

## **An Analysis of the Trans-Korean Railway (TKR) and Trans-Siberian Railway (TSR) Linkage: International Cooperation and Constraints**

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The Moon Jae-in government has promoted diverse cooperative projects with the Northern region, including China, Russia and Eurasia to derive ripple effects in economics and security both the diversification of political diplomacy and the denuclearization of North Korea. The East Asian Railway Community in particular, with a focus on the New Northern Diplomacy, has been proposed as a means to achieve greater effectiveness. Even in the face of many challenges to embody this conception, a variety of international cooperation efforts have been pursued to accomplish co-prosperity with Russia and Eurasian countries. This is part of the plan to complete the Iron Silk Road as an important model for Northeast Asia Multilateral Cooperation, which connects Northeast Asia and Eurasia through the connection of the continental railways with the Trans-Korean Railway (TKR), Trans-Siberian Railway (TSR) and Trans-China Railway (TCR) to achieve the modern version of the Silk Road, which has been one of the ambitious plans since the Kim Dae-jung government. Thus, railway cooperation with Russia is becoming more important to attract the expansion of the domestic market and opening of North Korea, and also to build an everlasting Peace Regime in the Korean Peninsula through the overland route eventually connecting the continent via a TKR-TSR linkage in the future. In this context, the main purpose of this paper is to explore the international cooperation efforts and constraints required for a linkage of the TKR and the TSR by the medium of the inter-Korean railway connection on the basis of the functionalist theory, which is a symbol of peace and economic cooperation.

**Keywords:** Functionalist Theory, Trans-Korean Railway (TKR), Trans-Siberian Railway (TSR), International Cooperation, North Korea's Denuclearization

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## I. Introduction

The South Korean Moon Jae-in government has been pushing ahead with various cooperative initiatives with countries in its northern area, including Russia and the Eurasia region, in order to maximize the possibility of North Korean denuclearization and its ripple effect on the economy. This policy is in line with the policies toward the Northern region carried out by former South Korean governments which put continuous emphasis on cooperation with the region. These include the Nordpolitik initiated by the former Roh Tae-woo government, the Iron Silk Road of the Kim Dae-jung government, resource diplomacy of the Lee Myung-bak government, and the Eurasia Initiative of the Park Geun-hye government.

In particular, in order to achieve the effectiveness of the policy, the government announced the comprehensive idea of a 'new economic map of the Korean Peninsula' centered on the New Northern Policy and proposed the 'H-line' and the 'East Asian Railway Community' on the premise of reconnecting the inter-Korean railway. The plan is aimed at realizing a vision of common prosperity with northern countries such as Russia and countries in Central Asia by expanding the Korean Peninsula to the Eurasian region by connecting and integrating its continent policy.<sup>1</sup> This includes the plan to complete the Iron Silk Road as an important model of Northeast Asian multilateral cooperation between Northeast Asia and Eurasia through the connection of the Trans-Korean Railway (TKR), Trans-Siberian Railway (TSR), and Trans-China Railway (TCR). This will then realize a modern Silk Road, a long-cherished project that seeks to advance economic channels and establish new growth engines. Railway transportation will drastically reduce costs, distance and time compared to sea transport, providing it with a new vitality to the epochal change of the transportation paradigm in Northeast Asia and the development of energy and resources in the Far East. Although the biggest key will be whether the denuclearization negotiations between the U.S. and

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1 Jiwon Yun, "An Analysis of the Implementation of the Moon Jae-in Administration's New Northern Policy and South Korea-Russia Economic Cooperation," *The Korean Journal of Security Affairs*, vol. 22, no. 2 (2017): 6-22.

North Korea would proceed, railway cooperation with Russia will also be very significant for the expansion of the domestic market, enabling North Korea to open up and establish a permanent peace regime on the Korean Peninsula by connecting land routes via the TKR-TSR.<sup>2</sup>

Triangle economic cooperation between the two Koreas and Russia is essential for the revitalization of the New Northern Policy based on the railway connection in the Eurasian region in the future. Despite the deadlock in inter-Korean relations, many studies and seminars have recently been conducted and held at the government and private levels following the efforts to establish a peace regime on the Korean Peninsula. These include the connection of the TKR to the TSR, and the revitalization of the government's New Northern Policy. Looking at the preceding studies, most of the research has been on the political and economic aspects of the connection of the continental railways, including the reconnection of the inter-Korean railway and the Eurasian railway, and the economic ripple effects of North-South Russia linked to the New Northern Policy. For example, Kang, Bongkoo (2003), Kim, Songjook (2018), Yun, Jiwon & Lee, Donghyun (2015), and Woo, Junemo (2018) studied the connection between the TKR, the Eurasian and continental railways from a political and security perspective,<sup>3</sup> Yi, Seongwoo et al., (2016), Kim, Hyosun (2018), Kang, Myungsoo (2018), Yang, Haeun (2018), Lee Hyuntai et al., (2018), and Kim, Jaejin (2018)

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2 Sunghun Won, "Eurasian Rail Connection Is Our 'Future,'" accessed December 05, 2019, <http://blog.daum.net/chong123/15872401>.

