Optimization Path of the Freight Channel of Heilongjiang Province to Russia

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Abstract. Heilongjiang Province becomes the most important province for China's import and export trade to Russia due to its unique geographical advantages and strong complementary between industry and product structure. However, the existing problems in the trade freight channel layout and traffic capacity restrict the bilateral trade scale expansion and trade efficiency improvement. Therefore, the government should engage in rational distribution of cross-border trade channel, strengthen infrastructure construction in the border port cities and node cities, and improve the software support and the quality of service on the basis of full communication and coordination with the relevant Russian government, which may contribute to upgrade bilateral economic and trade cooperation.

Introduction

Heilongjiang Province is irreplaceable in China's trade with Russia because of its geographical advantages, a long history of economic and trade cooperation, and complementary in industry and product structures. Its total value of import and export trade to Russia account for more than 2/3 of the whole provinces and nearly 1/4 of that of China.

After years of efforts, there exist both improvement in channel infrastructure, layout and docking and problems in channel size, functional positioning and layout, as well as important node construction which do not match with cross-border freight development.

In order to build a highly efficient comprehensive transportation system connecting Heilongjiang Province with Russia, radiating Northeast Asia and inland China, and further expand the import and export trade to Russia and Northeast Asia countries, this paper provides recommendations on optimization of the bilateral freight channel construction from the aspect of its overall layout, border port function and node city reconstruction based on bilateral trade trend and freight volume.

Construction of International Land, Sea and Air Transport Channel

Construction of international transport channel has a close relationship with the Heilongjiang Prov ince’s Silk Road economic belt strategy. Thus, accelerating the construction of international logistics channel will be helpful for dealing with conflicts between trade expansion and inadequate supply of freight capacity.

To Transform and Expand the Railway Freight Channel

The railway freight channel plays a dominant role in a variety of freight routes to Russia. It is imperative to rebuild and expand the transport facilities including the Siberian Railway and the Baikal-Amur Railway, to improve the capacity and traffic efficiency of Heilongjiang Province to the east and west of Russia, and to speed up the construction and docking of the railways in central China and other regions and then promote the development and opening up along the border of Heilongjiang Province.
Heilongjiang Province should actively improve the layout of the railway channel to Russia including the provincial road network and border channel, that is, "a line, a ring, two bridges, four ports and a border railway" transformation and construction. Among them, "a line" refers to the Suifenhe - Harbin - Manchuria railway transformation, including the expansion of the Mu Sui Railway transformation, Suifenhe - Geroilovo cross-border railway transformation which is wide rail and rail conversion docking with design capacity of 7.5 million ton per year less than current freight, Harbin to Mudanjiang and Manchuria railway electrification at Heilongjiang section, etc. The "a line" construction and transformation will make the transport capacity and port freight capacity of Suifenhe - Manchuria - Russia - Europe Railway and Suifenhe - Russian Far East port improved greatly, and Chinese goods can be delivered through Russian Far East port to Southern cities of China, Korea, Japan and North America, while foreign goods can be transited from Russian Far East ports and Chinese Suifenhe and Dongning to Russia Siberia region.

"A ring" is the Harbin-Mudanjiang-Jiamusi-Harbin including the Harbin-Jiamusi and Mudanjiang - Jixi - Qitaie - Shuangyashan - Jiamusi high-speed railway construction. The "two bridges and four ports" are respectively the Tongjiang to Ningxiakuoye railway bridge and Heihe to Blagoveshchensk road bridge and the railway to Suifenhe, Heihe, Dongning and Jiayin ports. Among them, Tongjiang to Ningxiakuoye railway bridge, started in February 26, 2014, is first cross-river railway bridge of China and Russia with the design capacity of 21 million tons. It can get access to Siberian Railway, Khabarovsky, the Russian Far East's largest city and the European continent. "A border railway" refers to the construction and transformation of railway along the border ports, including Luogu River to Laohei Mountain in Dongning, Mudanjiang - Vladivostok, Dongning - Ussuriysk, Fuyuan and Suifenhe-Grod Diego cross-border railway. The reconstruction of "a line, a ring, two bridges, four ports and a border railway" will relieve the freight pressure of the Suifenhe-Harbin-Manzhouli railway and meet the future demand of trade and freight, so that Heilongjiang Province can play a real role in opening the window to the north.

