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PART I

HUNCHUN BORDER ECONOMIC COOPERATION ZONE, JILIN PROVINCE, CHINA

A Window for Economic Cooperation in Northeast Asia

Source: the Government of Yanbian Korean Autonomous Prefecture of Jilin Province, China

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Hunchun is located in the southeast of Jilin Province, China, in the lower reaches of Nenjiang River, and lies close to the borders of China, DPRK and Russia as a regional center of Northeast Asia. At present, Chang Lingzi highway port and Sino-Russian international railway port are connected with Russia; Quan River port and Sha tuozi port are used as passages for trade.

An emerging boundary city and frontier for trade, Hunchun was authorized by the State Council to open up further and the Hunchun Boundary Economic Cooperation Zone was thus approved to be set up.

The Hunchun Boundary Economic Cooperation Zone enjoys rich advantages such as having a combination of unique geographical location, mature business environment, industry cluster, Industrial Parks for multi-countries, preferential policies, low investment cost etc.

Hunchun - a city straddling the borders of three countries

Hunchun is the only Chinese city that lies on the borders of China, Russia and DPRK.

Located in the lower reaches of the Tumen River in southeastern Jilin, Hunchun has become an important and emerging border city. It is now established as a key center for the promotion of cross border trade, as well as business and cultural exchange. It serves as a bridge between China and a number of other countries in Northeast Asia, including Russia, Japan and DPRK.

From the mountains of the Fangchuan National Scenery Zone, tourists have an unparalleled view of the area between the borders of China, Russia and DPRK. The national forest park, Fangchuan Park, is home to a number of rare plants, animals and birds. The park is also the core area of the Protection Zone for the Far East Leopard.

Sailing along the Tumen River, once dubbed the "Silk Road on the Sea" for 15 km from Fangchuan, one would enter into the Japanese Sea. (Source: China Daily 10/22/2009)

1. Hunchun, a Unique Port City in Jilin Province, China

Hunchun is a port city with a unique location. Under the supervision of the United Nations Development Programme, the Greater Tumen Initiative plans to develop Hunchun into an economic center of Northeast Asia.

Hunchun has an area of 5,145 square miles, of which city blocks cover 125.85 square miles, and the city houses 250 thousand regular inhabitants. In terms of natural resources, Hunchun has 12 billion tons of coal deposit, forest coverage of 85%, over 1000 types of usable vegetation, as well as gold, tungsten, copper, aluminum, zinc, and other non-ferrous metal mines. Hunchun is also home to nationally-known scenery spots such as the Fang Chuan Park, the National Dongbei Tiger Conservation Park, and the National Jing Xin wetlands natural conservation park.



Hunchun is a newly prospering port city, with four ports to Russia and DPRK, of which three are State Level One ports and the other is a State Level Two port. These ports have the capacity to process 2.1 million tons of cargo and 1.3 million passengers annually. Hunchun is also China's closest port access to the Sea of Japan, North America, and Northern Europe.

With Hunchun as the center, there are numerous other Russian / DPRK all season ports such as Posyeta, Zarubino, Vladivostok, Najin, Chongjin, that border the Sea of Japan. Currently, two international shipping lanes exist: Hunchun (China) –Zarubino (Russia) –Vladivostok (Russia) – Sokcho (ROK), and Hunchun (China) –Zarubino (Russia) - Niigata (Japan) –Sokcho (ROK).

2. Economic Zone, Exports Processing District and Trade Area

2.1 International Economic Zone in Hunchun

Established in 1992 by the State Council and approved by the Border Economics Bureau, the Hunchun International Economic Zone has an administrative area of 73 square miles, a planned area of 24 square miles, and an already developed area of 5 square miles. In 2000 and 2001, the Chinese government approved the addition of an exports processing plant as well as a Sino-Russian trade district, thus making the Hunchun International Economic Zone the only special economic zone in China to possess “three areas” – an economic zone, an exports processing zone, and a trade district – and therefore has advantages in innovation, research and development. To speed up the globalization of this Economic Zone, Jilin's provincial government constructed the following projects – Jilin Japanese Industrial Park, Jilin Korean Industrial Park, Ji Gang Industrial Park, and Jilin Russian Industrial Park.

2.2 Exports Processing District in Hunchun City of Jilin Province

The Exports Processing District in Hunchun, Jilin Province, is one of the 15 state approved exports processing districts established in 2000 and has a planned area of 2.44 square miles. The initial step of this district is to focus on processing exports, especially light industries from Japan, ROK, Russia, and DPRK, and industries such as clothes, wood products, food, electronics, construction materials. At the same time, the district will aim to provide favourable conditions for the development of high end technological innovations.



Major Favourable Policies:

- (1) For goods processed and produced within the district, goods meant for export and intermediate goods are not subject to certain taxes.
- (2) Raw materials, spare parts, and other items imported from outside the district could be exempt from taxation, and could qualify for tax return if filed properly with China's tax office.
- (3) Utility expenses involved in the production/processing of exports are not subject to additional taxation.

2.3 Sino-Russian Trade Area in Hunchun City of Jilin Province

The Hunchun Sino-Russian Trade District was established in 2001 and occupies an area of 9.6 acres. It follows state regulations for trade districts and is governed internally. Chinese merchants and goods can enter and exit the zone freely, as can Russian merchants and goods, without the need for visa application. A citizen from either side is allowed to walk away with goods, duty free, if the value of total of the total is less than 3,000 RMB.

The objective behind the construction of this district is to encourage free trade in the Tumen District, to improve international trade quality, variety, regulation, fluidity, regulation, and such.

Northeast Asia Border Trade District Project:

A Northwest Asia Border Trade District Project would follow the policies and functions similar to that of the Sino-Russian Trade District. Such a trade district would encompass six major themes – international trade, tourism, technological education, cultural creativity, industrial park, ecology housing, and be categorized into the Foreign Merchants Section, Central Business Section, Cultural Exchange. In sum, the Northwest Asia Border Trade District is designed to become a regional economic zone, and a physical distribution center.

So far, Beijing Xintianyin Investment & Management Cooperation has gathered the necessary funds to undertake the project. There is a plan to construct 80 thousand square meters. Therefore an estimated investment of 5 billion dollars is needed.

