. Although not ranked among the top 5 products of Guizhou, this cluster has relative competitive advantages in several of its renowned brands.

Guizhou is well known for its quality liquors that enjoy both national and international fame. Some of the most established brands from Guizhou are Maotai, Dongjiu, Zhenjiu, Xishui Daqu, Anjiu, Laimao, Guizhou Chun and Maotai Whiskey. Guizhou's famous *Maotai*, produced in the Town of Renyuai County, is exported to over 100 countries and regions. It is one of the world's three most famous distilled liquors. Since 1915, Guizhou's *Maotai* liquor has won many international and domestic awards.

Guizhou is also one of the four tobacco-producing centers in China. Over the years, enterprises in Guizhou's cigarettes industry has established and developed well-known

¹¹ *Guizhou Today*, 2001.

brand names in China such as Asia, Guiyang, Jinhongwang, Hongyuhei (Black & Red), Huangguoshu, Caohai and Xiniuwang.

(iv) Chemical products

The chemicals cluster contributed 20 percent of Guizhou's exports revenue in 2000. This sector amounted to more than USD210 million in 2000. Some of the chemical products that are produced in Guizhou are phosphate and farm chemicals, phosphorous acid and pesticides. Besides domestic exports to other provincial markets such as Guangzhou, Shenzhen and Shanghai, these products are also exported to overseas markets such as Hong Kong, the USA, Japan and the EU.

(v) Plastic products

The exports of plastic products from Guizhou have grown strongly over the last four years. Between 1997 and 2000, the export revenue from this sector has grown by 217 percent to reach USD 57.7 million in 2000. Some of the plastic products produced in Guizhou include packaging materials and equipment, plastic sheets and moulds, synthetic resins and polyethylene. The production of plastic materials in Guizhou contributes to the expanding industrial development of the province. Besides exporting to other provinces, the plastic products from Guizhou are also exported overseas to markets like Hong Kong, Taiwan, South Korea and Singapore.

Key Export Partners

The number of Guizhou's trade partners have increased to more than thirty in 2000. These include Hong Kong, Japan, Republic of Korea, the United States, Taiwan, France and Thailand. Hong Kong has consistently been the top export partner of Guizhou. The importance of the Hong Kong market to Guizhou was evidenced by the fact that the province's exports to Hong Kong accounted for almost 20 percent of total exports in 1998. With regards to imports, 15 percent of the total province's imports were from Hong Kong, which amounted to USD 39.2 million. The province, thus, has very strong trade links with Hong Kong.

In the case of Guizhou's minerals and base metals, they are typically exported to Japan, South Korea and Taiwan. As for Guizhou's chemicals products, overseas exports markets include the USA, EU, Hong Kong, Japan and South Korea. In the case of Guizhou's liquor and beverage products, they are exported to countries such as Hong Kong, Taiwan and Singapore. In the case of plastic products, Guizhou exports to Hong Kong, Taiwan, Japan, the USA and the EU.

Besides exporting overseas, Guizhou's key domestic markets include Guangzhou, Shenzhen and Guangxi. The main products distributed in the domestic markets include chemicals, minerals, beverages and cigarettes.

Table 4.4-4: Distribution of Key Export Products Identified for Guizhou

Products	Distributed in other Provinces	Distributed in other countries
Base Metals and Related products, e.g. Aluminum, Steel, Titanium and Manganese	Guangzhou, Shenzhen Guangxi, Shanghai	South East Asia
Chemicals & Related Products (e.g. phosphate compound fertilizers and phosphoric chemicals)	Guangzhou, Shenzhen, Beijing, Shanghai	USA, Asia
Minerals, e.g. Coal and Phosphorous and Bauxite	Zhanjiang port (Guangzhou), Behai (Guangxi) for exports and Sichuan, Shenzhen, Jiangsu	Japan, Republic of Korea, the US and Taiwan
Plastics & Related Products, e.g. Grinding apparatus	Beijing, Tianjing, Shanghai, Guangzhou, Shenzhen, Shenyang, Zibo, Wuhan, Zhangzhou, Liling, Chengdu and Ruili	Japan, the United States, some European and SEA countries
Beverages, Liquor & Tobacco/ Cigarettes	Distributed throughout other provinces, e.g. Beijing, Guangzhou, Guangxi, etc	Hong Kong, Japan, SEA etc

Note: The products are not listed in any ranking order.

Direction of Trade and Significant Trends

Taking into consideration the export trends (both domestic and international) of Guizhou and the developmental trends in domestic and international trade, the consulting team is of the opinion that the following export sectors would continue to play a very important role for Guizhou post-WTO:

- (i) Minerals;
- (ii) Metals and related products;
- (iii) Chemical products;
- (iv) Plastics and related products;
- (v) Liquor and Tobacco; and
- (vi) Tourism.

(i) Minerals

In the 10th National Five-Year Plan, the central and provincial government is placing substantial emphasis to capitalize on the Western region's energy advantage for power generation under the "West-to-East Electricity Transmission" Strategy. Under this strategy, electricity will be generated in the inland western provinces to supply the substantial demand for energy to meet industrializing and urbanizing needs of coastal provinces. For Guizhou, the focus is to utilize the province's coal reserves for power generation and export to other provinces such as Guangxi for similar purpose of power generation for transmission to the Eastern coastal provinces. In the coming years, Guizhou will focus on utilizing its abundant coal and inexpensive electricity to become the power base of South China, supplying more than 10,000 mv of electricity to other provinces.

In addition, Guizhou's reserve of phosphate is an important ingredient for the production of chemicals, whose demand is expected to increase to support higher value activities such as specialty chemicals production.

(ii) Base metals

This is another export sector that has the potential to continue to expand post-WTO, especially in the export of aluminum. The demand for aluminum is expected to increase in tandem with the demand for automobiles, aerospace equipments as well as the burgeoning construction industries in the domestic market.

According to a report by *China Metals*, the consumption of aluminum in China has grown 250 percent since the early 1990s. The report also estimated that in the next five years, China's aluminum production capacity will at least double based on estimation of the new expansion projects which top producers have lined up. In line with the anticipated growth of the sector, *Guizhou Aluminum*, one of the biggest aluminum producers in the country has also embarked on expansion project to increase its production capacity.

(iii) Liquor and Tobacco

Guizhou has traditionally been known to be a strong player in the tobacco and brewing industry. Although Guizhou's liquor and tobacco sector has not shown strong growth over the recent few years, the province is nevertheless a net exporter of this product cluster. Many of its products such as the *Guizhou Maotai* are held in high regards not only domestically but also among the huge following of overseas Chinese.

The liquor and tobacco sector is expected to grow in demand with the increasing affluence of the domestic populace as well as the emerging markets overseas. With strong established brand names and a critical mass of producers in Guizhou, enterprises in the province could potentially tap on the growing domestic market in the sales of its famous liquor and cigarettes with the right marketing and branding strategies. However, Guizhou's producers could face fierce competition from foreign brands following China's accession to WTO as import tariff rate on this category of products are reduced by more than 100

percent. Therefore, it is crucial for producers in Guizhou to continuously upgrade their operations to enhance productivity, penetrate new overseas markets, as well as to develop additional product variety to meet changing consumer taste in order to tackle the eminent foreign competition.

(iv) Chemical products

The chemical sector of Guizhou has the potential for growth. In particular, Guizhou could tap on its rich minerals resources such as phosphate to expand the production of high value chemical products like fertilizers and pesticides.

Guizhou's chemical sector could face competition from other domestic producers. Chemical products are also major exports of provinces such as Hunan, Yunnan, and Chongqing. In addition, with the eventual reduction in chemicals import tariffs, Guizhou chemical producers could face further competition from foreign imports.

(v) Plastic products

The plastic product sector is expected to continue to expand and contribute significantly to Guizhou's export revenue in the coming years. Plastics has many commercial uses. For instance, plastics can be made into packaging materials, plastic moulds and synthetic products. With the increasing demand for plastics materials for the production of other goods, Guizhou's producers could tap on the expanding market opportunities to increase production, especially for the domestic market.

(vii) Tourism

Table 4.4-5: Number of Tourists to Guizhou (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	15.13	16.70	18.39
Domestic Tourists	1,880	1,910	1,980
Total no. of Tourists	1,895.13	1,926.70	1,998.39
Foreign exchange earned (USD million)	48	55	61

Source: Guizhou 2001 Statistical Yearbook

Guizhou has its own unique characteristics as a tourist attraction because of its karsts topography. The province has a collection of unique natural landforms such as waterfalls and caves, which act as a good get-away, to cater to the needs of an increasingly urbanized Chinese population.

Currently, visitors to Guizhou comprise mainly of domestic tourists. In 2000, about 20 million domestic tourists visited Guizhou. Domestic tourism is likely to continue to grow with the rising affluence of the local population as well as the increase in inter-provincial travel for business and conventions.

The number of international tourists to the province has gradually increased in the last four years. In 2000, Guizhou received some 184,000 international tourists, an increase of 10.2 percent over 1999. The tourism sector in Guizhou has generated USD 61 million foreign exchange earnings in 2000, an increase of 10.9 percent over the previous period.

Besides generating income for the province, tourism development is also an effective way to reduce poverty among the minority groups. According to a recent report in People's Daily, almost one million people in Guizhou and Yunnan provinces have been lifted above the poverty line as a result of the development of tourism. With tourism development, the people in the rural areas will have the opportunities to either participate directly in tourism business through tour guiding and cultural performances for tourists or indirectly through the supply of handicrafts.

4.4.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

Guizhou's capital city, Guiyang is at the centre of a very comprehensive network of railways and national trunk highways which spreads out to Sichuan and Chongqing in the North, Yunnan and Guangxi in the south and Guangzhou and Hunan in the East.

The freight volume by highways was the highest among the various transportation modes in Guizhou (see Table 4.4-6). In 2000, Guizhou's total freight volume registered 188.91 million tonnes. The freight volume accounted for by highways was 62 percent of total freight volume, while that by railway was 36 percent in 2000. On the other hand, the freight movement by waterways is relatively negligible at 3.54 million tonnes or 0.2 percent, as Guizhou does not have many navigable waterways.

Table 4.4-6: Freight Traffic (in 10,000 tonnes)

Item / Year	1996	1997	1998	1999	2000
Railways	5,807	6,063	5,727	6,342	6,853
Highways	10,035	10,117	10,219	10,49	11,684
Waterways	220	221	315	344	354

Source: *Guizhou 2001 Statistical Yearbook*

Railway is typically used in Guizhou for the transportation (i) of minerals and metals ores which are bulky and low-value and (ii) goods transported over longer distance. This is

because it is a cheaper mode compared to highways, although it would take a longer transportation time. Box 4.4-1 depicts how coal is transported from source to destination.

Box 4.4-1: How coal is mined, prepared and transported



Mining

Coal is produced from underground mines and from open cut pits. Hydraulic supports hold the roof up as the underground "longwall" coal mining machine cuts through the coal seam. Most coal companies in Guizhou employ the "longwall" mining method (see picture above).

Once the coal is mined it has to be processed.

Preparation

As most coal users require coal of uniform size and quality, the coal industry uses coal washery plants where the coal is washed to remove impurities before it is graded and transported.

Transport

The three most common methods of transporting coal are by rail, road and conveyor.

Conveyors are used extensively for short distance transport within the mine area and from mines to power station stockpiles. Road transport is used for short distance coal haulage from mines to rail head and for delivery to domestic customers. Rail is the most important and efficient method of transport, particularly for coal destined for export.

A coal car is an open-top gondola or bottom dump hopper or bottom dump rapid discharge railcar. An unit coal train is an assembly of coal cars with locomotives and end-of-train devices necessary for the movement of coal.

Source: <http://www.minerals.nsw.gov.au/minfacts/03.htm>

encountered is the unavailability of timely empty rail wagons to transport goods out of Guizhou. There is clearly a need for improvement in the management of the demand and supply of rail wagons in Guizhou.

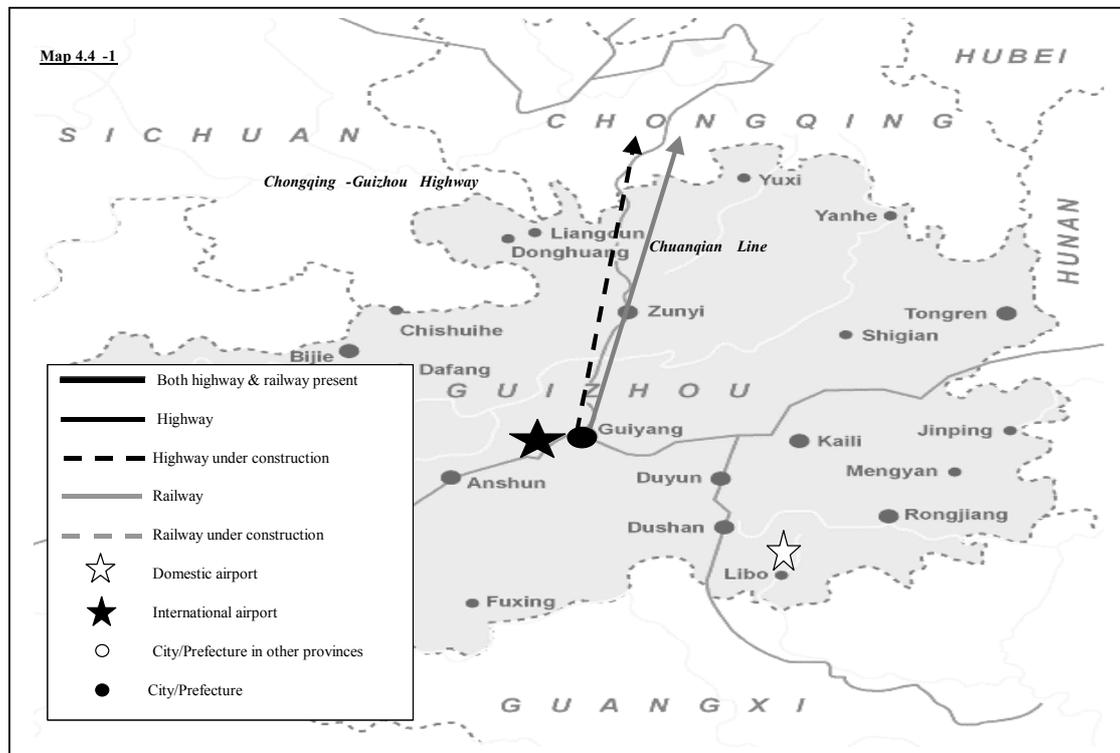
Besides the use of railways, some companies in Guizhou also opt for the use of highways in the transportation of goods due to its greater schedule flexibility. For instance, in the case of liquor and chemical products, trucking services are utilized to transport these products to other provinces or within Guizhou. For liquor, special logistics requirements such as refrigerated containers are needed to preserve the quality of the wine. As for chemicals, special tankers are required to transport the product.

Goods bound for overseas markets are shipped out using seaports in Guangxi, such as Behai and Fangchenggang, and seaports in Guangzhou and Shanghai via railways or highways. Typically, the goods sent to Guangxi seaports are bulk cargo, while those to Guangzhou and Shanghai seaports are containerised ones.

Photo 4.4-1: “Bei Dou” in Guizhou - This is a form of human transportation service offered by labourers in mountainous cities such as Guivang and Chongqing City.



Northern Direction



Presently, Guizhou has several highway and railway linkages that provide exporters access to transport their goods to cities in the North. These linkages include:

- The *Chuanqian railway line* that links Guizhou to **Chongqing**. The line was constructed in 1965 and electrified in 1990. There are plans by the government to upgrade this single-track line so as to increase the capacity of the railway service from 11 to 40 tonnes per year.
- Besides the *Chuanqian rail line*, there are several provincial highways and a national highway that connects Guizhou to **Chongqing**. These highways are used for the transportation of Guizhou products such as liquor and cigarettes, plastics products and tires to Chongqing. The highway linkages to Chongqing also provide exporters from Guizhou access to the Northern provinces, such as **Shaanxi** via Chongqing. From Chongqing, export goods from Guizhou, particularly minerals can also be exported overseas from **Shanghai** seaport via the Yangtze River.
- The ongoing “*Chongqing-Guizhou Road Development Project*” aims to enhance highway linkages between Guizhou and **Chongqing**. (Please refer to Chapter 4.1 on the “Chongqing Municipal” for more details). Besides enhancing the linkage between Chongqing and Guizhou, another strategic intent of the project is to reduce poverty in those villages and counties in Guizhou and Chongqing that would eventually be linked to this new Expressway.

Southern Direction



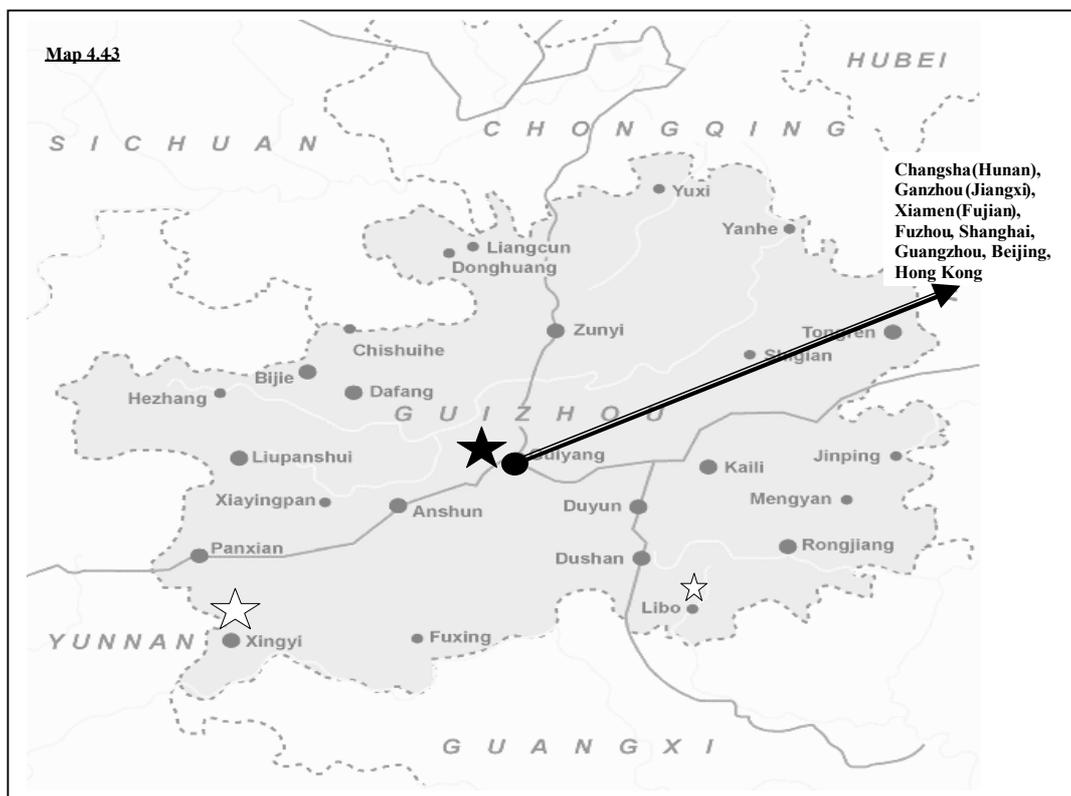
Presently, there are several transportation channels that link Guizhou to the Southern provinces of Guangxi and Yunnan. These routes provide exporters access to transport their goods to the seaports of **Guangxi** and also to the Indo-China countries of Myanmar, Laos and Vietnam via the **Yunnan** gateway. The southern linkages branching from Guizhou include:

- The *Guiyang-Liuzhou* railway line which connects Guizhou to the cities of Liuzhou and Nanning in **Guangxi** province. This has been an important railway line for the transportation of coals from Guizhou to Guangxi for power generation. Goods from Guizhou can also be transported to the ports of Guangxi to be exported overseas. The *Guiyang-Liuzhou* railway line is part of the *Nankun* line which links Guangxi with Yunnan. The *Nankun* railway line links up the southwestern provinces of Sichuan, Yunnan and Guizhou with the seaports of Beihai, Fangcheng and Yinzhou in Guangxi, and Zhanjiang in western Guangdong.
- The *Guxin Highway* which links Guizhou to the Beihai seaport in Guangxi. The *Guxin Highway* is part of the recently completed Southwest sea passageway, which runs through the southwestern provinces of **Sichuan** and Guizhou and Guangxi Zhuang Autonomous region and ends at the sea area. The *Guxin Highway*, now provides the province the fastest and shortest way to the sea. Cars and trucks need only about 30 hours to travel the whole Southwest Expressway from Sichuan to Guangxi. The

opening of Southwest sea passageway will help improve traffic conditions in the southwestern region, and provide a good environment for attracting overseas capital into the development of the southwestern region.

- Besides Nanning in Guangxi, the *Nankun railway line* discussed in the previous section also links up Guiyang to Kunming, **Yunnan** in the South. Goods from Guizhou such as tobacco and liquor, designated for exports to the ASEAN markets in the Mekong region, can also be transported via this railway to Kunming before being transported further south to these markets.
- Guizhou is also linked to Bose in Guangxi via the *Long-Bai railway line* which originates from Sichuan, passing through Guizhou and ends at Guangxi province.

Eastern Direction



Exporters from Guizhou can conveniently transport their products to the eastern provinces such as **Hunan** as well as the more affluent coastal provinces of **Fujian** and **Jiangxi**. Currently, the eastern linkages branching out from Guizhou include:

- The *Guiding-Zhuzhou* electrified trunk railway which connects Guizhou to Hunan. This is an important railway connection which links up several north-south railway lines namely **Beijing-Guangzhou** and **Beijing-Hong Kong** to facilitate the movement of goods from the western and inland provinces to the Eastern seaboard.

- Besides rail transport, several highways spread out from Guiyang reach key cities in Hunan, such as the capital city *Changsha*. From *Changsha*, goods can be further transported to reach the seaports in **Shanghai** or **Guangzhou**.
- The *Guiyang-Xiamen* railway line provides accessibility for the transport of goods from Guizhou to *Xiamen* in Fujian. Goods from Guizhou can be transported to the coastal ports of Fujian for exports overseas. The *Guiyang-Xiamen* railway line passes through the cities of Hunan and also *Ganzhou* in **Jiangxi**, which provides further market opportunities for the sale of Guizhou goods to the eastern cities.

Western Direction



The transportation routes west of Guizhou connect itself to its immediate neighbor Sichuan. Specifically,

- The *Long-Bai* railway line provides exporters from Guizhou ready access to markets in Sichuan province.
- In addition to rail transport, there are several highways branching out from Guizhou to Sichuan. Goods from Guizhou have also the potential to be exported from **Sichuan** to further western regions such as **Tibet** and **Mongolia**.

Intra-provincial Transport Network

Today, the key cities in Guizhou are fairly well connected by highways spreading out from Guiyang to Zunyi, Anshun, Kaili and Tongren. With Guiyang as the hub, four main railway lines link Guizhou with the other provinces of Guangxi, Sichuan, Kunming and Hunan.

The main mode of transportation within the province is highways. By the end of 1998, the mileage of highway opened to traffic in Guizhou reached 33,604 km. In the same year, the civilian automobiles in the province increased to 196,792 units, among which, passenger buses increased by 82,529 units, cargo transportation vehicles to 110,698 units, special and special-purpose automobiles to 3565 units.

The *Shuibai* Railway project which is ongoing will include the construction of 121 km railway from *Liupanshui* to *Baiguo* in Guizhou. This project will help generate employment and reduce poverty by facilitating the development of abundant coal resources in the western region.

Guiyang is easily accessible from many major cities in China by air. The Longdongbao Airport at Guiyang has more than 30 domestic air routes linking Guizhou to major cities in China, such as Beijing, Guangzhou, Shenzhen, Shanghai, Chengdu. There is also a direct flight to and from Hong Kong from this airport. Currently, construction is ongoing for a new airport, Daxing Airport in Tongren. The province also has plans to develop two more new airports in Liping and Xingyi.

4.4.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

The efficient management of logistics services could affect the cost competitiveness of firms. The major logistics impediments that have been identified in Guizhou, which could affect the cost competitiveness of the various export products, in particular, the liquors, tobacco, and chemical sectors, are as follows:

a) Shortage of transportation wagons

The difficulties in obtaining empty rail wagons in a timely fashion could pose problems and potential costs to firms as it inhibits the transport of goods out of the province. According to *It's China* (2001) Report, more than half of the 60 million tonnes of goods could not leave Guizhou in 2000, due to limited railway capacity. Therefore, it would be critical that this issue be addressed promptly in order to minimize the impediments to the flow of goods caused by the prevailing shortage, which is especially pertinent for perishable wine and liquor, which could lead to wastage.

b) High transportation costs

Guizhou's mountainous terrain will create additional costs for firms in the transportation of their goods, as they would have to traverse longer and further past the various terrains. Hence, this could in turn increase the product costs of firms and affect the price competitiveness of Guizhou's products. Higher transportation costs also encourage some coastal provinces to buy coal from abroad. Therefore, though Guizhou has large deposits of coal, its neighboring provinces, especially coastal ones, may find it cheaper to import coal from Australia and Africa.

c) Lack of logistics management knowledge and expertise

Another key trade logistics impediment is the lack of knowledge and experience in quality management and the delivery of integrated logistics services. For instance, at the firm level, companies are not fully aware of the benefits of a coordinated logistics system. At the same time, there is a lack of logistics services provision and expertise in helping clients manage and optimise their supply chain, which can in turn help firms save costs.

d) Lack of connectivity to outlying areas

The development of transportation infrastructure is more difficult and costly in Guizhou, compared to the other provinces because of the mountainous and karst topography of the region. Hence, it will be very costly for outlying cities and counties in the province to be linked to the main transportation routes and the cities for the distribution of their products. This has implications for especially the resource rich outlying areas in terms of the transportation of their resources such as minerals and agricultural products to the cities for sale.

