Mongolia's Transition to Maritime-linked Country from Land-locked Country: Focusing on Artic Route linked with Inland Water Transport

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ABSTRACT

Mongolia is a landlocked country and has a poor environment in terms of logistics. This is limiting the export of Mongolia's abundant resources at normal prices, and it is in the form of exploitation that can only be cheaply sold between Russia and China. However, due to the global warming, there is a possibility that Mongolia will be developed into a new maritime linked country by utilizing Arctic sea route and Russian inland waterway. Possible routes include the Selenga River in Northern Mongolia, Lake Baikal and Yenisei river-NSR in Russia. This study examined the status and the possibility of linking this route. In the past, Russia and Mongolia signed an agreement in 1925 to link the Selenga-Ulan-Ude-Baikal.

One hundred years ago, when global warming was not in full swing, this agreement was intended to link the inland and land / shipping. Global warming may be an opportunity for the development of the region, with better conditions now underway in the commercialization of Arctic routes. Therefore, in order for Mongolia to leap as a maritime nation, the international complex logistics of the new Northern logistics market based on the development of East Siberia of Russia and the activation of the Arctic route, strengthens logistics linkage between Mongolia and Russia, and builds a complex logistics system, it is necessary to establish a system while carrying out a further research.

Key words: Mongolia, Inland waterway, NSR, Connectivity

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1. Introduction

In September 2019, Russia and Mongolia upgraded their relationship to “inclusive partner relations”. Russian President Putin, who visited Mongolia at the time, announced plans to invest in transportation logistics infrastructure through the Russia-Mongolian Joint Investment Fund (Tass, 2019). Mongolia's share of foreign trade in Russia is 0.2% in 2018, which is only 59th (ru-stat, n.d.) in the overall ranking of Russia's trading partners. Nevertheless, the biggest reason Russia is interested in investing in logistics infrastructure in Mongolia is its strong willingness to reduce its trade distance with China through Mongolia, which borders its borders, and to secure transportation routes to Asia. And for many parts of Siberia that are close to Mongolia (Republic of Buryatia, Republic of Tuva, Irkuchuk Oblast, Republic of Altai and Javakalkal Krai), Mongolia is the second most important economic cooperation partner after China, and since these regions are deeply inland, they are able to access China's transportation logistics network through Mongolia rather than using domestic rail and Far East ports. This is because it is more advantageous in terms of distance (Jeh et al., 2016). Meanwhile, Russian President Putin announced on May 7, 2018, that through the “National Government Development Goals and Strategic Tasks by 2024”, the use of Arctic routes will be increased to 80 million tons by 2024. This is more than four times the 17 million tons in 2018 (Ludmila, 2019). As a result, Russia needs to develop a new logistics system connected with Mongolia and develop East Siberia in order to activate the Arctic route.

Mongolia has also recently implemented foreign policy considering traditional motive and a new international situation. Recognizing that the lack of transportation and logistics infrastructure connected to overseas markets is the biggest obstacle to industrial development and export growth, Mongolia proposes the 'Steppe Road' initiative utilizing the designated and geopolitical advantages located between Russia and China. The strategy is to build a transportation and logistics network that connects China and Russia by maintaining and constructing railroads, roads, power grids, and oil and gas pipelines that cross the territory of the country (Jeh et al., 2016). As such, Russia seeks to secure a logistics route to inland China via Mongolia's railway, while Mongolia secures a logistics route connecting Russia's ports and even Arctic routes through trans-Siberian trains and inland waterways to escape China's dependence on logistics. This is an urgent need.

In this study, it will examine the logistics cooperation between Russia and Mongolia through the development of Russia-Mongolia's transportation infrastructure and explore the possibility of connecting the Arctic route through the Siberian inland waterway of Mongolia. The structure of the study is as follows. Following the introduction of Chapter 1, Chapter 2 first examines the

possibility of linking the inland waterway and the Arctic sea route in East Siberia. Chapter 3 analyzes the foreign trade between Russia and Mongolia and investigates the current logistics infrastructure status. In addition, the current state of infrastructure investment in Mongolia, which has much underdeveloped transportation infrastructure and the Russia-China logistics infrastructure project, will be examined. Based on this, Chapter 4 examines the possibility of linking the water transport between Russia's Siberian Region and the Mongolia's northern waterway, which can be connected to the Arctic route as a means of linking the logistics route between Siberia and Mongolia. In the conclusion, the previous studies are reviewed and the possibility of linking the Arctic route in Mongolia and the implications of the paper are drawn.