3. Business Environment

3.1 Ease of Traffic and Shipment

A high way connecting Hunchun to Chang Chun is due to be completed in 2010, which will enable travelling from the two cities to Yan Ji airport in 4 hours and 30 minutes. Hunchun's railway is connected to China's North East regional railway system, facilitating the transport of goods to any major city in China. There is also lease of Russian, DPRK ports that lead to major ocean shipping lanes to ROK and Japan. The plan to connect Hunchun via highway, railroad, air, and sea to the rest of China is in its initial stages.

3.2 Secure Energy Resources

Hunchun is abundant in coal resources, and currently produces 5 million tons annually. There are also plans to establish a large coal mine on the scale of tens of million tons. Datang Hunchun Electric Company currently operates two 330 thousand kilowatt generators, and generates 50 billion degrees annually. Third stage expansion plans are under way, and the electric capacity is expected to reach 1.86 million kilowatts, more than plenty to meet the industry's needs.

3.3 Improved Infrastructure

Since its construction, more than 32 billion RMB of capital has been invested to complete 2.28 square miles of basic infrastructure such as water, electricity, communication, roads etc. Factories, customs offices, border trade markets, warehouses, entertainment structures, and office buildings have also been built. In 2007, another 7.7 billion RMB was invested to expand another 3.3 square miles of infrastructures.



4. Industry Cluster

Over the years, six advanced industries have emerged in Hunchun frontier economic cooperation area, including energy & mineral, emerging electronic industry, wood products processing, textile & apparel, new building material, food & biopharmaceutical industry.

4.1 Energy & Mineral Industry

Annual generation of 5,000 gwh of electricity, 1 ton of gold, 7,500 tons of copper and 5 million tons of coal has been achieved by Datang (Hunchun) power generation group, Hunchun mineral industry group, Hunchun Zijin Mining, Hunchun Jinshan Gold Mines etc. In addition, key projects such as the third stage

of the expansion of power plant engineering, a coal base with 10 million tons of annual production, smelting and deep processing capability with 200 thousand tons of copper, tungsten ore mining process and coal chemical plant, are under construction.

4.2 Emerging Electronic Industry

An electronics industry base will be constructed with leading superconducting technology companies including Hunchun Baoli Communication, Chinese Academy of Sciences Whiteboard, Japan Information & Communication Electronics, Engao aluminum battery. Assigned projects contain mobile phone manufacturing, electronic whiteboard manufacturing, aluminum battery manufacturing, and car tuner manufacturing. Projects like fluid fingerprint reader, superconducting technology industry base, multi-network combiner equipment assembly and PC LCD manufacturing are under construction.

4.3 Wood Products Processing Industry

Xingye Wooden Floors, Forest King Lumber Company, Forest Wolf Lumber Company, Shengming Industrial Corporation and Eagle Lumber Company have achieved an annual production of more than 4 million square meters. Hunchun has become one of the most important export bases for solid wood floors. Projects under construction include international timber wholesale market, healthy chopsticks industrial park, high-end furniture manufacturing, wooden crafts processing etc.

4.4 Textile & Apparel Industry

Investment reaches 700 million RMB and annual production of 38 million tons of yarn and 50 million apparels is reached by companies like Telai Textile, Xiaodao Closing, Fenghua Garment and Yunda Textile.

4.5 New Building Material Industry

Based on Global Steel, Sanyuan Color Steel etc., new building material like steel structure, color steel plate will be produced for Northeast China and the Far East Asian market in Russia. At present, a cement clinker processing project with 1.2 million tons of production capability and cellular concrete brick with fly ash project is being actively carried through.

4.6 Food & Biopharmaceutical Industry

Based on a rich variety of biological herbs and local products, a food & biopharmaceutical products base is planned for construction and will include Paigao biology pharmacy, Green Island Pharmaceutical co., Changbai Ginseng, Green Melody Ginseng Processing co. Assigned projects include the production line of Chinese (delete medicinal) medicine processing and extracts of Chinese medicine, paclitaxel injection production, further processing of red pine nut and ginseng etc.

5. Industrial Parks



To speed up economic liberalization and promote regional cooperation development in Tumen River area, the government of Jilin province decided to set up Japan Industrial Park, ROK Industrial Park, Jilin- Hong Kong Industrial Park and Russia Industrial Park in Hunchun. The Park lies in a planned area in Hunchun border economic cooperation area, and will occupy 16 square kilometers. Dominated by high-tech industry, advanced technology, management experience will be utilized adequately, resources will be assigned appropriately, and industrial bases concerning energy & mineral development, science and technology cooperation innovation, automobile spare part manufacturing, biological pharmacy, fine processing of woodwork, top grade textile and knitted fabrics & costume manufacturing, business & trade logistics are to be developed in the area.

5.1 Japan Industrial Park

Japan Industrial Park in Hunchun of Jilin province is located in the southeast of cooperation area. It occupies 5 square kilometers, and will spread on 1 square kilometer in the first stage with key industries like automobile spare part export and processing, electronic manufacturing, textile costume processing.

5.2 ROK Industrial Park

ROK Industrial Park in Hunchun of Jilin province is located in the north of cooperation area, and occupies 5 square kilometers, with 1 square kilometer in the first stage with key industries like top grade textile and knitted fabrics & costume manufacturing, electronic manufacturing, agricultural products processing and biological pharmacy etc.

5.3 Hong Kong Industrial Park

Jilin- Hong Kong Industrial Park in Hunchun was authorized by Jilin provincial government in 2007. It is located in the Northwest area, and occupies 3 square kilometers, of which 1 square kilometers is a 774 million RMB investment and key industries including financial services, business logistics, high end electronics etc.

5.4 Russia Industrial Park

Russia industrial park in Hunchun lies in the south of the cooperation area, occupies 3 square kilometers, with 1 square kilometer in the first stage (constructed inside the export processing area). Aquatic products processing, wood processing with Russian resources, food processing, building material processing, mechanic manufacturing, and electronic industries facing Russian market will be developed in industrial park. It has been built since 2007 and has assigned several companies like Eagle Lumber Company, Haifu aquatic products, Global Steel and Forest Wolf Lumber Company.

6. Preferential Policies

Domestic enterprises and foreign enterprises in industries promoted by the government could enjoy a 15% rebate on enterprise income tax according to the preferential policies for Western development in China.