3 Bongkoo Kang, "Connection of TSR-TKR and the Eurasian Community: Focusing on the Civilization and Security Factors," *Journal of International Area Studies*, vol. 6, no. 4 (2003); Songjook Kim, "The Political and Economic Background of the Railway in Northeast China in the 19<sup>th</sup> Century and the Korean Peninsula" (presentation, international conference held by the Geopolitics Institute of Korea, December 14, 2018); Jiwon Yun & Donghyun Lee, "Eurasia Initiative and the Construction of the 'New Security' System of the Korean Peninsula: Focusing on Strategic Cooperation and Constraints among North Korea, South Korea, and Russia," *Journal of Military History Studies*, no. 140 (2015); Jiwon Yun, "President Moon-President Putin, Moscow Summit and New Northern Policy," *Defense and Technology*, vol. 474 (August, 2018); Junemo Woo, "On the 'Vision of Korea's New Northern Policy'—Context of International Relations Theory and the Contact with New East Asia Policy of Russia," *Journal of International Area Studies*, vol. 21, no. 5 (2018).

analyzed the economic effects of the TKR, TSR, and TCR focusing on the New Northern Policy,<sup>4</sup> and so on.

On the other hand, this article will focus on the prerequisites, international cooperation, and the challenges presented in the search for the establishment of an institutional system linking the TKR, a symbol of peace and economic cooperation on the Korean Peninsula, to the TSR which connects to Eurasia. Since the start of the Moon Jae-in administration, various functionalist approaches have been attempted to resume inter-Korean dialogue and advance the Korean Peninsula peace process following the 4.27 Panmunjom Declaration and the 9.19 Pyongyang Military Agreement in 2018. From a functionalist perspective, this paper seeks to examine the implications of inter-Korean railway connections and further transportation cooperation between Korea and Russia, and the subsequent challenges to overcome.

The remaining part of the article examines the following: the current status and ripple effects of the inter-Korean railway connection in chapter II, which is suggested as a prerequisite for the connection of international railways; the establishment of institutionalization through the Organization for Cooperation of Railways (OSJD) and the international cooperation of the New Rajin-Khasan Project in chapter III; and the constraint and implications of the reconnection of railways among the two Koreas and Russia in chapter IV.

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4 Seongwoo Yi et al., "A Study on Eurasia Initiative as a Multilateral Cooperation in Pan East Sea Area," *Journal of International Area Studies*, vol. 19, no. 4 (2016); Hyosun Kim, "Three Things to be Considered when Applying the New Northern Policy to the New Economic Map of the Korean Peninsula," *Russia-Eurasia Focus*, no. 491 (2018); Myungsoo Kang, "Pohang City's Today and Tomorrow Preparing for the New Northern Era," *Russia-Eurasia Focus*, no. 49 (2018); Haeun Yang, "A Study on the Establishment of the Western Axis of the New Economic Map on the Korean Peninsula in Connection with the One Belt and One Road," *Issue Paper*, no. 11, The Korea Transport Institute (2018); Hyuntai Lee et al., "The Possibility of Asia Infrastructure Investment Bank (AIIB) to Finance DPRK and Its Implication," *The Journal of Modern China Studies*, vol. 20, no. 1 (2018); Jaejin Kim, "In the Era of Reunification and the North: Restoration of Donghae Line Railway from Gangneung to Jejin," Research Institute of Kangwon, May 8, 2018.

## **II. Functionalist Theory and Effects of Inter-Korean Railway Connection**

### **2.1 Functionalist Approach and Inter-Korean Railway Connections**

In order to discuss the importance and continuity of inter-Korean exchanges, it is proposed that an approach based on the functionalist theory be adopted. The basic proposition of functionalism is that economic cooperation brings about integration and peace. From a functionalist perspective, the enhancement of exchange and cooperation projects in non-political spheres not only promotes the sharing of the benefits, but also causes a spill-over effect that extends availability for international cooperation to various non-political spheres. If this effect persists, it leads to cooperation in the political sphere through empirical learning, creates peace, and ultimately enables integration. In other words, the core of the functionalist theory is that the expansion of exchanges in non-political spheres such as the economy can, in turn, lead to cooperation in politics and military affairs.<sup>5</sup>

The Sunshine Policy introduced by the Kim Dae-jung administration and the Peace and Prosperity Policy of the Roh Moo-hyun administration are in line with the theory of traditional functionalism. Based on the principle of the separation of economic and political matters, the two governments were committed to expanding inter-Korean cooperation through economic cooperation projects. This led to the expansion of exchanges in various fields such as society, culture, and sports. It also helped to lay the foundation for friendly political and military relations between the two Koreas. Furthermore, inter-Korean relations, which had been deadlocked for a long time due to 'political reasons' after the division of Korea, have been gradually improved with the expansion of exchanges into non-political spheres.

However, despite the necessity of integration at the functional level, if the political authority continues to resist, many years of endeavor will come to nothing, and inter-Korean relations will have to start from the ground

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5 David Mitrany, *A Working Peace System* (Chicago: Quadrangle Books, 1966).

up.<sup>6</sup> Since the May 24 measures imposed in 2010, the functionalist approach to North Korea has faced difficulties because the solution of political and military issues was a precondition for progress in inter-Korean relations and economic cooperation. After the 5.24 economic sanctions, inter-Korean exchange and cooperation projects were driven by linkages between politics and economics rather than the separation of economic and political measures. And North Korean provocations, including nuclear tests and missile launches under the Kim Jong-un regime after Kim Il-sung's death, caused international society to adopt hard-line policies toward North Korea.