To Smooth Road Freight Channel

Heilongjiang Province's road freight channel to Russia consist of highway transportation and boundary river ferry, and some poor road in the Russian Far East have serious effects on the operation efficiency of the road freight channel. Therefore, Heilongjiang Province’s the construction of the road freight channel to Russia should be concentrated in expressways to the port and boundary river highway bridge. Although the Skeleton of highway in Heilongjiang Province has formed, Heilongjiang Province should speed up the construction of Jiansanjiang to Heixiazi Island Expressway and Yichun to Jiayin and other provincial trunk highway, including Heihe - Blagoveshchensk road boundary river bridge, Luogu River - Bokrovka Boundary Bridge and Dongning - Boltafuka boundary rivers. Meanwhile, it should continue to promote the laying and use of Jiayin - Bashkowo, Luobei - Amur Jeter and Heihe - Blagoveshchensk ice - fixing channel, so as to make full use of flexibility of cross-border road transportation.

To Enhance the Waterway Freight Channel Radiation

Heilongjiang Province’s construction of waterway channel to Russia should be focused on the boundary river shipping channel and river port facilities, thereby enhance its freight capacity, and attraction and radiation. First of all, for the boundary river port, it is necessary to speed up the construction of Heihe, Tongjiang, Fuyuan, Fujin and other geo-economic advantageous ports, enhance the level of mechanization, such as integrated berths, ro-ro berths, container berths, and improve the distribution of bulk goods and transport conditions. Secondly, for the boundary river channel, regulation on the construction of Sino-Russian border rivers, such as Heilongjiang River, Ussuri River and other channels should be in accordance with the provisions of the national standards of waterway and paid more attention to speed and quality of these projects. Finally, for the waterway routes, as domestic major place of origin of grain, manufacture equipment and energy raw materials, it is necessary to expand waterway channel from Heilongjiang Province via lower reaches of
Heilongjiang river in Russia towards Far East of Russia, Japan, Korea, Southeast coast of China and South East Asia region so that ease the pressure of land transportation.

**To Improve the Air Freight Channel Network**

Heilongjiang Province’s four airports, located in the center of the Northeast Asia, are the best stop points between South East and North America airline. Heilongjiang Province could take advantage of these benefits to attract international logistics enterprises to carry out air cargo services to Russia, and make Harbin become China's important hub for Russian aviation. On the one hand, air cargo business to North East Asia and North America should be enhanced. On the other hand, international and domestic airlines network should be improved, such as airport construction in Jiansanjiang, Wudalianchi, Suifenhe, Fuyuan, Hegang, Hulin, Raohe and Jiayin, etc.

Adjustment to the Function and Layout of Import and Export Trade Ports to Russia

A port is a gateway to the country's opening to the outside world. The construction of port infrastructure directly affects its capacity and distribution efficiency, function and layout.

**Accurate Positioning of the Import and Export Trade Port Functions**

According to the current layout, industry feature and geographical location of Heilongjiang Province’s ports to Russia, these ports can be classified into different functions as following.

Corresponding to Vladivostok, the largest port city of Russian Far East, Suifenhe port, both road and rail port, can be defined as a trading port. Suifenhe, as a comprehensive bonded area, was formally approved for the use of Rubles in 2013, which promote the business development of international purchase, transfer and distribution. Besides, Suifenhe port is the only one allowed to re-export imported processed sawn timber and may become the largest import timber distribution center in China; thus, the future scale of freight volume of timber and its products should be included in the planning and design of freight channel.

Tongjiang port, as a customs clearance port, belongs to the eastern part of the freight channel of the channel in Heilongjiang Province and is the largest river port. The establishment of Tongjiang railway bridge will connect China's northeast railway network and the Russian Siberian Railway, improve the transport conditions in Heilongjiang Province and the Russian Far East and enhance the customs clearance capacity of Tongjiang Port.