New enterprises in communication, electronic power, water power, post, broadcasting and television Industry, with business income taking up more than 70% of company's revenue could enjoy the following preferential policies on enterprise income tax:

During the production period, domestic enterprises are exempt from the policy that imposes enterprise income tax for the first and second year; from third year to fifth year, they are allowed a 50% reduction of income tax. As to enterprises with foreign investment with a term of more than 10 years, the business income tax will be exempted in the first two profit-making years and reduced by half in the ensuing three years.

The scope of VAT normal taxpayers invested in following industries will be enlarged. The specific scope of industries and enterprises include equipment manufacturing industry, petroleum chemical industry, metallurgy, ship manufacturing, automobile manufacturing, agricultural products processing, military industry, high-tech industry.

Enterprises that enter the export processing area will enjoy relative preferential policies endowed by the government.

The retained portion of the tax that has been paid to the local financial department by the enterprise to enter the export processing area shall be collected in the first two years and reduced by half in the ensuing three years; the retained portion of the local financial department of paid tax for non-processing enterprises with more than 10 million RMB annual turnover shall be reduced by half in the ensuing five years.

For paid tax from entering projects during the production period, a retained portion of the local financial department after deducting the payback from government to enterprises because of their enjoyment of preferential taxation policies of the state, 5% of the local financial department of the paid tax of the enterprises shall be rewarded to investors and agencies, making it mutually beneficial for investors, agencies and enterprises.

Land Transfer Fees should be paid according to the residence management principle. For manufacturing enterprises with an operation period of more than 10 years, a retained portion of the cooperation area financial department after reduction on land transfer fees, will be paid back to enterprises for infrastructure developments.

In the construction period, those entering processing enterprises in the range of cooperation area, could avoid administrative charges, and shall be reduced by half in charges of profit-making service.

Entered enterprises which employ peasant workers should follow The Trial Procedures for Integrated Insurance for peasant workers in Hunchun border economic cooperation area. Level pay from enterprises will change from 32.2% (endowment insurance 22%, unemployment insurance 2%, medicare 2%, industrial injury insurance 1.5%, child-bearing insurance 0.7%) to 15.7% (endowment insurance 10%, unemployment insurance 2%, medicare 2%, industrial injury insurance 1%, child-bearing insurance 0.7%)

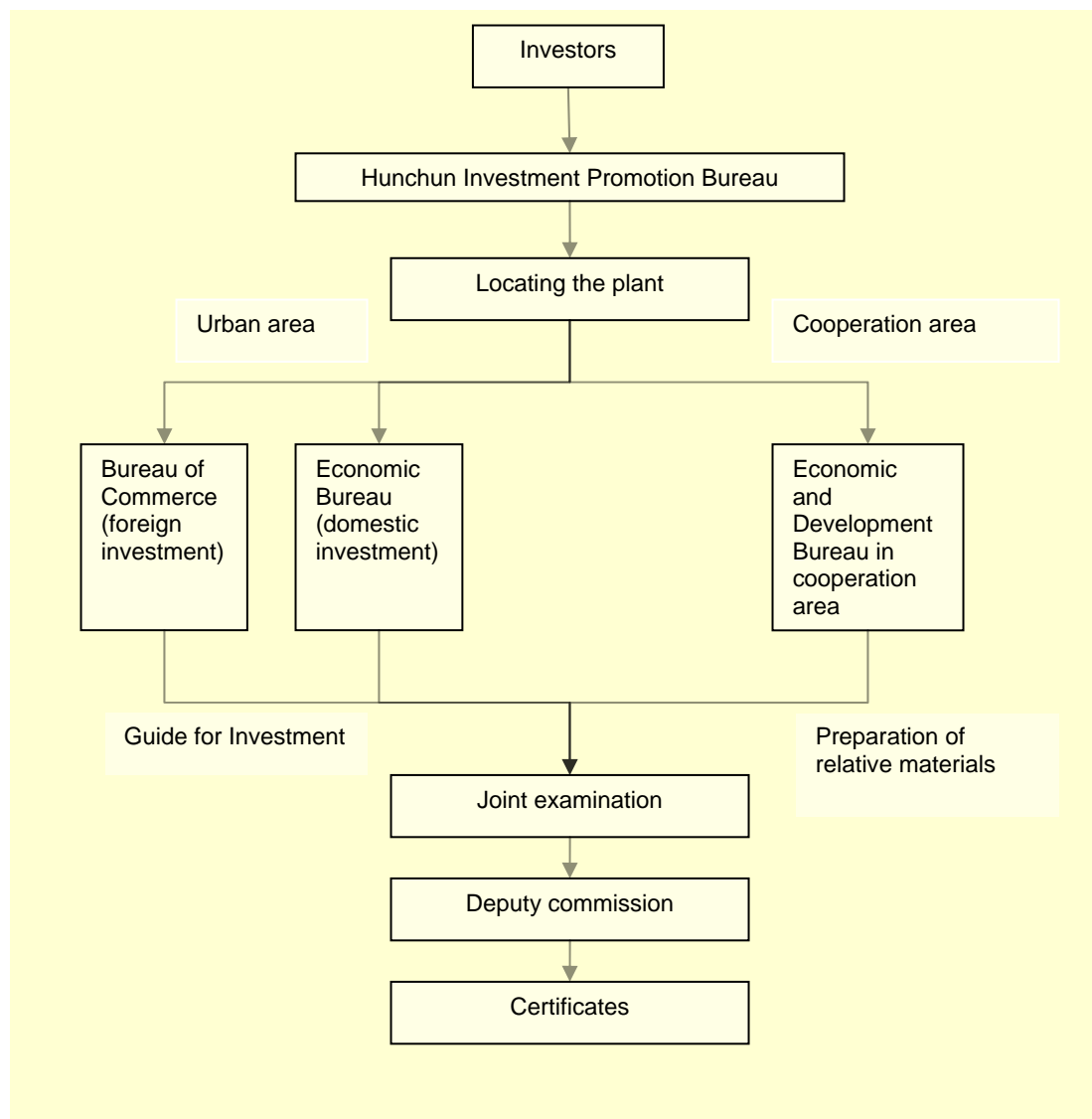
Enterprises registered in the cooperation area to develop tourism business or tourism products outside the territory of China could enjoy more preferential policies according to the actual circs, in addition to the preferential treatment given by national, provincial government or prefecture.

In addition to the preferential policies above, further preferential treatment will be provided according to the actual circs, because of big investment with high-tech, high added value and great contributions to local economic development.