2. Literature Review

2.1 Inland Water Transport

Due to the climate change, the availability of Arctic sea routes and the increase in Arctic energy development have led to active research on logistics routes using inland waterways and Arctic sea routes in Siberia. In addition to serving as a hinterland for the Arctic Ports, it is intended to develop Siberian inland waterway as a major element of the Russian inland logistics linkage. Sherbanin (2016) published the Russian Federation's Inland Water Development Strategy 2030, announced by the Russian government in February 2016, which demanded oil and gas companies, as well as transporters, from oil fields in Siberia and the Arctic. He stressed that the Siberian transport network using inland waterway in the meridian is essential for the transportation of special materials used for development, large quantities of machinery, and the efficient transport of developed resources. Sherbanin also anticipated that the development of the Arctic route would be a substantial aid to the development of Siberian oilfield and hydrocarbon development projects, which would intensify maritime transport and generate large quantities of cargo transported by sea to the southern railway. Goncharenko (2006) continues to insist that Russian transport corridors be included in international transport corridors. He further expanded the existing corridor in Russia and Europe to the east and underlined the TSR through the large cities of Siberia, creating a route that connects the Arctic route, emphasizing the need to build an international corridor connecting both Southeast Asian countries and Western Europe. To this end, Siberian Rivers, the only meridian transit route on the Eurasian continent, are very important and argue that Russian inland waters should be opened to foreign vessels. In this case, the increase in

freight transport would lead to the development of transport corridors and the reduction of Russian costs for the maintenance of waterways and hydraulic structures.

He took the Yenisei-Arctic route system as an example, while many of the underground mineral resources in the Yenisei-Angara basin are in high demand from Europe and Asia, while large factories in regions such as Irkutsk and Novokuznetsk have to import raw materials from outside Austria, France, Germany, etc. That's why it's necessary to use a route that connects the Arctic route to the waterways of Dudinka, Igarka and Lesosibirsk. In addition, Maslennikov (2017) cited the resource deposits in the Sakha Republic as an example and mentioned the necessity of utilizing inland water transport considering the characteristics of resource deposits. He also emphasized the construction of river transshipment infrastructure based on the rivers and arctic routes of the Arctic Siberia region, and Zachesov (2006) insisted on developing and utilizing Siberian inland waterways as the shortest logistics route between Europe and Asia. In this case, Siberian economic development would be possible. Galin (2014) cited the reasons for the decline of the inland transport business in the 21st century, the development measures and the need for government support. He said that inland transport of certain cargoes should be supported to ensure inland transport participation in the national transport infrastructure. As mentioned above, research on the Siberian inland waters has been actively conducted in various areas such as TSR / NSR linkages and related national policies and development plans.

Internationally, Lee (2017) proposed the use of Siberian inland waterways as one of the gradual approaches to address obstacles in the commercialization of Arctic routes. He stressed that the export of minerals and forest resources buried throughout Siberia through water transportation would compensate for the shortage of cargo on the Arctic route. In addition, the absence of a logistics route connecting North and South to Siberia should be resolved by linking NSR and TSR through Siberia's inland waterways such as Ob', Yenisei and Lena. In addition, Ye and Bae (2016) mentioned the necessity of developing the Arctic port infrastructure linked to the river transport network in Siberia in the Russian Arctic Strategy through analysis of Russian strategic documents.

2.2 International Inland Logistics Linkage

In this study, studies on inland water transport as well as previous studies on the connection of water and land transport in neighboring countries are necessary. First, Sokolova (2012) refers to the Marco Polo II program, where EU countries convert 15% of intercity and intercity cargo into inland water by 2030 to improve the environment and reduce highway loading, it emphasized the need to increase the utilization of the single-depth system, the inland waterway in

Russia and Europe, developed earlier than the Siberian inland waterway. He also emphasized the need for autonomous navigation of foreign vessels, comparing the autonomous operation of overseas vessels on the Rhine-Main-Danube Canal with the restriction of one foreign vessel navigation in the current inland waters of Russia and Europe. Truxinova (2016) now raises bottlenecks and low-level problems in the single-depth system of Russia's European region. To solve this problem, the construction of low-pressure hydraulic systems on the Volga River in the Nizhni Novgorod region and hydroelectric power plants on the Don River in the Bagaevskii region should address the bottlenecks of the single-depth system in Russia's European region.

Meanwhile, as a transportation logistics network that connects Central Asian countries on the Eurasian continent with Russia, UNESCAP is in the process of linking roads between countries through the TIR agreement (Customs Convention on the Int'l Transport of Goods under cover of TIR Carnets)[1]. Most of Central Asian countries are landlocked countries, but the role of railway and road sectors is important, but the infrastructures such as road width, number of lanes, pavement, road sign, and safety facilities are not evenly developed. The use of international transportation is low due to unrestricted transportation restrictions and related regulations. Indeed, as introduced in the Cooley (2016) study, the import and export period of goods in Central Asia is twice as long as in Southeast Asia and three times as much as in the Middle East and North Africa. In order to improve these problems, efforts are being made to improve connectivity to infrastructure, customs, and institutions.