The functionalist theory suggests that exchanges and cooperation between countries affect the improvement of the political and military environment indirectly rather than directly, and exert influence in the long term rather than in the short term. That is, from a long term perspective, the gradual evaluation of exchange projects is not a sufficient condition for solving the peace problem, but it can be at least a necessary condition.<sup>7</sup> In this context, the South Korean governments' unification formulae are based on a step by step consensual unification process led by mutual exchange and cooperation. Above all else, exchange is a prerequisite to implementing the unification formulae. Given that the political approach is not easy from the perspective of inter-Korean integration, the South Korean government's functionalist approach to North Korea is of significant importance.

At the first and second inter-Korean ministerial talks held after the inter-Korean summit in June 2000, the two Koreas agreed to connect the Gyeongui Railway (Seoul-Shinuiju) and the road (Munsan-Kaesung). The restoration section of the Gyeongui Line was 27.3 kilometers between Munsan and Kaesong. The inter-Korean railway connection was regarded as an important project in that it provided the symbolism of connecting the divided territories and laying the foundation for inter-Korean economic cooperation.

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6 Donggeun Jeong, *Korean Unification Theory* (Seoul: Daeyeong Publishing House, 1997), 38.

7 Yeonchul Kim, "Korea Peace Economics: The Virtuous Cycle between Peace and Economic Cooperation," *North Korean Studies Review*, vol. 10, no. 1 (2006): 56.

The project to restore the Gyeongui Line was established as part of a pilot project with North Korea in a tentative agreement on basic inter-Korean relations in January 1982. Following the progress of inter-Korean relations, the two Koreas agreed that North Korea and South Korea were to restore disconnected railways and roads and open sea routes in the Inter-Korean Basic Agreement that went into effect in February 1992.<sup>8</sup>

There are a total of four routes that can be connected between the two Koreas, including the Gyeongui Line, an immediate serviceable section, the Gyeong Won Line (26.5km between Baekmagoji and Pyeongyang), the Geumgangsang Line (116.6km between Cheorwon and Naeyeumgang), and the Donghae Line (110.2km between Gangneung and Jejin), which are disconnected sections. The South Korean government has carried out maintenance on the sections that belong to it. Since the 1990s, the initiative for new construction and making double tracks on a South Korean Donghae Line has been raised. Along with the Gyeongui Line connection, the Donghae Bukbu Line was planned to be connected as a part of the project to establish North-South railways after inter-Korean ministerial talks in July following the inter-Korean summit in 2000. The North-South Donghae Line connection has been constructed from Kumgang Chongnyon station in North Korea to Jejin station in South

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8 For the details of the railway connection between the two Koreas, Yeongmi Yun, *Diplomacy and Security in East Asia* (Seoul: Doonam, 2010); In August 2018, the Korea Transport Institute said the connection of the Gyeongui railway will generate about 150 trillion won (KRW) in profit over the next 30 years. From this, it is expected that the benefits of tourist satisfaction will be 20.6 trillion won, the reduction in transportation costs due to tourism convenience will be 66.8 trillion won, and the substitution effects for imports of steel, zinc, and anthracite will be 61 trillion won. It is also estimated that the number of tourists to Sinuiju, Myohyangsan, Pyongyang and Kaesong in North Korea will increase to an average of 2.28 million per year. To that end, it proposed reciprocal cooperative investment between the two Koreas. This is an investment method that can prevent the transfer of North Korea's right to develop resources to other countries and reduce costs nationally in the form of a win-win investment of South Korea's capital and technology in exchange for North Korea's resources. The Korea Transport Institute, "The Gyeongui Railway Connection and Peace and Prosperity on the Korean Peninsula" (presentation, international conference, August 21, 2018).

Korea around the Military Demarcation Line (MDL). The Busan-Ulsan double-track subway project began construction on some sections in 2003. The Jejin-MDL Line was completed in December 2005. Although a North Korean train ran to the South in May 2007 as part of a test run, strained inter-Korean relations have prevented any further development.

As the South Korean government set up 'the Third National Rail Network Establishment Plan' in June 2016, the Donghae Bukbu Line was renamed the Donghae Line and a section was opened (104.6km) between Gangneung and Jejin. The Donghae Line, starting in Busan, can be connected to Russia and Europe through North Korea when the section (104.6km) between Gangneung and Jejin is connected. When this disconnected section is connected, it can also be connected to 800km of North Korea's railway and 9,297km of the TSR. When the TKR and the TSR pass through the Korean Peninsula and are connected, the Iron Silk Road will open the Korean Peninsula to the European continent, reducing logistics costs and shortening the transportation period. The route from Busan, through Pohang and Gangneung, through North Korea, China and Russia, to Europe, including Berlin and London, will be completed. The route will link South Korea's Busan port, North Korea's Rajin port, China's Hunchun, Russia's Khasan, and eventually to Europe via the TSR. The route will also be able to connect to the Manchurian Railway (TMR) and the Trans-China Railway (TCR). It will serve as an opportunity to achieve logistics and industrial development in Northeast Asia through cooperation with China, Japan and Russia through the inter-Korean economic community.<sup>9</sup>

## 2.2. The Challenges and Ripple Effects of Inter-Korean Railway Connection

The project for inter-Korean transportation network connections and modernization is a key task for the South Korean government to carry out so as to realize a new economic map of the Korean Peninsula. The New

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9 Jaejin Kim (May 8, 2018), 6; the Gyeongwon Line connecting between Seoul and Cheorwon and Wonsan (223.7km), and the Mt. Kumgang Line connecting Cheorwon and Naekumgang River (1116.6 km) was disconnected after the Korean War. This section requires restoration.