7. Estimation on Miscellaneous Costs

Items	Content	Standard	
staff salary	Minimum salary standard	600 Yuan/month	
	Average salary	1123 Yuan/month	
Water, electricity and steam charge	Steam costs	103 Yuan/ton	
	Coal	250~320 Yuan/ton	
	Water	2.3 Yuan/ton	
	Heating charge	21.8 yuan/m ²	
	Electricity	Peak value 7:30- 11:30	0.70425 Yuan/kwh
		17:00- 21:00	
		Normal value 5:00-7:30	0.70425 Yuan/kwh
		11:30- 17:00	
		21:00-22:00	
		Valley value 2:00-5:00	0.23475 Yuan/kwh
		basic charge	19 Yuan/kw
		additional charge	0.0375 Yuan/kwh
Other fees	Tenure tax	Cooperation Zone: 2.5 yuan/m ² /year	
	Flood control fund	Sales revenue * 1‰	
	Real estate tax	Original value of property * 70%* 1.2%/year	
Distance & price	Hunchun-Dalian	1,400km	20 feet container: 6300 yuan 40 feet container: 12,000 yuan
	Quan River port- Rajin-Pusan	48km+466n miles	20 feet container: \$700 40 feet container: \$1200
	Changlingzi Port- Zarubino- Sokcho	71km+316n miles	20 feet container: \$746 40 feet container: \$1,180

8. Registration Procedures for Foreign Investors



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PART II

HUNCHUN: NORTHEAST ASIA'S "HONG KONG", FROM PAST TO FUTURE

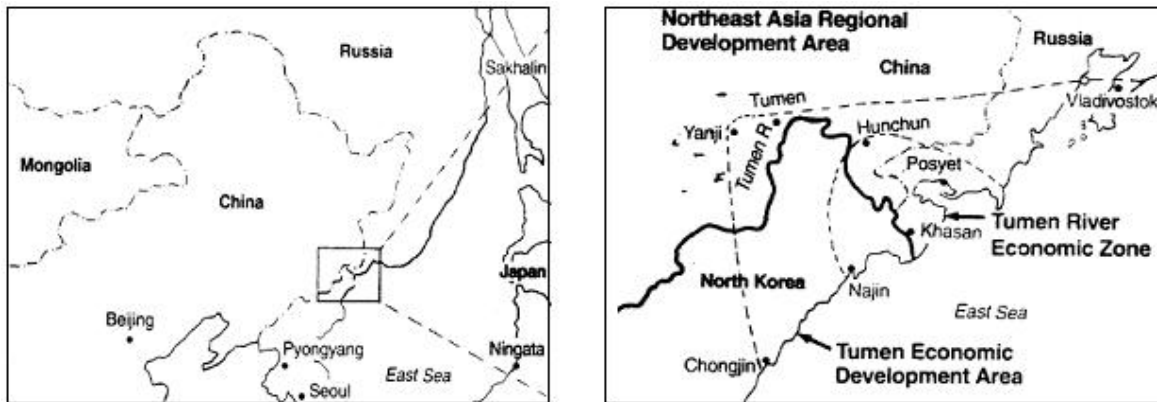
An empirical study by Gravity Model

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In the year of 1991, the United Nations Development Programme (UNDP) announced a very ambitious project, TRADP, namely Tumen River Area Development Programme (now it is called Great Tumen Initiative). This project intends to encourage the regional integration of Northeast Asia, namely China, Russia, Mongolia, DPRK, ROK and Japan (while Japan is the observer of the project). This project attracted great attention: UNDP envisioned the Tumen River Area, namely Hunchun-Raseon-Khasan Economic Zone, as a second Hong Kong. As the main idea of the project is to integrate the region and encourage trade, a lot of transnational transportation projects have been launched, which can be regarded as the great success of the regional cooperation. Hunchun city (in Jilin Province of China), which is the center of many new corridors in the region, is expected to become a new trade center of the region. This paper will try to use the gravity model to estimate the trade pattern of Hunchun city. I expect to see the transport cost and distance reduction will have a very significant improvement on the trade of Hunchun city, which may project the city as a new trade center. In addition, I will examine other factors, like population, GDP, which affect the trade pattern of Hunchun city as well.

1. Background – the Greater Tumen Initiative

In the year of 1991, UNDP launched the Tumen River Area Development Programme-TRADP. The “small” Tumen River Area, namely the Tumen River Economic Zone, refers to the triangle between Hunchun city of China, Rajin-Seonbong (Raseon) of DPRK and Khasan of Russia; while the “big” Tumen River Area, namely Tumen Economic Development Area, is the area that includes Yanji of China, Chongjin of DPRK and Vladivostok of Russia. The Tumen River springs from Tianchi lake—the crater lake of Mount Changbai, and flows into the Sea Japan. Since the year of 2005, the program involves more areas from the region, such as Northeast of China, Far east of Russia, Eastern Mongolia, Rajin-Seonbong Economic and Trade Zone of DPRK and eastern port cities of ROK. Since then, the Greater Tumen initiative took over TRADP. UNDP envisioned Hunchun-Raseon-Khasan as “the future Hong Kong, Singapore, or Rotterdam”. UNDP’s goal of the project is very ambitious: in 20 years, to spend over \$30 billion in order to transform the Tumen River Area into a transportation and trade hub of Northeast Asia. The idea is to transform the area into a free economic zone for trade to prosper and attract investment.



Tumen River Area

The GTI member countries have identified five focus sectors for the development of the region, namely energy, investment, tourism, transportation and environment. Ten concrete projects have been adopted by the member countries in recent years. Of all the projects, transportation cooperation is the most fundamental and important part.



Map of the Greater Tumen Region

(http://www.tumenprogramme.org/data/upload/123_RNbNPm.jpg)

The transportation infrastructure differs greatly amongst the countries of the region. In general, China has a well developed transport network in the region, while most of the other GTI member countries do not. Here is summary of the transport network of the region, which is from the GTI Secretariat website:



Map of Major Roads and Railway in Northeast Asia
(Source: ERINA-The Economic Research Institute of Northeast Asia)

- Road Network

The Northeast of China has a well developed road system compared to other GTI member countries. In total, there are about 3000 kilometers in Jilin Province, with 90% of towns having access to road connections. Roads conditions in DPRK is generally poor, there is a single 420 kilometers long loop, which connects North Hamgyong Province to other provinces and China and Russia. While Eastern Mongolia has very sparse road construction, there are only paved roads in the city of Choibalsan. On the Russian side, the condition is much better, there were about 7200 kilometers road in the Far East by the year of 1997.