Dongning port can be defined as a processing port. Became it is the only port of the North of China approved by the government to carry out the Kimberley Process, a regulatory system for the import and export trade of rough diamonds. This will make Dongning port become a professional port to import processing trade and services of Russian jewelry, jade wool. Besides, Dongning port can also take advantages of being rich in timber in the border of Russia to develop the trade of wood and its sawdust. Furthermore, Dongning port can also be engaged in food imports and liquefied petroleum gas imports from Russia, which may be complementary with the adjacent Suifenhe trade port.

Harbin port should be positioned as a comprehensive port. Harbin is the most important inland transportation node of Heilongjiang Province to Russia's freight corridor with railway, aviation and river port. It is a multi-functional hub port linking the Bin-Sui and Bin-Zhou railway corridors. Harbin is China's main agricultural and sideline products production area with equipment manufacturing, food, medicine, chemical industries, and civil aviation, new materials, new energy equipment, electronic information, biological, green food strategic emerging industries. The first "China-Russia Expo" held in 2014 greatly facilitated the development of trade in Harbin and expansion of the freight volume of Harbin to Russia, therefore, Harbin Port needs to establish and improve the comprehensive port functions Level.

Jiamusi port can be defined as a processing port due to its advantageous industries, mechanical and electrical machinery processing industry including agricultural machinery and mining machinery, and agricultural and sideline products processing industry, of which grain grinding industry accounted for almost 3/4 as rich in high-quality rice.
Positioning Heihe port for the trade and processing port, Heihe port is only 750 meters far away from the Russian Far East's third largest city, Blagoveshchensk city. Heihe City should actively participate in the construction of international channel, the expansion of Heihe Airport, the construction of 202 National Road, expansion of the North Black Railway and improve shipping conditions. And the completion of the Heilongjiang River Bridge between Heihe city and Blagoveshchensk may help to upgrade the Heihe port to be the trade and processing ports.

**Optimizing the Import and Export Trade Port Layout**

At present, the ports of Heilongjiang Province are scattered and lack of cooperation and communication, so Heilongjiang Province should consider each port’s function, optimize the layout of ports and construct them step by step, making the developed earlier port promote the developed late port and forming the integrated port development system.

In accordance with the function of 25 ports, Harbin integrated port should be as the core port circle, Qiqihar as the hinterland, two horizontal lines as the secondary port circle, the one is Mudanjiang, Suifenhe and Dongning, MSD for short, the other one is Jiamusi, Tongjiang and Fuyuan, JTF for short, and also two vertical lines for the edge of the port circle layout, Mohe, Heihe and Jiyin, Mishan, Hulin and Raohe. For the MSD and JTF, Suifenhe, Dongning, Tongjiang, Fuyuan port should be positioned as a trade port or customs clearance port, while Mudanjiang and Jiamusi should be designed as a production or processing port in secondary port circle so that they can provide high-quality and adequate supply of cargoes to Russia, strengthen the link between the ports and reduce the competition between the freight resources. Limited to the development scale of the port, the border ports should be constructed layer by layer, from main core port circle, Doning, Suifenhe, Tongjiang and Heihe to the ports weak in cargo throughput and facility construction, such as Mishan, Fuyuan, Jiyin and Mohe, which fully release the port's own functional advantages and play a leading role in the economy.

**Improvement in the Infrastructure and Service Environment of Important Transportation Nodes**

Freight channel node is an important part of the freight network, whether its setting is reasonable or not has directly effect on the relevant lines and the entire freight channel’s function. Most of the important transport nodes in Heilongjiang Province are also important ports and should be focused on improving its infrastructure and service environment. This paper mainly analyzes that of Harbin city and Mudanjiang city in Heilongjiang Province.

**Improvement in Harbin's Infrastructure Construction and Service Environment**

From overlooking the whole of Northeast Asia, Harbin is an important node with the "2-hour traffic circle" far away from Japan, Korea, Russia and other countries, a place passed by to go to Europe and North America. Harbin should play a role of large hub of traffic and regional central city and strive to build three channels "aviation, land and land and sea transport".