Northern Policy that is being implemented by the South Korean government as the integrated development strategy in the Demilitarized Zone on the east and west coasts is part of this. For the inter-Korean railway infrastructure, the length of South Korea's railway is about 4,197km. On the other hand, North Korea's is about 5,456km, roughly 30 percent more than South Korea <See Table 1>.

There are no high-speed trains in North Korea, but there are many more freight trains and passenger trains than there are in South Korea. In fact, most of North Korean cargo is made up of rail transportation. In terms of electrification, South Korea stands at about 70 percent, while North Korea stands at nearly 80 percent. Such a rate of electrification in North Korea is a negative factor in the operation of rail transportation. It takes about 48 hours from Pyongyang to Rajin: a very long time. This is because the power supply is not sufficient at each of the major hubs, with trains standing still for four to five hours. Given the poor power supply, the high rate of electrification acts as an adverse factor for railway operation. More specifically, between the gauges, concrete ties are usually maintained at 60cm, as in South Korea, and about 70cm for wooden ties. However, there are often two meters of ties due to continued deterioration over time.

This is a factor that undermines the speed of North Korean trains. The poor conditions of the North Korean railway cost a lot in maintenance. While the double track rate of the railways was nearly 63 percent in South Korea, it is very low at around 3 percent in North Korea. The Pyongui Line is connected from Pyongyang to Sinuiju and operates two to four international trains a week from Sinuiju through Dandong and Shenyang in China to Beijing. Some sections of this line are double-track. The cities chosen by most of the North's economic development zones are almost identical to those that pass through the main lines of the North's railways pass. This is why modernization of railways should be the top priority in order to have a growth engine for the reconstruction of the North Korean economy, including a food production base, industrial complexes and social and economic development. Most cities chosen as North Korea's economic development zones are almost identical to those that pass through the main lines of the railways. This is why the

modernization of railways should be the top priority in order to have a growth engine for the reconstruction of the North Korean economy, including food production base, industrial complexes and socio-economic development.

**<Table 1> Railway Comparison between the Two Koreas**

Division		South Korea	North Korea
Facility	Line length (km)	4,197	5,456
	Electrification sections (km, rate)	3,086(73.62%)	4,3164(80.6%)
	double track sections (km, rate)	1,903(48.8%)	163(3%)

At the same time, it is of great importance to build a high-speed railway on the North Korean railway for long-distance service that must be considered when connecting the railways of the Korean Peninsula to the Northeast Asian railway network. For logistics transportation, it is necessary to have an average speed of 60 to 80 km/h and 40 to 80 cars per train to ensure efficient linkage transportation and efficiency with China and Russia. In addition, it is necessary to establish a wide-area complex logistics base that can accommodate bulk, consumer goods and warehouses in North Korea. The candidate locations for these generally include Kaesong, Pyongyang, Sinuiju, Wonsan, Hamheung Chongjin, and Rajin.<sup>10</sup>

The stalled inter-Korean railway connection project is a follow-up to the April 27 Panmunjom Declaration and the 9/19 Pyongyang Joint Declaration in 2018. Discussions have resumed as the task of connecting and modernizing inter-Korean railways and roads to realize the resumption of new economic initiative. First of all, the North-South joint inspection was carried out over 18 days from Gyeongui Line to Donghae Line. A joint inspection was done for a total of 2,600km railways in North Korea (Sinuiju – Pyongyang – Wonsan sections including 412km Gyeongui Line and 781km Donghae Line). Through the joint inspection on North Korea's railways, the reality of North Korea's railway facilities was identified, used as basic data for modernization, and after the joint inspection, basic plans were established. Further inspections

<sup>10</sup> Songjuk Kim (2019), 42-43.

and designs were then conducted. Even though the ground breaking ceremony for the inter-Korean railway connection was held in late December 2018, the actual construction will be carried out depending on the progress of North Korea's denuclearization.

Since the Pyongyang Joint Declaration of September 2018, the project to connect the two Koreas' railways has been carried out in earnest. The South Korean railway joint inspection team consisted of 28 members and investigated about 400km of the Kaesong-Gyeongui Line between November 30 and December 5 of the same year while staying on the train with North Korean members for five nights and six days. Since then, about 800km of the Donghae Line from Mt. Geumgang to the Tumen River was inspected from December 8. This is the second joint inspection for the North Korean section of the Gyeongui Line since the first was conducted in December 2007. During the investigation, the train ran at about 20 to 60 km/h. It was a little slower in the Kaesong-Pyongyang section, while the route from Pyongyang to Sinuiju to the north was rather faster. The northern section of Pyongyang is a section where international trains run up to Beijing. A total of 11 cars were mobilized for the joint investigation, including six from Seoul and five from Pyongyang. It is the first time that South Korean train cars have operated in the Northern section of the Donghae Line since the division of Korea into the North and South.<sup>11</sup>

According to the report by the Korea Institute for International Economic Policy (KIEP) in December 2017, "Establishment of Economic Integration Analysis Model and the Effect of Growth on the South and North Korea," North Korea is estimated to have a significant economic growth effect of 92.6 trillion won due to the reconnection of inter-Korean railways and roads. The South Korean government expected the economic effects of inter-Korean economic cooperation to reach at least 170 trillion won, with the resumption of the Kaesong Industrial Complex and Mt. Kumgang tours, which were the

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11 The freight train that used the Munsan Station and the Kaesong Industrial Complex, suspended due to strained inter-Korean relations, carried out a round trip once a weekday from December 11, 2007 to November 28, 2008.