- Railway network

Unlike other countries, China has the most extensive railway network in the region, with nearly 70 arteries and branches. The total length of Northeast China's railway network is about 16,000 kilometers (Table 1).

Table 1 Major railway links in Northeast China		
Route	Total length	Number of tracks
Manzhouli-Suifenhe via Qiqihaer, Harbin, Mudanjiang	1,500 km	1-2
Arshan (on the Mongolian border)-Hunchun (on the Russian border) via Baicheng, Changchun, Jilin, Tumen	1,300 km	1-2
Tongliao-Tonghua via Siping, Meihekou	620 km	1
Harbin-Dalian via Changchun, Siping, Shenyang	950 km	2
Harbin-Tumen via Mudanjiang	600 km	1
Jiamusi-Dalian via Suihua, Harbin, Changchun, Shenyang	1,330 km	1-2
Jiamusi-Tumen via Mudanjiang	620 km	1-2
Jilin-Dalian via Meihekou, Shenyang	850 km	1-2
Jilin-Tumen	400 km	1
Qiqihaer-Baicheng-Tongliao	565 km	1-2
Harbin-Dandong via Changchun, Shenyang	800 km	1-2
Beijing-Erlanhot	880 km	1-2
Heihe-Beijing via Harbin, Changchun, Shenyang, Jinzhou, Qinhuangdao	1,810 km	1-2

Source: UNDP Tumen Secretariat

In DPRK, there are three major lines functioning in total, namely, Rajin-Namyang with 159 kilometers, Rajin-Tumangang with 51 kilometers, and Chongjin-Namyang with 171 kilometers. Eastern Mongolia just has one track line of 238 kilometers, running from Choibalsan to Borzy at the Russian Border. There are two main lines in the Russian Far-east, Trans-Siberian Railway runs from the Tumen River region to Europe with a total length of 9200 kilometers, Baikal Amur Railway runs from Vanino to Taishet with a total length of 3800 kilometers.

- Airports

Currently, there are three civil aviation airports in the region: Yanji (China), Chongjin (DPRK), and Vladivostok (Russia). And there is a heliport in Rajin, DPRK.



Yanji Airport

(Source: <http://www.beijair.cn/Information/jc/000613924.html>)

- Port Facilities

DPRK has Rajin port, Sonbong port and Chongjin port in the region. While Russia has 2 port clusters, Vladivostok port cluster and Zarubino Port cluster.

2. Hunchun — Northeast Asia's "Hong Kong"?

Hunchun, which is at the center of the region, plays a very important role in promoting regional cooperation.

As Mangugo said, Tumen river used to be 'a vital transportation link between the Pacific Ocean and the great Eurasian hinterland.' Also, given the vast amount of natural resources, the area has been the focus of international competition for centuries. During the Qing dynasty, China still owned the right to ship goods to Europe and Japan via Tumen River at Hunchun. In the year of 1858, Qing representative Yishan signed the Treaty of Aigun with Russia, and China lost the sovereignty of the last 10 miles of the river, and the waterway was kept open for commercial traffic. When the Changkufeng Incident happened in 1938, the Japanese Military blocked the mouth of the river with piles, since then trade has been intermitted. Though China restored the navigation rights from Moscow, Hunchun remains a city next to the sea that does not have a real port and has to borrow port access from neighboring port cities.

Thanks to the GTI project and the support of central and local governments in the region, now Hunchun has the opportunity to connect with the outside world by sea again. The most promising part of transportation cooperation in Northeast Asia is the new multimodal links built up to connect these countries from Hunchun.

- **Northeast Asia Ferry Route (Hunchun-Zarubino-Sokcho-Niigata)**

In 2006, China, Russia, ROK and Japan reached an agreement to build up a new cargo and passenger sea route. The ceremony for trial operation of the route took place on Oct 24th, 2008. This new routes connects China's Hunchun with Japan's Niigata, running though ROK's Sokcho and Russia's Zarubino. Comparing to the route from China's Dalian to Japan, which takes 12 days to arrive at Japan's coastline, the new 800 nautical miles route will allow arrival in 36 hours, about one eighth the current time, and cuts the distance by 1000 kilometers. Hence, transportation cost in the region is greatly reduced. According to the agreement, China and Japan are responsible for pooling cargo sources at both ends of the route, while ROK arranges the vessels and Russia takes care of the customs, cargo storage, as well as loading and unloading of cargo on ships and trucks within their border. Experts estimate the minimum number of containers to be 12, 000 TEUs annually along this new route, and this figure is expected to increase rapidly in the future.



Local officials and businesspeople celebrate the opening of the sea-land transportation route. Ding Luyang

(Source: <http://www.liaoning-gateway.com/gateway/news/418/3198418.shtml>)

Other Links:

- **Hunchun-MaKhalino Railway**

The Hunchun (China)-Makhalino (Russia) railway has been operating since February, 2000, and has allowed the smooth flow of goods from China to Russian Ports (Posiet, Zarubino, Vladivostok, Nahodka). Makhalino is a station along the Ussuriysk-Khasan line, and is located about 41 kilometers before Khasan in Russia. The total length of the railway was 101.3 kilometers. During the first five years, the total amount of intermodal goods transferred is 51,859 tons, while the expected capability is 800,000 tons. However this link was suspended in 2004 due to financial and administrative difficulties and resumption efforts are under way right now.

- Hunchun-Rajin-Busan, Hunchun-Zarubino-Iyomishima, Hunchun-Posiet-Akita-Mayizhiru Cargo Route and Hunchun-Zarubino-Sokcho passenger-cargo land and sea route

Since 1995, a regular container route from Hunchun to Pusan via Rajin and a bulk cargo sea route from Hunchun to Iyomishima via Zarubino have been used. In 2000, a regular container route from Hunchun to Akita and Mayizhiru via Posiet was opened. In the same year, a passenger-cargo land and sea route from Hunchun to Sokcho via Zarubino was built. By the end of 2000, there were 86 transport operations in total, with 35,978 passengers, 391 standard containers, and 44,867 pieces of cargo. These routes are supposed to be integrated with the new ferry route.