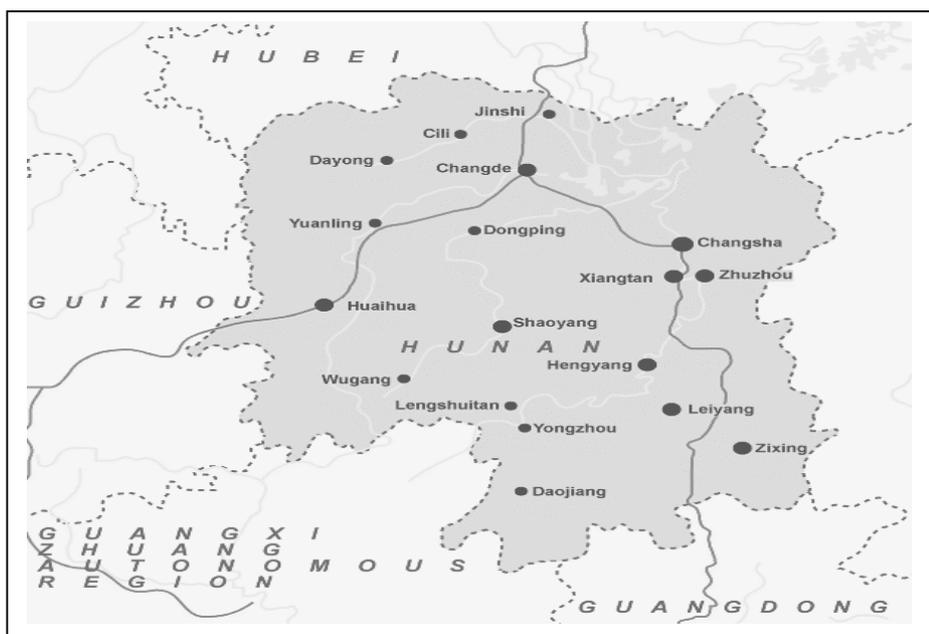
4.5 HUNAN PROVINCE

Hunan Province is situated in the central region of China. It is a landlocked province with a geographical area of 212,000 square kilometres and has a population of 65 million people. Hunan borders Hubei to the north, Jiangxi to the east, Guangdong to the southeast, the Guangxi Zhuang Autonomous Region to the southwest and the provinces of Guizhou and Sichuan to the west.

Hunan is divided into four regions, namely 1) North Hunan which includes Changde and Yueyang cities, 2) Central Hunan including Changsha, Zhuzhou cities and Loudi prefecture, 3) South Hunan including Hengyang and Yongzhou cities and 4) West Hunan including Huaihua and Zhangjiajie cities. The capital city of Hunan is Changsha, situated in the east on the banks of the Xiangjiang River. The Changsha city owes its prosperity and wealth largely to its location on the fertile Hunan plains on the Xiangjiang River, a region that is becoming China's most important grain producing regions.

Hunan has a relatively well-developed agricultural sector. Many of its major farm products take a leading position in the country and these include grains and livestock. Besides agricultural products, the major exports of Hunan include chemicals, fireworks, porcelain and zinc metals. These product sectors would continue to be the main exports of Hunan in the near to medium term. Furthermore, the tourism sector in Hunan is slated to grow as the affluence of the domestic population continues to rise as well as the increase in the number of international visitors to Hunan for leisure and business.

The availability of adequate logistics support services is critical for the future development of Hunan's agricultural sector. Currently, there is a lack of cold chain facilities, such as advanced refrigerated storage and containers, to facilitate the export of perishable products. In addition, the connectivity of the outlying counties and villages to the major cities should be improved to facilitate the tapping of resources for further trade and export development.



4.5.1 ECONOMIC PROFILE

Table 4.5-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (USD billion)	31.9	36.1	37.6	40.1	44.5
Per Capita GDP (USD)	498	560	595	615	679
Primary Sector (% of GDP)	31	29	27	23	21
Secondary Sector (% of GDP)	37	37	39	39	40
Tertiary Sector (% of GDP)	32	34	35	38	39

Source: China Statistical Abstract, CEIC database.

Exchange rate used: US\$1= 8.30 Chinese yuan.

Between 1996 and 2000, the economy of Hunan has grown by about 40 percent to reach the provincial GDP of USD 44.5 billion in 2000. Its per capita income has also increased by 36.5 percent, from USD 497.6 in 1996 to USD 679 in 2000. Hunan is well developed in agriculture. In 1996, the share of primary sector contribution to GDP stood at 31 percent. But over the years, as the economy develops, the share of GDP contributed by the primary sector has declined. Hunan's share of GDP contributed by the primary sector has declined by 10 percent between 1996 and 2000. On the other hand, the contribution by the secondary sector and the tertiary sector have increased by 3 percent and 6 percent respectively. Currently, Hunan's secondary and tertiary sectors contributed approximately 39 percent of provincial GDP.

Hunan's rich resources in metals and minerals provide good conditions for the development of value-adding industrial sectors. Hunan's pillar industries include the production of chemicals, fireworks and porcelain. In particular, Hunan is the leading producer of fireworks and porcelain in China with products well-known in both domestic and international markets.

4.5.2 TRADE STRUCTURE

Table 4.5-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (USD million)	2,218	2,329	2,202	1,282	1,653
Imports (USD million)	993	954	874	674	859
Top export partners	<ul style="list-style-type: none"> • Hong Kong • Japan • USA • South Korea • Germany 	<ul style="list-style-type: none"> • Hong Kong • USA • Japan • South Korea • Taiwan 	<ul style="list-style-type: none"> • Hong Kong • USA • Japan • South Korea • Singapore 	<ul style="list-style-type: none"> • Hong Kong • USA • Japan • South Korea • Germany 	<ul style="list-style-type: none"> • USA • Hong Kong • Japan • South Korea • Netherlands
Key export products/ values (USD million)	<ul style="list-style-type: none"> • Garments (221.61) • Firecrackers & Fireworks (86.6) • Porcelain (74.6) • Live Pigs (66.9) • Zinc products (66.1) 	<ul style="list-style-type: none"> • Zinc (284.1) • Garments (217.0) • Electrical Products (87.5) • Porcelain (81.8) • Firecrackers & Fireworks (76.7) 	<ul style="list-style-type: none"> • Garments (226.9) • Zinc products (188.0) • Electrical Products (93.7) • Porcelain (90.8) • Firecrackers & Fireworks (84.5) 	<ul style="list-style-type: none"> • Chemical products (174.0) • Zinc products (117.1) • Garments (83.9) • Fireworks & Firecrackers (76.0) • Electrical Products (68.6) 	<ul style="list-style-type: none"> • Chemical products (211.7) • Zinc products (150.9) • Garments (130.3) • Fireworks & Firecrackers (81.9) • Porcelain (71.8)

Source: China Statistical Abstract, Hunan's Statistical Yearbooks.

Exchange rate used: US\$1 = 8.30 Chinese yuan.

Hunan's international exports and imports declined between 1997 and 1999, but recovered mildly in 2000. There was an increase of 14.6 percent in Hunan's exports, from USD 1.28 in 1999 to USD1.65 billion in 2000. The major export products of Hunan include chemicals products, fireworks, garments, household porcelain and zinc products. These major products accounted for about 40 percent of the total exports from Hunan.

Hunan's international imports increased by 27 percent over the same period. Hunan's major import items include aquatic products, electronic equipment, chemical raw materials, tobacco and paper. The major import markets of Hunan are Hong Kong, the USA, Germany, Japan and Australia.

Key Export Products

Table 4.5-3: Key Exports Products from Hunan (USD million)

	1996	1997	1998	1999	2000
Chemical products cluster ¹	N.A.	17.8	0.72	174.0	211.7
Zinc products	6.6	284.1	188.0	117.1	150.9
Garments	221.6	217.0	226.9	83.9	130.3
Fireworks & Firecrackers	86.6	76.7	84.5	76.0	81.9
Porcelain and pottery	74.6	81.8	90.8	57.8	71.8
Live Pigs	66.9	63.4	54.5	50.5	47.1
Grains	N.A.	N.A.	63.6	11.1	18.5

¹Chemicals for 1997 and 1998 refer only to *Fertilizers*.

Note: The products are not listed in any ranking order.

The existing export products from Hunan are:

- (i) Chemical products;
- (ii) Fireworks and Firecrackers;
- (iii) Base metals;
- (iv) Porcelain; and
- (v) Agricultural products.

(i) Chemical products

The top export sector from Hunan is the chemicals cluster, amounting to more than USD210 million in 2000. The export from this sector represented 13 percent of the total exports from Hunan in 2000. Some of the chemical products that are produced in Hunan are industrial chemicals such as sulphuric acid and chemical fertilizers. Besides domestic exports to other provincial markets, these products are also exported overseas to Hong Kong, USA and Japan.

(ii) Fireworks & Firecrackers

Hunan has historically been known as a major producer of fireworks and firecrackers. Fireworks and firecrackers production is concentrated in the county of Liuyang which has been a center for fireworks and firecrackers production since the Song Dynasty (BC). Today, there are more than 60 fireworks and firecrackers factories in Hunan with more than 700,000 people employed in the production factories in Liuyang.

This sector has consistently been one of the top five export sectors of Hunan over the last five years with export values remaining consistent at about USD81 million in 2000. Hunan's firework products are exported worldwide to markets as far as US, Australia and European countries such as the United Kingdom, Germany and Netherlands.

(iii) Base metals

Hunan has a strong nonferrous metals sector. In particular, Hunan's production volume of zinc, lead and hard alloy leads in the country. Zinc products are the second largest export product in Hunan. Export values of this sector fluctuate between 1996 and 2000, reflecting a volatility of the market. After steep declines in export values in 1998 and 1999, probably due to the impact of the Asian financial crisis, the export of this product recovered in 2000 to more than USD150 million. Besides distributing its metal products to mainly the Eastern provinces of Guangzhou, Shenzhen and Fujian, Hunan also exports its products to countries such as Taiwan, Hong Kong, Japan and South Korea.

(iv) Garments

The garments sector has been a traditional major export sector of Hunan. However, the export of garment products has been on the decline in recent years. The sector saw a sharp decline in export values in 1998 from more than USD226 million to less than USD82 million in 2000. Decline in the sector could be attributed to the steep competition among the domestic producers. The international exports of Hunan garments are mainly to Japan, Hong Kong, Taiwan and South Korea. This export sector may likely become less important for Hunan as the province focuses on other growing export sectors.

(v) Pottery and Porcelain

Like fireworks, the pottery and porcelain sector is a traditional export sector in Hunan. Today, Hunan is the biggest producer of household ceramics in China with production concentrated in Liling County. Household porcelainware produced in Hunan include dinner set, coffee set, tea set, wine set and art porcelain.

The international export of porcelain has been fairly stable between 1996 and 2000 with export values worth about USD80 million every year. Besides distributing within the domestic market, the products are also exported widely to the markets in Asia, Europe and the USA.

(vi) Agricultural Products - Grains & live pigs

Hunan is rich in agricultural resources. It is the second-biggest supplier of pork in China. The international export of live pigs from Hunan, however, has been on a gradual decline over the last five years. In 2000, Hunan exported USD47 million worth of live pigs.

The province has a wide range and variety of grains bases, commodity cotton bases, sugar bases, pig breeds and fish bases. In 1999, total output value of agriculture in Hunan amounted to USD1.75 billion¹². Today, the province is a major producer of rice, ramie grain and tea, fruits (seedless tangerines), sweet potatoes, corn (maize), barley, potatoes, sorghum, rape, cotton and jute.

Hunan exported around USD19 million worth of grains to overseas markets in 2000. Domestically, Hunan's rice is widely distributed, especially to the Southern provinces.

Key Export Partners

Hunan's major export partners are Hong Kong, USA, Japan, South Korea and the Netherlands. The major export products from Hunan to these overseas markets are chemicals, garments, zinc and porcelain products. Together, these 5 overseas markets accounted for more than 50 percent of Hunan's total exports in 2000.

The importance of Hong Kong as a major export market of Hunan has gradually declined over the years. In 1996, Hong Kong imported 42 percent of Hunan's exports. In 2000, Hong Kong accounted for less than 14 percent of Hunan's total exports. This could probably be due to the increased competition from other provinces as well as other countries exporting to Hong Kong. The main export products from Hunan to Hong Kong include garments, porcelain and agricultural produce.

The major export products from Hunan to the U.S.A. include fireworks and firecrackers, chemicals and metal products. The export products from Hunan to Japan and South Korea include garments, pottery, fireworks and chemicals.

¹² Information Center of Economic Study of Hunan Provincial Peoples' Government.

Table 4.5-3: Distribution of Key Export Products Identified for Hunan

Products	Distributed in other provinces	Distributed in other countries
Chemicals products (e.g. fertilizer, sulfuric acid etc)	Throughout China	Hong Kong, USA, Japan
Base Metals, e.g. Zinc	Guangzhou, Shenzhen, Fujian, Hubei	Hong Kong, Japan, South Korea, Southeast Asia
Garments	Guangzhou, Shenzhen, Shanghai	Hong Kong, Japan, South Korea, Taiwan
Fireworks & Firecrackers	Guangzhou, Shenzhen, Jiangxi	USA, Japan, Australia, the UK, Germany, Netherlands, Switzerland, Greece, Denmark, France, Italy, Portugal, Spain, Turkey, Belgium and Hong Kong.
Porcelain & pottery ware for household uses	All parts of China	Hong Kong, Taiwan, Japan, and other Asian countries
Agricultural and animal Produce, e.g. tea and pigs	All parts of China	Asian countries
Grains (e.g. rice)	Southern provinces, such as Guangzhou, Shenzhen and Hainan.	Indonesia, Russian, Middle Eastern and African countries. Cote d'Ivoire (China's large export markets)

Note: The products are not listed in any ranking order.

Source: Hunan Statistical Yearbook, 2001 & various statistical sources such as "China ABC"

Direction of Trade and Significant Trends

In view of Hunan's unique export characteristics and strengths, the consulting team is of the opinion that the following export sectors would likely to continue to grow in the short to medium term:

- (i) Chemical products;
- (ii) Base metals;
- (iii) Fireworks and firecrackers;
- (iv) Porcelain and pottery;
- (v) Agriculture products, particularly pork and grain; and
- (vi) Tourism.

(i) Chemical products

The exports of Hunan's chemical products rose sharply by 21.6 percent between 1999 and 2000. Given the diverse range of chemical products produced by Hunan, this product sector is expected to grow strongly in tandem with the rising national demand for final goods, as chemicals are used in the production of various goods, including food and electronics products.

However, the chemical sector in Hunan is likely to face challenges post-WTO. China's tariffs on foreign chemicals products would eventually be reduced by 2006, which in turn would have adverse impact on Hunan chemicals sector. Therefore, Hunan's chemicals sector should seek to strengthen its production capability and product quality in the meantime.

(ii) Base Metals

The base metals industry is a relatively large sector in Hunan. There are presently more than 11,000 mining enterprises active in Hunan. Hunan could continue to tap on its rich metals resources to further develop the metallurgy industry for exports to the domestic and overseas markets. In addition, the industry ought to constantly upgrade its production technology and capability to improve on the value added to its mining and metal-alloy industries. Additionally, the industry could seek to develop more uses for metals through continuous research and development.

(iii) Fireworks & Firecrackers

This is an export sector that has potential growth in Hunan as it has already built up a critical mass of fireworks and firecrackers producers. In addition, Hunan is likely to benefit from the recent reduction in production capacity in Jiangxi and Guangzhou following a spate of firework production-related accidents. A number of fireworks factories from Jiangxi and Guangzhou are also shifting their manufacturing operations to Hunan. The demand for Hunan's fireworks to overseas market is also expected to continue to rise.

(iv) Porcelain

Hunan is one of the famous porcelain bases in China with substantial competitive niche in porcelain production. Porcelain production in Hunan is concentrated in Liling County, which has more than 500 ceramic makers offering a variety of varied porcelain products. Today, the industry employs a workforce of 50,000 and produces annual output worth USD 133 million.

With the expected growing affluence of the domestic market, Hunan could leverage on its reputation as a leading porcelain producer to tap on the growing market opportunities. The use of creative designs and color-matching techniques will help to further increase sales of Hunan's porcelain. As China continues to open its doors to western traders and becomes more active in export business, porcelain companies in Hunan should aim to continue to further expand into overseas markets. For instance, the Middle East is another area where buyers are turning to Chinese porcelain products. Some overseas buyers have even asked for the porcelain products to be labeled as *Made in China*. Therefore, Hunan's companies could aim to produce quality Chinese porcelain products with a brand name in its own right.

(v) Agricultural produce and livestock for domestic market

Rice is an important export product for Hunan, mainly to domestic markets. Currently, the province's rice production accounted for more than 12 percent of the national rice output. The likelihood for growth in the domestic market is large given that rice is a major staple. Furthermore, surplus rice can be exported to the huge overseas markets in Middle East and Africa.

China's entry into the WTO, however, will have adverse impact on Hunan's agricultural sector, as protection on China's agricultural sector through non-tariff barriers (NTBs) will gradually have to be phased out. With the removal of these barriers, agricultural enterprises in China will have to compete with foreign rice imports, particularly those from Thailand and Vietnam. Presently, there are already conscious efforts among the grain producers in Hunan to prepare themselves for the eminent competition by improving the quality and productivity of the rice by using better quality seeds, farming techniques, packaging and storage.

The domestic export of pork will also become more important for Hunan in the years to come. With the local gaining affluence, there could be more demand for pork and other types of meat. On the international front, more pork from Hunan can be exported to overseas markets, especially when the cost of air-freight reduces.

(vi) Tourism

The province of Hunan is well known to many people, both locals and foreigners, as the hometown of Mao Zedong. It is also a province with very rich historical heritages such as the Emperor Yan's Tomb in Yanling County and Emperor Shun's Tomb in Ningyuan County. Hunan is also famous for the scenic Zhanjiajie.

In 2000, there were about 47 million total visitors to the province. Almost all the tourists to Hunan were domestic tourists from other provinces in China. In fact, less than half a million of international tourists visited Hunan in 2000. The increasing affluence among the local population in China would likely lead to the growth of domestic tourism for Hunan. Besides earning revenues and creating jobs for the local people, the growth of the tourism sector in Hunan will directly stimulate the demands for the local agricultural products to meet the dietary needs of the tourists.

Table 4.5-4: Number of Tourists to Hunan (10,000 persons)

Tourists	1998	1999	2000
International Tourists	34.9	38.6	45.4
Domestic Tourists¹	4,200	4,300	4,650
Total no. of Tourists	4,235	4,339	4,695
Foreign exchange earned (USD million)	156	185	221

¹ Includes tourists from Hong Kong & Macao.

Source: Hunan Statistical Yearbooks

4.5.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

The key cities in Hunan are generally well served by transportation infrastructures that include a combination of railway, roads, air and waterway. As at end 2000, the province was served by 2,900 km of railways and 60,848 km of highways.

Table 4.5-5: Freight Traffic (in 10,000 tonnes)

Item / Year	1996	1997	1998	1999	2000
Railways	4,893	4,535	4,408	4,456	4,676
Highways	42,191	41,340	41,610	43,296	42,868
Waterways	3,301	3,034	2,990	3,178	3,406

Source: Hunan 2001 Statistical Yearbook

The highway is a predominant mode of freight transportation for Hunan. In 2000, freight volume by highways accounted for 84 percent of the total freight. This is followed by railways and waterways that account for about 9 percent and 7 percent respectively. Between 1996 and 2000, freight volume by highway and waterway increased by 1.6 percent and 3.1 percent respectively, while that by railway has decreased by 4 percent. The reduction in freight volume by railway could be due to the increasing convenience of highways and waterways in the transportation of goods over time.

In Hunan, the railway is the most commonly used mode for long distance transportation of goods. For short distance and small volume cargoes, highways are commonly used. Through Yueyang city in Hunan, goods can also be transported through the Yangtze River to Shanghai for exports overseas. This route is more typically used for lower-value bulk products such as minerals, metals and grains.

The transportation of fireworks requires logistics service providers to hold special permit license to handle and store the products as fireworks are classified as a 'dangerous' commodity. For instance, fireworks are totally enclosed in locked boxes or cases with temperature limits to be transported in appropriate and licensed vehicles. Currently, fireworks and firecrackers from Hunan are transported by railway to the seaports in Shanghai and Guangzhou for exports.

Box4.5-1: TRANSPORT OF LIVESTOCK

The livestock vehicle includes trucks, trailers and associated equipment used to move livestock. The livestock vehicle must be constructed and maintained in a way which ensures the safety of the animals during loading, transport, and unloading. It must protect them from injury, unnecessary suffering, inclement weather, and excessive noise and vibration. It must be free of any sharp edges, protrusions, gaps and spaces which are likely to cause injury.

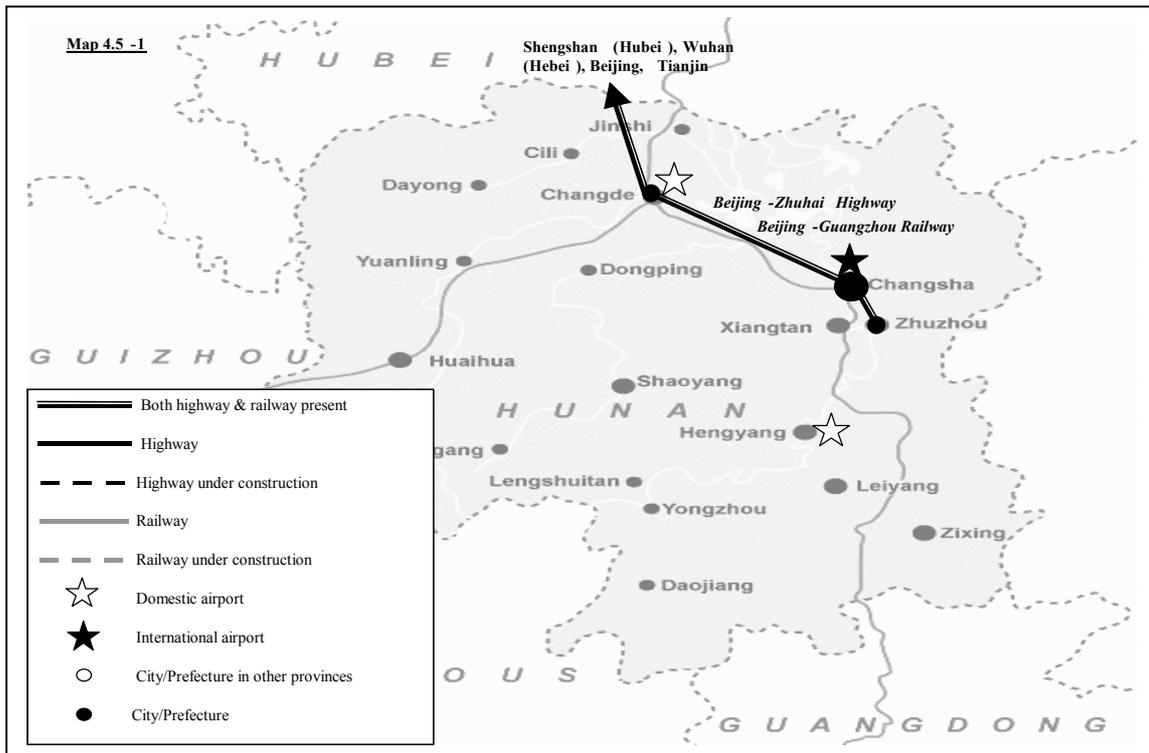
Sufficient and appropriate ventilation must also be provided for the number, size and species of animals to be carried, whether the vehicle is in motion or is stationary, ventilation is usually achieved through apertures in the sides of the livestock container. Where mechanical ventilation is provided - either alone or as a supplement to apertures, the system must include adequate safeguards in the event of breakdown or power failure.

The livestock compartment must also be of a suitable size to accommodate the animals to be carried and to enable them to stand in a natural position. In some cases, detailed equipment, installation, operation, calibration and maintenance specifications have been developed as it is in the case of milk handling equipment. In the case of vehicles transporting pigs, sufficient liquid is carried for drinking during the journey.

Source: Guidance on the Welfare of Animals Transport (<http://www.abm.org.uk/transport/contents.htm>)

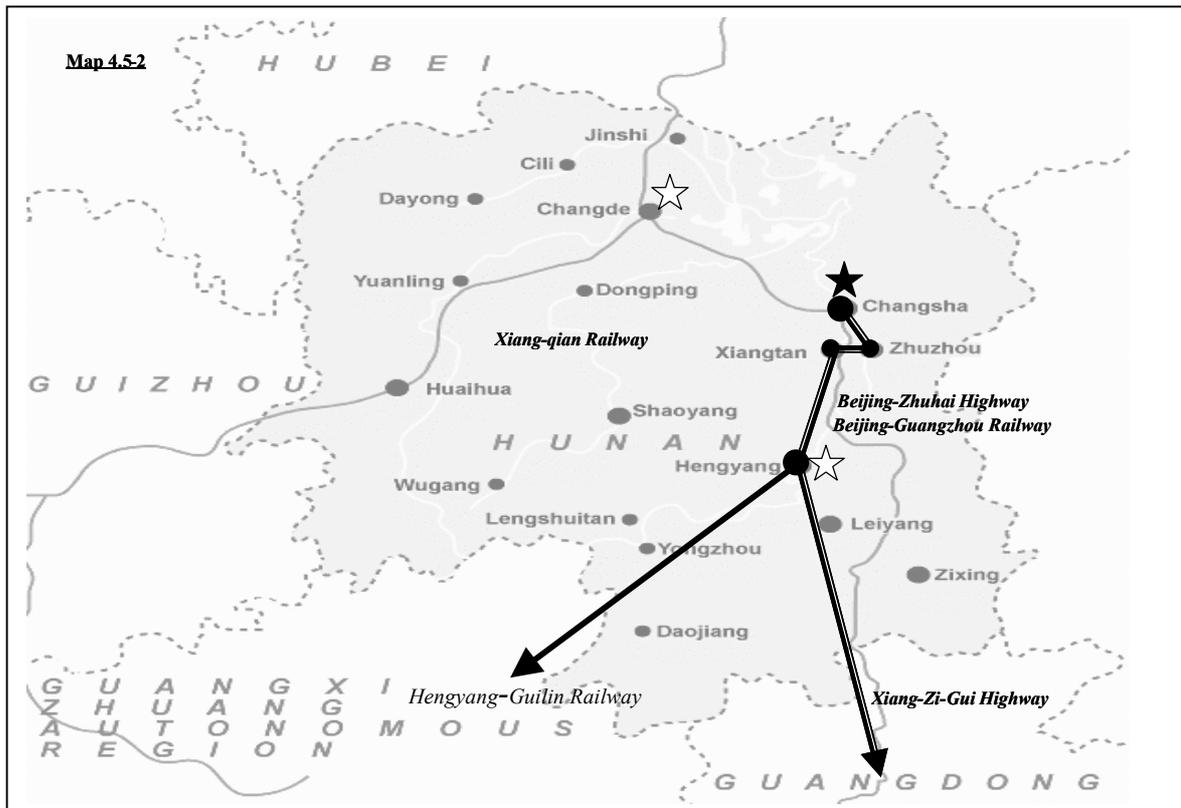
Box 4.5-1 depicts how livestock should appropriately be transported. Currently, in Hunan, livestock are typically not transported in vehicles specifically designed for the appropriate transport of animals. In some cases, animals such as live pigs, are squeezed into the vehicle compartments without sufficient ventilation and with inadequate safety precautions for the loading and unloading of the animals. Hunan's livestock are mainly transported to the provinces of Guangzhou, Shenzhen, Guizhou and Guangxi.

Northern Direction



Presently, there are several transportation routes that link Hunan to cities in the North. Specifically:

- The *Beijing-Guangzhou* Railway links Hunan to Shengshan city in **Hubei** and also to **Beijing** in the north. The *Beijing-Guangzhou* rail line is in heavy use for passenger and freight transport, thus providing exporters from Hunan an important access channel to the Northern cities.
- Besides railway, the existing National Trunk Highway System also links *Changsha* in Hunan via roads to numerous key cities in the north including *Wuhan* in **Hebei**, as well as **Beijing** and **Tianjin**. Goods such as chemicals, pottery ware and agricultural produce are being transported via this highway.