Firstly, Harbin will be built into a container center station to create the Northeast International Container Logistics Distribution Center, set functions of transport, warehousing, distribution and customs clearance, and become the key node of less than container load, LCL for short, loose container transit and assembling train or flight.

Secondly, Harbin should take an opportunity of being approved as E-commerce integrated pilot to promote the construction of a trade, logistics and financial center affecting the provinces in northeastern of China, Russia and Northeast Asia. Harbin was approved by the State General Administration of Customs as a pilot city for cross-border trade in e-commerce in February, 2014. Therefore, Harbin should establish a cross-border trade e-commerce service platform, and build a pre-sorting center of small packages of Russian Express, the Russian e-commerce border warehouse,
Ruble online fast settlement center and national largest talent market of Chinese and Russian e-commerce trade.

Thirdly, to take China-Russia Expo as a platform to build a new high ground for cooperation in Russia. The first China-Russia Expo, a state-level Expo event, was held in Harbin on June 30, 2014 - July 4. Heilongjiang Province should support materials, electrical and mechanical, light industry, food enterprises to expand the Russian market to build a platform for planning to open up a new path to Russia and create a favor atmosphere for further multi-level cooperation.

Fourthly, with Harbin to Yekaterinburg air cargo channel opened, Heilongjiang province in Cross should bring competition mechanism into cross - border freight package aircraft, attract more airlines to deal with the Russian cargo mixed business, and gradually expand the full cargo charter business, so as to attract more enterprises trade with Russia stationed in Harbin, and make Harbin Airport become the port of departure and destination for trade with Russia.

**Improvement in Mudanjiang City’s Infrastructure Construction and Service Environment**

Mudanjiang City is an important space node, a gateway city and logistics distribution to the Russia, Japan, South Korea and Mongolia region. There are four national first-class ports in Mudanjiang City as followed, Mudanjiang aviation port, Suifenhe railway port, Suifenhe road port and Dongning road port with their cargo capacity over 12 million tons and passenger capacity over 2.6 million people, so that, Mudanjiang City is not only China's largest city to trade with Russia, but also the best inland trade area to Russia. Among them, Suifenhe comprehensive bonded area is approved by the state to implementation of special bonded policy, with functions of international transit, distribution, purchase, entrepot trade, product fairs, import and export processing, as well as gathering enterprises and policy demonstration, and will fulfill customs clearance’s information exchange, mutual recognition of supervision and mutual aids in law enforcement. Heilongjiang Province should upgrade the construction of Suifenhe highway, railway ports and Dongning highway port, expand capacity of railway from Mudanjiang to Suifenhe, and substantially increase in the annual freight capacity.

Mudanjiang should construct two square kilometers of "Mudanjiang international inland port area” railway container center station railway port division on the basis of Mudanjiang Huasheng international logistics company, a square kilometers of "Mudanjiang international inland port area” road freight transport chain-based road port area on the basis of Mudanjiang Guangyun Group International Transportation Hub Center, and a four square kilometers of "Mudanjiang international inland port" central area and the airport area on the basis of Mudanjiang National Economic and Technological Development Zone and Mudanjiang Airport. Thus, Mudanjiang could be the largest inland international transit hub port in Heilongjiang Land and Sea Silk Road Economic Belt, the eastern integrated transport hub and international multimodal transport center in "The belt and Road".

In order to optimize the construction of important transport nodes in the freight channel to Russia, it is necessary to speed up the construction of a comprehensive commodity trading market in Harbin, Mudanjiang and other important traffic nodes, build a commodity distribution center to Russia, and also a number of logistics parks, nodes and distribution centers, and cultivate support some large-scale logistics groups and professional logistics enterprises to create a modern intelligent logistics industry cluster. Heilongjiang Province should support the logistics enterprises to carry out joint ventures and cooperation, achieve unified management, reduce transportation costs, and ensure the sufficient source of goods, "heavy vehicles to go and heavy vehicles to come back", to accelerate the formation of a strong gathering of radiation capacity of the logistics industry cluster.

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