Since Hunchun has a unique geographical advantage in the region, a large amount of FDI is attracted. In 2007, Superconductor Technologies Inc.(STI) signed a joint venture contract with Hunchun Baoli Communication Co. Ltd. STI, a leading provider of infrastructure products for wireless voice and data applications. And the company is expected to generate two billion RMB, which is about 300 million US dollars, after the second stage. In addition, Hong Kong, Japan, Russian and Korean investors pay a great attention to the city. The Russian Industry Park has been established in Hunchun, and construction for Hong Kong Industry Park, Japan Industry Park and Korea Industry Park will be finished soon. According to the Mayor of Hunchun city, the expected production value of these four parks will be 50 billion RMB, about 7 billion US dollars, in 2015.

3. Theoretical Framework, Model and Data

I will examine the distance effect by using a standard gravity model of bilateral trade. The gravity model has been frequently used for trade bloc studies, border effect studies, etc. Although there has been aspersions cast on the model, it has been theoretically proven according to the effort of Deardorff (1984), Helpman and Krugman (1985). Moreover, the empirical success of the gravity model makes the model a very powerful tool.

The basic gravity model is $\log T_{ij} = \alpha + \beta_1 \log(GDP_i GDP_j) + \beta_2 \log(Pop_i * Pop_j) + \beta_3 \log(Dist_{ij}) + U_{ij}$

, where T_{ij} is the trade flow (export plus import, see Appendix Table 3, 5) between country i and country j., GDP_i , GDP_j are the gross domestic products of country i and country j respectively (see Appendix Table1). Pop_i , Pop_j are the populations of country i and country j respectively (see Appendix Table2). In this paper we will use Hunchun city to estimate the trade pattern, instead of using the trade data of China.

The distance variable $Dist_{ij}$ is measured by the distance between two major cities of their respective countries; the cities are the major cities for each region in Northeast Asia (see Appendix Table 4, 6).

4. Estimation Results

First, I use trade data between Jilin Province, DPRK, ROK, Mongolia, Russia Far East and Japan to do a regression analysis on the trade pattern in the Great Tumen Region.

1. For equation 1, I use the basic gravity model, regressing the log of trade on the log of GDP product, the log of Population product and the log of distance between each pair of economies. The result is shown below:

Source	SS	df	MS	Number of obs = 56		
Model	178.834074	3	59.611358	F(3, 52) = 39.60		
Residual	78.2852506	52	1.50548559	Prob > F = 0.0000		
				R-squared = 0.6955		
				Adj R-squared = 0.6780		
Total	257.119325	55	4.67489681	Root MSE = 1.227		

Intrade	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdppproduct	1.070463	.1489685	7.19	0.000	.7715357	1.36939
lnpopproduct	-1.136335	.2945485	-3.86	0.000	-1.72739	-.5452805
lndistance	-1.029765	.3029665	-3.40	0.001	-1.637712	-.4218186
_cons	27.14984	7.998731	3.39	0.001	11.09922	43.20047

The Coefficient of GDP product is 1.07, and the sign is positive as I expected; it shows that 1% of GDP growth will result in an increase of about 1.1% growth of bilateral trade in the region. While the coefficient of distance is -1.03, which shows that distance has a very strong negative effect on the trade pattern of Northeast Asia. It makes sense that those transport cooperation, which reduce the distance among these countries, will have a large effect on the trade growth in the region. As the sign of population is negative, which is about -1.14, it seems strange at first sight. This can be explained by stating that, larger economies tend to have more trade domestically, which in turn converts to a negative effect on foreign trade growth.

- Next, I include a dummy variable landlocked in the model. Actually, there is only one economy is landlocked, which is Mongolia. ANOVA table is listed below:

Source	SS	df	MS	Number of obs = 56		
Model	185.069786	4	46.2674466	F(4, 51) = 32.75		
Residual	72.0495382	51	1.41273604	Prob > F = 0.0000		
				R-squared = 0.7198		
				Adj R-squared = 0.6978		
Total	257.119325	55	4.67489681	Root MSE = 1.1886		

Intrade	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdppproduct	1.033753	.1453607	7.11	0.000	.7419296	1.325577
lnpopproduct	-1.319162	.2983061	-4.42	0.000	-1.918037	-.7202874
lndistance	-.4999622	.3869445	-1.29	0.202	-1.276786	.2768613
dumlandloc~d	-1.370185	.6521789	-2.10	0.041	-2.679489	-.0608814
_cons	30.92658	7.954218	3.89	0.000	14.95782	46.89534

The coefficients for GDP and population remain similar as equation 1, but the distance variable turns out to be not significant but still has a negative sign as I expected. The dummy variable landlocked shows significance at 5% confident level, as the coefficient is -1.37. So being landlocked, specifically in the case of Mongolia, does have a very negative impact on the trade pattern. Then the international transport cooperation, like China-Mongolia Railway project, which is still in the phase of feasibility study, will help landlocked Mongolia to have the access to the port in China. Hence the trade of Mongolia will be increased.

- Now instead of using a landlocked dummy, I will use an active dummy variable for being landlocked, namely the original landlocked dummy times log of distance:

Source	SS	df	MS	Number of obs = 56	
Model	184.734585	4	46.1836462	F(4, 51) =	32.54
Residual	72.38474	51	1.41930863	Prob > F =	0.0000
				R-squared =	0.7185
				Adj R-squared =	0.6964
				Root MSE =	1.1913
Total	257.119325	55	4.67489681		

Intrade	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdppproduct	1.040112	.1454059	7.15	0.000	.7481976	1.332027
lnpopproduct	-1.31798	.2995482	-4.40	0.000	-1.919348	-.716612
ln distance	-.5051309	.3908217	-1.29	0.202	-1.289738	.2794763
actdumland~d	-.1807712	.0886595	-2.04	0.047	-.3587625	-.00278
_cons	30.76636	7.966393	3.86	0.000	14.77316	46.75956

It seems that it does not make too much difference with equation 2, and variable distance is still not significant here. Then it might be reasonable to say that Mongolia is the only landlocked economy in my sample, and it also turns to be the furthest to other economies, so this might explain why I could not get both of their coefficients to be significant.

Secondly, I use trade data from city of Hunchun (see appendix table). Here I dropped the data of 1994, since it is the beginning of trade and shows a great jump in the trade growth.