Southern Direction

Currently, there is a railway linkage and several highway channels that facilitate the movement of goods from Hunan to the Southern cities. These transportation routes include:

- The *Beijing-Guangzhou* Railway cuts through Hunan from North to South, connecting the cities of Yueyang, Changsha, Nanyue, Hengyang and Chenzhou before reaching **Guangzhou**. This railway provides exporters from Hunan access to Guangzhou for domestic consumption as well as exporting overseas. Besides the railway, there are two national highways and a provincial highway, which further connects Hunan to Guangzhou.
- The *Hengyang-Guilin* Railway line connects Hunan with **Guangxi** province. Goods such as metals, fireworks and chemicals are transported via this railway.
- The recent completion of the *Xiang-Zi-Gui* Highway, provides another opening for freight and passengers movement from Hunan to **Guangxi** in the South. Goods such as livestock, pottery and embroidery and chemicals are sent down to Guangxi via this highway.

Eastern Direction

Exporters from Hunan can transport their goods to the eastern coastal cities via several highways and railways. These linkages include:

- The *Zhuzhou-Yingtan* railway begins from Zhuzhou in Hunan to **Jiangxi** and ends at **Shanghai**. This railway line provides further market opportunities for Hunan to export its goods to these eastern markets.
- Exporters in Hunan utilize the *Dongting* Lake that is linked to the Yangtze River for the exports of their goods via the **Shanghai** seaports. The Changlinji wharf in Yueyang City on the bank of the *Dongting* Lake is the largest export shipping port of Hunan, and can berth a 5,000-ton cargo ship. Presently, most goods from Southern Hunan are transported via highways to the river port in Yueyang city before being loaded onto barges for export via Shanghai seaports.

Western Direction

Hunan is connected by both highways and railway lines to cities in the West such as **Guizhou** and **Chongqing**. These linkages include:

- The *Xiang-qian Railway* that links Hunan to **Guizhou**. This railway passes the cities of Guiyang (Guizhou), Huaihua, Xiangtan and Zhuzhou in Hunan province. In addition to rail transport, several provincial highways also connect Hunan to Guizhou. These westbound routes also provide market access for the poorer Western regions of Hunan, for the distribution of goods produced there.
- The construction of the electrified *Yuhuai* railway line connects Huaihua in Hunan to **Chongqing**. The proposed railway project is expected to be completed by 2005 and will provide direct link between Hunan and Chongqing.

Intra-provincial Transport Network

The transportation network in Hunan is fairly established, especially those linking the main cities. The provincial railway system branches out to Beijing, Guangzhou, Guangxi and Guizhou respectively. There are numerous highways that connect Hunan cities to the other provinces. Within the province, there are four large rivers, including the Xiangjiang river, running into the Dongting Lake and all the way to the Yangtze river, providing convenience of water transportation.

In the 10th Five-Year Plan, the Hunan government will be investing heavily in the construction of railways and highways. The construction of the *Shashi-Yueyang* (intra-provincial) line is underway. The Hunan section of the *Datong-Zhanjiang* line is also under construction. The completion of this project would enhance the accessibility between Hunan and Zhanjiang in Guangzhou and Datong in Shanxi.

The provincial government has also placed strong emphasis in the development of the roads connectivity in Hunan in its 10th Five-Year Plan. Specifically, Hunan will be constructing the following highways to link up the province:

- Xiang-Lai Line,
- Lai-Yi Line
- Lin-Chang Line
- Tan-Shao Line
- Changsha Metro Superhighway
- Hengzao Line
- Changde-Zhangjiajie Line

Hunan is currently served by one international airport, the *Changsha Huanghua* International Airport. The airport has flight connections with more than 40 domestic cities such as Beijing and Guangzhou and international flight connections with Hong Kong, Bangkok, Thailand.

Presently, there are three other domestic airports in Changde, Hengyang, Lingling and Zhangjiajie. The Zhangjiajie Airport is also crucial for the development of tourism in the Western region of Hunan.

4.5.3 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

The exports of chemicals, metals, fireworks, porcelain and agricultural products are identified to be the main product sectors of Hunan post-WTO. To prepare for the potential challenges facing Hunan companies post-WTO, particularly in the chemicals and agricultural sectors, an important issue that has to be tackled is that of efficient logistics management which could affect the cost competitiveness of Hunan firms. But, Hunan still faces several key logistics impediments that could hinder the export growth of its key sectors. These impediments are as follows:

a) Lack of logistics management expertise

There is currently a lack of practitioners and expertise in the area of logistics management whom can advise and assist clients to better manage the supply chain more cost effectively. The ability of firms to optimize the movement of their goods between destinations could in turn help firms reduce costs and save time. Therefore, proper and sufficient training on logistics services provision ought to be provided to the industry. This will seek to equip the industry players with the necessary skills and knowledge to advise clients on multi-modal or integrated logistics management. This could in turn help firms in especially the agricultural sector, whereby the value of its product is low.

b) Lack of logistics facilities for perishables

As the exports of agricultural products, particularly pork and fruits, is fairly substantial in Hunan, the availability of sufficient logistics services to ensure the preservation of such perishable goods is critical. However, there is presently a shortage of modern cold chain facilities such as refrigerated storage and refrigerated containers as well as the expertise for managing the cold chain, to support the export of perishable products overseas.

c) High transportation costs for agricultural products

The high cost of transportation, particularly for low-value agricultural goods would likely render producers in Hunan less cost competitive, against the influx of foreign agricultural products post-WTO. Using estimates based on feedback received during the field study, the transportation cost of some agricultural products can be higher than the production costs. Using carrots as an example, this is as follows:

Table 4.5-6: Cost elements of producing Carrots

	10,000 kg of carrots (rmb)	Remarks
Production cost	1,000	
Transportation cost	1,400 to 2,800	From Hunan to Guangzhou
Market price	4,000	

It costs approximately RMB 1,000 per hectare to produce carrots. 1 hectare of land can produce about 10,000 kg of carrots. The market price of carrot is RMB 0.40 per kg. On average, based on 10,000 kg of carrots per hectare, the market price would be approximately RMB 4,000. The transportation costs can range from RMB 1,400 to RMB 2,800, which account for **35 % to 70 %** of market price of the product. This is usually on the higher end.

This has implications on the cost competitiveness of firms in the agricultural sector, which are typically lower value-added goods.

d) Shortage of special warehousing facilities

There is a lack of warehousing facilities in the seaports and Hunan the storage for fireworks and firecrackers which require special warehousing (such as fireproof facilities). These products normally have to be stored at the port for about two to three days, while awaiting shipment out of the port. Therefore, the improvement of the special logistics requirements for fireworks would greatly benefit the transport of the product.

e) Poor administration of railway system

The administration of railway services is not up to standard. For instance, during the festive seasons like the Chinese New Year, goods take a longer time to be delivered because of the bigger volume of goods to be transported. According to feedback from a logistics company which deals with consumer goods, it can take up to 20 days to transport the goods from Chongqing to Changsha, instead of the 6 days normally taken.

The issue of security and pilferage issue were also common. Some logistics companies have to appoint a “follower” to guard their cargoes in the carriage from the source to destinations. When goods are stolen while transported by railway, it is also difficult for shippers to seek compensation from the railway authority.

f) Connectivity of the poorer regions of Hunan

In general, the Eastern and the Southern regions of Hunan are fairly well connected including the cities of Changsha, Yueyang and Xiangtan. However, the many outlying counties and villages are not linked by proper highway infrastructure to the major cities and seaports. As a result, a lot of the valuable resources cannot be efficiently transported to the markets. A county concerned is *Xiangxi* in Northwest Hunan. This county has abundant high-quality tangerine and kiwi fruits. But, because of a lack of proper highway infrastructure, the fruits cannot be delivered to the markets cost-effectively.

4.6 INNER MONGOLIA AUTONOMOUS REGION

Inner Mongolia Autonomous Region is located in China's northernmost region. It shares a border of 4,221 kilometers with Russia and the People's Republic of Mongolia. The autonomous region is surrounded by Heilongjiang, Jilin, and Liaoning provinces in the east; Hebei, Shanxi and Shaanxi provinces in the south; and Gansu and the Ningxia Hui Autonomous Region in the west. It has a population of 23.8 million people and occupies a land area of 1.1183 million square kilometers.

The autonomous region is a major livestock-breeding center known for its Sanhe Horses, Sanhe Oxen and fine wool sheep. It also produces a wide range of agricultural and grain products such as wheat, oat, millet, sorghum, maize, potato, rice and a wide range of cash crops, including soy beans, linseed, rapeseed, castor-oil plants and sugar-beets.

Inner Mongolia's key export products include cashmere textiles and garments, food and animal products as well as minerals including coal. Another important sector in the autonomous region is the tourism sector. This sector has been increasingly contributing to Inner Mongolia's economy in recent years.

In the short and medium term, Inner Mongolia's key export products would continue to be its cashmere textiles and garments, foods, minerals and animal products. With the increasing affluence of the Chinese, it is anticipated that Inner Mongolia's tourism sector would continue to grow further.

However, there are some key trade logistics impediments that the autonomous region is facing. First, it lacks quality highways that could ensure better transportation flow for both tourists and export products. In addition, Inner Mongolia has inadequate railway capacity to meet the transportation demands for products such as minerals. The autonomous region also lacks cold chain facilities and management expertise to support further development of its food sector.



4.6.1 ECONOMIC PROFILE

Table 4.6-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (USD billion)	11.83	13.07	14.33	15.23	16.83
Per Capital GDP (USD)	513	562	611	645	707
Primary Sector (% of GDP)	32	29	29	27	25
Secondary Sector (% of GDP)	39	39	40	39	40
Tertiary Sector (% of GDP)	29	32	31	34	35

*Source: Inner Mongolia Yearbooks 1997 to 2001.
Exchange rate used: USD1 = 8.30 Chinese yuan.*

Inner Mongolia's GDP has been growing steadily over the last 5 years. Between 1996 and 2000, the economy grew by 42.3 percent from USD11.83 billion to USD16.83 billion.

In 2000, the secondary sector accounted for 40 percent of the autonomous region's GDP. The tertiary sector increased its share of GDP to 35 percent in 2000. This sector has grown as a result of the growth of tourism sector and the other hospitality-related services. On the other hand, the primary sector's share has declined from 32 percent in 1996 to 25 percent in 2000.

Inner Mongolia's pillar industries include the cashmere textiles and garments industry, minerals industry, and the food and animal products sector. The industries in Inner Mongolia are located in Hohhot, Baotou, Chifeng, Jining, Wuhai, Tongliao and Manzhouli. In recent years, the autonomous region's government has placed emphasis on the development of the following industries – food and animal products, services, metallurgy, energy and cashmere textiles and garments.

4.6.2 INTERNATIONAL TRADE STRUCTURE

Table 4.6-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (USD million)	690	740	820	910	1,020
Imports (USD million)	560	580	560	700	1,010
Top export partners	<ul style="list-style-type: none"> • Russia • Japan • Hong Kong • US • UK 	<ul style="list-style-type: none"> • Russia • Japan • Hong Kong • Korea • People's Republic of Mongolia 	<ul style="list-style-type: none"> • Russia • Hong Kong • Japan • US • Italy 	<ul style="list-style-type: none"> • Russia • Japan • People's Republic of Mongolia • Hong Kong • US 	<ul style="list-style-type: none"> • Japan • Russia • People's Republic of Mongolia • Hong Kong • US
Key export products/values (USD million)	<ul style="list-style-type: none"> • Light industrial products (128.41) • Cashmere textiles and garments^a (117.44) • Minerals (115.78) • Food^b (81.22) • Animal products (25.80) • Coal (18.84) 	<ul style="list-style-type: none"> • Cashmere textiles and garments^a (281.82) • Minerals (147.18) • Food^b (101.10) • Animal products (21.25) • Coal (20.07) 	<ul style="list-style-type: none"> • Cashmere textiles and garments^a (497.46) • Food^b (108.99) • Minerals (86.84) • Coal (27.43) • Animal products (22.17) 	<ul style="list-style-type: none"> • Cashmere textiles and garments^a (370.16) • Food^b (86.71) • Minerals (73.24) • Coal (67.99) • Animal products (20.65) 	<ul style="list-style-type: none"> • Cashmere textiles and garments^a (323.1) • Food^b (270.73) • Minerals (88.88) • Coal (60.68) • Animal products (11.93)

^a Includes textiles, silk and garments

^b Includes potatoes

Source: Inner Mongolia Statistical Yearbooks 1997 to 2001

Between 1996 and 2000, exports grew by 47 percent to reach USD1,020 million in 2000. Inner Mongolia's top export products are cashmere textiles and garments, food and animal products, and minerals.

As depicted in Table 4.6-2, Inner Mongolia's imports increased by 44 percent between 1999 and 2000. The major import items from Russia, the People's Republic of Mongolia, Australia, Germany and the US included timber, chemicals, machinery and equipment to support the autonomous region's industrialization.

Key Export Products

During the last five years, Inner Mongolia's major export products have consistently been cashmere textiles and garments, foods, minerals, coal and animal products.

Table 4.6-3: Key Export Products from Inner Mongolia (USD million)

Products	1996	1997	1998	1999	2000
Cashmere textiles and garments	117.44	281.82	497.46	370.16	323.10
Minerals	115.78	147.18	86.84	73.24	88.88
Coal	18.84	20.07	27.43	67.99	60.68
Food	81.22	101.10	108.99	86.71	270.73
Animal products	25.80	21.25	22.17	20.65	11.93

Note: The products are not listed in any ranking order.

Source: Inner Mongolia Statistical Yearbooks 1997 to 2001

(i) Cashmere textiles and garments

Woollen mills in Hohhot and Hailar have been set up during China's early industrialisation. Since then, the industry has evolved from basic raw material processing to the spinning and weaving of medium to high grades wool fabrics. The autonomous region's cashmere textiles and garments sector currently employs more than 75,000 workers, contributing significantly to the employment market.

Today, China is the largest supplier of cashmere in the world. About 70 percent of China's total output of cashmere is from Inner Mongolia. The autonomous region exported approximately USD323.10 million worth of cashmere textiles and garments in year 2000, contributing close to 32 percent of the autonomous region's total exports.

(ii) Minerals

The minerals sector is another important export sector for Inner Mongolia. The autonomous region has one of the largest reserves of iron, steel, chromium, copper, lead, zinc, gold, mica salt and mirabilis in China. It also has 90 percent of China's known deposit of rare earth. For instance, the County of Baiyun Ebo in Inner Mongolia alone has rare-earth deposits worth USD25 billion.

The minerals sector contributed 9 percent of Inner Mongolia's total exports in 2000. Although the export values have decreased by more than 23 percent between 1996 and 2000

from USD115.78 million to USD88.88 million, it remained as Inner Mongolia's major export sector over the last five years.

(iii) Coal

Inner Mongolia is an important coal-mining region in China with its abundant coal reserves and 200 existing coalmines. The existing coal reserves in Inner Mongolia amount to approximately 198.2 billion tonnes and rank second behind Shanxi Province¹.

As depicted in Table 4.6-3, Inner Mongolia exported USD60.68 million worth of coal in 2000. This is a four-fold increase from the amount of USD18.84 million exported in 1996. Despite this increase in international export, the consulting team is of the opinion that in the longer term, coal from Inner Mongolia would likely be demanded more for local power generation and also as supply to other neighbouring provinces for similar purpose.

(iii) Food

The food sector, particularly processed meat, is an important sector in Inner Mongolia. The autonomous region has an existing farmland of 5.31 million hectares and its main food crops are wheat, maize, rice, soybeans and potatoes. Its main industrial crops comprise oilseed plants and beets. The food sector contributed about 26 percent of the autonomous region's total exports in 2000.

Inner Mongolia is active in export marketing. For instance, in 2000, the autonomous region sold almost 1,000 tonnes of onions to the Russian market. Besides onions, potato is another important food export of Inner Mongolia with an export volume of 280,398 tonnes in 2000. Therefore, as a whole, the food sector has a significant export role for Inner Mongolia. Its export value saw a three-fold increase from USD86.71 million in 1999 to USD270.73 million in 2000.

Inner Mongolia has a major livestock breeding industry. The autonomous region has the largest number of horses, cattle, big-tailed sheep, fine-wool sheep, white goats and camels.

Referring to Table 4.6-2, the export values of animal products, however, have decreased by 46 percent over the last five years from USD25.80 million to USD11.93 million.

Key Export Partners

As depicted in Table 4.6-2, the main export partners of Inner Mongolia are Russia, Japan, the People's Republic of Mongolia, US, Italy and Hong Kong.

Russia has been Inner Mongolia's top export partner in recent years. In 2000, Inner Mongolia exported USD143.12 million worth of products to Russia, while USD84.87 million worth of products were exported to Inner Mongolia's other border trade partner, the People's Republic of Mongolia, in 2000. The export products to these hinterland markets include cashmere textiles and garments, minerals (including coal), food and animal products. On the

¹Source: <http://english.peopledaily.com.cn/data/province/mongolia.html>

other hand, the autonomous region also imports agricultural products, timber and machinery from these trade partners.

Besides Russia and the People's Republic of Mongolia, Inner Mongolia exports its cashmere textiles and garments to the US, Italy and some of the Asian countries including Korea and Japan. Besides the People's Republic of Mongolia and Russia, Inner Mongolia also exports its food and animal products to the European Union and Japan.

The autonomous region's products are also extensively distributed in the domestic markets. For instance, its cashmere textiles and garments are exported to coastal areas such as Guangdong, Shanghai and Beijing, while minerals including coals are sold to Gansu, Ningxia and Heilongjiang. In the case of food and animal products, they are distributed domestically to Hong Kong, Tianjin and Beijing.

Table 4.6-4: Distribution of Key Export Products Identified for Inner Mongolia

Products	Distributed in other provinces	Distributed in other countries
Cashmere textiles and garments	Guangdong, Shanghai, Zhejiang, Jiangsu, Shandong, Liaoning, Fujian, Beijing, Tianjin, Hubei	Japan, Hong Kong, United States, South Korea, Russia, Germany, Australia, Thailand, India, Vietnam, Scotland, People's Republic of Mongolia
Minerals	Gansu, Ningxia, Heilongjiang, Beijing	Japan, Korea, Russia, People's Republic of Mongolia, Western Europe
Coal	Gansu, Ningxia, Hong Kong, Heilongjiang, Beijing	Japan, South Korea, Taiwan, France, Belgium, UK, India, North Korea, Finland, Southeast Asia, People's Republic of Mongolia, Russia
Food	Ningxia, Beijing, Tianjin, Heilongjiang, Gansu, Shanxi, Hong Kong	People's Republic of Mongolia, Russia, European Union
Animal products	Ningxia, Beijing, Tianjin, Heilongjiang, Gansu, Shanxi, Hong Kong, Macau	People's Republic of Mongolia, Russia, Japan

Note: The products are not listed in any ranking order.

Direction of Trade and Significant Trends

Four export sectors that are envisaged to have important export roles for Inner Mongolia in the short and medium term are:

- (i) Cashmere textiles and garments;
- (ii) Minerals including coal;
- (iii) Food and animal products; and
- (iv) Tourism.

(i) Cashmere textiles and garments

Previously, about 80 percent of Inner Mongolia's cashmere products are exported overseas. However, overseas orders have reduced by over one-third due to the global economic slow down in 2000. In response to this, many local manufacturers have turned to the home market where many Chinese consumers are now able to afford higher priced cashmere products.

One challenge that Inner Mongolia's cashmere textiles and garments industry is facing is the fall in cashmere prices. At present, the high-quality cashmere is priced at approximately USD31.30 per kilogram, half the price in 2000. Despite this challenge, Inner Mongolia with its established pool of producers and the ready availability of raw materials (sheeps) is expected to be able to lower their production costs and increase their cost-competitiveness in the domestic and international markets.

In addition, the increasing affluence of China's population of 1.2 billion people will serve as an important domestic market for Inner Mongolia's high-quality cashmere textiles and garments players. On the international front, China's accession to WTO would also present Inner Mongolia with more export opportunities in the US, the European Union as well as Southern America.

(ii) Minerals

The minerals sector is also expected to be an important export sector for Inner Mongolia in the short and medium term.

China's supply of rare earth accounts for 85 percent of the worldwide demand. Inner Mongolia supplies the bulk of China's rare earth. It is anticipated that there will be increasing worldwide demand for rare earth minerals and thus, the autonomous region's export of rare earth is likely to continue growing.

Although the autonomous region has large reserves of minerals, there is a lack of industrial and technical facilities to convert the resources into high-value products. The value of rare earth exported in its primary form is 40 percent less than its processed form. Therefore, the autonomous region may have to draw investments to upgrade this sector to include processing and production capabilities.

Besides rare earth, the export of metal-based minerals such as copper, manganese, lead and silver is also expected to increase with rapid industrialisation.

Coal from Inner Mongolia would be in demand mainly for domestic power generation. It is anticipated that there will be increasing demands for electricity, especially at the coastal provinces for urbanization and industrialization needs. Currently, huge quantities of coals are mined in Inner Mongolia and turned into electric current at thermal power plants. They are then carried by high-voltage transmission lines to North and Northeast China. Coal from Inner Mongolia also has potential to be exported in primary form to Russia, the People's Republic of Mongolia and neighbouring provinces of Gansu and Ningxia for similar purpose.

(iv) Food and animal products

In recent years, China has recognised the growth potential of ecologically friendly products or “green food” and has thus embarked on the development of such products. In 1999, the total export of such “green food” from China to overseas was worth USD200 million.

With its pollution-free natural environment, Inner Mongolia has potential to develop “green food”. Many enterprises in Inner Mongolia have capitalised on this natural environment and start marketing “green food” to the domestic and international food market.

Inner Mongolia also has potential to export more processed meat as such secondary activities would increase the values of the exports retained by Inner Mongolia.

The autonomous region’s government is very active in attracting foreign investments into this sector to upgrade the food processing technologies and facilities. It is anticipated that with further logistics improvements between Inner Mongolia and the other provinces in China, the domestic market of 1.2 billion people would become an important market for Inner Mongolia’s “green food”.

(v) Tourism

Inner Mongolia’s key tourist attractions are mainly related to the history and culture of the Mongolian Yuan Dynasty such as the Tomb of Genghis Khan as well as well as the huge scenic grasslands of Gegentala and Huitengxile.

In 2000, more than 392,000 international tourists visited the autonomous region and generated foreign exchange of USD126 million for the province. This was an increase of 6 percent in the number of international tourists over the number who visited in 1998, a reflection of the attraction of Inner Mongolia to foreigners. The number of domestic tourists has also increased by 14 percent from 6.5 million tourists in 1999 to 7.35 million in 2000. Based on the statistical trends in [Table 4.6-5](#), it is likely that the tourism sector will continue to grow further as the autonomous region has the unique Mongolian culture and scenic grasslands to offer to visitors. Besides revenues, the sector also provides job opportunities for the locals in the tourism and other related hospitality services sectors.

Table 4.6-5: Number of Tourists to Inner Mongolia (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	36.9	37.2	39.2
Domestic Tourists	N.A.	650	735
Total no. of Tourists	N.A.	687.2	774.2
Foreign exchange earned (USD million)	126	120	126

Source: China Statistical Yearbook 2001

4.6.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

The main transportation modes in Inner Mongolia are highways and railways. Referring to [Table 4.6-6](#), the freight traffic on highway were almost 3 times more than that of railway. The usage of the highways has also been increasing over the years. One of the reasons for the growth of highway transport is that shippers have greater control over the shipment schedules and locations.

As depicted in [Table 4.6-6](#), there is no freight traffic by waterway. This is due to the fact that the autonomous region is located at the upstream of the Yellow River and the water is too shallow to allow for transportation of goods. On the other hand, air transport has assumed greater important in the past ten years, particularly for the transportation of processed meat. Airfreight cargos have increased from 1,700 tonnes to 20,000 tonnes during the last ten years.

Table 4.6-6: Freight Traffic (in 10,000 tonnes)

Mode	1990	1995	2000
Railway	6,909	8,347	9,648
Highway	19,767	24,384	34,979
Waterway	-	-	-
Air	0.17	1.13	2.00

Source: Inner Mongolia Statistical Yearbook 2001

Passengers traveling to and from the capital city of Inner Mongolia, Hohhot, are presented with various transportation options. There are daily flights from other domestic cities such as Beijing, Shanghai and Guangzhou. Besides, it is also possible to travel by train and coaches on highways to Hohhot from Beijing as well as hinterland countries namely Ulan Baatar of the People's Republic of Mongolia and Moscow of Russia.

Trucking is normally used for the transportation of cashmere textiles and garments products from Inner Mongolia to other provinces and coastal export seaports such as Tianjin, Hong Kong and Shanghai. The key reason for choosing highways is that railway freights are susceptible to damages and pilferages. Where time is crucial, the cashmere textiles and garments exporter would also use air transport (via Beijing's International Airport) to deliver their goods to the other countries. The exporters themselves either own the trucks or they would engage the services of 3PL service providers to meet their transportation needs.

Minerals and coals, on the other hand, are normally transported via railway to export destinations such as Russia. For coals, the exporters usually transport the coals from the mining area via their own specialized railway lines and then to the main railway lines that are linked to the coastal seaports (normally Qinghuangdao port in Hebei). Exporters prefer to use railway because it is less costly. Furthermore, mineral ores are bulky and low value by nature, thus are less susceptible to pilferages and damages.

For the transportation of food and animal products from Inner Mongolia, shippers use several transportation modes depending on the situational demands. The use of trucks is common for delivery to nearby provinces. For exports over longer distances like to the Russian market, China's coastal seaports and far south provinces in China, the railway service is used. In cases where export products are high-value and perishable such as processed meats, airfreight service is used. Box 4.6-1 depicts how one of Inner Mongolia's important food products, potatoes could be packaged, stored and transported.