The previous studies focus on the development of Siberia's inland waterway, the development of resources in Siberia, the linkage of NSR-TSRs, and the use of Arctic routes. Some studies have also considered alternatives to improve terrestrial logistics networks with neighboring countries. On the other hand, this study suggests a method of linking Siberia with Mongolia's waterway, that is, foreign rivers and Siberian waterway, to broaden the scope and possibility of inland water transport and to propose a new way of establishing inland transportation routes in Eurasia.

[*1] The Convention on International Transport of Goods Under Cover of TIR Carnets (TIR Convention) is a multilateral treaty that was concluded at Geneva on 14 November 1975 to simplify and harmonies the administrative formalities of international road transport.

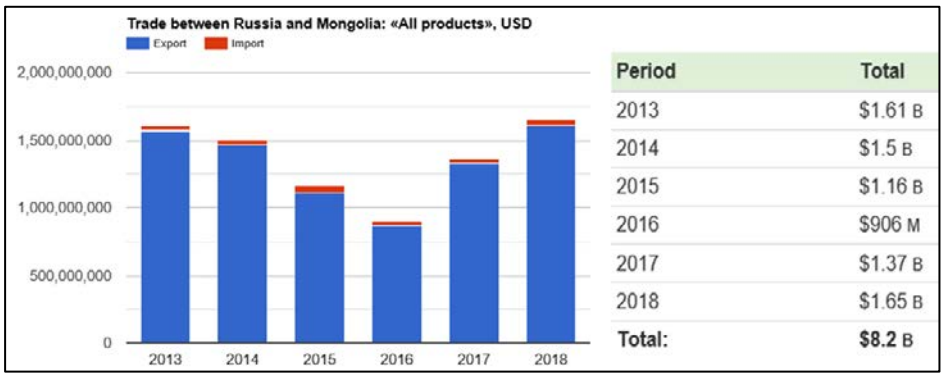
3. Logistics Infrastructure between Russia and Mongolia

3.1 Foreign trade between Russia and Mongolia

Mongolia's economy depends heavily on mining. It is the world's three richest uranium rich country and its coal reserves rank tenth in the world. Mongolia has a wide range of useful minerals, including the world-class 'Tavan Tolgoi' coal mine and 'Oyu Tolgoi' gold and copper mines. It accounts for 56% of industry's total output and 90% of total export, and the resource dependence of industry and export is very high (Jung, 2019).

Mongolia's exports rely on China (93.8%), UK (3.8%), and Russia (1.1%), while imports rely on China (34.3%), Russia (29%), Japan (9.7%) and Korea (4.3%). From China, minerals such as copper concentrate and coal are exported, and power energy is imported. Russia is mainly importing petroleum products (KOTRA, 2019). As about 90% of freight between Russia and China is transported using Mongolian railways, Mongolia can be seen as a strategic center for Russia-Middle freight rather than a Russian trading partner. However, Mongolia's railway and road infrastructure is very poor, requiring modernization and expansion through investment (Douglas et. al., 2019). Russia is also interested in investing in Mongolia's transportation infrastructure, as a trading partner facing Mongolia, as well as a route to energy and cargo transportation to China.

Figure 1. Russia's Trade with Mongolia (2013–2018)



Period	Total
2013	$1.61 B
2014	$1.5 B
2015	$1.16 B
2016	$906 M
2017	$1.37 B
2018	$1.65 B
Total:	**$8.2 B**

Source: https://en.ru-stat.com/date-Y2013-2019/RU/trade/MN (Date of access: 2019. 10. 25)

The largest share of foreign trade between Russia and Mongolia is mineral products, with trade amounts to 67.8% of the total trade between 2013 and 2018. Next food, beverage, tobacco products and industrial products ranked second and third with 6.7% and 5.1%, respectively.

Table 1. Russia's main imports with Mongolia (unit: $10,000)

Product	2013	2014	2015	2016	2017	2018	proportion	Rate of change
Minerals (salt, sulfur, earth and stone, gypsum material, lime & cement)	3,310	3,100	3,590	2,690	2,880	2,930	66%	-7%
Meat & meat product	120	580	550	500	660	730	13%	512%
Clothing & apparel accessories	120	130	97.2	200	390	440	6%	263%

Source: https://en.ru-stat.com/date-Y2013-2018/RU/import/MN(Date of access: 2019.11.13)

Table 2. Russia's main exports with Mongolia (unit: $ million)

Product	2013	2014	2015	2016	2017	2018	proportion	Rate of change
Mineral Fuel and Mineral Oil · Products	1,140	3,100	3,590	2,690	2,880	2,930	67%	-10%
Food, beverage and tobacco	108	90.4	76.1	79.5	92.6	101	7%	-6%
chemical products	62.9	55.2	50.9	57.4	93.3	98.8	5%	57%

Source: https://en.ru-stat.com/date-Y2013-2018/RU/import/MN(Date of access: 2019.11.13)

3.2 Transport infrastructure between Russia and Mongolia

3.2.1 Rail

More than 95% of Mongolia's import and export cargo is transported by rail. The Mongolian Transverse Railway (TMGR), Mongolia's main railway, is 1,108 km in length and connects Sukhbaatar – Ulaanbaatar - Zamiin-Uud. In addition, TMGR is linked to Europe with Russia's Siberian Transverse Railway (TSR) and is also used as a major logistics infrastructure in Northeast Asia because it is also linked with China's Transverse Railway (TCR).