two major pillars of inter-Korean economic cooperation, and the North's project to develop some of its underground resources. According to KIEP, "given the comparative advantage of South and North Korea, the production factor that has the greatest impact on South Korea's economic growth is the labor force supplied by the North. The North Korean labor force has the effect of increasing the South's real labor force, thus offsetting the decreasing investment resources caused by economic cooperation." The biggest economic growth effect from cooperation for South Korea is the Kaesong Industrial Complex, which is estimated to have a cumulative economic growth effect of 159.2 trillion won over 30 years. It was followed by the Mt. Geumgang tour (4.12 trillion won), the development of underground resources (4.08 trillion won), the shipbuilding cooperation complex (2.6 trillion won), and the reconnection of inter-Korean railways and roads (1.6 trillion won). The report analyzed that "inter-Korean economic cooperation in the form of an industrial complex, such as the Kaesong Industrial Complex, has the greatest growth effect on both Koreas and at the same time contributes the most to easing the economic gap between the two Koreas" <See Table 2>.12

<Table 2> Ripple Effect of the Inter-Korean Railway Connection

Positive factors	Negative factors
<ul style="list-style-type: none"> <li>• Promotion of North Korea's tourism industry and resource development</li> <li>• Expanding human, social and cultural exchanges between South and North Korea</li> <li>• Increase in logistics between South and North Korea and acceleration of the economic opening of North Korea</li> <li>• Expanding jobs, new businesses, and unification awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Raising sensitive political and military issues in line with changes in inter-Korean relations</li> <li>• Continued uncertainty over the resolution of the North Korean nuclear issue</li> <li>• Possibility of huge amounts of government spending due to the inability to prove economic effectiveness.</li> </ul>

Source: KIEP, Report on the Establishment of Economic Integration Analysis Model and the Effect of Growth on South and North Korea, 2017. 12.

12 Report on the Establishment of Economic Integration Analysis Model and the Effect of Growth on South and North Korea, KIEP, December 2017.

### **III. International Cooperation in Connecting TKR–TSR Railways**

#### **3.1 Connecting and Institutionalizing Continental Railways**

On August 25, 2017, the Moon government established the Presidential Committee on Northern Economic Cooperation (hereinafter referred to as the CNEC) to strengthen international cooperation with Russia and Central Asia and to actively implement the New Northern Policy. The CNEC is a presidential body that reviews and coordinates policies to create cooperative relations with countries in Eurasia, including China and Russia, and to strengthen links with them such as transportation, logistics and energy. It is taking the initiative in promoting various northern projects such as the exploration of the Arctic route, the connection of the TKR and TSR, the connection of gas pipes between South Korea and Russia, and the Northeast Asian Super Grid.

Since its establishment, the CNEC has actively promoted joining the International Organization for Railway Cooperation (OSJD)<sup>13</sup> as part of its plan to shape the ‘nine bridges’ for northern economic cooperation, including railways, shipbuilding, ports, Arctic routes, gas, electricity, jobs, agriculture and fisheries. On June 7, 2018, South Korea joined the OSJD as a regular member, which is a consultative body of the countries that have trans-Eurasia railways and an international organization founded for the operation of international railways between Europe and Asia. Joining the OSJD is essential for South Korea to participate in the operation of continental railways linking the TSR and TCR as it prepares a unified protocol of railway traffic signals, standard technology, tolls, and methods of operation in the region. There are seven observer countries and 44 affiliates that can attend and exchange activities at OSJD meetings; however, full membership of the OSJD is essential

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13 It is a railway-related consultative body composed mainly of socialist countries and Eastern European countries under the former Soviet regime, such as Russia (the Soviet Union at the time), China, Kazakhstan, and North Korea in June 1956. The headquarters are in Warsaw, Poland. The OSJD has a full membership of 28 countries, including North Korea, Russia, China, Poland, Slovakia, Albania and Kazakhstan.

to participate in the 280,000-kilometer international route, including the TCR and the TSR. Clearly Joining the OSJD should be unanimously approved by all existing members. Since 2015, South Korea has sought to join the OSJD every year to increase the link with the Eurasia continental railway network but failed due to opposition from North Korea. However, member countries approved South Korea's full membership at the 46<sup>th</sup> OSJD ministerial meeting in Kyrgyzstan. After two inter-Korean summits in 2018, North Korea finally voted in favor.

Korea had indirectly participated in the OSJD using Korail as a membership partner. As an OSJD member, South Korea will be subject to important agreements under the control of the OSJD, such as the Agreement on International Freight Transport by Rail (SMGS) and the Agreement on International Passenger Transport by Rail (SMPS). OSJD full member countries can transport passengers and freight without having to enter into individual agreements with countries passing through railway routes. If denuclearization agreements are reached and international economic sanctions against North Korea are lifted based on the outcome of the U.S.-North Korea summit, economic cooperation, including the reconnection of inter-Korean railways, will gain momentum. In addition, this entry is to have the same effect as other member countries signed important agreements on the use of Eurasian railways, including the SMGS and SMPS, which are under the control of OSJD. In addition, members will be given preferential treatment in the customs clearance process for freight transportation. If inter-Korean economic cooperation is revitalized in the future, it will be possible to connect the TKR with the TSR, TCR and TMGR.