Box 4.6-1: HOW POTATOES ARE PACKAGED, STORED & TRANSPORTED

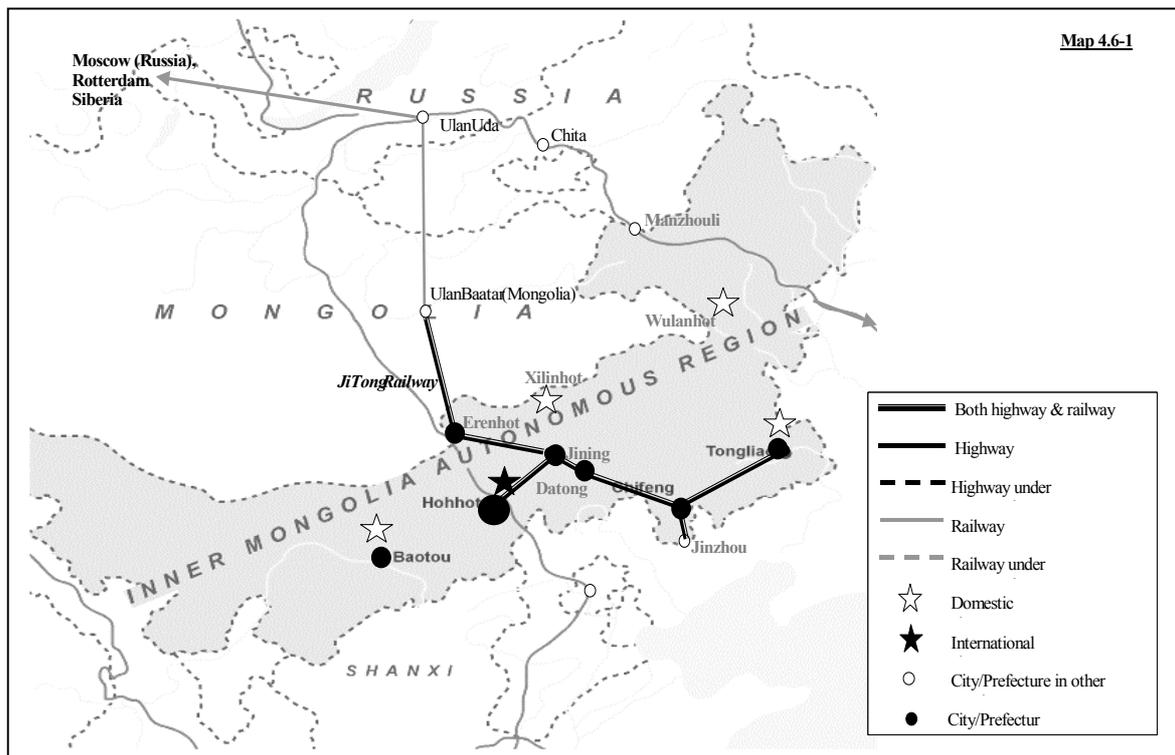
After harvest, potatoes are transported to packing facilities where they are brushed or washed to remove dirt and cooled to 50 degrees Fahrenheit. Next, potatoes are mechanically sized then sorted into grades by workers.

Potatoes that are packed for the fresh market are further cooled to 42-45 degrees Fahrenheit. Depending on the grade and size, potatoes are then packed into consumer-sized bags or larger cartons. The most common sizes for consumers are 5, 10, 15, or 20 pound bags. The most popular carton sizes are 100-count, 90-count, 80-count and 70-count, each weighing 50 pounds.

Potatoes can be stored for about 10 months in special storage facilities where the temperature, humidity and air circulation are controlled. To help prevent them from bruising, potatoes pass through a conveyor belt into the atmospherically controlled storage facility.

Source: http://www.dole5aday.com/ReferenceCenter/Encyclopedia/Potatoes/potato_transport.html

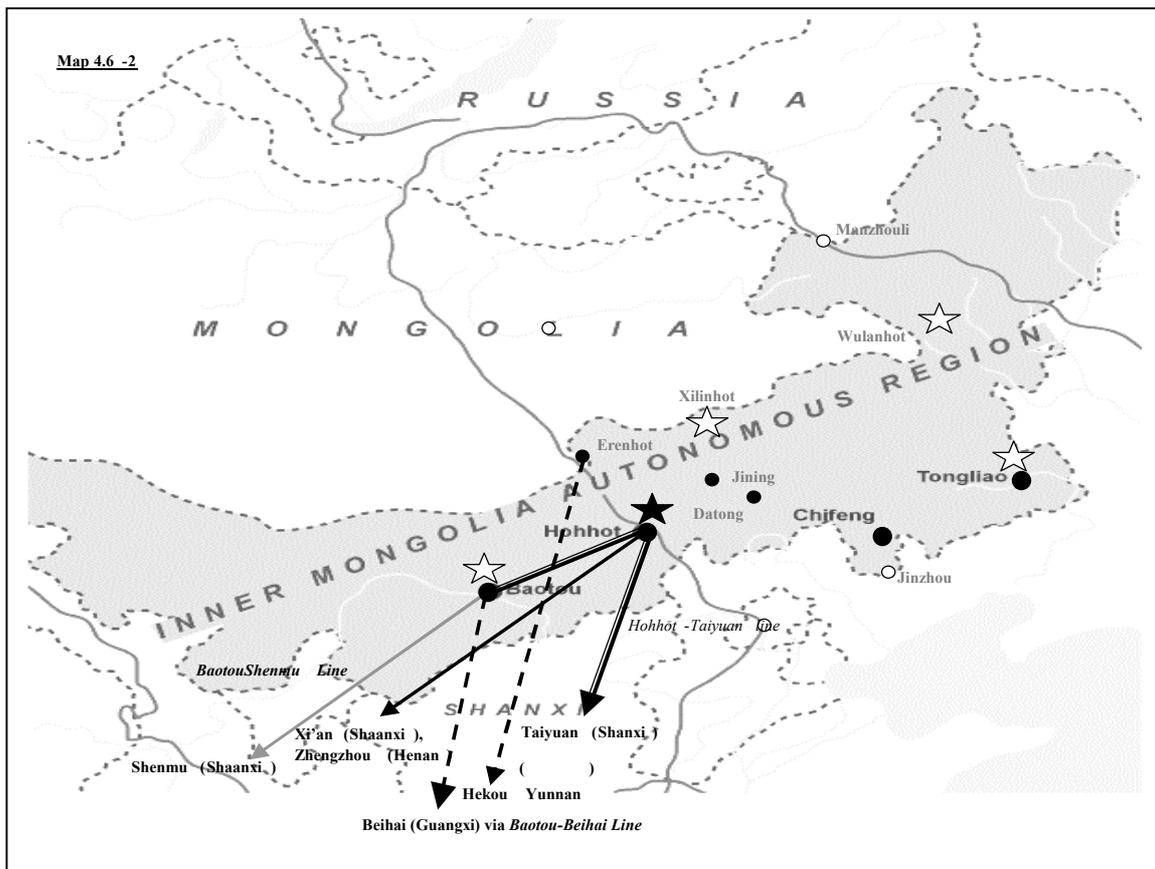
Northern Direction



The northern transportation linkage from Inner Mongolia is significant as it facilitates border trade with hinterland markets of **Russia** and **Mongolia**. At present, Inner Mongolia is connected to Mongolia and Russia via railways that run through Erenhot and Manzhouli respectively. The routes linking Mongolia and Russia include:

- The *JiTong railway* between Jining and Tongliao (both in Inner Mongolia) is also an important railway line. It is an important route for moving “coal from the west to east, and wood from east to the west”, and accelerates the development of Inner Mongolia’s coal and mine resources to help resolve the Northeast region’s energy shortage problem. This line also forms an important section of the Europe-Asia Land Bridge². It is part of the route that covers Jinzhou (**Liaoning**), Erenhot (Inner Mongolia), Ulaan Baatar (**People’s Republic of Mongolia**), Moscow (**Russia**) and Rotterdam (**Netherlands**).
- The *Jining-Erenhot line* (railway) will link the autonomous region to Ulan Baatar of the **People’s Republic of Mongolia**.
- The strategic Trans-Siberian Railway that provides direct link between Beijing and Moscow passing through Inner Mongolia cities of Hailar and Manzhouli before chugging onwards into **Siberia**. Inner Mongolia’s Manzhouli Station and Erenhot Station are, thus, important gateways between China and Europe. The autonomous region is connected to the Trans-Siberian line at Manzhouli. Based on feedback from the logistics companies, the usage of the Trans-Siberian Railway is at present minimal as goods that are exported to Europe would usually go through the *Longhai line* through Gansu, as the transportation time required is shorter.

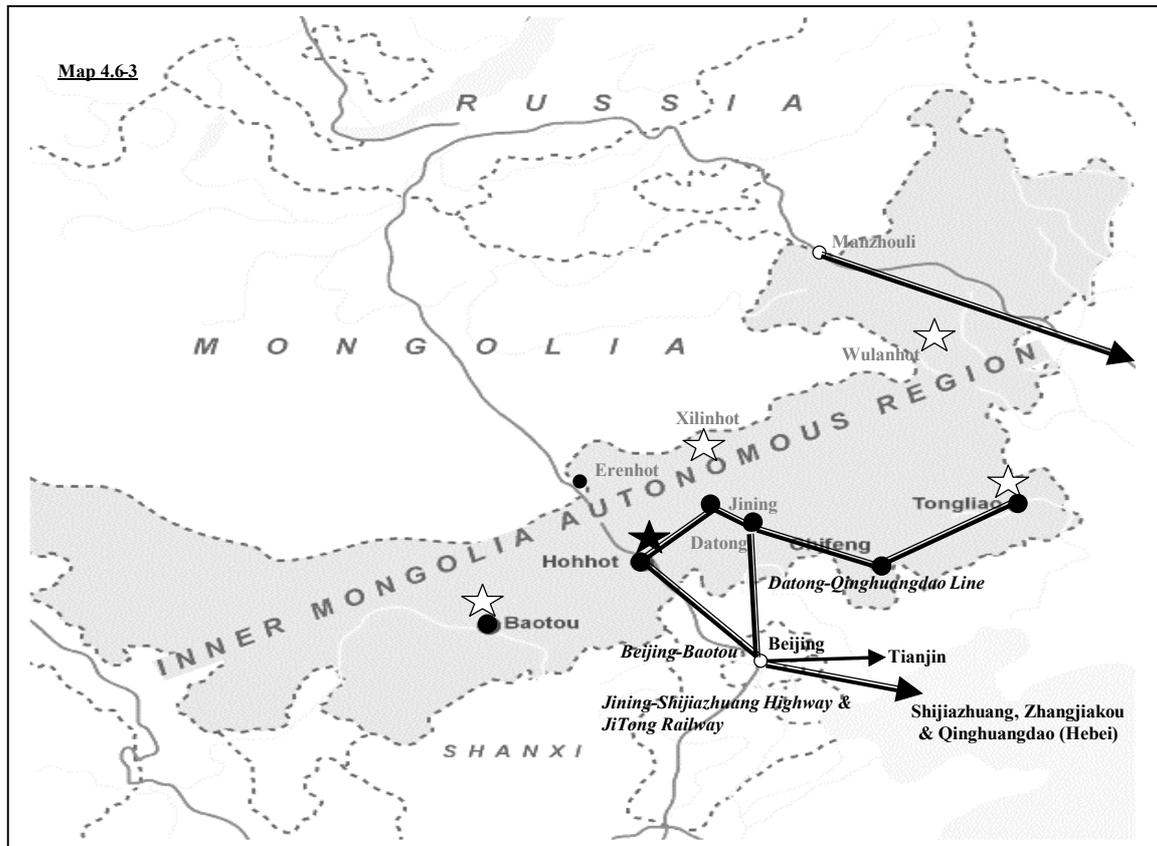
²Europe-Asia Land Bridge is an important linkage between Asia and Europe.

Southern Direction

There are several highways and railway lines that exporters can use to transport their goods to main cities such as Shanxi, Henan and Shaanxi in the south. Specifically:

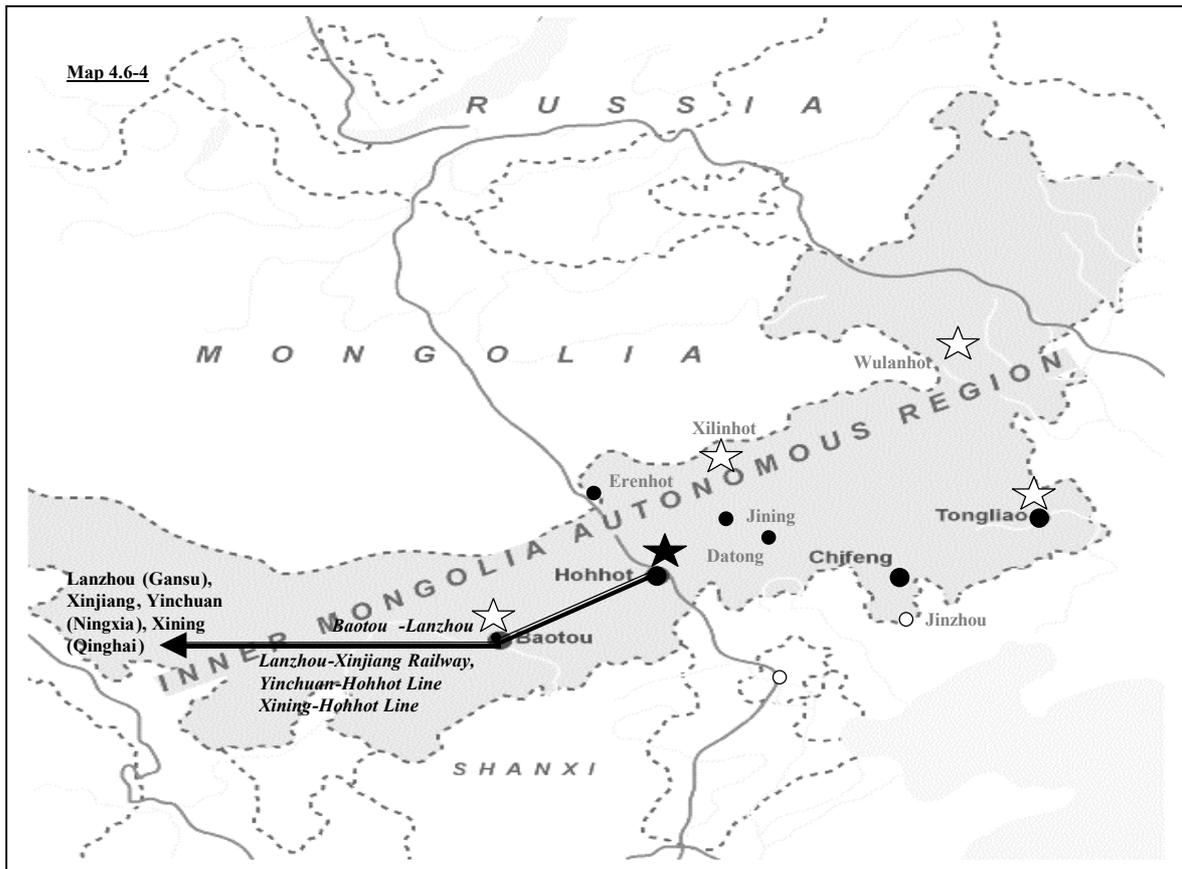
- The *Hohhot-Taiyuan* highway and railway that enable exporters to transport their goods to **Shanxi**.
- An expressway that goes through Xi'an (**Shaanxi**) from Hohhot to Zhengzhou (**Henan**).
- A railway line known as *Baotou-Shenmu line* that links **Shaanxi** and Inner Mongolia.
- By 2010, there will be a highway linking Erenhot to Hekou in **Yunnan**, facilitating the transportation of goods from the far North to the Southern part of China as well as transit trade between Russia and ASEAN countries in the Mekong region.
- *Baotou-Beihai line* is an expressway that will be open to traffic in the near future and this line will enable more direct transportation of goods from Baotou to Beihai in **Guangxi**.

Eastern Direction



Exporters can distribute their goods to the coastal cities, as well as the richer and urbanized domestic markets in the east through various linkages which include:

- *Beijing-Baotou Highway* that links Inner Mongolia to **Beijing**. Besides highway, there is also the *Beijing-Baotou line* (railway line) that connects Baotou (Inner Mongolia) to Beijing.
- The *Beijing-Tongliao line* is also another railway line that links Inner Mongolia to Beijing.
- *Harbin-Manzhouli highway* which passes through Qiqihar of **Heilongjiang** to reach Harbin (capital city of Heilongjiang). This highway will be extended to reach Suifenhe (Heilongjiang).
- *The Jining-Shijiazhuang highway* that links Inner Mongolia to Shijiazhuang and Qinghuangdao of **Hebei**. In addition, the *Datong-Qinhuangdao line* (railway) also connects Datong in Inner Mongolia to Qinghuangdao (Hebei). Inner Mongolia is also linked from Jining to Zhangjiakou (Hebei) by the *JiTong railway*.
- A national trunk highway and railway that link Inner Mongolia to **Tianjin**.
- A highway that connects Shenyang (**Liaoning**) in the east to Inner Mongolia.

Western Direction

There is a fairly comprehensive railways and highways linkage between Inner Mongolia and the cities in West. Specifically,

- *The Baotou-Lanzhou (Gansu) highway* is an important passage from the western inland provinces to the eastern coast. There is also railway linkage between Baotou (Inner Mongolia) and Lanzhou of Gansu.
- Inner Mongolia is linked to **Xinjiang** via the connection of *Baotou-Lanzhou line* to *Lanzhou-Xinjiang railway* at Lanzhou where it is further connected to the Asia-Europe Land Bridge.
- There are railway (*Yinchuan-Hohhot line*) as well as highway linkages between Yinchuan of **Ningxia** and Hohhot of Inner Mongolia.
- Export products from Inner Mongolia are transported via the *Xining-Hohhot line*, a highway that links Inner Mongolia to Xining in **Qinghai** in the west.

Intra-provincial Transport Network

Hohhot, the capital city of Inner Mongolia is centrally located in the autonomous region. It is fairly well linked to the other main cities in Inner Mongolia such as Erenhot in the north, Baotou in the west, Chifeng, Tongliao and Manzhouli in the east by both highways and railways. The highway infrastructure has a total mileage of 43,000 km, of which 34,000 km are graded highways. The *Hohhot-Baotou Expressway* is a major highway in Inner Mongolia.

There are 12 first-class and 6 second-class open trading centers³. The total transshipments of these 18 centers is 10 million tonnes and they are the logistics gateway between China and Mongolia, and China and Russia. The two biggest land route trading centers - Manzhouli and Erenhot are located in Inner Mongolia. In 2000, Manzhouli had trade volume of USD698 million and the major export products were agricultural products, garments and timber. Plastics and chemical products were some of the major imports.

Baotou is a major trading center on the Yellow River. It is connected by railway with Beijing, Lanzhou, the Republic of Mongolia, and Russia. Vigorous industrialization in the 1960s made it a major manufacturing center. Iron and coal are mined in the vicinity, and the city has a large integrated iron and steel complex as well as sugar refineries, textile mills, and plants making motor vehicles, chemicals, fertilizers, and aluminum.

The Hohhot Baita International Airport has more than 47 air routes to major cities namely, Beijing, Qinghuangdao (Hebei), Dalian (Liaoning), Shijianzhuang (Hebei), Shanghai, Wuhan (Hubei), Guangzhou (Guangdong) and Shenzhen (Guangdong). Overseas destinations from this airport are People's Republic of Mongolia and Russia.

The autonomous region also has civil domestic airports in Baotou, Hailar, Chifeng, Xilinhote, Wulanhot and Tongliao.

4.6.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

Inner Mongolia's economy relies substantially on processed meats as well as cashmere textiles and garments. With the liberalisation of these sectors following China's WTO accession, these two sectors would face considerable competition from foreign imports. Hence, in order to enhance Inner Mongolia's competitiveness in these two sectors, the following logistics-related impediments would have to be alleviated.

a) Low-quality highways

Some of the highways linking to the grasslands (for example, the highways linking to the Gegental Grassland) are not well paved and narrow, hence, hazardous for tour coaches and other big vehicles such as trucks (carrying animals).

³ Known as ports in China.

b) Inadequate railway capacity

There are usually some delays in uploading of goods such as coals and minerals onto the empty carriages at the railway stations as there are inadequate empty carriages. There may be a need for better co-ordination between the railway authority and the private sector to forecast the envisaged demands for railway service.

c) Lack of cold chain facilities and management expertise

As products such as processed meat would need to be consistently chilled to ensure that their quality and hygiene standards are maintained at high levels, it would be necessary for Inner Mongolia's food sector players to be equipped with the necessary cold chain facilities. It will also be necessary for the autonomous region to have more expertise that are both knowledgeable and experienced in cold chain management. This will help the autonomous region to fully capitalise on the sector and fully benefit from both primary and secondary activities.

4.7 SHAANXI PROVINCE

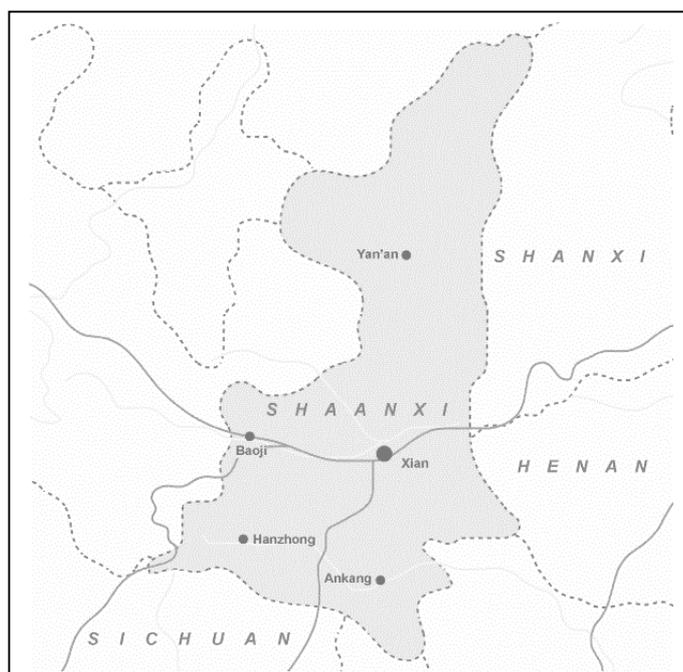
Shaanxi is situated in the Northwest region of China. It has a geographical area of 205,600 square kilometers (2.1 percent of the total national area) and has a population of 36 million people. The province is adjacent to Shanxi and Henan provinces to the east, Gansu Province and Ningxia Autonomous Region to the west, Hubei and Sichuan provinces and Chongqing City to the south and the Inner Mongolian Autonomous Region to the north.

There are altogether seven cities in Shaanxi including Xi'an (capital city), Baoji, Xiangyang, Tongchuan, Weinan, Hanzhong, and Yan'an, and three prefectures including Ankang, Shangluo and Yulin.

Shaanxi's key export products are textiles and garments, electronic products and glassware. The province also grows a wide range of agricultural products such as grains, cereals, cotton, tobacco and fruits. Apple in particular is one of the most important agricultural products in Shaanxi. In addition, the province's tourism sector has also been gaining importance in recent years.

In the short and medium term, it is expected that Shaanxi's key export products would continue to be electronic products, and textiles and garments. Tourism services would also continue to grow, in line with increased affluence of the local population and increasing flow of foreigners to the country. Besides the continuous growth of this traditional sector, the fresh fruits and related processed fruit products would also become more important exports for Shaanxi.

Shaanxi faces a few logistics impediments related to trade. For instance, outlying villages with rich resources are not linked by proper transportation network to the main cities and the province faces shortage of quality railway linkages to other provinces. In addition, the province also faces a shortage of cold chain facilities for its fruits sector and it lacks high-quality warehouses suitable for storage of electronic products. Integrated logistics services are generally lacking and better logistics management needs to be present in the province. There also appears a need for the province to train government enforcers in the administration of the transport system.



4.7.1 ECONOMIC PROFILE

Table 4.7-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (USD billion)	14.14	15.92	16.58	17.87	19.97
Per Capital GDP (USD)	399	446	461	494	548
Primary Sector (% of GDP)	22	21	21	18	21
Secondary Sector (% of GDP)	41	42	41	43	41
Tertiary Sector (% of GDP)	37	37	38	39	38

Source: Shaanxi's Yearbooks 1997 to 2001.

Exchange rate used: US\$1 = 8.30 Chinese yuan.

Shaanxi's economy has been growing steadily over the years from 1996 to 2000 as depicted in Table 4.7-1. The GDP has grown by more than 40 percent over the last five years from USD14.14 billion to USD19.97 billion in 2000.

Shaanxi's manufacturing and secondary processing industries accounted more than 40 percent of the province's GDP. The province has been one of the most important industrial bases since the early 1960s when a number of factories shifted from the coastal areas to Shaanxi. These enterprises have gradually developed to form the strong nucleus for the development of Shaanxi's present industrial system. Machinery and electronic products industries are the province's backbone industries. Besides electronic products and technology-based industries, light manufacturing industries particularly in the manufacturing of textiles and garments products and the processing of agricultural products have also developed rapidly over the last few years to contribute to the province's economy.

The tertiary sector (including tourism and hospitality services) is the other major driver of Shaanxi's economy, accounting an average of 38 percent towards the province's GDP over the last five years. The key sectors in the tertiary sector include tourism and its related hospitality industry as well as emerging service businesses that support the growth of the manufacturing sector.

4.7.2 INTERNATIONAL TRADE STRUCTURE

Table 4.7-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (USD million)	1,270	1,350	1,180	1,150	1,310
Imports (USD million)	520	530	870	850	830
Top export partners	<ul style="list-style-type: none"> • Hong Kong • Japan • US • South Korea • Germany 	<ul style="list-style-type: none"> • Hong Kong • Japan • US • South Korea • Netherlands 	<ul style="list-style-type: none"> • Hong Kong • US • Japan • Netherlands • South Korea 	<ul style="list-style-type: none"> • Hong Kong • US • Japan • South Korea • Netherlands 	<ul style="list-style-type: none"> • US • Hong Kong • Japan • South Korea • UK
Key export products/values (USD million)	<ul style="list-style-type: none"> • Textiles and garments^e (355.75) • Ball bearings (38.16) • Colour TV (2.76) • Cables (2.78) • Fruits (N.A.) 	<ul style="list-style-type: none"> • Textiles and garments^e (392.18) • Colour picture tubes (60.88) • Glassware (22.00) • Fruits (2.63) • Amplifiers (2.53) • Colour TV (1.35) 	<ul style="list-style-type: none"> • Textiles and garments^e (554.42) • Electronic products (368.67) • Glassware (30.15) • Fruits (2.96) 	<ul style="list-style-type: none"> • Textiles and garments^e (568.77) • Electronic products (396.70) • Glassware (33.42) • Fruits (2.79) 	<ul style="list-style-type: none"> • Textiles and garments^e (596.50) • Electronic products (481.03) • Glassware (33.44) • Fruits (4.29)

^e Includes cotton cloth, fiber cloth, accessories and ready-made garments.

Source: Shaanxi Statistical Yearbooks 1997 to 2001

Referring to the statistics in Table 4.7-2, Shaanxi's exports increased from USD1,270 million in 1996 to USD1,350 million in 1997 but decreased during 1998 and 1999. This could be attributed to the Asian economic crisis that led to a reduction in the demand for the province's exports to the Asian markets.

On the other hand, imports saw a big jump in 1998, from USD530 million in 1997 to USD870 million. This increase in imports could be due to the increased imports of capital goods such as machinery to support the growth of the manufacturing activities in Shaanxi. The main products that Shaanxi imports from the main import partners namely Japan, Hong Kong, US, Germany and UK include synthetic fiber, machinery, chemicals and pharmaceutical-raw material, electronic equipment and instruments, ferrous and base metals.