In 2018, cargo shipments on the Ulaanbaatar Railway (UBTZ) (24.5

million tons) increased 1.8 million tons from 2017, 27% of which are transshipments and imports. By 2030, Ulaanbaatar Railway's transport volume is expected to increase to about 50 million tons, but this would not be possible without the development of railway infrastructure. Mongolia's coal exports in recent years have been a big boost to the national economy, outpacing other products. Mongolia's coal exports in 2018 were about $ 2.8 billion, nearly three times higher than in 2016 (Zagalova et. al., 2019). The development of the coal industry and the formation of product flows have a significant impact on Mongolia's railway development. Mongolia, which has the world's 10th largest coal reserves, is China's main coal exporter and China mostly uses roads. However, the current rail and road infrastructure alone has not kept up with the growing coal production, so the Mongolian government is trying to improve its China-dependent import and export logistics system. Construction of the Erdenet-Ovoot segment (see Figure 2) has begun, which will link both the Russian border and Ulaanbaatar railway to the north of Mongolia (Zagalova et. al., 2019).

Figure 2. Status of railways in Mongolia

Source: https://vcatuva.ru/news/2016/03/15/3933.html (Date of access: 2019.11.14.)

3.2.2 Road and Water transport

In 2017, Mongolia's road network was 10,355 km long. Among these, paved roads occupy 8,431 km, an increase of 5,414.8 km from 2010. Since 2001, Mongolia has been promoting the Millennium Road project to link the international transportation network with neighboring countries and to improve the domestic transportation network. Mongolia's Millennium Road includes the North-West Highway, which is a crossroad between the East-West Highway and

the Interstate crossing of AH32 on the Asian Highway, and five main roads that cross the North and South. In other words, this road refers to a road (2,653km) from the eastern end of Mongolia to the western end via the capital Ulaanbaatar and five other roads (KHIDI, 2019).

Table 3. Mongolia's road and traffic status

	2010	2013	2014	2015	2016	2017	Rate of change
Road full length(km)	6,734	8,875	9,428	9,812	10,126	10,355	3.9
Improved road length(km)	3,015	5,838	6,461	7,125	7,456	8,431	9.6
Traffic volume (1,000 ton)	12,610	28,748	37,640	35,829	40,398	53,981	17.1

Source :www.khidi.or.kr/board/view?pageNum=1&rowCnt=10&no1=&linkId=48764140&menuId=MENU01826&maxIndex=00487816369998&minIndex=00348368939998&schType=1&schText=&schStartDate=&schEndDate=&boardStyle=&categoryId=&continent=AS&country=MNG (Date of access: 2019.12.15)

Figure 3. Road state in Mongolia

	AH32		AH3		Road4
	Millennium Road		Road2		Road5
	AH4		Road3		Road chain

Source :www.khidi.or.kr/board/view?pageNum=1&rowCnt=10&no1=&linkId=48764140&menuId=MENU01826&maxIndex=00487816369998&minIndex=00348368939998&schType=1&schText=&schStartDate=&schEndDate=&boardStyle=&categoryId=&continent=AS&country=MNG (Date of access: 2019.12.15)

The road leading to the Russian border is linked with the Russian road A340, which runs through Ulan-Ude, the capital of the Buryatia Republic. The A340 is linked to the Asian Highway (AH3), an international corridor that connects Russia, Mongolia and China, to Mongolia's Ulaanbaatar, Inner Mongolia and eastern China. In addition, the Russian roads leading to the Mongolian border include P256 (Novosibirsk-Mongolian border), P257 (Krasnoyarsk-Mongolian border), A333 (Kultuk-Mondi-Mongolian border) (Wikipedia, n.d.).

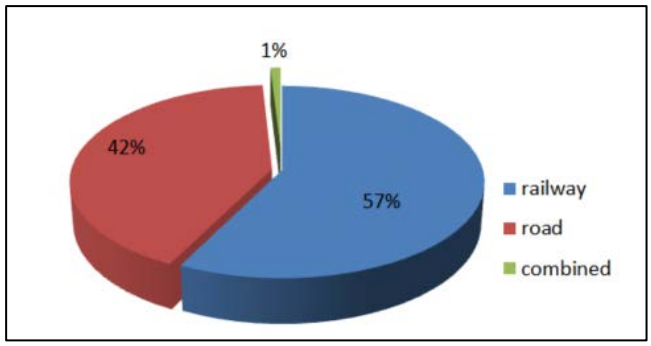
Mongolia's only inland waterway was developed by the Selenga river (270km) and its tributary Orkhon river (175km), which flows through the Russian border into Lake Baikal. It is very insignificant. Mongolia's rivers and lakes are total 580 km long. The Hubsugul is the only lake developed for transportation. The free shipping period is from May to September, but cannot be used (Wikipedia, n.d.). In Siberia, on the other hand, the Yenisei River, the Ob' River and the Lena River, which are connected to the Arctic route, are already used as water transport.