In addition to joining the OSJD, the opening of the North Korea-Russia border area is also important to achieve tangible results in the reconnection of the inter-Korean and continental railways. In particular, it was the 'Rajin-Khasan project' that had been conducted under the Lee Myung-bak and Park Geun-hye governments as the core model for economic cooperation between Seoul, Pyongyang, and Moscow to break down the limitations of the existing North Korean policies.<sup>14</sup> The next 'New Rajin-Khasan project' should be implemented

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14 Hyosun Kim (August 8, 2018): 1-2.

to realize the New Northern Policy that aims to expand economic exchanges between South Korea and Eurasian countries through the Far East, including the Russian Maritime Territory and areas located within that covered by the New Economic Map of the Korean Peninsula of the Moon government. The most important area in the process of the project leading to the TKR and TSR connection project in the future is North Korea's Rajin and Russian Khasan areas in the Tumen River estuary. The area was first opened by North Korea in 1991 when it designated it as a special economic zone.

### **3.2 South Korea–North Korea–Russia Railway Cooperation and the New Rajin–Khasan Project**

Since the establishment of the Rason Kon Transin July 2008, a joint venture between the Russian Railway Corporation and the North Korean Ministry of Railways, the project to renovate the railway between Rajin in North Korea and Khasan in Russia and modernize the port of Rajin has been carried out in earnest. The renovation project of the Khasan-Rajin railway planned to open a track with a Russian-style broad gauge (1,520 mm) and a Korean-style (1,435 mm) side by side in the 54-kilometer-long Rajin-Hasan section, and to build a modern cargo terminal at the third pier of Rajin Port leased by Russia. The construction cost was 5.5 billion rubles (1.7 billion US dollars) for the renovation of the railroad between Rajin and Khasan, and 3.5 billion rubles (1.1 billion US dollars) for the modernization of Rajin Port. Russia paid all of these costs. On September 22, 2011, a railway reopening ceremony was held in the special economic zone linking Khasan and Rajin Port.<sup>15</sup> "The project was successful, though not smooth, and the railway will be the shortest route linking Europe and Asia," said Yakunin, president of the Russian Railways (RZD), who attended the ceremony.<sup>16</sup>

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15 After the agreement on the TKR-TSR connection project between the leaders of South Korea, North Korea and Russia at each summit in 2001, President Putin and North Korean leader Kim Jong-il initiated the project to renovate the Khasan-Rajin railway.

16 The railway ceremony was attended by the president of RZD Yakunin from Russia, Jeon Gilsu, a railway minister, and Oh Ryongchul, a trade deputy-

After transporting Russian bituminous coal on a 54-km railway, the pilot complex logistics transportation project between South and North Korea and Russia was carried out three times in November 2014 as well as in April, May, and November 2015 to bring it to South Korean ports by moving it from the port of Rajin. However, following North Korea's fourth nuclear test in January 2016 and long-range rocket launch in February 2016, the transportation was suspended in March of the same year due to maritime sanctions that prohibited foreign ships from entering South Korea within 180 days of their stop at any North Korean ports. As railway infrastructure and port facilities in the Rajin-Khasan area are well-maintained, moving goods, unloading, and economic creation through ports in addition to coal transportation will make it possible to generate profits for interested parties in the future.<sup>17</sup>

There are different ways for the new Rajin-Khasan project to overcome the limitations of the existing projects in the future. Firstly, the resumption of the project requires the U.S. and the U.N. to lift the economic sanctions against North Korea, depending on progress in inter-Korean and U.S.-North Korea relations. South Korean lawmaker Song Young-gil of the Democratic Party of Korea, who attended the Eastern Economic Forum in Russia on September 11, 2018 after a two-day visit to the port of Rajin from July 13, 2018, proposed, "The transfer of Russian coal through the Rajin-Khasan project is not subject to U.N. sanctions. It is important for the U.S. and South Korea to lift related sanctions and restore the Rajin-Khasan project."<sup>18</sup>

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minister from North Korea, *Joong AngIlbo*, October 11, 2004; For a more detailed discussion, see Myungsoo Kang (October 15, 2018): 1-3.

17 The population of Rajin is about 200,000, and about 3,000 foreigners live there. It is said that about 30,000 tourists from Russia, China, and other countries visit it each year. Rajin Port Pier No. 3, developed by Russia, was shipped 2 million tons of coal from Russia in 2017 and transported to Shanghai, China. The water depth of Rajin Port is 12.5m, and 17m only 200m away, so it is in very good condition. It is also good because the Socho Island and Daecho Island in front of it serve as a breakwater, so the waves are kept below 1m. *JTBC News*, July 16, 2018.

18 Jiwon Yun, "Korea-Russia Cooperation, the Cornerstone of the Korean Peninsula and Eurasian Co-prosperity," *National Defense Daily*, June 24, 2018; *YTN*, July 12, 2018.

Secondly, the Rajin-Khasan section is a hub for entering the Eurasian market and a starting point for TKR-TSR's railway connection. It is an area that can lead to the establishment of a foundation for the formation of a Northeast Asian economic community and a Northeast Asian Supergrid by linking China's One Belt, One Road, and Mongolia's Prairie Road Program. The South Korean government might be able to lead and support the attraction of investments from the AIIB to cover the huge costs with economic cooperation from China, Russia, and Mongolia also linking international capital. Thirdly, investment in the operation and development of Rajin Port by train ferries can be considered part of the construction of the port-inland railway complex logistics network in the future. Train ferries have the advantage of being able to transport cargo directly from the freight train without having to load it separately on the wharf. The operation of the train ferry system can reduce existing unloading time by more than one-third, resulting in a cost reduction of 10 to 15 percent in terms of time and economy. Considering the future establishment of peace on the Korean Peninsula, the denuclearization of North Korea, and the increase of shipments in Northeast Asia, it would be the best choice to respond to increasing logistics in Northeast Asia by simplifying the packaging and expanding the operation of train ferries, which have advantages in transporting large cargo.<sup>19</sup>