Key Export Products

Shaanxi has a very narrow export base dependent on two main sectors namely, textiles and garment and electronic products. As depicted in Table 4.7-2, textiles and garments and electronic products are the main types of export products for Shaanxi between 1996 and 2000. These two exports together constituted 82 percent of the province's total exports in 2000. Glassware is also a major export product of Shaanxi. However, this export sector is unlikely to have tremendous growth potential, as it does not play a significant role in international exporting for Shaanxi.

An emerging potential export sector for Shaanxi is fresh and processed fruits. Shaanxi's apples in particular are well-known in the domestic market and have already been widely distributed in other provincial markets and exported overseas.

Table 4.7-3: Key Export Products from Shaanxi (USD million)

Products	1996	1997	1998	1999	2000
Fruits	N.A.	2.63	2.96	2.79	4.29
- Apples	N.A.	N.A.	0.21	1.14	2.57
Fruit juices	3.76	6.93	N.A.	N.A.	N.A.
Electronic products cluster	N.A.	N.A.	368.67	396.70	481.03
Textiles and garments	355.75	392.18	554.42	568.77	596.50

Note: The products are not listed in any ranking order.

Source: Shaanxi Statistical Yearbook 2001

(i) Textiles and garments

Textiles and garments have traditionally been Shaanxi's top exports, hence, it is an important sector for the earning of foreign exchange. Over the last 50 years, Shaanxi's textiles and garments industry developed rapidly and today, the province has become one of the most important textiles and garments production bases in China. After undergoing several years of restructuring and consolidation in the face of heightened competition in this sector, the province's textiles and garments productions are now concentrated in four main cities namely, Xi'an, Xianyang, Baoji and Weinan. Currently, there are more than 160 textiles and garments enterprises in Shaanxi.

Despite the domestic competition, export of textiles and garments products has been increasing steadily in value terms over the last five years as depicted in Table 4.7-3. Between 1996 and 2000, exports increased by more than 68 percent to hit USD596.5 million.

(ii) Electronic products

Electronics is another important export product of Shaanxi. The electronic products industry emerged as one of the economy's major contributors since the 1970s when it first took shape. During the 1970s and 1980s, Shaanxi's provincial government invested heavily in the electronic products industry to develop it into one of the pillar industries. Today, the province is one of the top producers of electronic products (especially consumer electronic products) in China.

The types of electronic products produced in Shaanxi include colour picture tubes, TV sets and refrigerators. These products are widely distributed within the province, in China as well as overseas markets.

Another reason for rapid development in the industry is the province's strong R&D foundation arising from its national defense industry establishment since 1950s. There were established facilities and experienced talents who were tapped to assist in building up the electronic products industry. The industry is currently slowly moving into producing software, computers and telecommunication systems.

The exports of the electronic products sector grew by 30 percent in export values over the last three years to hit USD596 million in 2000. Before 1998, electronic products that were exported included colour picture tubes, amplifiers and colour televisions. The export values of these products, however, were relatively low. During 1998, these individual products were classified as one export category - the electronic products category.

(iii) Fruits

The fruits sector shows promise as a new export sector for Shaanxi. Referring to [Table 4.7-3](#), the fruits exports have increased from USD2.63 million to USD4.29 million in 2000. The province's main crops include apples and citrus fruits. Although the export values of fruits have not been high between 1996 and 2000, this sector has vast potential because the province's high-quality apples (50 percent of the production are of high-grades) are well known in China. The province with its total production of 2.8 million tonnes of apples is ranked the second biggest apples producer in China, after Shandong.

Shaanxi's apple exports alone in 2000 were USD2.57 million and constituted 3 percent of China's total apple exports. If the quality of the apples can be preserved and logistics requirements are met, there is strong potential to export more apples from Shaanxi and they can be exported at competitive prices. In addition, the sector also has huge potential for downstream activities and value-adding products such as the production of apple juice concentrates and canned fruits. Based on some unpublished statistics for 1997, Shaanxi was already exporting USD6.9 million worth of fruit juice concentrates in that year.

Besides its importance as a revenue earner for Shaanxi, the fruits sector is also very important because it provides employment opportunities for the rural population.

Key Export Partners

Shaanxi's key international export partners are the US, European Union, Japan, South Korea and Hong Kong. Within the European Union, UK was the top export partner followed by the Netherlands.

Shaanxi's textiles and garments are exported mainly to the European Union and the US, whereas its electronic products are exported to Asian countries such as Taiwan, Japan and South Korea. In recent years, Shaanxi's fresh apples have started to penetrate the Southeast Asian markets. The province also started exporting apples to the European

market of Britain, Germany and the Netherlands. Besides exporting fresh apples, there are also considerable volumes of apples that are being processed into fruit juice concentrates before exporting out of China to countries such as the US, Australia, Germany and Italy.

Besides the overseas markets, Shaanxi's textiles and garments are exported domestically to neighbouring provinces such as Inner Mongolia. On the other hand, the province's electronic products are exported to the coastal areas such as Tianjin and Shanghai. Shaanxi's fresh apples are also domestically exported to its neighbours like Inner Mongolia and Ningxia.

Table 4.7-4: Distribution of Key Export Products Identified for Shaanxi

Products	Distributed in other provinces	Distributed in other countries
Textiles and garments	Gansu, Inner Mongolia, Ningxia, Sichuan, Hong Kong, Tianjin, Beijing	Japan, South Korea, the European Union and the US
Electronic products	Shanghai, Tianjin, Inner Mongolia, Gansu, Ningxia	Japan, Taiwan, US, South Korea,
Fruits	Gansu, Inner Mongolia, Ningxia,	Southeast Asia, Australia, Italy, Germany, US, Europe

Note: The products are listed are not in any ranking order.

Direction of Trade and Significant Trends

The four main products/sectors that the consulting team is of the opinion, to continue to be key export products post-WTO are as follows:

- (i) Textiles and garments;
- (ii) Electronic products;
- (iii) Fruits; and
- (iv) Tourism.

(i) Textiles and garments

As a result of recent restructuring in the textiles and garments industry in the previous few years, Shaanxi today, has a mass of "surviving" enterprises which have proven themselves to be the most resilient and competitive enterprises in the industry.

China's accession into WTO would see cheaper imports of textiles as import tariff rate on textiles is reduced from 57 percent to less than 10 percent. Hence, Shaanxi's textile exports to the coastal provinces may face increased competition from foreign players like Taiwan, South Korea or Japan. In addition, Shaanxi's industry also faces enormous competition from other provinces such as Guangxi, which has been able to sell their products to the coastal provinces at lower prices because of their proximity to the coastal provinces.

However, China's accession to the WTO would benefit the garments exporters. This is because the WTO Agreement on Textiles and Clothing (ATC) requires the US and EU to

phase out quotas and other non-tariff barriers on export of apparels into these markets. Hence, Shaanxi's garment producers would be presented with more export opportunities in these markets.

Nevertheless, in order to fully capitalize on the new opportunities presented by WTO accession and to reduce the adverse impacts of the heightened competition, the overall logistics system in Shaanxi has to be further improved to offset the inherent disadvantage that it has because of its longer distance from export seaports (Tianjin), as compared to the coastal provinces. It is also important for local producers to continue to upgrade their existing production technology and facilities so as to improve their productivity and product quality in order to stay competitive in the market. The local producers might also need to market their products and adopt "branding" strategies to distinguish themselves from both their foreign and domestic competitors.

(ii) Electronic products

This is an export sector that is expected to continue to grow post-WTO as Shaanxi's enterprises in this sector have built up substantive core capabilities coupled by its good reputation within the local market. The province is ranked third in terms of overall R&D capability, after Beijing and Shanghai. Besides the production of downstream electronic products, the province has the potential to be an important base for upstream scientific research and production of high-tech products. It is also expected to develop great advantages in the areas of space technology, biological technology and electromechanical integration.

With China's accession to the WTO, the tariff protection for the local electronic products industry of 21.69 percent would be dramatically reduced to 3.44 percent. This may have some impacts on Shaanxi's electronic products sector, particularly the distribution of its products in the domestic market, as foreign imports would be cheaper. However, with its established base in the electronic products sector, Shaanxi is likely to be able to defend against these competitions.

(iii) Fruits

Fresh and processed fruits sector is one in which Shaanxi has substantial export growth potential. This is in view of the (i) existence of good quality fruits in the province, and (ii) the increasing trend in the sales of fruit and vegetable juices in recent years, both domestically and internationally.

According to the 10th National Five Year Plan (2001-2005), the Central Government will focus more efforts on the development of fruit and vegetable juices, especially the development of new products, to meet the rapid increasing demand. The Shaanxi's provincial government has also made plans to emphasize on the growing of apples that are suitable to be processed into juices. As part of the plan, the provincial government is strengthening the industrialization of apple processing so as to facilitate the local apples to break into the world market.

(iv) Tourism

Shaanxi has many tourist attractions. The province, being the starting point of the Silk Road (which extends from Asia to Europe), has assumed an important role in cultural interflow between the East and the West since ancient times.

Presently, there are ten tourist zones in Shaanxi and they are spread around the whole province with Xi'an as the central attraction. Shaanxi's key tourist attractions are the Terra-cotta Warriors, the Mausoleum of Qin Shi Huang, Qianling (Tomb of Emperor Li Zhi and Empress Wu Ze Tian), Tomb of Yang Gui Fei and Mount Hua. Most of these attractions are accessible by car/coach (about 1 hour from Xi'an).

Table 4.7-5: Number of Tourists to Shaanxi (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	55.0	63.0	71.3
Domestic Tourists	2,550	2,600	3,060
Total no. of Tourists	2,605	2,663	3,131.3
Foreign exchange earned (USD million)	247	272	280

Source: China Statistical Yearbook 2001

The tourism sector is a very important revenue earner for the province. In 2000 alone, more than 31 million tourists have visited the province. The majority of the tourists to Shaanxi are domestic tourists accounting for more than 90 percent of all tourists. On the other hand, the number of international tourists to Shaanxi has increased over the years by 29 percent to hit more than 71.3 million people in 2000. The foreign exchange earned from tourism has also been increasing over the last three years from USD247 million to USD280 million in 2000.

Today, Shaanxi's tourism sector has become a major key economic driver of the province. In 2000, the tourism sector contributed about 18 percent of output value to the service industry. This sector is expected to continue to make great contributions to Shaanxi's economy in the light of the following factors:

- Steady economic growth in China has provided the local population with more spending power to go on holidays within the country.
- A more prominent role played by China in the world will attract more vacation seekers and businessmen and officials who will normally make short visits to tourist attractions during the weekends.

4.7.3 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

Shaanxi has the potential to be a major gateway to the Northwest Region and also a communications hub that links the east, the west, the northwest and the southwest. It has a transportation network linked by air, highways and railways. Railways and highways are its two most important modes of transportation.

The Xi'an Cargo Railway Station is a top-grade station handling 36 million tonnes of cargoes annually. In recent years, the railway bureau in Shaanxi has been trying to provide better and more efficient services so as to attract new customers and retain existing ones. For instance, Xi'an East Railway Station co-operated with the coastal seaports in simplifying the customs clearance and declaration procedures. The export declaration and custom clearance used to take a few weeks but they have now been shortened to 7 days. This has resulted in less delays and shorter transportation time for customers using their railway service.

Photo 4.7-1: Railway Line Owned by A Logistic Provider in Xi'an, Shaanxi Linking their Warehouses to the Railway Station



Moreover, in recent years, the highways are gaining importance as an alternative mode because both the central and provincial governments have invested substantially in highway projects and new highway upgrading projects in the province. As illustrated in [Table 4.7-6](#), the utilization of highway transport is greater than railway over the last ten years, climbing steadily from a freight volume of 181 million tonnes to 252 million tonnes, an increase of 39 percent in the last ten years.

Table 4.7-6: Freight Traffic (in 10,000 tonnes)

Mode	1990	1995	2000
Railway	3,476	3,629	3,933
Highway	18,112	25,560	25,200
Waterway	24	43	73
Air	1	2	3

Source: Shaanxi Statistical Year Book 2001

In Shaanxi, most companies in the textiles and garments industry use highways (rather than railway) as their main transportation mode to neighbouring provinces and coastal seaports. Besides the flexibility in time schedule, highway transport also has lower incidents of pilferage, which is important for high-value garment products. Airfreight service is used in cases where garment products need to be speedily delivered.

In the case of electronic products, airfreight is most commonly used. Although the cost of airfreight is generally more expensive, it is suitable for products such as high-value electronic products. However, there are instances whereby the electronic products are shipped using waterways and rivers because this transportation mode is considered to be more cost effective.

For tourism sector, the main modes of transportation for passengers/tourists to and from Shaanxi are air and railway. Tourists can reach Shaanxi's Xianyang International Airport in less than 2 hours by taking a plane from Beijing's International Airport. There are also direct flights from their major cities such as Shanghai and Guangzhou to Xi'an. On the other hand, a tourist can also take a train from Beijing to Shaanxi but it would take approximately 15 hours, which is much longer than by air.

The fruit companies, on the other hand, rely more on the national railways for the transportation of fresh and processed fruit products. Railways are used because it is a cheaper mode for long distance transportation. Refrigerated trucks and storage facilities are also required for the transportation of the fresh fruits from the farms to the storage facilities or the export seaports (Tianjin or Qingdao) in order to maintain the freshness of the fruits. Box 4.7-1 depicts how apples are packaged, stored and transported.

Box 4.7-1: HOW APPLES ARE PACKAGED, STORED & TRANSPORTED

At the packing facility, apples are washed, rinsed, sorted and graded. Next, apples are waxed to help keep them moist and firm.

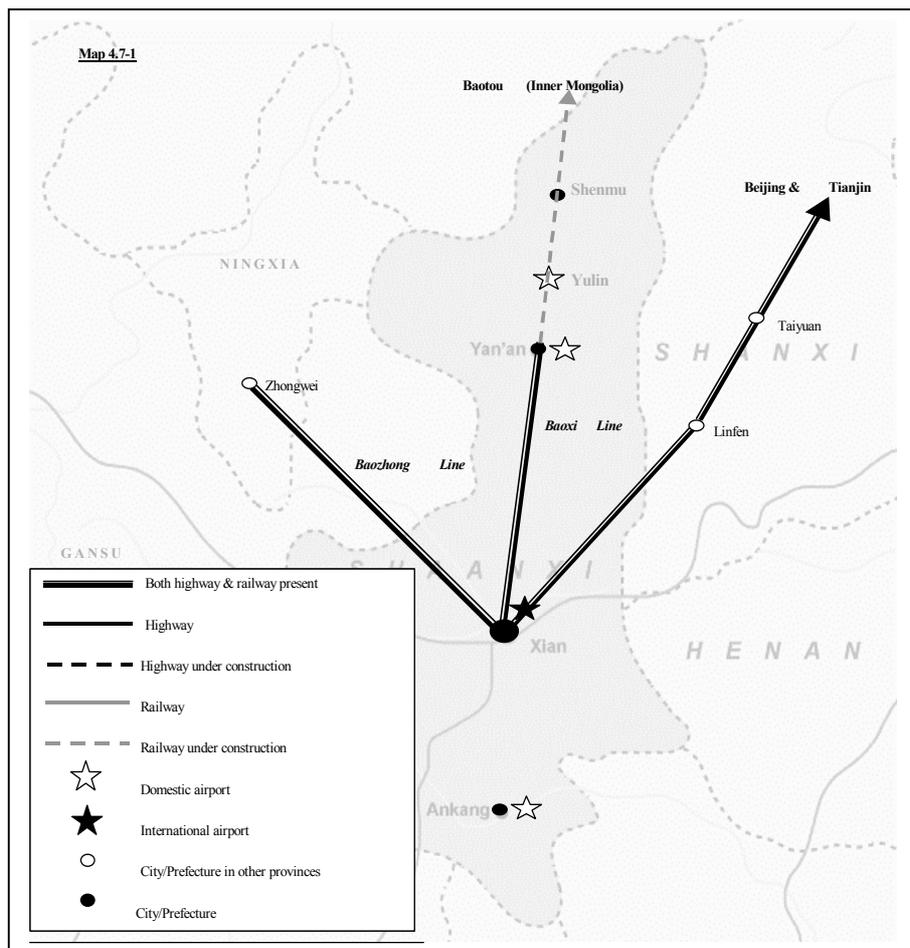
On the computerized packing line, each apple is either photographed or weighed to determine the size of the fruit. After apples are sorted according to size, workers hand-pack the fruit into trays. Apples are then inspected, boxed and palletized before being transported to cold storage facilities.

Inside a regular warehouse, apples can be stored for about 5 months because it is cooled to 30-32 degrees Fahrenheit. Inside a special controlled atmosphere warehouse, apples can be stored for almost 12 months because the temperature, humidity, oxygen and carbon dioxide are constantly monitored and controlled to prevent the fruit from ripening too quickly.

Most apples are transported in refrigerated trucks to the supermarket/export destinations. Apples shipped overseas are transported in refrigerated containers that are temperature cooled to 32 degrees Fahrenheit on big ships called reefer vessels.

Source: http://www.dole5aday.com/ReferenceCenter/Encyclopedia/Apples/apple_transported.html

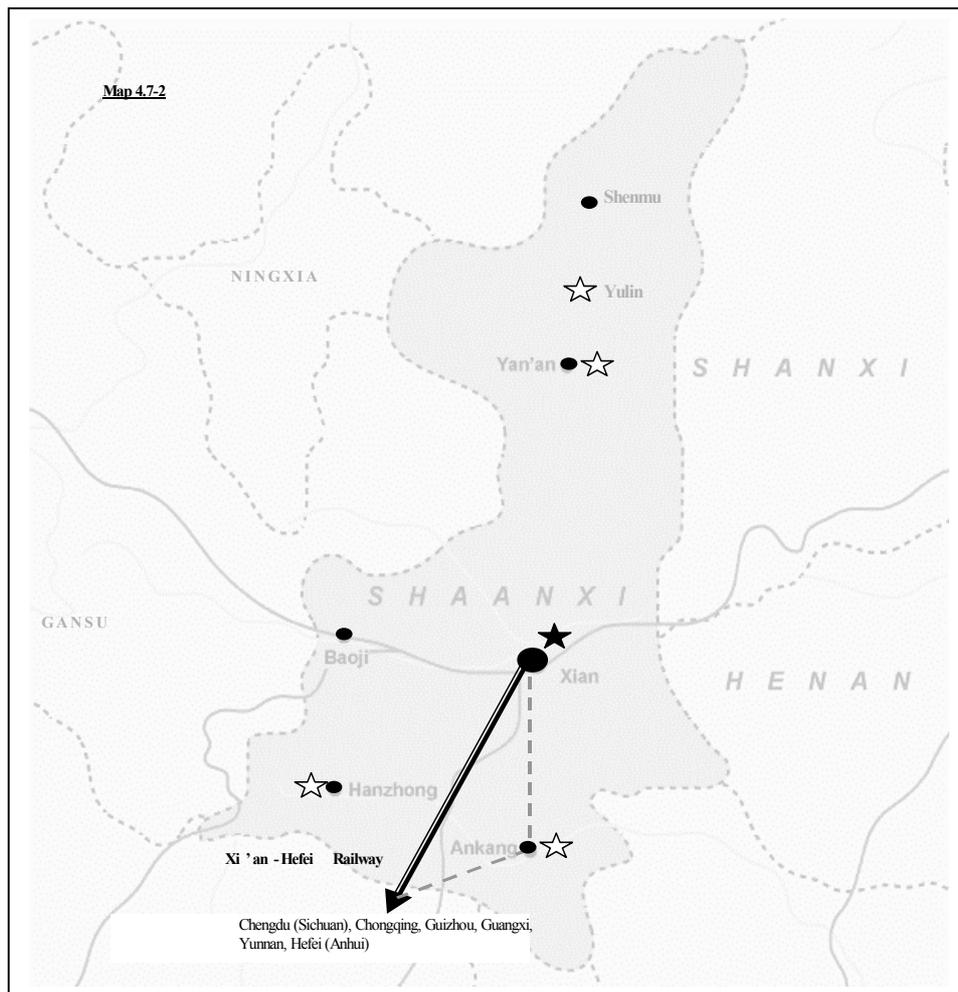
Northern Direction



There are several railways and highways linkages that facilitate the distribution of products from Shaanxi to the main cities of Inner Mongolia and Ningxia in the north. These linkages are as follows:

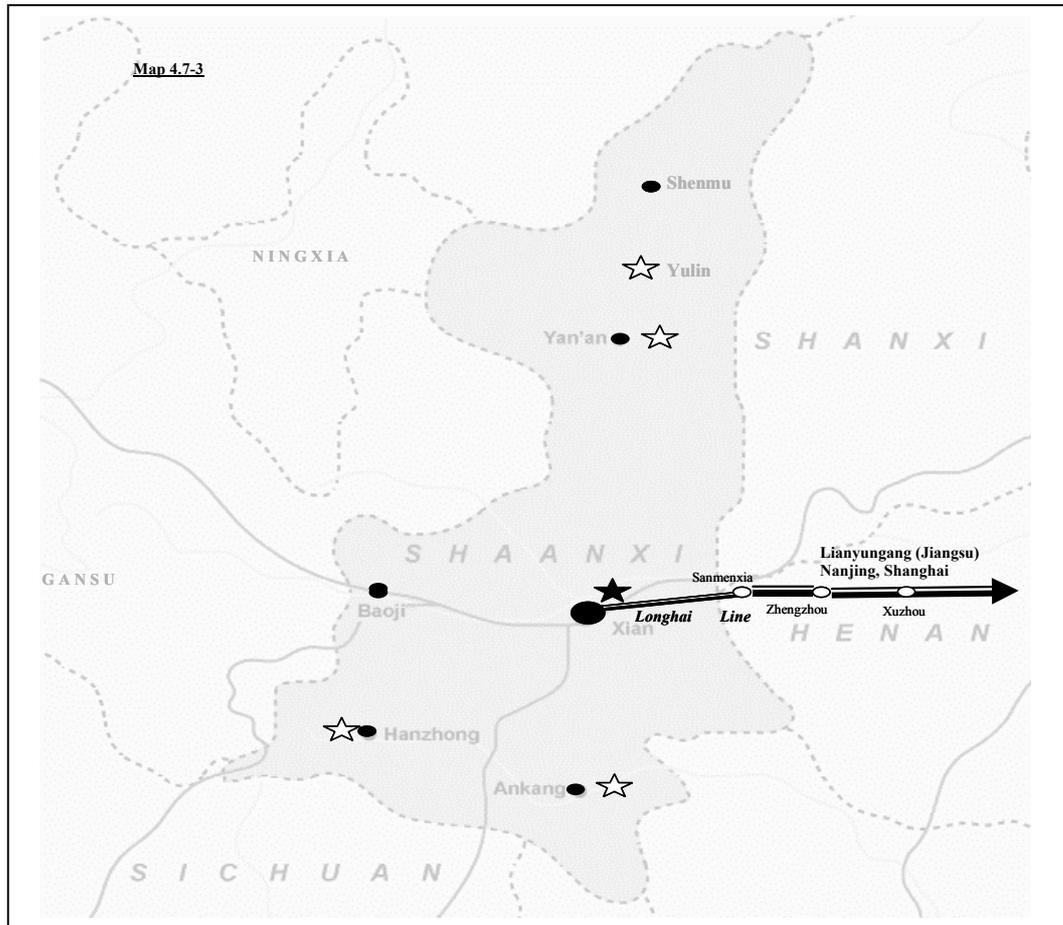
- With the completion of the connecting project between Baotou in **Inner Mongolia** and Yan'an in Shaanxi on the *Baoxi railway line*, the Shaanxi province would be well served by a railway for the transportation of goods from Xi'an to the far north province of Inner Mongolia, passing through Ankang, Yan'an, Yulin and Shenmu of Shaanxi. This railway is expected to be completed before 2005, together with the completion of the *Xi'an-Hefei (Anhui) Railway* in the south.
- A railway that links Shaanxi to **Shanxi's** Linfen and Taiyuan cities. There is also a highway connection between the two provinces.
- The *Baozhong railway line* connects Xi'an (Shaanxi) to Zhongwei of **Ningxia** via Baoji in Shaanxi. A highway also connects the two cities.
- There are railway and highway linkages between Xi'an (Shaanxi) and its important domestic markets of **Beijing** and **Tianjin** in the northeast.

Southern Direction



Exporters from Shaanxi have options to send their goods via the national highways or railways to cities in the south. They are able to access to Sichuan, Chongqing, Guizhou, Guangxi and Yunnan in the south through the following linkages:

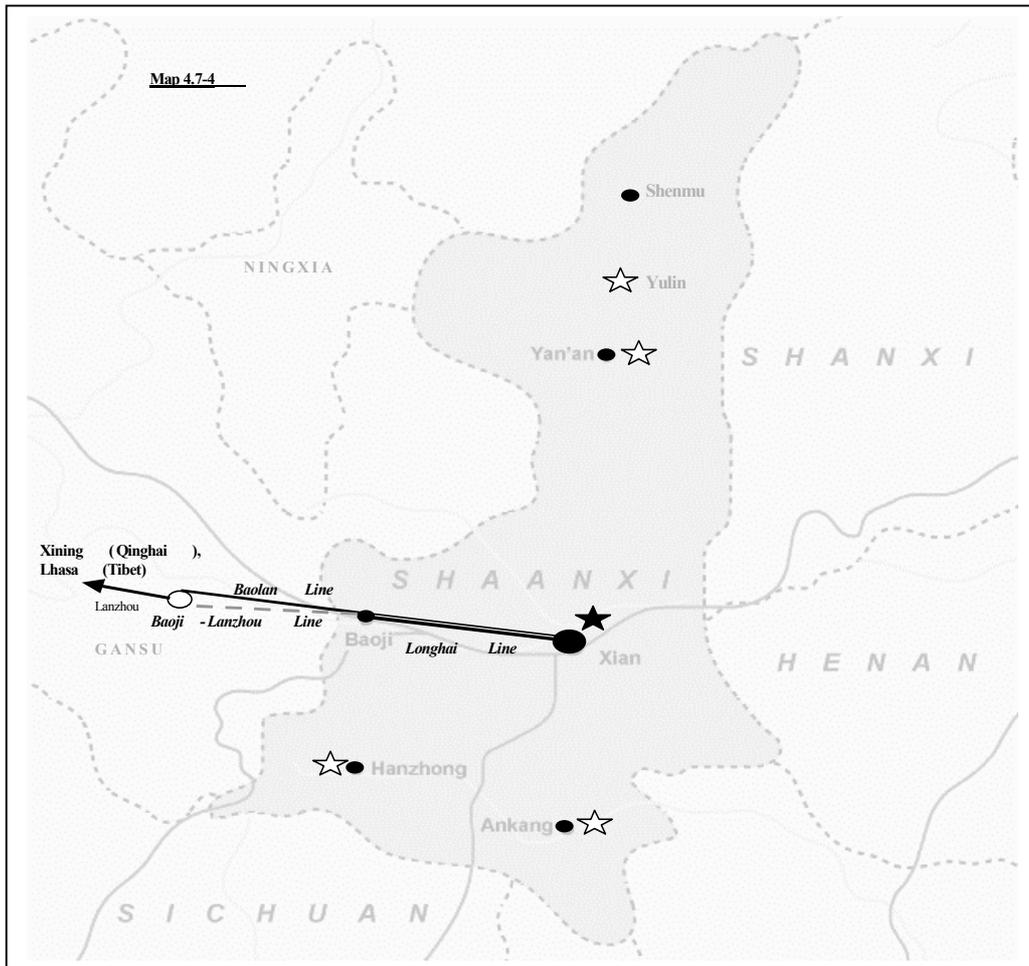
- A highway and railway that links Xi'an to Chengdu of **Sichuan**. This same linkage also enables exporter to reach **Chongqing** by passing through Sichuan.
- From Chongqing, the goods could be transported further southward to **Guizhou**, **Guangxi** and **Yunnan** as well as the Mekong region markets in the South.
- Shaanxi is also connected to Hefei of **Anhui** via railway (*Xi'an-Hefei Railway*) and highway.