3.3 Mongolia Transportation Infrastructure Investment Status

Mongolia's transportation infrastructure is very backward and underdeveloped, and much of the funding is needed to maintain the current infrastructure level. Compared with other countries, middle-income countries spend only 0.75% of average GDP on their road infrastructure maintenance, while Mongolia spends only 0.15%. Even in order to maintain its current network, Mongolia needs to increase 84% of its current road capacity and 65% of its rail capacity by 2030 and increase by 284% and 306% of road and rail by 2050, respectively.

Given that the Ulaanbaatar railways in Mongolia carry most of the cargo between China and Russia, this infrastructure expansion is not an internal Mongolia but an important infrastructure development strategy at the international level. In addition, the severe imbalance of infrastructure between Mongolia's regions is why infrastructure investment is so important. As of 2016, railroads were applied to only seven of the 21 administrative districts in the country, and only 16 areas were linked to the capital, Ulaanbaatar. In 2019, Mongolia's transportation infrastructure project totaled $ 12.7 billion (Douglas et. al., 2019).

Figure 4. Transportation Infrastructure Project



Source: Douglas et. al., "Стратегическоепланированиеинфраструктурыдляустойчивогоразвитиявмонголии", ENV/EPOC/EAP(2019)10 (Date of access: 2019.12.22)

Table 4. Mongolia Transportation Infrastructure Investment Project

Project		Sector	Investment Amt.($million)	Investing Org.	Type
Ongoing	Altanbulag(Selenge) – Ulaanbaatar –ZamiinUud(Dornogov))	Road	3,500	Tsingis Land Development Group	New
	Erdenet-Ovoot(547km)	Railroad	1,250	China National Railroad	New
	Urban Transportation Development Investment Program	Road	273	The Asian Development Bank	existing
	Western Road Corridor Investment Program	Road	125	The Asian Development Bank	existing
Planning	Ukhaa Hudag (South gobi aimak) –Gashuun Sukhait	Railroad	970	BNP Paribas, European Bank for Reconstruction and Development	New
	Tavan Tolgoi-Gashuun Sukhait Railroad Infra.	Railroad	1,070	Shenhua Group, Sumimoto Trading Company	New
	Bogd-Khan Detour Route Program	Railroad	500	The Asian Development Bank, Mongolia Government	existing
	Tavan Tolgoi, Gashuun Sukhait Road(250km)	Railroad	256	National income	New
	Nariin Sukhait-Shivae Huren Railroad Infra.	Railroad	145	National income	New

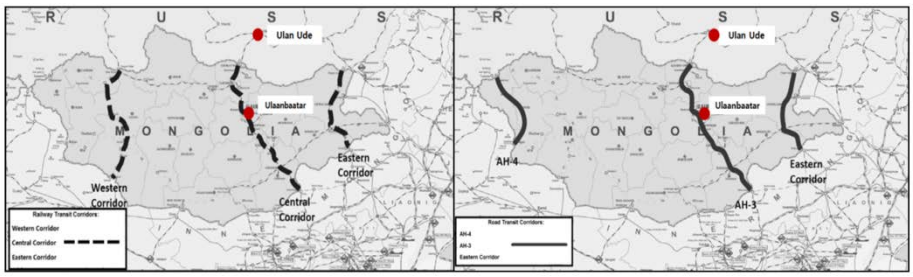
Sources: Douglas et. al., "Стратегическоепланированиеинфраструктурыдляустойчивого развитиявмонголии", ENV/EPOC/EAP(2019)10 (Date of access: 2019.12.22)