1. By using the basic gravity model to run the regression of trade on GNP, population, distance:

Source	SS	df	MS	Number of obs = 50	
Model	31.3150204	3	10.4383401	F(3, 46) =	27.38
Residual	17.5390417	46	.381283516	Prob > F =	0.0000
				R-squared =	0.6410
				Adj R-squared =	0.6176
				Root MSE =	.61748
Total	48.8540621	49	.997021676		

Intrade	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdppproduct	1.100604	.1326254	8.30	0.000	.833643	1.367565
lnpopproduct	-1.916482	.2360066	-8.12	0.000	-2.391539	-1.441426
ln distance	-1.082449	.1329307	-8.14	0.000	-1.350025	-.8148737
_cons	46.75892	5.299835	8.82	0.000	36.0909	57.42693

As ANOVA table shows, these three variables attain the expected signs and the coefficient is quite similar to the regression using data of Jilin, Russia Far East, etc.

2. I split the GDP product and Population product, namely the GDP of Hunchun city (denoted as GDP1 in the regression data), and the GDP of its trade partner (denoted as GDP2), the population of Hunchun City (Pop1) and the population of its trade partner (Pop2). Then ran the regression:

Source	SS	df	MS	Number of obs = 50	
Model	33.3452579	5	6.66905158	F(5, 44) =	18.92
Residual	15.5088042	44	.352472823	Prob > F =	0.0000
				R-squared =	0.6825
				Adj R-squared =	0.6465
				Root MSE =	.59369
Total	48.8540621	49	.997021676		

Intrade	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln gdp1	.2575431	.5467395	0.47	0.640	-.844338	1.359424
ln gdp2	.6892638	.352772	1.95	0.057	-.0217013	1.400229
ln pop1	33.78017	17.70061	1.96	0.056	-.8853879	68.44573
ln pop2	-1.213268	.6045024	-2.01	0.051	-2.431563	.0050263
ln distance	-.7661283	.2852328	-2.69	0.010	-1.340977	-.1912794
_cons	-395.8484	208.8002	-1.90	0.065	-816.6574	24.96068

The distance variable has a similar coefficient as regressions before, but turns out to be slightly smaller.

The two GDP variables both have positive signs, and the GDP of Hunchun does not show significance and the GDP of its partner is nearly significant. While the two population variables are both almost significant, the population of Hunchun shows a very high contribution to the trade pattern. In order to explain this, it can be seen that Hunchun is just a port city of the region, and its economy and trade largely depend on the hinterland of Jilin province, then we may see that the population will not have such a great effect, and the GDP of Hunchun might not be accurate for the regression.

5. Conclusions

• Distance

As discussed in the paper, Hunchun, a city in Northeast Asia once similar in scope to today's Hong Kong, is rapidly developing now. As the new corridor is built, the distance between these countries will be largely reduced, and trade will increase rapidly. When comparing with the trade volume of Hunchun and Jilin, we can see that only a small portion of the trade flow of Jilin Province is from Hunchun. For example, in 2002, trade volume to Japan from Hunchun is about 20 million dollars, which is about 6% of the trade to Japan from Jilin (see Table 2, 3). As I mentioned, the length of the new Northeast Asia corridor is about one eighth of the length of the current corridor from Dalian in Liaoning Province, so if incoming trade is received at Hunchun instead of at Dalian, the distance by sea is reduced. Additionally, Jilin Province is implementing the Changchun(capital of Jilin Province)-Hunchun highway project right now, which may reduce the transit time from 10 hours to 5 hours in the future, we can see that the distance for the railway or road transport will be largely reduced. If the total distance reduction is one tenth, then, according to the trade pattern estimation, the trade will increase dramatically by a factor of ten. It will largely increase the trade volume of Jilin Province, which may transform Jilin province into the main trade hinterland for the rest of Northeast Asia, hence Hunchun city will become a key port city of the region.

	North Korea	Japan	South Korea	Russia
1994	24.7	0.4	0.87	13.8
1995	13.78	1.88	5.59	8.69
1996	11.52	6.44	35.03	6.12
1997	20.78	3.48	4.01	7.87
1998	19.58	10.08	5.91	8.17
1999	19.44	15.39	9.51	14.3
2000	23.08	23.3	16.87	8.27
2001	24.65	21.83	20.1	7.98
2002	38.86	19.5	25.74	13.98
2003	20.93	33.1	16.63	44.29
2004	66.43	15.17	34.48	60.27
2005	71.87	17.59	34.98	47.09
2006	83.25	14.44	38.3	230.47
2007	91.87	20.9	38.57	438.36
2008	108.34	28.95	36.36	506.66
Source: Hunchun Commerce Bureau				

	Trade Partner	2002	2003	2004	2005
Export	North Korea	108.09	114.65	131.13	189.78
	South Korea	582.53	701.69	349.07	539.1
	Japan	163.99	345.36	363.85	372.16
	Mongolia	1.54	1.34	0.35	0.68
	Russia	19.71	29.7	73.6	142.74
Import	North Korea	44	65.36	152.05	164.3
	South Korea	92.52	108.3	125.15	120.07
	Japan	172.18	554.66	1048.99	875.76
	Mongolia	2.9	1.23	4.75	0.5
	Russia	38.13	27.6	34.6	36.53
Trade	North Korea	152.09	180.01	283.18	354.08
	South Korea	675.05	809.99	474.22	659.17
	Japan	336.17	900.02	1412.84	1247.92
	Mongolia	4.44	2.57	5.1	1.18
	Russia	57.84	57.3	108.2	179.27
Source: Department of Commerce, Jilin Province					
Note: Trade figure is calculated by the author by adding export and import					

• GDP and Population

As the intense cooperation in the Northeast Asia continues and the GDP of China rapidly grows, the huge trade potential of the region should not be underestimated. With the support of the hinterland of Jilin Province, and a huge amount of FDI attracted to the city, Hunchun will continue to keep its rapid production growth. Additionally, the local government is also implementing the Yanji-Longjing-Tumen (three cities near Hunchun in Yanbian Prefecture of Jilin Province) integration in the region, which will largely increase the city size and thus the production capacity.

- Hope and Concern

All these phenomena indicate that the future trade and development of Hunchun city will be largely increased. Although the past prosperous trade of the city has been intermitted for decades, there is no doubt in asserting that this city, with great potential, shall turn out to become the second Hong Kong of Northeast Asia.