Eastern Direction

There is a fairly comprehensive railway and highway linkage that facilitates the distribution of products from Shaanxi to the richer domestic markets by the coasts as well as accessibility to the export seaports for international export products. Specifically:

- There is a railway linkage between Xi'an and **Henan's** Zhengzhou, Sanmenxia and Xuzhou. Shaanxi is also connected to these cities by highways.
- The *Longhai railway line* is an important transportation route for exports from Shaanxi to be exported to overseas markets via the **Lianyungang**. This *Longhai line* starts from Lanzhou, passes through Xi'an and goes to Lianyungang.
- Xi'an (Shaanxi) is linked to **Qingdao** port via both highways and railways.
- Currently, the *Xinan line* is being constructed and this line would soon enable passengers and goods to be transported via railway directly from Xi'an (Shaanxi) to **Nanjing**. This would be a convenient passageway linking China's northwest and southwest to the east and central south of China, shortening the distance in railway transport between the above regions and optimizing the railway network.

Western Direction



There are highway and railway linkages between Shaanxi and the cities in the west.

- A national trunk highway links Shaanxi to **Qinghai**, passing through Lanzhou (Gansu). This highway will also link Shaanxi to Lhasa of **Tibet**.
- The *Baoji-Lanzhou line* will soon enable travellers to make use of the railway linkages between Shaanxi and **Gansu** upon its completion. The travel time between Shaanxi and Gansu is estimated to shorten from 9 hours to 5.5 hours with the completion of this line. In addition, there is also a highway (*Baolan line*) that links the two provinces.

Intra-provincial Transport Network

The main cities and key districts of Shaanxi are well linked internally by highways and railways. Xi'an (capital city) is linked internally by highways and railways to Yan'an and Yulin in the north; to Ankang in the south; and Baoji in the west. The outlying villages and districts, however, are still not served by good quality highways, hence, making it difficult to access these places.

There are several rivers such as the Huai, Wei and Han Rivers that flow through Shaanxi. These inland waterway rivers are only used for the transportation of small volume of goods and passengers over short distances. The main export seaports for Shaanxi are the seaports in Qingdao, Tianjin and Lianyungang. These seaports are approximately 2,000 km away from Shaanxi and on average, a single driver (driving only in the day) will take about 4 days by highways to reach the seaports. On the other hand, it would take 7 days to reach the seaports if the goods are sent by railway.

Air transportation is the most important mode of transportation for passengers/tourists to and from Xi'an, Shaanxi. Presently, Shaanxi's Xianyang International Airport in Xi'an has 114 domestic routes linking Xi'an to practically all the capital cities of provinces in China. There are also direct flights from Macau, Japan, Thailand, South Korea and some European countries. The province also has domestic airports in its main cities and prefectures such as Yulin, Hanzhong, Yan'an and Ankang.

4.7.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

Shaanxi presently has a narrow export base dependent on two main sectors, textiles and garments and electronic products. Other sectors such as the fruits and tourism sector, however, have tremendous growth potential.

The existing core sectors namely, textiles and garments and electronics sectors would be adversely affected by China's accession to WTO as a result of the liberalisation of these sectors to foreign imports. The reduction of tariff rate on textiles would result in cheaper imports of textiles and Shaanxi's textile exports to the coastal provinces would face increased foreign competition. The province will face similar challenge in its electronics sector. Hence, in order to maintain the competitiveness of its products, it would be necessary for Shaanxi to overcome the following trade logistics impediments:

a) Lack of expertise in the provision of integrated logistics services

The concept of integrated logistics management is fairly new to many enterprises including some logistic service providers. Hence, many of these providers are not fully equipped with the necessary knowledge and experience to advise clients on multi-modal or integrated logistics management. For instance, the warehouse owners are only concerned about leasing out their warehouses for storage and have not considered expanding into other services such as transportation and inventory planning for clients.

b) Low standard of warehouses

Most of the warehouses in Xi'an are built during the 1950s and 1960s. As a result, they are quite old and not properly maintained. These warehouses may suffice as a space for storage of low-value products. However, there will be a need for upgraded and technologically advanced warehouses for the storage of high-value products such as electronic products, which may be vulnerable to theft or fire hazards.

c) Lack of rural connectivity between villages, counties and the main cities and quality railway linkages between Shaanxi and other provinces

Numerous fruit-producing regions in Shaanxi lack good quality highways that enable trucks to gain access to collect the fruits and transport to the factories for further processing or to the markets. This has increased the cost of producing and delivery the fruits, hence rendering the fruits less price-competitive in the market. A lot of the fruits are also spoiled and gone to waste due to the inaccessibilities.

Shaanxi also faces a shortage of quality railway linkages to other provinces. For instance, Shaanxi's section of the *Longhai line*, which links it to Gansu and Lianyungang (Jiangsu), partially collapsed due to a flood during early June 2002. As a result, the railway service for both goods and passengers has been delayed. Before this collapse, there have already been several reports on the quality of the railway line. However, there were little efforts to rectify the situation¹. In view of this, the consulting team is in the opinion that Shaanxi improves the quality of its railways so as to ensure that there would be a more efficient transportation network between Shaanxi and the other provinces.

d) Shortage of cold chain facilities for fruits

Large volumes of fruits in Shaanxi have been wasted as there are inadequate cold chain facilities. Presently, trucks would go into the orchards, collect the harvested fruits and send them to the processing factories and then to export destinations. The fruits are not placed in containers or refrigerated trucks. As a result, many fruits became spoiled during this process and this has resulted in great wastages of the fruit resources and great losses for the fruit producers.

In order for Shaanxi to tap on its fruit resources more effectively, it is essential that it is equipped with more cold chain facilities. For instance, transport of fresh fruits should be in reefer containers placed on a lorry. The use of reefer containers can not only prevent the fruits from rotting, but also enable an intermodal distribution system whereby the same container can be transported by sea, highway and railway. This also results in fewer damages due to improper handling during the loading and unloading of the fruits during transportation.

In the case of processed fruit products, Shaanxi exporters could transport them in dry containers. Fan containers can also be used for dried products to prevent the buildup of heat and humidity.

¹ Source: http://www.zaobao.com/gj/zg010_120602.html

e) Deficiency in the management of transport system

Besides physical transportation network, the effectiveness and efficiency of transportation depends on the administration of the traffic rules by the enforcer/implementer. In the case of Shaanxi, there appears a need to train government enforcers in the administration of the system. Two key areas among others that have been identified are:

- Equitable application of the law
- Basic knowledge on the roles of traffic rules to enhance traffic management

Poor enforcement of traffic rules on the roads in the province can be very apparent to the foreign tourists, hence, resulting in a negative image of Shaanxi in the eyes of foreigners. This will hinder the growth of Shaanxi's tourism sector. Therefore, in order to ensure further development of its tourism sector, it is important to ensure that public enforcers of rules understand the crucial role of transportation management to facilitate trade and tourism growth in the province.

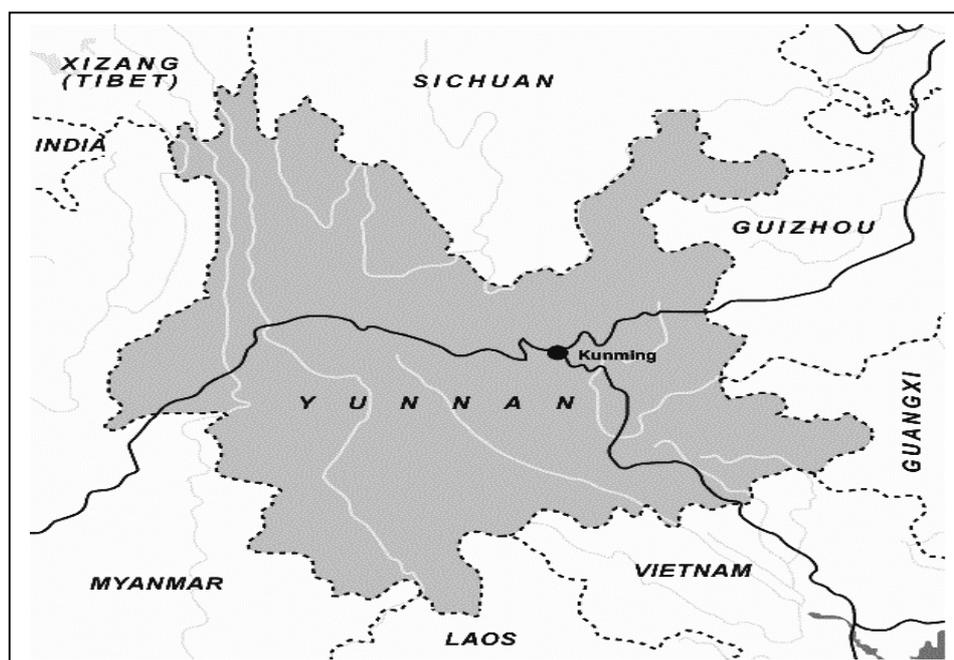
4.8 YUNNAN PROVINCE

Yunnan is situated in the Southwestern region of China. The province covers an area of some 394,000 sq km and has a population of some 42 million in 2000. Yunnan borders the Guangxi Zhuang Autonomous Region and Guizhou Province in the east, Sichuan Province in the north, and Tibet Autonomous Region in the northwest. It also shares a border of 4,060 km with Myanmar in the west, Laos in the south, and Vietnam in the southeast. The capital city of Yunnan is Kunming and major cities include Ruili county, Wanding city and Hekou city. Yunnan is a land of ethnic diversity. It has an ethnic minority population of more than 14 million, and of the 55 minority groups in China, 25 inhabit in Yunnan.

The tobacco and cigarettes, base metals and chemicals sectors have been the typical economic drivers of the Yunnan economy. In recent years, the major economic sectors of Yunnan have expanded to include the horticulture and tourism industries. Yunnan's horticulture industry, specifically the cut flowers business, has grown rapidly over a span of a decade to become the biggest producer in China.

In the near to medium term, it is expected that Yunnan's key export products would continue to be tobacco and cigarettes, chemicals and base metals. Yunnan's green sector, namely the horticulture and vegetables industries, is also expected to grow in importance as a source of foreign exchange earner. In addition, Yunnan's tourism sector is expected to continue to expand further due to the increased affluence of the local population as well as the number of visitors to Yunnan for business and conventions.

However, Yunnan faces some key impediments related to trade logistics. Among which is the shortage of modern cold chain facilities such as refrigeration equipment, to facilitate the transport and further growth of Yunnan's green sector, namely the cut flowers and fresh vegetables businesses. Being the furthest Southwestern province of China, the transportation cost from Yunnan to the nearest seaport is high. This in turn reduces the price competitiveness of Yunnan's exports. In addition, there is currently a lack of containerized railway service to support the export of products from Yunnan, which is particularly crucial for the export of perishable goods.



4.8.1 ECONOMIC PROFILE

Table 4.8-1: Overview of Economy

	1996	1997	1998	1999	2000
GDP (US\$ billion)	18.0	19.8	21.6	22.4	23.6
Per Capita GDP (US\$)	N.A.	481	525	536	559
Primary Sector (% of GDP)	24	24	23	22	22
Secondary Sector (% of GDP)	45	46	46	45	43
Tertiary Sector (% of GDP)	31	30	31	33	35

Source: China Statistical Abstract, CEIC database.

Exchange rate used: US\$1 = 8.30 Chinese yuan.

Yunnan's provincial economy has grown by 31.7 percent, from USD18 billion in 1996 to reach USD23.5 billion in 2000. Its provincial per capita GDP has also risen by 16.2 percent between 1997 and 2000. Yunnan's secondary sector has typically been the main economic driver of the provincial economy. As depicted in [Table 4.8-1](#), the secondary sector is the most important sector for Yunnan and it has contributed to more than 40 percent of the provincial GDP over the last five years. Some of the most important activities in this sector include tobacco processing and chemicals-related manufacturing activities. While there was a slight decline in the contribution of the primary sector to Yunnan's provincial GDP, the tertiary sector has assumed greater importance for the province over the last five years since 1996.

4.8.2 INTERNATIONAL TRADE STRUCTURE

Table 4.8-2: Overview of International Trade

	1996	1997	1998	1999	2000
Exports (USD million)	1096	1172	1174	1034	1175
Imports (USD million)	826	765	730	625	638
Border Trade (Exports in USD million)	100	42	89	231	277
Key export partners	N.A.	N.A.	<ul style="list-style-type: none"> • Myanmar • Hong Kong • Japan • Malaysia • USA 	<ul style="list-style-type: none"> • Vietnam • Hong Kong • Indonesia • Myanmar • Japan 	<ul style="list-style-type: none"> • Myanmar • Hong Kong • Japan • Vietnam • USA
Key export products/values (USD million)	<ul style="list-style-type: none"> • Tobacco (258.9) • Base metals (144.7) • Chemical products (138.3) • Textiles (55.9) • Coffee and tea (21.2) 	<ul style="list-style-type: none"> • Tobacco (196.3) • Base metals (194.2) • Chemical products (155.4) • Foods (111.7) • Machinery (92.8) 	<ul style="list-style-type: none"> • Tobacco (241.4) • Base metals (203.6) • Chemical products (180.6) • Food (114.6) • Machinery (77.0) 	<ul style="list-style-type: none"> • Base metals (164.6) • Chemical products (139.2) • Tobacco (108.8) • Vegetables (6.1) 	<ul style="list-style-type: none"> • Base metals (200.8) • Chemical products (173.0) • Tobacco (77.6) • Fertilizers (63.5) • Vegetables (60.5)

Source: China Statistical Abstract, Yunnan's Statistical Yearbooks and various sources.

Exchange rate used: US\$1 = 8.30 Chinese yuan.

Yunnan's international exports have remained fairly stable at around US1 billion between 1996 and 2000. A unique characteristic of Yunnan's international trade is the substantial contribution by border trade with the neighboring markets of Myanmar and Vietnam. Yunnan's border trade accounted for more than 23 percent of its total international exports in 2000.

The major export products from Yunnan include chemicals, tobacco, food and non-ferrous metals. In 2000, Yunnan's top 5 export products accounted for more than 43 percent of the total exports.

Yunnan's international imports have been on the decline over the last five years since 1996. This could possibly be due to the substitution of international imports by domestic production or imports from other domestic provinces. Yunnan's major international imports include agricultural products, machinery for tobacco and raw materials.

Key Export Products

Table 4.8-3: Key Export Products from Yunnan (USD million)

	1996	1997	1998	1999	2000
Base metals	138.2	144.7	203.6	164.6 ¹	200.8 ¹
Chemicals cluster	138.3	155.4	180.6	139.2	173.0
Tobacco & Cigarettes	258.9	196.3	241.4	108.8	77.6
Vegetables	-	-	-	6.1	60.5

¹ refers to tin & aluminium only.

Note: The products are not listed in any ranking order.

The most important export sectors from Yunnan are:

- (vi) Base metals;
- (vii) Chemical products;
- (viii) Tobacco & cigarettes; and
- (ix) Fresh vegetables

(i) Base metals

Yunnan has the biggest reserves of tin, aluminium, zinc and lead in China and a big reserve of copper and nickel.

In 2000, Yunnan exported more than USD200 million worth of such metals. Base metals, in particular tin and aluminum, have been Yunnan's two biggest metal exports over the last few years. Besides domestic export to other provinces to support industrial development, these metals are also exported to a number of Asian countries such as Japan and South Korea.

(ii) Chemical products

The chemical cluster is another major export sector of Yunnan. Export values of this sector has risen between 1996 and 1998, but declined temporarily in 1999, possibly due to the impact of the Asian financial crisis. In 2000, exports of this sector recovered to reach more than USD173 million.

Exports from this sector are distributed in a number of domestic provincial markets and several Asian markets such as Japan and Hong Kong. Yunnan's exports of chemicals include phosphate-based chemicals and compound fertilizers for tobacco, flowers, crops and tea.

(iii) Tobacco & Cigarettes

The tobacco and cigarettes sector is an important industry in Yunnan. The province is ranked the number one producer of tobacco in China, with an annual production of 800,000 tonnes of tobacco and 380 billion cigarettes. Currently, there are more than 2.3 million farmers in Yunnan engaged in tobacco cultivation. Besides the creation of jobs, the Yunnan's economy is also heavily reliant on the collection of taxes from its cigarettes enterprises. Yunnan's provincial fiscal revenue from the taxes collected from cigarettes companies amount to more than 65 percent annually.

Besides wide distribution in domestic markets, Yunnan also exported more than USD77 million worth of tobacco and cigarette products in 2000. These exports go mainly to markets such as Indonesia, Philippines, Vietnam and Egypt. The values of export from this sector, however, have been on the decline since 1996, possibly due to strong competition in the overseas markets.

(iv) Fresh vegetables

With a moderate climatic condition throughout the year, Yunnan is an ideal location for the production of fresh vegetables.

The export of fresh vegetables from Yunnan emerged as a viable export product in the recent few years. The export value from this sector increased ten-fold between 1999 and 2000, to reach USD 60 million (see [Table 4.8-3](#)). Besides domestic market, Yunnan's fresh vegetables are also exported to a number of ASEAN countries like Singapore, Vietnam and Myanmar.

Key Export Partners

Yunnan's major export partners are Hong Kong, Japan, USA, Vietnam and Myanmar. Yunnan is fairly reliant on these top 5 export partners as exports to these five markets accounted for 66 percent of Yunnan's total exports in 2000.

There was also substantial border trade between Yunnan and Vietnam and Myanmar. In 2000, trade with these two markets accounted for more than 23 percent of recorded exports from Yunnan. Major export products in border trade were sugar, beer, cigarette, garments, cement, tropical fruits and Chinese medical herbs.

Table 4.8-4: Distribution of Key Export Products Identified for Yunnan

Products	Distributed in other provinces	Distributed in other countries
Chemicals	All parts of China	USA, Japan, South Korea, Hong Kong, Taiwan
Tobacco & Cigarettes	Guizhou, Sichuan, Henan, Hunan	Vietnam, Cambodia, France, Britain, US
Fresh vegetables	Guangdong, Zhejiang, Fujian	Japan, Hong Kong, Southeast Asia markets e.g. Singapore, Myanmar and Vietnam.
Cut flowers	Guangdong, Jiangsu, Zhejiang, Shandong, Fujian	The Netherlands, Columbia, Israel, Kenya, Ecuador, Zimbabwe, New Zealand, Malaysia, Belgium, India, Guatemala
Base metals, e.g. tin and aluminum	Guangdong, Shenzhen, Fujian	Japan, South Korea, Taiwan, Hong Kong, the USA and the EU.

Note: The products are not listed in any ranking order.

Direction of Trade and Significant Trends

Taking into consideration the export trends (both domestic and international) of Yunnan and the developmental trends in domestic and international trade, the consulting team is of the opinion that the following export sectors would become important export products for Yunnan in the short to medium term:

- (i) Tobacco and products;
- (ii) Horticulture;
- (iii) Fresh vegetables;
- (iv) Base metals; and
- (v) Tourism

(i) Tobacco & Cigarettes

Yunnan is the biggest cigarettes producer in China today. Currently, two-thirds of Yunnan's cigarettes production is for the domestic market, while one-third is for the overseas market.

However, with foreign ownership rules relaxed after China's WTO membership, foreign cigarette makers like BAT and Philip Morris, are poised to make inroads into China's large cigarette market. The cigarettes companies in Yunnan, hence, would face fierce competition from these foreign players as well as the potential influx of imported cigarettes following the reduction in cigarettes import tariffs.

Yunnan, with its existing pool of established tobacco companies and the availability of the high-grade tobacco leaves, would likely be able to compete against foreign competition. In the short to medium term, tobacco companies would have to build up a range of products to suit the varied market tastes. At the same time, marketing activities and

campaigns need to be stepped up by the tobacco companies to win over especially the younger Chinese smokers.

(ii) Fresh vegetables

Following a tenfold increase in the international export of fresh vegetables, Yunnan would likely be able to build upon this success to export more vegetables to both domestic and overseas markets.

Domestically, the demand for vegetables is expected to increase. As more provinces, particularly China's coastal provinces, place emphasis on the development of the secondary manufacturing industries and converting agricultural land into industrial parks, Yunnan's producers would stand to gain. Furthermore, with the growing affluence among the local population and the increasing number of tourists visiting China, the demand for fresh vegetables is expected to continue to grow in the years to come.

On the international front, a current impediment which is limiting the export of more fresh vegetables is the high airfreight cost of transporting vegetables. As the cost of airfreight transport reduces, Yunnan would be able to supply more overseas markets with fresh vegetables at cost-competitive rates.

(iii) Cut flowers

Yunnan's moderate weather condition is also ideal for the growing of cut flowers. International exports of cut flowers from Yunnan is still low currently at less than US\$3 million, but it is a sector that has a lot of growth potential.

The commercial production of cut flowers started in late 1980s in Yunnan. In 1996, the provincial government launched a bio-product development program, which includes cut flowers, to foster businesses that can exploit Yunnan's natural plant resources, in an attempt to build an alternative pillar to the provincial economy by 2010. In less than 10 years since the launch of this programme, Yunnan has emerged as the Flower Kingdom in China. The main production bases of flowers in Yunnan are in Kunming, Xishuangbanna, Yuanjiang, Diqing and Lijiang.

Fresh flowers from Yunnan have been exported to many countries including Japan, Singapore, Canada and Netherlands. Domestically, approximately 45 percent of cut flowers in the Chinese market is supplied by Yunnan.

Today, Yunnan has built up a critical mass of fresh flower producers who will ensure the continuous growth of this sector. With the provincial government's continuous effort to develop the horticulture sector in its 10th Five-Year Plan (2001-2005), this sector is poised to become an important export sector for Yunnan. It is expected that by year 2005, the horticulture industry in Yunnan will generate about 300,000 new employment opportunities and considerably increase the living standard of an additional 10,000 farmers.

Photo 4.8-1: Flower market in Yunnan



(iv) Base metals

The mining industry in Yunnan had flourished with substantial development in mining, ore dressing and smelting industries. This has made Yunnan an important production base of tin, copper, lead, zinc and phosphorus in China. The future demand for Yunnan's base metals is also likely to rise with growing domestic demand for final products to meet the needs of industrialization, automobiles industry and domestic construction.

However, to fully benefit from Yunnan's reserves of base metal, the province should further develop and upgrade its production capability and enhance its value-adding activities in the sector.

(v) Chinese Medicine

The statistics for Yunnan's Chinese medicines are not available. However, based on the feedback received during our field study, there is an understanding that Yunnan has potential to develop its Chinese medicine sector as it is naturally endowed with medicinal plants and herbs. A wide variety of locally manufactured traditional medicines are available. These include *White Powder* - a well-known Chinese patent medicine, apparently effective for invigorating the blood circulation and treating inflammation. Another product is the Yunnan baiyao which has also won several national awards quality and is ranked among the most famous of Chinese traditional medicines. The province is also producing at high-value health-enhancing traditional Chinese medicine, the cordyceps, which is a product that is widely purchased by the more affluent Chinese both domestically and worldwide.

(vi) Tourism

Yunnan is one of the most popular tourist destinations in China because of its moderate weather throughout the year. There are currently more than 50 scenic spots in the province. The major tourist spots include the Xishuangbanna, the Lunan Stone Forest, the ancient kingdom capital of Dali, the beautiful Lijiang under the snow-capped Jade Dragon Mountain and the Spring City of Kunming.

Tourism has become a burgeoning industry in Yunnan. The province attaches great importance to the development of tourism. In the last 10 years, there have been concerted efforts to strengthen the construction of tourism infrastructure. As a result, tourism facilities and services have been substantially improved and a number of interesting tour routes have also been introduced. Presently, the province is also developing itself as an exhibition centre, in its bid to attract more visitors to the province.

Table 4.8-5: Number of Tourists to Yunnan (in 10,000 persons)

Tourists	1998	1999	2000
International Tourists	76.1	104.0	100.1
Domestic Tourists	2,793	3,673	3,841
Total no. of Tourists	2,869.1	3,777	3,941.1
Foreign exchange earned (USD million)	261	350	339

Source: China's Statistical Yearbook, 2001

In 2000, there were about 38.4 million total visitors to Yunnan, and foreign exchange earned was USD339 million. Yunnan's international tourist arrivals have grown by 37 percent between 1998 and 2000. Almost all visitors to Yunnan are domestic tourists (see Table 4.8-5).

With its year-round moderate weather conditions and picturesque landscapes, Yunnan has been a popular holiday destination for many local Chinese. With the province's efforts to promote tourism in a big way, the number of tourists to the province is expected to continue to rise in view of the growing affluence of the domestic population as well as visitors on business and conventions.

Border Trade

Border trade is significant for Yunnan, given the increasing economic development of neighboring markets such as Myanmar, Vietnam and Laos. In 1999, Yunnan's total border trade with Myanmar, Vietnam and Laos reached US\$287.8 million with exports amounted to more than US\$231 million, an increase of more than 250 percent compared to 1998. In 2000, exports from Yunnan to these hinterland markets further increased to more than USD277 million.

Yunnan has approved more than 28 counties as border trade zones. These zones include Ruili, Wanding and Hekou. Among these border counties, Ruili accounted for 70% of the province's border trade or 34% of the total national border trade. In the 10th Five-Year Plan, Yunnan is emphasizing on the promotion of trade with Southeast Asian countries by constructing the Southwest Cross Border Passage. Specifically, roads and railways are

being constructed or upgraded to facilitate the transportation of goods. The potential for greater trade between China's Yunnan and its neighbours is great, as the transportation infrastructure linking the two regions is further improved.

4.8.2 EXISTING TRANSPORTATION LOGISTICS INFRASTRUCTURE AND UTILISATION

The transportation infrastructures in Yunnan are fairly well developed today, particularly in the capital city of Kunming. This is the result of extensive construction works carried out by the Yunnan government during the years leading up to the 1999 World Horticultural Exposition in Kunming. In 1999 alone, Yunnan's highways were lengthened by 33 percent to 102,405 km.