3.4 Building Economic Corridor between Russia-Mongolia-China

Discussions on the establishment of the Russia-Mongolia-China Economic Corridor first began at the Shanghai Cooperation Organization Summit held in Tajikistan in September 2014, and then in the summer of 2016. Delegates signed the Russia-Mongolia-China Economic Corridor Construction Program. The program aims to increase trade, mitigate border transport, develop infrastructure and increase the competitiveness of cooperative products in global markets. The five year period is planned and consists of 32 projects. The construction of the Russia-Mongolia-China Economic Corridor is linked to the strategies planned by each of the three countries, including the establishment of the Eurasian Economic Union in Russia, the one-on-one in China, and the Mongolian grasslands. Mongolia's interest in building a three-way corridor is to take advantage of its geopolitical potential to seize the opportunity to enter neighboring markets. Mongolia's development of mining industry and the active production of minerals have to find transportation routes for overseas exports, but the logistics infrastructure is very poor, so they are dependent on China and Russia. In particular, the backwardness of the Mongolian railroad is decreasing its potential as a transit route. In 2016, 1,700 containers of Chinese cargo via Kazakhstan and 1,200 containers of trans-Manchuria Railway were compared. There are only 170 containers via Mongolia. However, due to its location connecting China and Europe, Mongolia's Ulaanbaatar Railway can shorten 1,135km more than the Manchurian Railroad and 1,600km more than the railway via Kazakhstan (Frolova, 2017).

In Russia, the economic corridors of the three countries are expected to not only be a driving force for the economic development of the Eurasian economies, but also to play a major role in the development and modernization of Siberia and the Far East. The realization of this project will not only expand the basis of the Siberian Trans-Train, but will also diversify the transportation network, and China will be able to use the corridor through Mongolia to increase access to the ocean (Frolova, 2017).

Figure 5. Railway (left) and road (right) of 〈Russia-Mongolia-China Economic Corridor〉



Source: http://edrj.ru/article/13-06-17 (Date of access: 2019.11.15)

4. Logistics linkage between Russia and Mongolia

4.1 Utilization of water transport between East Siberia and Mongolia (Yenisei and Selenga)

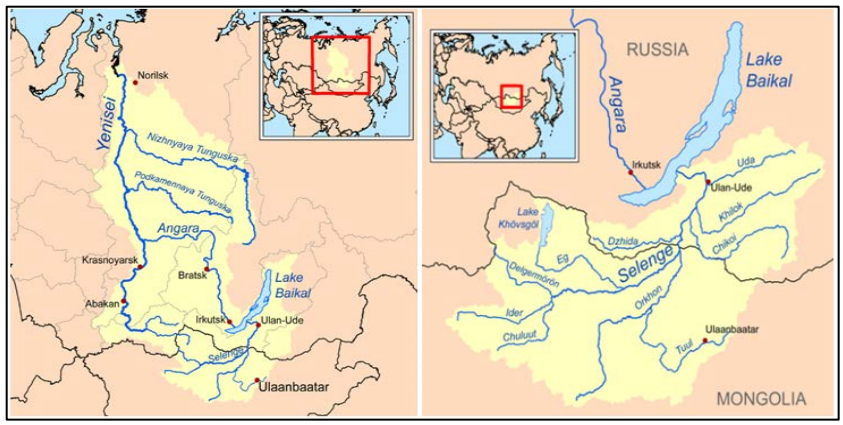
East Siberia is one of the largest deposits of Russian mineral resources, with a significant reserve of gold, copper, nickel, cobalt and aluminum, in addition to 30% of coal reserves, 40% of timber and 44% of water resources. Simultaneously, Krasnoyarsk krai, Zabaykalsky Krai, Irkutsk oblast, Chita oblast, Chiara, Republic of Buryatia, Republic of Tuva and Khakasiya and Yakutia(Vostok-Sibir, n.d.). East Siberia's economic zone accounts for about 24% of Russia's territory and 6% of its population. The region's industrial potential is fifth in the Russian Federation, including non-ferrous metallurgy (35%), forestry and wood processing (18.1%), electricity (7.4%), building materials industry (6.7%) and fuel industry (5.1%). , Chemical and petroleum industries (5.1%), mechanical engineering and metalworking industries (3%)(Gorchakov, 2002).

Trans-Siberian railroads in the East Siberia region pass through Naushki and Ulaanbaatar (Mongolian Cross Railway) to Beijing and Harbin (Manchurian Railway). Krasnoyarsk in krasnoyarsk Krai has the Siberian transverse railway station and the Yenisei River's port, which links railways and water transport (irkipediaru, n.d.). Besides that, Irkutsk also has two ports along the Angara River and the Siberian transverse railway station.

The role of water transport in East Siberia is enormous. Nearly three quarters of the region is not affected by the railway, and there are many areas where the road network does not reach. Yakutia, Tuva and northern part of Krasnoyarsk krai have no railway infrastructure (except between Dudinka and Noril'sk), while the enormous rivers of the Yenisei and Lena rivers, and their major tributaries, flow from south to north and into deep taiga forests and tundra areas. It also serves as a transport linking the aforementioned major industrial complexes (Norilsk, Igarka, Sangar, Yakutsk, Tommmot, etc.) to the Siberian transit train. The Yenisei River has the largest water transport system flowing to the Arctic Ocean. It is central of the three great Siberian Rivers that flow into the Kara Sea. The Yenisei River is connected to the Lake Baikal via the Angara River (wikipedia, n.d.).