Right now, the reputation of regional cooperation is still not well established, it will be necessary to attract more investment and attention to the region. Another concern is DPRK, since DPRK has just announced to withdraw from the six party talks and proceeded to restart their nuclear plan. This may greatly influence regional integration. However, if the business sectors and governments continue to cooperate efficiently, under the coordination of the United Nations, regional cooperation will have a very bright future.

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Appendix

Table 1 GDP List (Unit: Million \$)

	North Korea	Japan	South Korea	Mongolia	Russia Far East	Jilin	Hunchun
1994	21200	4467417.154					111.8556
1995	22300	5061199.004					94.96034
1996	21400	5200498.655	557400	1181.652		16201.2	101.9482
1997	17700	4868841.931	516400	1052.592		17660.26	112.849
1998	12600	4167473.299	346100	976.1166	14918.67	19047.96	116.2681
1999	15800	4097718.092	445200	904.8504	9652.322	20318.18	138.93
2000	16800	4392507.146	511800	945.4394	10977.97	23579.44	151.2681
2001	15700	4465238.213	482000	1016.399	13430.57	25613.14	170.5423
2002	17000	4236322.537	546900	1117.435	15028.02	28379.85	185.9891
2003	18400	4268843.074	608000	1290.624	18281.43	32161.41	203.3901
2004	20800	4688183.296	680900	1815.812	23546.04	37719.89	232.9346
2005	24200	4973734.134	791300	2306.148	29218.29	44191.07	266.8129
2006	25600	4934674.153	887500	3149.373	36077.94	54400	332.9309
2007	26700	4813341.327	969900	3893.968		68726.99	554.9295
2008							775.9004

Source: ERINA databook, World Bank WDI, Bank of Korea, Commerce Bureau of Hunchun

Table 2 Population List (Unit: person)

	North Korea	Japan	South Korea	Mongolia	Russia Far East	Jilin	Hunchun
1994	21353000	124961000					203000
1995	21543000	125439000					208400
1996	21684000	125761000	45525000	2276000	7360000	25791000	211100
1997	21810000	126091000	45954000	2307500	7248000	26001000	208548
1998	21942000	126410000	46287000	2340100	7137000	26032000	209869
1999	22082000	126650000	46617000	2373500	7027000	26161000	210281
2000	22175000	126870000	47008111	2407500	6913000	26273000	211988
2001	22253000	127149000	47357362	2442500	6832000	26371000	212786
2002	22369000	127445000	47622179	2475400	6743000	26494000	214319
2003	22522000	127718000	47859311	2504000	6680000	26586000	215430
2004	22709000	127761000	48039415	2533100	6634000	27090000	215666
2005	22928000	127773000	48138077	2562400	6593000	27160000	215521
2006	23079000	127756000	48297184	2594800	6547000	27230000	217671
2007	23200000	127770750	48456000	2635200	6486000	27300000	218978
2008							221340

Source: ERINA databook, World Bank WDI, Bank of Korea, Commerce Bureau of Hunchun

Table 3 Trade Flow of Pair Economies(Unit: Million \$)

Economy1	Economy2	2002	2003	2004	2005
Jilin	North Korea	152.09	180.01	283.18	354.08
	Japan	675.05	809.99	474.22	659.17
	South Korea	336.17	900.02	1412.84	1247.92
	Mongolia	4.44	2.57	5.1	1.18
North Korea	Russia	57.84	57.3	108.2	179.27
	Japan	369	265	252	194
	South Korea	642	724	697	1056
	Mongolia	0	0	0	0
Mongolia	Russia	80	118	213	232
	Japan	49.1	71.9	108.4	81.3
	South Korea	108.8	75.2	70.9	128.8
	Russia	285.6	306.6	362.5	445.1
Russia Far East	Japan	968.1	1291	2406.2	3499.2
	South Korea	993.3	1022	1163.9	2183.5
South Korea	Japan	44999.41	53589.23	67845.8	72430.62

Source: Jilin Department of Commerce, Ministry of Unification in South Korea, ERICA databook

Note: Trade between Mongolia and North Korea is estimated to be 0. When I do regression, the GDP and Population of Russia Far East will be used.

Table 4 Distance list1 (Unit: Kilometers)

City 1	City 2	Distance
Changchun(Jilin)	Pyongyang(North Korea)	538
Changchun(Jilin)	Tokyo(Japan)	1527
Changchun(Jilin)	Seoul(South Korea)	709
Changchun(Jilin)	Choilbalsan(Mongolia)	983
Changchun(Jilin)	Vladivostok(Russia Far East)	535
Pyongyang(North Korea)	Tokyo(Japan)	1288
Pyongyang(North Korea)	Seoul(South Korea)	194.56
Pyongyang(North Korea)	Choilbalsan(Mongolia)	1356
Pyongyang(North Korea)	Vladivostok(Russia Far East)	689
Choilbalsan(Mongolia)	Tokyo(Japan)	2488
Choilbalsan(Mongolia)	Seoul(South Korea)	1548
Choilbalsan(Mongolia)	Vladivostok(Russia Far East)	1458
Vladivostok(Russia Far East)	Tokyo(Japan)	1069
Vladivostok(Russia Far East)	Seoul(South Korea)	745
Seoul(South Korea)	Tokyo(Japan)	1153

Source: Distance Calculator

Note: Distance is calculated as air distance

Table 5 Trade Volume of Hunchun City (Unit: Million \$)

	North Korea	Japan	South Korea	Russia
1994	24.7	0.4	0.87	13.8
1995	13.78	1.88	5.59	8.69
1996	11.52	6.44	35.03	6.12
1997	20.78	3.48	4.01	7.87
1998	19.58	10.08	5.91	8.17
1999	19.44	15.39	9.51	14.3
2000	23.08	23.3	16.87	8.27
2001	24.65	21.83	20.1	7.98
2002	38.86	19.5	25.74	13.98
2003	20.93	33.1	16.63	44.29
2004	66.43	15.17	34.48	60.27
2005	71.87	17.59	34.98	47.09
2006	83.25	14.44	38.3	230.47
2007	91.87	20.9	38.57	438.36
2008	108.34	28.95	36.36	506.66

Source: Hunchun Commerce Bureau

Table 6 Distance list2 (Unit: Kilometers)

City1	City2	Distace
Hunchun (China)	Rajin(North Korea)	40
Hunchun (China)	Niigata(Japan)	850
Hunchun (China)	Pusan(South Korea)	750
Hunchun (China)	Vladivostok(Russia)	160