Table 4.8-6: Freight Traffic (in 10,000 tonnes)

Mode	1990	1995	1999	2000
Railway	2567	2829	3287	3521
Highway	35656	35446	47368	48789
Waterway	104	123	118	134
Air	0.4	2.4	7.8	7.8

The highway is the most intensively used mode of transportation in Kunming, in terms of the freight volume carried. In 2000, 487 million tonnes of goods were transported using the highways. Besides highways, the railway is also an important mode of transportation in Yunnan, carrying freight volume of more than 35 million tonnes in 2000.

The most significant increase in transportation mode utilization is air service. There was a 18-fold increase in the utilization of air as a mode of transportation over the last ten years. This could be attributed to the increase in the export of perishable products such as fresh flowers and vegetables. Presently, more than 90 percent of fresh flowers for export overseas are transported by air using Yunnan airlines. Besides air, railway and highways (using refrigerated containers) are also used for flower distribution to other domestic markets.

Box 4.8-1: COLD CHAIN REQUIREMENTS FOR FLOWERS

Flowers are perishable products that will deteriorate over a given time period, or if exposed to adverse temperature, humidity or other environmental conditions. Therefore, flowers require special logistics such as refrigeration and proper storage to preserve freshness and quality. Any technology which ensures that cut flowers reach the required low temperatures as soon as possible, and also maintains these optimal temperatures, is of considerable benefit to people involved in their production and sale. Rapid cooling is therefore the vital first step in the cool chain of cut flowers.

Rapid cooling of packaged cut flowers and foliage helps to prolong quality and vase life. Cooling is also necessary to reduce other metabolic activity, and to slow the rate of opening of the flowers.

The optimum storage temperature for most flowers is between 0° and 7°C, depending on the particular crop. The air temperatures in the cool store should be checked to ensure the thermostat has been correctly set, as temperatures below -1 to -0.5°C may freeze or discolour the flowers, or may inhibit later bud opening.

Many semi-tropical and tropical flowers, and some temperate crops, will not require cooling to these low temperatures, and may in fact store better at 10-12°C, making it essential that growers identify the optimum storage temperature for each of their crops.

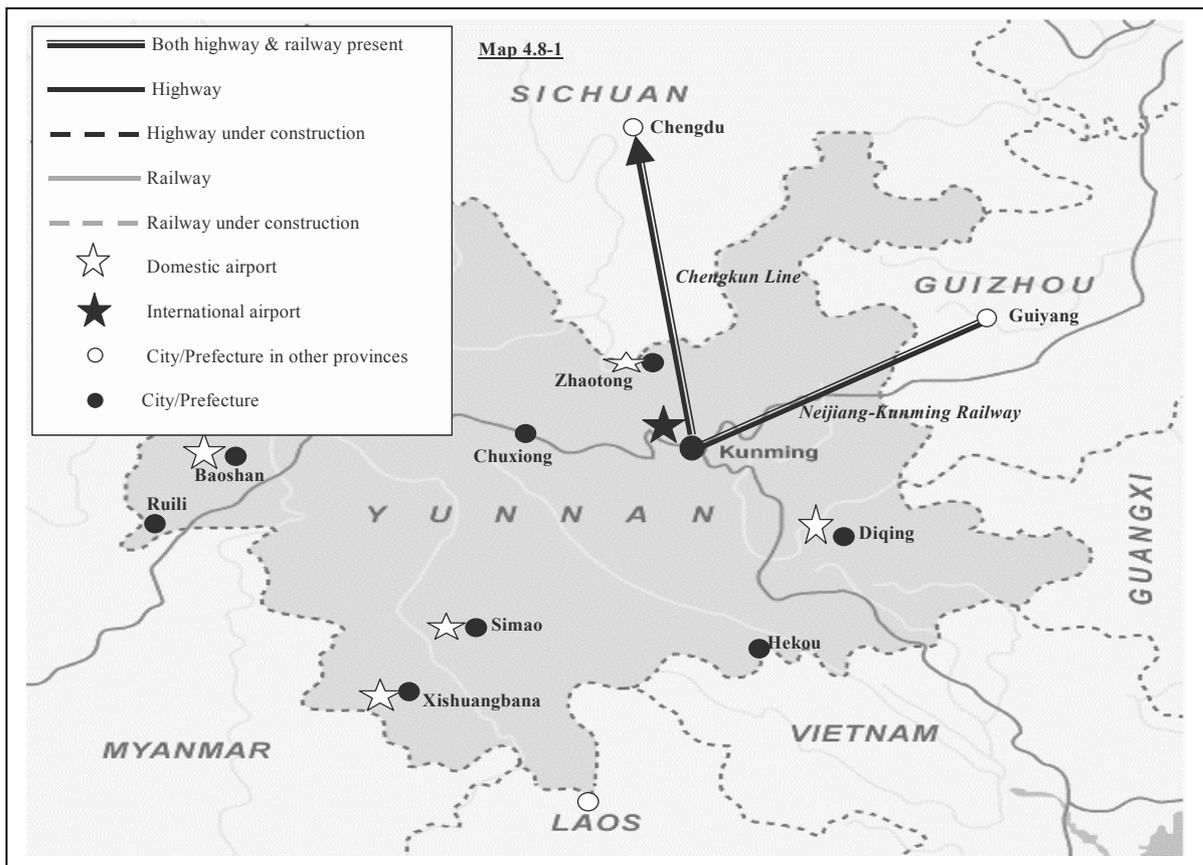
Source: www.hortnet.co.nz

Box 4.8-1 depicts the special logistics requirements for the storage of fresh flowers. Currently, Yunnan lacks adequate cold chain facilities and the technology to prevent the deterioration of fresh flowers over a given time period.

In the case of tobacco and cigarettes exports, the main transportation mode is the railway and highways. The products are transported to the main exit seaports like Huangpu port in Guangzhou, for exports to Asia and the USA. Presently, there is a shortage of rail wagons to transport cigarettes out of Yunnan in a timely fashion. On the other hand, the use of trucks to transport cigarettes will imply relatively higher traveling costs due to the large number of toll collections.

Because of the high value of cigarette shipments, foreign tobacco manufacturers like Philip Morris use a number of security measures including tracking systems to survey their shipments by road. All this is at a cost, but it is money well spent, as shipments of cigarettes could occasionally be the targets of theft attempts of criminals. However, most domestic tobacco companies in Yunnan have not used satellite surveillance to monitor trucks moving their cigarettes, hence resulting in potential losses due to thefts.

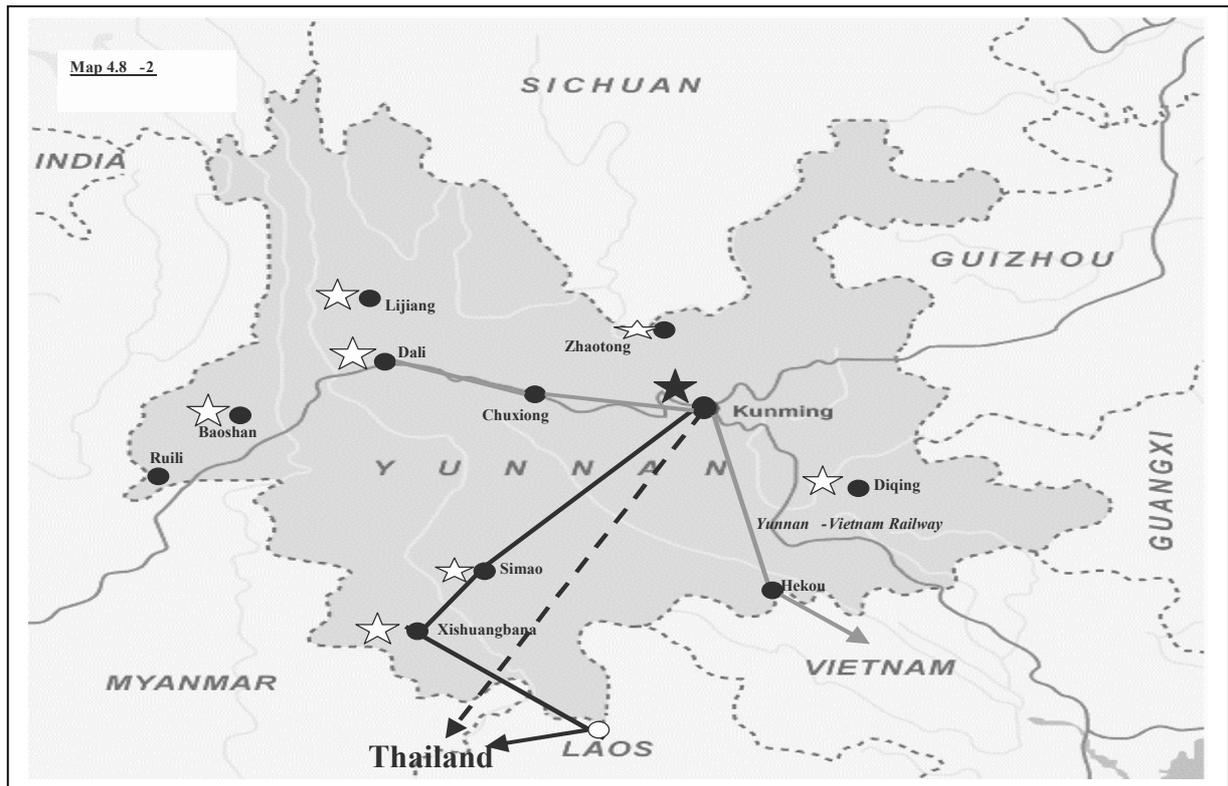
Northern Direction



There is a fairly comprehensive railways and highways linkage branching up from Kunming northwards to various cities in Sichuan. Specifically:

- There are railway (*Chengkun trunk line*) as well as highway linkages between Kunming of Yunnan and Chengdu of Sichuan in the north.
- Export products from Yunnan, such as base metals, cigarettes and chemicals, can also be transported via the *Neijiang-Kunming Railway*, which links Neijiang of Sichuan to Yunnan. This railway passes through Guiyang of Guizhou.

Southern Direction

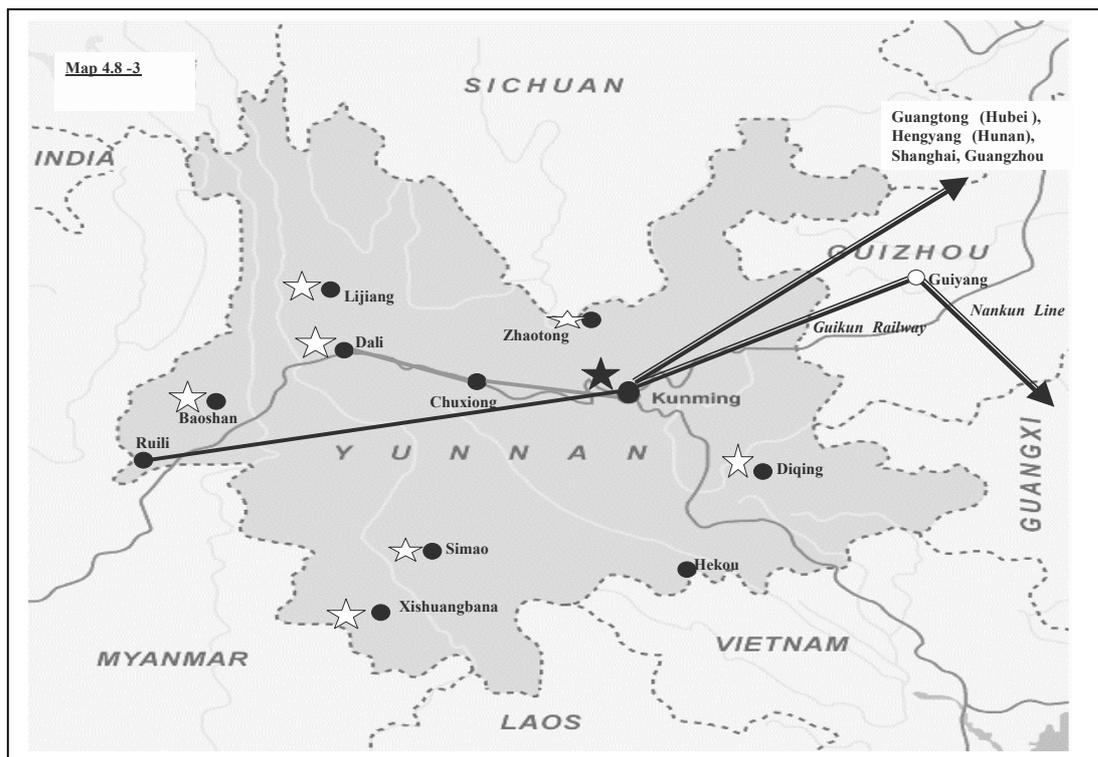


Border trade between Yunnan and its hinterland market, **Vietnam** and **Laos** is facilitated by a number of transportation routes. These routes include:

- The *Yunnan-Vietnam* railway that passes through Hekou in southern Yunnan to reach Hanoi and henceforth Ho Chi Minh City in Vietnam.
- Another railway linking Kunming to Hai Phong in Vietnam, resumed operations in 1996.
- A provincial highway which crosses Xishuangbanna of Yunnan to link up with Vientiane in Laos and subsequently to **Thailand**.
- The *Lancang-Mekong* River route which is currently being upgraded through an ADB program, to enhance accessibility in the river.

In addition, there are several other projects currently being undertaken to facilitate such border trade in the Mekong regions. These include:

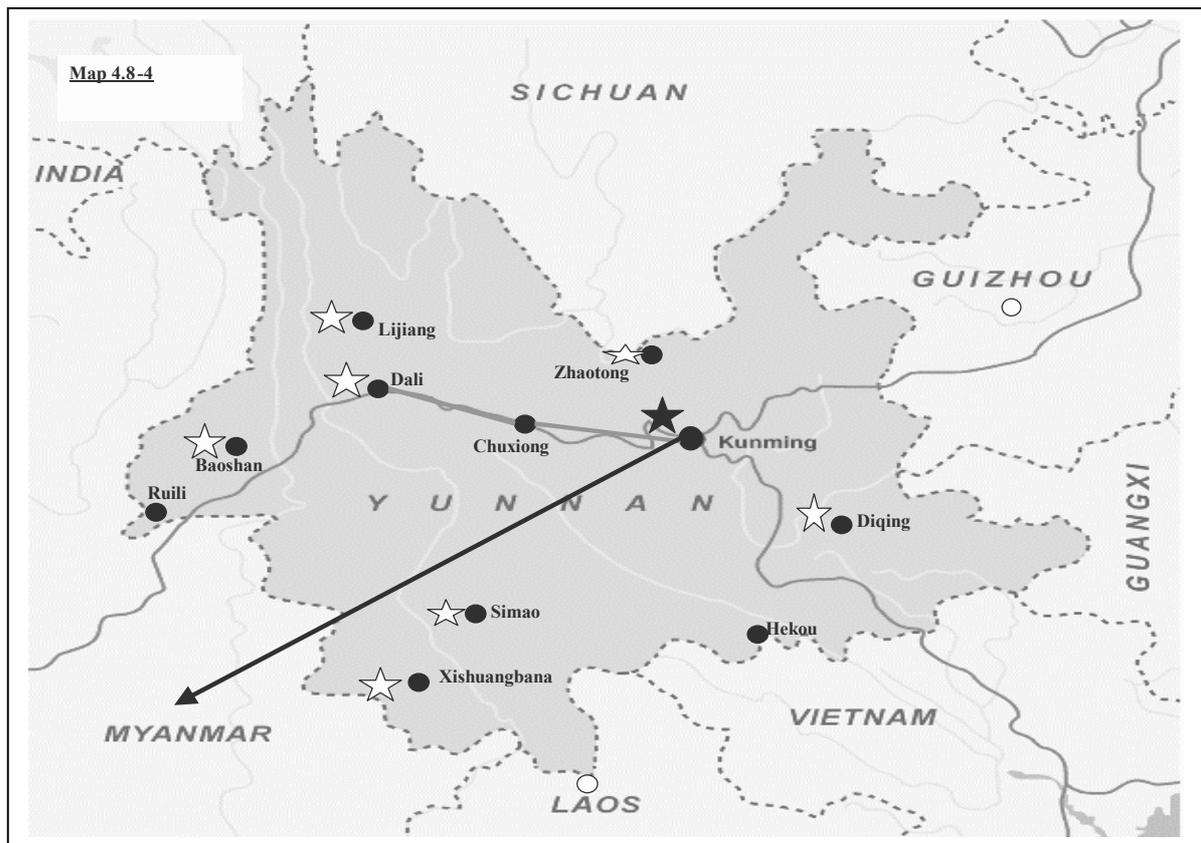
- The *Pan-Asian* Railway, which involves the construction of a railway running through Yunnan to the Laos, Thailand, Malaysia and Singapore.
- Construction of another highway to link Kunming with Chiang Rai of Thailand.

Eastern Direction

There are several railways and highways linkages that facilitate the distribution of products from Yunnan in the richer domestic markets by the coast as well as accessibility to the export seaports for their international export products. These linkages include:

- The *Guikun Railway* which connects Kunming to Guiyang in Guizhou. Besides railway, there are also several highways that links Yunnan to Guizhou.
- The *Nankun* line links Kunming to Nanning in Guangxi. This 886-km railway is electrified. Yunnan is also connected to Guangxi via provincial highways. These are very strategic transportation linkages from Yunnan as they are part of the Southwest Sea Passage that provides alternative export seaports in Southern Guangxi for exports from Yunnan.
- From Chuxiong and Dali, there is a railway line that branches out to Guangtong in **Hubei**.
- Kunming and Ruili (the border town of Yunnan) are also linked up to Hengyang in **Hunan** and **Shanghai** in the East. This highway is an important transportation route for border trade between the Eastern provinces of China with Myanmar.
- The main export port used by producers from Yunnan currently is the Zhanjiang Port in **Guangzhou**. Hence, the transportation linkages between these two regions by railways and highways are one of the most intensively utilised routes by these exporters. The transportation linkages between Yunnan and Guangzhou pass through Guizhou and Guangxi.

Western Direction



The transportation routes west of Yunnan connects itself to its major trading partner Myanmar. Border trade between Yunnan and Myanmar is facilitated by:

- The *Yunnan-Burma* Road and the *Stillwell* Road that link Kunming to Yangon in Myanmar.
- The *Chiang Rai-Kunming* road connects Myanmar to Yunnan and extends also to Laos and Thailand.
- An international air route linking Kunming and Mandalay, Myanmar's second largest city, was recently opened. This new air route serves as an additional bridge between the people of China and Myanmar and will enhance the economic, trade and tourism cooperation between them.

Presently, there are co-operative plans between Myanmar and China to develop a road-water transportation line for more efficient trade. This development centres on the Irrawaddy River which flows from Yunnan to Myanmar.

Intra-provincial Transport Network

From Kunming in the central Yunnan, the province's transportation network radiates through Yunnan and links itself to Sichuan, Guizhou, Guangxi and Tibet and the bordering countries of Myanmar, Laos, Vietnam and Thailand. Therefore, the province is relatively well connected in all directions externally.

By the end of 1999, the provincial road network comprised a total length of 102,405 kilometers of which 1,912 kilometers were highways of Grade Two and above. The province's internal highways include: Kunming to Yuxi highway, Chuxiong to Dali highway, Qujing to Luliang highway, Dali to Lijiang highway, Tonghai to Jiangchuan highway and Tonghai to Yuxi highway. There are also two internal railway lines linking Kunming, the capital center, to Yuxi City and Hekou County in the South.

The main international airport of Yunnan is the Kunming International Airport. There are currently international connections with Singapore, Thailand, Myanmar, Thailand, Laos, Japan and Hong Kong. The airport is also widely used for domestic connections between Yunnan and other capital cities. Yunnan has another 8 domestic airports in Xishuangbanna, Mangshi, Simao, Zhaotong, Baoshan, Dali, Lijiang and Diqing.

4.8.4 LOGISTICS-RELATED IMPEDIMENTS WITH RESPECT TO TRADE DEVELOPMENT

The exports of base metals, chemicals, tobacco and green products, such as fresh vegetables and flowers, are identified to be the main product sectors of Yunnan post-WTO. To further enhance the export competitiveness of Yunnan's goods especially post-WTO, a pertinent issue that has to be tackled is that of efficient logistics management. However, Yunnan still faces several key logistics impediments that could hinder the export growth of these key sectors. The impediments are as follow:

a) Inadequate cold chain facilities for perishable products

Due to the perishable nature of a several key export products, namely cut flowers and fresh vegetables, it is important for Yunnan to build up the necessary logistics facilities to facilitate the storage of such products. The two most important facilities are refrigerated warehousing facilities to maintain the freshness of the flowers and vegetables. Therefore, there remains a need to increase the provision of adequate cold chain facilities to support the export of perishable goods from Yunnan.

b) High airfreight costs for perishable goods

The availability of efficient air services at competitive costs for the speedy delivery of perishable goods like flowers and vegetables is crucial to minimize wastage. However, the airfreight cost of delivering perishables to overseas market is high. Therefore, only a small volume of Yunnan's perishable products reaches overseas markets. For instance, only a limited volume of fresh flowers from Yunnan reaches the Singapore market. This is because the high airfreight cost renders them not cost-competitive.

c) Inadequate railway services

There is currently a lack of containerized railway service to support the export of products from Yunnan. This impediment is particularly crucial for the export of perishable products. Specifically, there are inadequate, timely refrigerated railway wagons for the transportation of cut flowers to other parts of China. Many exporters have to rely on more costly trucking and airfreights to distribute their products in other provincial markets.

d) Lack of logistics management expertise

There is currently a lack of logistics management expertise in Yunnan whom can advise and assist clients to better manage the entire value chain more cost efficiently. Any cost savings from transport logistics could greatly benefit firms in terms of cost-competitiveness. Therefore, proper and sufficient training on logistics services and management ought to be given to the industry. This is aimed to equip the industry players with the necessary skills and knowledge to provide appropriate and integrated logistics services to clients.

e) Need for trade facilitation at trade points for border trade

There is a necessity to further simplify border trade procedures and customs that would aid in the flow of goods and people between Yunnan and its border neighbors of Myanmar, Laos, and Vietnam. In this way, the losses that businesses suffer through delays at the borders, complicated and unnecessary documentation requirements could be minimized. This could promote greater cross border trade flows, and possibly help the Yunnan economy to grow further.

CHAPTER 5 - RECOMMENDATIONS

China has been experiencing rapid economic growth since it adopted market liberalization in 1978. Its exports have expanded significantly in terms of products and markets. Foreign direct investment (FDI) has rushed into China, attracted both by its market size as well as its offer as a cost effective production location.

China's recent accession into the World Trade Organisation (WTO) is expected to see positive economic developments, especially in terms of exports. However, while accession into WTO will offer Chinese exporters better access to overseas market, it would also expose local producers to competition from foreign imports. The key issue facing Chinese enterprises is whether they have the abilities to fend against increased competitions from foreign imports as well as to compete effectively in overseas markets. This will call forth a new approach towards marketing, improving trade and logistics infrastructure and the development of new export products for a larger world market.

Another issue relating to China's accession into WTO is whether the inland provinces will benefit from this development, and how, if any, their trade structure will be affected. In that regard, the area of trade logistics becomes a key issue, as it will play a significant role, especially for the 8 inland provinces covered by this study, by facilitating both domestic and international exports.

However, the rate of export development and economic growth in the 8 provinces would be compromised as a result of the logistics hardware and software-related impediments highlighted in the previous chapters.

Before discussing the recommendations, four fundamental principles behind them have to be explained and rationalized.

One, is acknowledging that China has already developed a fairly comprehensive basic railways and/or highways network that connect almost all the major cities in the 8 inland provinces to major cities in other provincial markets and port cities. Presently, there are many ongoing projects (some of which may not be highlighted in this report due to the unavailability of information), which will serve to further enhance the basic connectivity in the country.

Second, is a consensus that while international exports is important for local producers in the 8 inland provinces, the distribution of the products in the local markets (the smallest one, Inner Mongolia, have a population of 23.8 million which is bigger than the population of Malaysia) and export to other provincial markets in China, also present tremendous trade growth opportunities for these producers. To promote local, domestic and international exports, these inland provinces will naturally build on those core growing export sectors which capitalise on their existing favourable environments, including having a critical mass of competitive producers, in order to offset the disadvantage of distance from the export seaports and faster growing coastal markets on the eastern seaboard.

Third, the recommendations for improvement of the existing trade logistics situation in the 8 provinces are strategic and broad-based. These are proposed with the view that the

benefits from such developments would filter down to overcome the specific impediments currently faced by the 8 inland provinces.

Fourth, the minorities who inhabit the less accessible areas are among the poorest people of these provinces. Any poverty-reduction programmes must take into account their plight to avoid social unrest.

Taking into consideration the potential growth of the export products identified for the 8 provinces and the logistics-related impediments, the consulting team proposes the following recommendations.

Logistics hardware-related impediments

- i) Despite the comprehensive connectivity throughout the western region by both railways and highways, the quality of the transportation and logistics facilities on a number of transportation routes need to be further improved in order to enhance the overall efficiency in the transportation of passengers and goods. However, to upgrade and develop all the transportation infrastructures linking the 8 inland provinces, it would require very substantial commitment of finance and time. Furthermore such transportation infrastructures development faces the inherent risk of under-utilisation after they are completed/upgraded.

Recommendation

In the short to medium term, one possible approach which China or the World Bank could consider in developing the transportation network to facilitate the transportation of goods from these inland provinces to other domestic provincial markets or coastal provinces for export, is the “Export Corridors Approach”. Specifically, transportation and logistics development will be concentrated on only selected key export routes. With the development of these key export routes, all the affected inland provinces could then develop their export-oriented industries along these corridors. A few of these main export corridors that will play crucial role in trade development for the 8 inland provinces are:

- **Lanzhou to Lianyungang**: This has the potential to be an international export route for inland provinces namely Gansu, Shaanxi, Ningxia, Qinghai and Henan (the latter three provinces are not covered in this study). Development of this export corridor would also facilitate the flow of goods from Eastern China of Shandong and Jiangsu to the Inland provinces in the West as well as to Central Asia and Europe via the rail gateway in Gansu. Development on this corridor can progress along the existing *Longhai* railway line.
- **Lanzhou to Kunming**: Development of this export corridor would facilitate the flow of goods from Northern China to the southern region and more importantly, for export to the ASEAN markets. This export corridor could also serve to facilitate the export of goods from mineral-rich Yunnan and Sichuan to the Central Asia, Mongolia and Russia.
- **Lanzhou to Fangcheng**: This export corridor provides another seaport outlet for goods from the northern region. Fangchenggang in the south also has the geographical advantage of being the nearest seaports in China to the overseas

markets in the south including ASEAN and the Middle East. In addition, this export corridor will also facilitate the distribution of goods from the Northern region to the Southern provinces, vice versa.