The Yenisei River, which is connected to the Angara River from the Lake Baikal, flows into the North Pole, while the Selenga River, which flows through Mongolia and the Buryatia Republic of Russia, flows from Lake Mongolia and flows into Lake Baikal. During the Soviet era (1925), when the use of inland waters was very active, it signed a regulation for transporting water freight using the Selenga and Orhon rivers between the Soviet government and the People's Republic of Mongolia. Later, in 1964, the People's Republic of Mongolia decided to build inland watercraft on the Selenga River, with experts from the Siberia Inland Water Transport Company supporting the shipbuilding manpower and technology of the Selenga River (irkipedia, n.d.).

Figure 6. Yenisei River (left) and Selenga River (right)



Source: https://en.wikipedia.org/wiki/Yenisei_River,
https://www.wikiwand.com/en/Selenga_River (Date of access: 2019.11.14)

Thus, there has already been an effort to transport cargo through the Selenga River in the Russian state of Irkutsk or Buryatia. And now, if you connect the Selenga and Yenisei rivers (via the Angara River) as well as the Ru-Mon border, China as well as Mongolia will have a route to the Arctic Ocean. Currently, most of the Russian minerals exported to Mongolia are located in areas that can be transported by rail except for the border with Mongolia; Samara oblast (37.4%), Kemerovo oblast (11.5%), Moscow (9.2%), Irkutsk Oblast (7.7%), Bashkiria oblast (3.2%), Republic of Buryatia (2.8%). However, the Yenisei River, which has ports in northern Siberia's industrial zone, is expected to be more diversified in the flow of transport as well as in the export of minerals and petroleum products to Mongolia. Mongolia will also have the potential to export its coal, which is increasing in production, to Europe via Arctic routes. Of the 32 projects of the China-Mongolia-Russia Economic Corridor program, 11 are related to transportation infrastructure, including 7 railway networks, 3 road networks, and 1 logistics company (Jeh et. al., 2016). There are two corridors from the Mongolian entrance to the maritime port (Primorye 1 and 2), penetrating the north-eastern part of China to Nakhodka and Zarubino, respectively, or bordering China and Russia. There is a problem to bypass the long distance along the road. For Mongolia, there is a need for a new alternative to the central railway corridor (Ulan-Ude-Ulaanbaatar-Beijing-Tianjin) that penetrates the interior of China. As a new alternative to international logistics in Mongolia and East Siberia, the Arctic route linking the Lake Baikal and the Yenisei River could play an important role.

4.2 Development of inland water port and logistics terminal in Buryatia

While the Yenisei River already plays a role as water transport in the region of East Siberia, the Selenga River can only be transported until a considerable amount of infrastructure has been developed. During the development of the Selenga River infrastructure, the port of connection between the Mongolian railway and the Yenisei River(via the Angara River) is suitable for the water port of the Ulan-Ude, the capital of Buryatia, where the Russian-Selenga River flows along the Russian-Mongolia border. The road network of the Republic of Buryatia consists of three federal roads (837.6 km), and the railroads that pass through the Republic are part of the East Siberian rail network, the East-West Trans-Siberian Railway, the Baikal-Amur Mainline, and the center of Ulan-Ude. There is a railroad in Russia, Mongolia and Naushki on the southern Mongolian border (Kang et. al., 2017).

The Republic of Buryatia is one of the regions with the longest border with Mongolia (1,213.6 km). The population is around 980,000, of which 110,000 (11.8%) live on the border with Mongolia. Cross-border cooperation has developed the railway networks of both countries (Ulan-Ude – Naushki – Ulaanbaatar - Beijing) and the road network (Ulan-Ude – Kahta - Ulaanbaatar and Kultuk - Mondi) by 2020. A customs clearance and logistics terminal will be built in the Nauski region of the Buryatia Republic in October, and the Wang Investment of the project signed a contract with the local government in July of this year (Logirus, 2018).

Figure 7. The Republic of Buryatia

Source: https://neftegaz.ru/news/gas/219761-bystraya-reaktsiya-gazprom-predlozhil-provesti-magistralnyy-gazoprovod-cherez-12-rayonov-buryatii/(Date of access: 2019.11.18.)

Products exported to Mongolia from the Buryatia Republic include food and beverage and tobacco products (17.5%), vegetable products (fruits, nuts, flour products, grains: 14.4%), automotive and machinery products (13.1%), meat and meat products (milk, Eggs, cheese, butter, honey: 11.8%). Mongolian products also include meat and meat products (74.4%) and vegetable foods (vegetables and grains: 10%) (ru-stat, n.d.). Although the Republic of Buryatia is the sixth-largest (2.8%) country in Russia between Russia and Mongolia, its border with Mongolia and its capital, Ulan-Ude, are the ports of the Siberian Trans-Train and Selenga river(Ulan-Ude port). All of these are likely to be possible to develop into a logistics hub between Russia and Mongolia. Ulan-Ude harbor is located in front of the delta where the Selenga River meets the Lake Baikal. It accounted for only 0.1% of Russia's total port revenues, but in 2015 it accounted for almost 6 times the revenue of 59.1 million rubles in 2018, compared to 860 million rubles in 2015 (Global Service, n.d.). In addition, Lake Baikal, located in the Irkutsk oblast, currently has the 'Baikal Port' at the point where the Angara River originates.