The railway industry is very important in Russia. The share of rail transportation in Russia's transportation system is about 26 percent for passengers and 45 percent for cargo; this is quite high for freight. Railways are the most suitable means of transportation rather than roads or aircraft due to Russia's vast landmass and topographical characteristics. The total length of the TSR, which runs from Vladivostok to Moscow, is 9,288km by trunk line. A total of 12 branch lines are connected to neighboring cities and ports, which are also connected to China, Japan, Mongolia and North Korea. According to the Russian Railways, TSR's annual cargo traffic is around 120 million tons, and is scheduled to expand to 180 million tons by 2024.<sup>20</sup>

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19 Hyuntai Lee et al., (2018): 157-178.

20 For a more detailed discussion of the current state of railway development in Russia, see Bongkoo Kang (2003): 217-240; *Segye Ilbo*, May 27, 2015.

**<Table 3> Economic Benefits of TKR–TSR Connection Project by Country**

Country	Main Points
South Korea	<ul style="list-style-type: none"> <li>• Constructing the Northeast Asia Logistics Hub</li> <li>• Reorganizing logistics system that relies solely on marine transportation</li> <li>• Realizing the Expansion of the East Asian railway community</li> </ul>
Russia	<ul style="list-style-type: none"> <li>• Developing the underdeveloped Far East and Siberia</li> <li>• Improving logistics saturation in the Far East ports such as Vostochny port</li> <li>• Realizing Eurasian transportation network establishment</li> </ul>
North Korea	<ul style="list-style-type: none"> <li>• Potential for expansion of opening</li> <li>• Accelerating foreign investment in North Korea, including Russia and China</li> </ul>

Korean companies are also actively using the TSR. The cargo shipped from Busan and other ports has been transshipped from Vladivostok and Vostocini and exported to various parts of Russia using the TSR. As many experts have mentioned, the future reconnection of railways between North and South Korea and Russia will enable the rapid shipment of cargo by rail, resulting in greatly reduced logistics costs and securing competitiveness. In response, the Putin government is actively seeking to advance into the Asia-Pacific region, including the development of the Russian Far East <See Table 3>.

#### **IV. Constraints and Implications of the TKR–TSR Railway Connection**

Since its launch, the Moon administration has expanded international cooperation with China and Russia, such as rail, energy, and logistics cooperation. It has also included the New Berlin Initiatives, the New Northern Policy and cooperative North Korean policies based on dialogue for its denuclearization and economic cooperation.<sup>21</sup> As many experts have already mentioned, strengthening political solidarity for Seoul-Pyongyang-Moscow cooperation and rail links will greatly contribute to the opening-up and development of North Korea and the creation of an international environment that leads to deterring armed provocations and promoting the process of denuclearization.

<sup>21</sup> For a more detailed discussion of the Moon administration's New Northern Policy, see Junemo Woo, (2018): 105-129.

Several challenges should be specifically addressed first in order to connect and activate the TKR-TSR. Firstly, the ambiguous progress of North Korea's denuclearization is the biggest obstacle, despite the three inter-Korean summits in 2018 and the first and second U.S.-North Korea summits. A ground-breaking ceremony for the reconnection of inter-Korean railways is underway, but lifting sanctions against North Korea must be carried out in order to realize the Northeast Asian railway community that connects Russian railways. If the Final and Fully Verifiable Denuclearization (FFVD) required by the U.S. and the international community is not accomplished, it will be difficult to lift international sanctions against North Korea. Although the joint inspection, ground-breaking ceremony, and discussions on the connection of railways between the two Koreas are not directly in violation of sanctions against North Korea, the issue is what supplies will be handed over.

Secondly, it has still not been confirmed that South Korea's unconnected Donghae Line will be connected. The biggest reason is that it is hard for the Donghae Line to ensure economic feasibility. Currently, it is difficult to secure the economic feasibility of the railway restoration project even if it reflects the demand for transportation and logistics from the potential normalization of inter-Korean relations. Contrary to the evaluation of current cost-effectiveness, however, in the future, it should not be ignored that the Gangneung-Jejin section restoration has the potential to make possible the connection of the only disconnected section (104.6km of Gangneung-Jejin section), North Korean railways, and further TSR. The Donghae Line can lay the foundation for expanding South Korea's economic area up to the northern economies under the Moon government as it pushes ahead with the New Northern Economy policy.

For example, according to a report on "Solutions to establish a regional transportation and logistics system in Gangwon Province," when shipping one freight container from Busan to Rotterdam using the Donghae Line-North Korean railways-TSR, it can reduce shipping time by approximately 23 days and fares by \$ 744/TEU. In particular, assuming that inter-Korean exchanges are boosted in the future, demand for the Donghae Line rail transportation with freight volumes is expected to reach approximately 572,000 TEU annually. Japan alone is estimated to contribute 170,000 TEU for the volume. In order for the restoration

project to be carried out as a national finance project, preliminary feasibility studies must be conducted in accordance with the standards of the current National Finance Act. Given the fact that it is an essential project to promote inter-Korean exchanges and international exchange cooperation in the northern economic era, it is necessary to have a policy of exempting the feasibility study at the national level.<sup>22</sup>