- Kunming to Guangzhou: This export corridor from Kunming in Yunnan passing through Guizhou and Guangxi will facilitate the trade between these three provinces and the Pearl Delta Region. It will also facilitate the international export from these three inland provinces, through the ports in Guangzhou.
 - Kunming/Nanning to Vietnam: Further development of the export corridor between Kunming, Yunnan or Nanning, Guangxi with Vietnam would facilitate more intra-regional trade between China with the fast-growing Vietnam (and the bigger ASEAN) market.
- ii) In the inland provinces such as Inner Mongolia, Hunan and Yunnan where perishable goods account for huge proportion of their international exports, there are inadequate logistics facilities such as cold chain facilities, to store and maintain the freshness of the products for export to other provincial and international markets. Other inland provinces such as Gansu, Yunnan and Guizhou, on the other hand, face shortage of containers for their outbound cargoes.

Recommendation

Identification and development of regional logistics centres in selected provinces along the export corridors identified in recommendation (i), to serve as catalyst for effective logistics development and to build a critical mass of logistics services to facilitate trade growth in the whole inland region. Two provinces that have the potential to become such regional logistics centers are Guizhou and Shaanxi.

- Geographically, Guiyang of Guizhou province is in the centre of the 5 southern inland provinces studied. It is served by a network of railway and NTHS which branches up to Chongqing in the North, Hunan in the East, Guangxi in the South and Yunnan in the West. Through Chongqing, goods from or passing through Guizhou can be transported through the Yangtze River and exported overseas via Shanghai. Goods can also be exported from the southern seaports in Guangxi Province. In addition, Guizhou can also serve as a convenient centre for goods that are to be transported over land to ASEAN markets bordering Yunnan.
- In the northern region, Shaanxi is identified because the capital city of Shaanxi, Xi'an, (which is a well-established tourism centre) is at the center of a network of highways spreading out to the Northern provinces, Eastern seaports, and Western province of Gansu which is the gateway to Central Asia.

A regional logistics centre is expected to possess the following characteristics:

- Has a container depot to consolidate goods for containerized transportation. This will address the problem of shortage of containers experienced by producers in some inland provinces such as Guizhou and Gansu.

- Has state-of-the-art warehouses with facilities for products which require special storage and inventory management, to serve as the important link in the whole logistics chain. Such products include high-value products and perishable ones.
 - Check points whereby customs and other government agencies undertake necessary export-related administration and inspections.
 - Have a critical mass of 3PL service providers to assist producers to manage their logistics activities.
 - Training institutions to train manufacturing enterprises, 3PL service providers as well as government officials in logistics-related courses.
- iii) Lack of railway and good-quality highways network reaching out to key outlying villages and counties to facilitate the flow of goods in and out of these regions. This has thus, hindered the economic and social development of the rural populations in these outlying regions. Presently, the development of the internal transportation network is the responsibility of the provincial government but few provinces appear to have prepared comprehensive transport development plan which takes into accounts overall development strategy to support trade growth in these provinces.

Recommendation

Focus on selected provinces to expand and upgrade highway networks which link key outlying villages and counties to the main cities. The “ring roads” concept built by major cities such as Beijing may be appropriate to build such linkage. The objective of projects of this nature is to reduce poverty, increase rural employment and incomes and promote “developmental” poverty reduction in these provinces to reduce regional disparities.

- One possible province for such a project is Hunan, which has good potential to develop into a major agriculture producer and exporter. However, there are a number of outlying villages, which do not have a reliable transportation system to facilitate the movement of resources out of the area. One such county is Xiangxi in northwestern part of Hunan, which has abundant resources of kiwi fruits and tangerines suitable for export.
- The consulting team also identified two other provinces namely Guangxi and Yunnan, which also have many outlying key villages over big geographical areas with potential for economic development once they are linked to the main transportation routes.
- This is particularly crucial presently, in anticipation of more laid-off workers as local enterprises (particularly the SOEs) faced heightened competition from foreign imports. As a result, it will also become more difficult for rural labour to find jobs in the cities. This, in the opinion of the consulting team, is a good follow-up project.

Logistics software-related impediments

- i) Currently, the administration and jurisdiction of the two most important modes of transportation for the inland provinces, that is, the highways and the railways, are

under two different ministries, specifically, the Ministry of Railway (MoR) and the Ministry of Communication (MoC) respectively. This is likely to lead to duplication of resources as well as delay in the progress of multi-modal or integrated logistics management in these inland provinces. For instance, based on information gathered, it seems like both Lanzhou, Gansu and Xi'an, Shaanxi have been identified to be developed as the key logistics hubs in Northern China, but by two different ministries, namely MoR and MoC respectively.

Recommendation

Establish a national agency for developing and co-ordinating national and inter-provincial strategies and policies for logistics development in the country.

- ii) In addition to having a comprehensive transportation logistics network, the effectiveness and efficiency of a transportation system also depends on the development and administration of enabling policies to facilitate the flow of passenger and goods. There appears a need to inculcate upon government officials, particularly those enforcing the traffic rules and regulations, to be service-oriented and to become traffic facilitators so as to facilitate the transportation of passengers and goods to support trade growth.

Recommendation

Strengthen institutional capabilities of the relevant ministries involved in logistics administration to provide strategic leadership and effective management of the trade logistics system. Ministries concerned include MoR, MoC, provincial Transport Department, and the Customs Department. The institution-building process will centre on:

- Providing practical training to officials who are involved in the administration of transportation logistics in areas such as:
 - Service management
 - Equitable application and enforcement of law
 - Basic knowledge on the roles or traffic rules to enhance traffic management.
- Facilitating the sharing of knowledge on good practices such as the initiative by Xi'an East Railway in Shaanxi to collaborate with the Customs department to facilitate trade flow.
- Promoting/facilitating learning of international best practices in trade logistics administration, including policies and strategies development, from overseas counterpart organizations.
- Promoting public-private sector collaboration in the logistics sector to ensure that the overall development in the trade logistics sector will meet the needs and facilitate the export growth of the private sector producers.

- iii) The producing enterprises in the 8 inland provinces lack the awareness/knowledge of the benefits and the operational capabilities to undertake integrated logistics management to optimize their logistics cost and time. As a result, many rely on a single mode of transportation and use large warehouses simply as a storage space to shelter products and raw materials from the rain and sun. On the other hand, many external logistics service providers only specialize and offer a limited scope of logistics services such as mere truck or warehousing, to these producers. Full-fledge 3PL service providers, on the other hand, appear to lack the experience and capabilities to capitalize on their strength of wider scope of services to assist producers undertake integrated logistics management and optimise logistics cost and time.

Recommendation

Provide continuous education and training in modern logistics concepts and models for the private sectors that are involved in logistics management. This will include producers who currently manage their own logistics needs. Specifically,

- Upgrade of the knowledge and skills of 3PL service providers through logistics workshop/forums to better serve the needs of the clients in order to sharpen their clients' competitive edge.
- Similar logistics workshop/forum would also raise awareness among the local producers to facilitate them to better appreciate the importance and benefits of effective integrated logistics management.
- Organise overseas study trips to successful trading nations such as Rotterdam, Hong Kong and Singapore to facilitate logistics service providers and local product producers to learn practical logistics management skills.

Implications of recommendations on poverty reduction

The recommendations to upgrade the existing logistics infrastructures in the 8 inland provinces namely the development of key export corridors, logistics hubs and the linkage of key outlying villages in the provinces to major cities and highways, will impact on the populations in the poverty regions at varying degrees.

On a positive note, the populations in poverty regions, which are located on these export corridors, logistics hubs or otherwise regions linked to the major cities, would be able to benefit from increased accessibility from the main cities. This in turn will lead to increase in trade for these regions. Forestry and agricultural products could be exported out of these poverty regions while consumer goods from more developed nearby towns can in turn flow into the region as the populations gain purchasing power.

Furthermore, a number of inland provinces such as Yunnan and Guangxi have huge populations of ethnic minorities living in these outlying regions. Minority cultures are interesting and can be tapped to boost tourism which is high value-added. The value of tourism could be further enhanced by developing handicraft cottage industries to supply handicraft to tourists. In Butterfly Spring, one of Dali's most popular tourist destinations, some handicraft workshops in the vicinity have been set up to produce handicraft for sales to foreign visitors. Some elderly women also serve as instructors to a group of participants learning how to craft souvenirs (Photo 5-1). With greater accessibility to the main cities, these young handicraft-makers would be able to receive more comprehensive and advanced training to develop more viable handicraft businesses. Such skills may include marketing, design, packaging and handicraft-making at a more sophisticated and artistic level to ensure high value-added returns.

Photo 5-1: Butterfly Spring in Dali, Yunnan Province



On the other hand, such big-scale logistics infrastructure developments may lead to some populations having to resettle in other parts of the provinces. In other instances, the

populations may even have to resettle in the cities. Resettlement can be a socially painful process, especially when a total adjustment to a new environment and lifestyle is called for. As funding for assistance is limited, the new life in a new environment is often challenging. [Photo 5-2](#) and [Photo 5-3](#) show a resettlement area near a newly constructed road linking Dali and Li-Jiang (both in Yunnan province), both of which are important and popular tourist resorts. It can be seen that the huts of the resettled population are shabbily constructed. The cultivated areas are not shown in the photograph, but the man in the foreground is a minority person who supplements his meager income by running a water-filling facility by the roadside opposite his hut for the passing vehicles. Others rear poultry, goats or cows with a number of them work as labourers in the nearby villages or towns. They receive some financial support for the resettlement. The need to adjust to a new form of lifestyle and living environment will be particularly adverse for those populations, which formerly resided far away from the main cities.

Photo: 5-2: A Resettled Hut By the Roadside in Dali of Yunnan



Photo 5-3: A Water-filling Station Managed by a Resettled Minority



Recommendations relating to the upgrading of skills of the logistics service providers in the provinces could also target at the rural populations, which do not possess any relevant skill. This would be particularly beneficial for the rural populations who have been living on the fringe of the main cities, which have lifestyle more similar to that of the main cities' dwellers. However, learning targeted at these populations should not be the same as that organized in schools of the developed areas. Here a new concept of education and training has to be considered. There need not be formal school setting or progressive stages of schooling. The focus of such training is one that has more specific end results rather than for accreditation or certification. In the logistics sector, such training may include handling of cargoes at warehouses or the provision of efficient trucking services. Similarly, instructors do not need to have paper qualifications. What is more important and relevant is that he has something to offer, something that the learners need for his immediate use and are able to see the results, especially beneficial results.

CHAPTER 6 – POVERTY REDUCTION AND TRADE DEVELOPMENT

While the provincial capital and major cities in the 8 inland provinces studied are fairly well developed, the remote areas of these western provinces are far behind these cities in economic and trade development. This is mainly due to history, geography and environment, social organization as well as education and mindset, which will be elaborated in subsequent sections.

In particular, the minorities who populate these regions constitute a distinctive group that need affirmative action for their “poverty reduction” – an affirmative action that the Chinese government terms “fu-pin”, literally translated as “support for the poor” in their policy statements. To implement this policy, “fu-pin” committees have been set up in all the western provinces with financial grants from the central government. Most of these committees have the capacity to reach out to the remote areas through a web of local networks, and are thus able to get to the very root of the problems. The following sections will provide a backdrop for the understanding of the nature, size and magnitude of the “fu-pin” operation, and to evaluate their achievements that have been accomplished so far.

History

The minority people of China (of whom there are 55 ethnic groups, exclusive of the predominant Han people) are migrants from less hospitable areas, or are displaced people (or their descendents) as a result of war or forced resettlement. Owing to natural barriers posed by mountains and rivers, these isolated people retained much of their folk cultures with little if any significant changes coming from elsewhere until fairly recent times as a result of the influence of modern means of communication. Even then the most pervasive influence such as television is totally out of reach to a number of these minority groups, as there is neither electricity nor hardware.

These minority groups have their own unique traditions and means of making a living, albeit a poor one by modern standards. Some of the minorities such as the Bai of Dali, Yunnan or the Miao of various western provinces, are just as advanced and modern in their ways of life as any people of China. It was observed that these minority people of the more easily accessed areas, especially those who are involved in the tourist industry, are no different from the majority Han people – their costumes prominently proclaim the difference but in many occasions, these are deliberately donned for the occasion to attract the tourists’ attention, for money rather than for cultural pride. Hence, with the proposed affirmative actions, the uplifting of the minority people, though may be an uphill task, is certainly not impossible.

Geography and Environment

The relatively poor minorities are located in the mountainous areas where access is difficult. Owing to the nature of the terrain, roads are difficult to construct, besides being non-viable in terms of financial and economic considerations. Without roads or other means of access (such as waterways), local produces cannot be easily and cheaply transported out, following which trade is virtually non-existent. Without the latter, the people have no income to purchase the desired necessities and become locked in poverty.

If the locality happens to be dry, farming is adversely affected. If the location is wet but flood-prone, as in some of the low lying and riverside areas, flooding is unavoidable. If the land is infertile as in the karst location of Guizhou, cultivation is constrained. Such are the physical handicaps that have plagued these minorities for a long time, and account for their backwardness that is much in evidence today.

Social Organisation

Variants of traditional Chinese values permeate the ways the various minorities organize themselves. The family is the basic social unit, and though there may be isolated cases of variations (like the Masuo people of Lugu Lake, Yunnan Province) they are exceptions rather than the rule. Religious tenets and folklores may be different from the majority Han people, but again these are rather negligible. The Muslims in China, for example, have mosques which are unique in architectural design. Ironically, the affirmative action which the minorities enjoy is one reason for them to retain their distinctive identity as well as their folklores.

Education and Mindset

Precisely because of their isolation and their sparse and widespread population, the provision of educational facilities becomes a problem. When life is simple, schooling and literacy do not seem to make much difference to their daily life. Moreover, school if any, may be located too far for the children to attend. Even if they do, they will invariably drop out early, and before long revert to illiteracy because of the absence of incentive or lack of supporting reading material.

Today, the problem is even more acute. With the opening of China and better career opportunities elsewhere, it is virtually impossible to persuade or entice teachers to serve in the remote minority areas. When education is absent, the mindset is conditioned by the set of people and circumstances that are of immediate relevance to the person concerned, and in terms of today's global outlook, this is a "tiny world" indeed, and a poor setting too.

Background to Western Region Development

Policies and plans to develop the vast territories of the western provinces not only had a long history, but also, by hindsight, appear to be almost identical with present-day thinking on the subject. At the beginning of the last century, Sun Yat-sen formulated the following policy initiatives in regard to the development of the western provinces:

- i) Develop infrastructures to facilitate transportation and communication, emphasizing particularly the importance of roads, railways and waterways. In his blueprint, he not only laid down the strategies but also mapped out the areas for prior consideration.
- ii) After identifying the strengths and weaknesses of the different backward provinces in the western region, he came up with a number of ideas for development such as,
 - Agriculture
 - Mining and extracting
 - Life-stock

- iii) In regard to financing the projects, he proposed a multi-pronged approach, involving government support, private initiative or joint ventures, as well as direct foreign investment.
- iv) He even raised the importance, from a socio-political point of view, of balancing the claims of development and environmental protection, and cautioned against the pitfalls associated with what he described as “blind and mindless” exploitation.

In the “fu-pin” arena, Sun Yat-sen expanded his idea of helping the poor through development and affirmative action to attain degree of self-sufficiency and progress. Here, he even highlighted the political dimension and the desirability of realizing a situation where the poor will be positively and not negatively affected by the development process.

Where the physical location is inhospitable and beyond salvation, Sun Yat-sen proposed that resettlement would have to be the answer.

And last but not least, Sun Yat-sen proposed making a determined effort to spread education and train the people. To him, without education and talented people, the development of the western provinces would not be feasible.

Sun Yat-sen, though, made no reference whatsoever to trade or trade facilitation.

This, in a nutshell, is what development and poverty reduction is all about, then and now. Almost a century has passed before paramount leader Deng Xiao-ping came up with a pragmatic step by step approach, that is, develop the more advanced coastal provinces first and then follow up by developing the rest.

Two decades later, Deng’s dream of developing the western region appeared ripe for realization. In June 1999, Jiang Ze-min, in his capacity as Party Secretary, announced that Deng’s “two stage” strategy is ready for parallel implementation. This set the ball rolling, to be followed by Zhu Rong-ji who outlined the concrete steps to be taken at the third session of the ninth People’s Congress in Beijing. Zhu Rong-Ji’s developmental strategies add a modern touch to those of Sun Yat-sen, and more importantly, are followed by concrete action throughout the Western region where the provinces come under the label of “lagging”. On this occasion, Zhu Rong-Ji spoke of:

- i) Infrastructural developments with attention focused on roads, railways, airports, natural gas pipelines, telecommunication, information technology, water resources etc.
- ii) The urgency of environmental protection, tree-planting and grass carpeting, water conservancy, control and prevention of desertification, management of rivers and waterways.
- iii) Capture local strengths and build on them, especially new technologies and services.
- iv) Develop science, technology and education to train a pool of talents.

- Open up further to attract foreign participation, investment etc. and bring in technical and managerial expertise.
- Join forces with the developed eastern provinces for mutual support and benefit.

The impact of these latest moves on the country as a whole is spectacular. Based on feedbacks gathered during the field studies in the inland provinces, it was very clear that the ideas of development of the western region have filtered down to people of all walks of life so quickly and clearly. And they seemed to be enthusiastic about the prospects of these developments. Perhaps it is in this mood that prompted an entrepreneur from Taiwan to conclude that “the development of the western provinces will be realised within ten years” and make the title of his book, “Xibu Kaifa Shinan Ke Cheng” (Author Wen Shi-ren, published by San-lain book Shop, Beijing, 2001). Perhaps it is too early to judge whether this development can be achieved within ten years.

Recommendations relating to poverty reduction

It remains now for the the consulting team to propose some recommendations on poverty reduction and the minority problem in particular, which must form an important and integral part of any consideration on development of the lagging provinces of western China today. This is because “lagging” is most evident in the poorer areas of the provinces, and these are inhabited by the minority people to whom the problem of poverty-reduction has to be addressed.

Economic development is likely to disrupt the traditional lifestyle and livelihood of these minorities, especially those who inhabit the poorer and more backward regions. Often the longer-term benefits of development are less viable to those who are immediately affected by the disruptive process and this may cause political problems unless forestalled. It is therefore necessary to address the problem of poverty and to seek ways and means to eliminate or reduce it as part and parcel of the planning process. In short, both economic and non-economic factors must be considered together in development planning and strategic implementation.

In addition to the existing “fu-pin” initiatives by the Chinese government, the following affirmative actions may also be useful in promoting “developmental” poverty reduction in the 8 inland provinces:

- i) Improving accessibility, especially in road construction. However, this is only feasible if the flow and benefit can justify the cost of construction. So far, the tourism-potential areas are the ones that receive priority attention. But once the linkage is completed, all those along the way, on both the sides of the road as well as further afield, benefited from the project. Accessibility also facilitated the flow of goods and services, making some sort of trade possible. (Please refer to Photo 6-1 for the road condition in the rural area in Guizhou.)

Photo 6-1: Road Condition in Rural Area in Guizhou



- ii) Some localities are poor for specific reasons e.g. shortage of water, infertile soil, frequent natural disasters, bad management etc. Some indeed are poor but have “hidden assets” such as traditional medicines which are yet unexplored. These and similar problems are beyond the capabilities, abilities or means of the poor to tackle. Hence, government must step in to step them in-depth and to find ways and means to resolve the problems.

In fact, many of these problems could not be solved at the “fu-pin” level. Many indeed call for research and development at the national level, involving research institutions, universities and external assistance, expertise with poverty reduction experience elsewhere and grants.

- iii) Tap the resources of the more developed eastern and coastal provinces for mutual benefit. Just as tourism in the “lagging” provinces is now dominated by domestic travelers, it is to be expected that, in the years to come, there will be a flow of investments (including the re-location of labour-intensive industries) to the western region. Such moves will stimulate trade and services which in turn will justify the improvement of transportation and logistics development, or vice versa.

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- Hong Kong Trade Development Council
(<http://www.tdctrade.com/mktprof/china.htm>)
- Cargo News (<http://www.cargonews.com>).
- People's Daily On-line. (www.english.peopledaily.com.cn)
- The Logistics Institute - Asia Pacific (Singapore)

LIST OF ORGANIZATIONS INTERVIEWED IN CHINA

Government Departments

- Beijing State Development Planning Council
- Ministry of Foreign Trade & Economic Cooperation (MOFTEC) (Beijing)
- Foreign Trade and Economic Cooperation Dept (Chongqing)
- Foreign Trade and Economic Cooperation Dept (Gansu)
- Foreign Trade and Economic Cooperation Dept (Guangxi)
- Foreign Trade and Economic Cooperation Dept (Guizhou)
- Foreign Trade and Economic Cooperation Dept (Hunan)
- Foreign Trade and Economic Cooperation Dept (Inner Mongolia)
- Foreign Trade and Economic Cooperation Dept (Shaanxi)
- Foreign Trade and Economic Cooperation Dept (Yunnan)
- Poverty Reduction and Planning Committee (Gansu)
- Poverty Reduction and Planning Committee (Guizhou)
- Poverty Reduction and Planning Committee (Hunan)
- Poverty Reduction and Planning Committee (Inner Mongolia)
- Poverty Reduction and Planning Committee (Shaanxi)
- People's Association for Friendship with Foreign Countries (Various Provinces)
- Embassy of the People's Republic of China in the Republic of Singapore (Singapore)

Logistics Service Providers

- Sinotrans (Chongqing)
- Sinotrans (Gansu)
- Sinotrans (Guangxi)
- Sinotrans (Guizhou)
- Sinotrans (Hunan)
- Sinotrans (Inner Mongolia)
- Sinotrans (Shaanxi)
- Sinotrans (Yunnan)
- ST-Anda (Hunan)
- ST-Anda (Shaanxi)
- ST-Anda (Shanghai)
- ST-Anda (Yunnan)
- ST-Anda (Shanghai)
- PSA International (Singapore)
- CWT Distribution Limited (Singapore)
- Schenker (Asia Pacific) Pte Ltd (Singapore)
- Sinotrans (Singapore)
- Origen Logistics Pte Ltd (Singapore)
- Pacific International Lines (Pte) Ltd (Singapore)
- China Shipping (S) Agencies Pte Ltd (Singapore)
- Singapore Airlines Cargo (Singapore)

Private Sector Enterprises in the 8 Provinces

- Chongqing Iron & Steel Co. Ltd
- Guizhou Tire Co. Ltd
- Guizhou Maotai Co. Ltd
- Hunan Fireworks & Firecrackers Import & Export Co. Ltd
- Hunan Import & Export Co. Ltd
- Inner Mongolia Shennong Bio-tech Co. Ltd
- Lanzhou Sanmao Industrial Co. Ltd
- Lifan-Honda Group (Chongqing)
- Liuyang Fireworks (Hunan)
- PetroChina (Gansu)
- Shaanxi Hengxing Fruit Juice Co. Ltd
- Shandan Cashmere (Inner Mongolia)
- YuFeng Cement (Guangxi)
- Yunnan Flower Association
- Yunnan Tobacco Group

Private Sector Enterprises in Singapore

Jurong Consultants

National University of Singapore

Ananda Travel (S) Pte Ltd

Tunas Pte Ltd

Others

- World Bank's Office in Beijing

CLASSIFICATION OF HIGHWAYS IN CHINA

Class	Description
Expressway	Limited access, dividers of 1.5 to 3 meters wide, auto only, four to eight lane paved highways, with driving speeds of 60 to 120 kph, lane width 3.75 meters. Expressways are also well equipped for traffic safety, management and service facilities. (0.3 percent of total in China)
I	4-lane, divided, paved, auto only, with lane markings and lane width of 3.5 to 3.75 meters, for speeds of 60 to 100 kph. Service facilities are available (1 percent of total).
II	Paved, auto only, two-lane (not divided), lane widths of 7 to 9 meters, lane markings, for speeds of 40 to 80 kph. These highways have wider shoulders than lower class highways. Services are available but disorganized (8.2 percent of total).
III & IV	Narrow, two lanes 6 meters wide (III) or one lane 6 meters wide (IV), no lane markings, used by all vehicles, narrow shoulders, for speeds of 30 to 60 kph (Class III) and 20 to 40 kph (Class IV). (Class III and IV are 70.5 percent of total highways).
V	Narrow, not paved, used by all vehicles, may be gravel, or low quality paving.

Beihai Port

- It is a major commercial port in the Guangxi and an important foreign trade gateway for the autonomous region. The port has bagging facilities with an annual bagging capacity of 200,000 tonnes.
- A 10-metre berth was put into use in May 2001 in Beihai. The berth - which has a storage yard of 40,000 square metres - can serve third-generation container vessels and is well connected to railway facilities for onward door-to-door deliveries. The berth is equipped with updated loading and unloading facilities, and is expected to draw clients from Guizhou and Sichuan provinces as well as Guangxi.
- Along with the development of Beibu Bay's Wei 6-1-1 oil field within the city boundary, petroleum will become a major cargo. The port has four truck highways to the inland areas: *Beihai-Qinzhou-Nanning*, *Beihai-Guixian-Liuzhou*, *Beihai-Yulin-Wuzhou*, *Beihai-Suixi-Zhanjiang*, which are connected to the highway and railway networks in Guangxi and western Guangdong.

Fangcheng Port

- Fangcheng Port is the leading seaport in Guangxi, when assessed in terms of volume.
- It has built 26 berths, of which 9 can take at least 10-thousand-ton ships and it is the largest coastal port in the Guangxi Zhuang Autonomous Region, handling import and export cargoes to and from provinces in southwestern China.
- It is being engaged in bulk trade, expansion into containers is likely to be on a feeder basis. The *Nanning-Fangcheng* highway is connected with the national highway network; and the *Nanning-Fangcheng* railway is linked to the national railway system via the *Hunan-Guangxi* railway.
- There are plans to construct a 200,000 tonnes class petroleum berth, two 50,000 tonnes class wharfs for handling petroleum products and a number of 1,000 ~ 10,000 tonnes class crude oil terminals. The construction of a 30,000 tonnes class berth for handling bulk grain is also planned.

Qingzhou Port

- In addition to its 2 berths for ships of 10-thousand-tonnes, Qinzhou Port plans to build 18 berths, 5 of which will be for ships of up to 100-thousand-tonnes, 8 for 50-thousand-tonnes ships, and 5 for 10-thousand-tonnes ships.
- Qingzhou port will be building a container terminal capable of handling 30,000 dwt vessels. At present, special wharf for handling containers does not exist on the Beibu gulf. The project will cost USD15.6 million and be undertaken in two phases.
- By 2005 when the second phase is completed, the annual container handling capacity will be expanded to 450,000 teus. By then, Qinzhou port will become an entrepot for container transport in Guangxi and southwest China.
- There are also ongoing efforts to deepen the port and improve the service attitudes of the workers at the port in order to attract more clients.