4.3 Mongolian-Russia-Arctic Complex Route

The inland water logistics route connecting the Selenga, Lake Baikal, and the Yenisei rivers coincides with the aforementioned logistical limitations of Mongolia and Russia's simultaneous inland water transport and Arctic route activation. Inland water logistics routes are obstacles arising from imports and exports of its resources due to the geopolitical limitations of Mongolia and the demand for Russia's simultaneous export of Siberia resources and sufficient traffic to activate the Arctic route. If the logistics route is properly opened, Mongolia will be able to grow from inland to marine and export its resources at a more competitive price. This may be a way to overcome Mongolia's weaknesses, which are relatively alienated from foreign investment. Of course, the pioneering of the inland transport logistics route in the region will require the maintenance of ports and logistics connection infrastructure for existing water transport and the consideration of seasonal limitations. However, with the global warming, various quaternary industrial technologies are developing, which can gradually contribute to the sustainable use of inland water logistics route connecting Mongolia and Russia. However, as the economic feasibility will arise from the initial price competitiveness, it is necessary to actively support the Russian and Mongolian governments and to improve the logistics connection system between the two countries.

Figure 8. Mongolia–Russia Inland Transportation Logistics Proposal

Source: Author

5. Conclusion

Russia, which is pursuing a new Eastern policy due to economic sanctions in the West, is seeking to enter the Asia-Pacific region through close cooperation with Eurasian economies. It also has a strong will to strengthen China's economic cooperation with China, while at the same time restraining China's entry into Central Asia under the “one-to-one” policy. From this point of view of Russia, Mongolia is a very geopolitical important country. Russia will continue to maintain Mongolia's dependence on Russia by using Mongolia, which has a long history of ties, to secure an efficient logistics route with China and to actively invest in Mongolia's infrastructure, energy and education. Mongolia is also very active in cooperation in developing infrastructure with the two countries, by proposing an initiative of the "Steppe Road" in order to occupy the strategic position of bilateral logistics transportation between Russia and China.

In addition, Mongolia, which is difficult to access to the sea, is using Russia's Siberian Transverse Railway to transport its products to the Far East. There are many infrastructure projects centered on railroads and roads, including

economic corridors between Russia - Mongolia - China, and investment in transportation infrastructure in Russia. Among these are two transportation corridor construction projects for port access. However, Mongolia is struggling to transport bulk cargoes by being surrounded by land powers such as China and Russia. It is also true that China's relatively easy access to the sea makes it difficult to export Mongolian resources through a number of regulations. On the contrary, Russia, which is relatively easy for Mongolia, has to bypass too much distance when using existing railway infrastructure, and there is a limit to export of mineral and energy resources, which are low-cost bulk cargo.

In this situation, in order for Mongolia to export large quantities of mineral and energy resources economically, it is time to find ways to take advantage of the Selenga River in northern Mongolia to the Arctic Route through the Lake Baikal and the Yenisei River in Russia. It is possible to develop a new international complex logistics route that can go to the Arctic route through the Yenisei River, based on the agreement between Russia and Mongolia on the connection between the Selenga and Lake Baikal 100 years ago. In particular, East Siberia is the second most active inland waterway region after Russia's European region. Three-quarter of East Siberia is the Tiger Forest and Tundra region, which lacks rail and road networks, or has very poor infrastructure. But it is also a place with great potential for logistics route development because of the Yenisei River, which connects industrial complexes built along rich underground reserves with the Arctic Harbor and the Trans-Siberian Railway.

By linking the Russia-Mongolia railroad with the Yenisei River, and then developing the Mongolian waterway (Selenga) and linking it with the Yenisei River, Russia will be able to export and import minerals and grains in different regions. On the contrary, Mongolia will have a route to send rich mineral resources to Europe and Asia through Arctic routes. However, current information on the transport infrastructure of the Selenga River is very lacking, and both Russia and Mongolia have no specific plans for investment in inland water transport infrastructure.

Therefore, the development of inland water ports and logistics centers in the Ulan-Ude region of Buryatia Republic, which has both the Selenga river port and the Siberian transverse railway station in Russia, and the logistics center of the Lake Baikal, bordering Mongolia and Russia is necessary to precede. In addition, further research on the economic, institutional, and technological possibilities of linking Siberian inland waters to the Arctic route, along with data surveys on the infrastructure of the Selenga River in Mongolia, should be undertaken.

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