Thirdly, it is necessary to renovate and modernize North Korean railways in order to vitalize the TKR-TSR connection. It needs to ensure a way of dealing with the huge costs. Currently, the roadbed conditions of North Korean railways and facilities on power lines are quite deteriorated. In addition, in order to connect the TKR-TSR that pass through the Korean Peninsula, North Korean railways should be reopened through improved relations with the North, and modernization of them should proceed quickly. North Korean railways should be improved to the level of South Korea's in terms of safety, timeliness, and substructure infrastructure such as roadbeds. Therefore, legal and institutional frameworks for direct investment in North Korea are needed. According to the Korea Transport Institute, providing that North Korea offers labor and land, construction costs for roads and railways will be reduced by 50 to 60 percent. Since most of the existing inter-Korean cooperation funds are used for humanitarian projects, and because it is difficult for them to be allocated for infrastructure investment, it is necessary to newly open an account for investment in transportation infrastructure between the two Koreas. For example, the so-called "Inter-Korean Transportation Logistics Infrastructure Investment Account" should be opened and the distribution ratio should be set at 3 to 5 percent. A measure to add revenue to the special account for transportation facilities should also be considered.<sup>23</sup>

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22 According to the National Finance Act, preliminary feasibility studies are exempted for projects related to inter-Korean exchanges and cooperation or promoted under cooperation and treaties between countries. As in the past cases of railroad projects in the 'Baekma Highland-Woljeongri' section of the Gyeongwon Line, a plan to use the "South-North Economic Cooperation Fund" can be considered to push ahead with the construction costs in the early stages of the project.

23 The Korea Transport Institute, "The Gyeongui Railway Connection and Peace and Prosperity on the Korean Peninsula" (presentation, international conference, August 8, 2018).

Fourthly, it is necessary to establish organizations systematically responsible for connecting the inter-Korean railways and continental railways such as the TSR and TCR. Moreover, efficient investment and management should be made through the establishment of basic laws and support centers to resolve conflicts between the two Koreas. As already argued by many experts, a dedicated organization called the Inter-Korean Economic Cooperation Investment Support Center should be established to devise an investment plan, draw up a road map, select targets for investment, and decide how to invest, and enact related laws such as the Framework Act on Investment in Inter-Korean Economic Cooperation for deliberation, approval, creation of investment funds, and regulations on compensation for damages.

## **V. Conclusion**

As seen earlier, the revitalization of inter-Korean railway connections and exchanges means the reconnection of a divided nation, the easing of tension and establishing of peace, and the expansion of political and diplomatic cooperation with neighboring countries, namely building peace on the Korean Peninsula. The concentration of South Korea's technology and North Korea's labor force for the reconnection of the inter-Korean railway will create new momentum and synergy. Furthermore, in order to realize the modern 21<sup>st</sup> century Silk Road through the reconnection of railways between the two Koreas and Russia, the South Korean government should actively encourage North Korea to denuclearize, open up and focus on international cooperation, thus paving the way for the peaceful reunification of the Korean Peninsula. If the process of North Korea's denuclearization goes smoothly, the TSR and TKR projects, symbolic projects that herald an era of new economic cooperation, will begin in earnest. The expansion of economic cooperation through the inter-Korean railway is a driving force for the promotion of human, cultural, and material exchanges and can indirectly encourage North Korea's denuclearization.

For Russia, a rail connection, along with energy, is a key component of forming regional development policies in the Siberian Far East; however, it

is closely linked to energy development issues. From the Korean government's point of view, China's three northeastern provinces, North Korea, and Russia's Far East are now considered very important areas in terms of China's One Belt One Road.<sup>24</sup> Therefore, it is essential to promote the integrated infrastructure of the Korean Peninsula through the reconnection of inter-Korean railways while encouraging North Korea to reform and open up, and to vitalize the New Northern Economic Policy – this can help to realize North Korea's role as a link between the One Belt One Road and the Arctic route. With the full implementation of the One Belt One Road initiative, efforts to enhance South Korea's strategic value are absolutely necessary for the dual structure of 'geographical' competition and cooperation that China and Russia will develop in the future.<sup>25</sup>

With the new resumption of the Rajin-Khasan project proposed earlier, it is necessary to seek ways to develop relations such as expanding inter-Korean and Russian economic cooperation, promoting strategic communication and economic cooperation with Russia, and seeking the signing of a South Korea-Russia Free Trade Agreement. Political and diplomatic cooperation through inter-Korean and Russian railways should be strengthened in expanding South Korea's relations with Eurasia and in creating a security environment linking the continent and the ocean. Close communication and cooperation should be systematically established through a link between the New Northern Policy by South Korea and the New East Policy being pursued by Russian President Putin. Therefore, the South Korean government should focus on finding strategic industrial cooperation targets among Eurasian countries by establishing a network of links with the northern regions through the New Northern Policy, developing areas bordering the two Koreas, and enhancing Korea's strategic status.

Unlike other economic cooperation projects, cooperation and the role

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24 Jiwon Yun, "New Northern Policy and 'New Sea Route' Arctic Route," *National Defense Daily*, December 12, 2017.

25 Hyunsup Byeon, "Achievements and Challenges of the Korea-Russia Summit," *Russia-Eurasia Focus*, no. 483, (July 7, 2018): 1.

played between governments are both important and crucial in the inter-Korean railway connection and the inter-Korean and Russia railway connection projects from the functionalist perspective as mentioned earlier. As inter-Korean relations continue to grow during the Kim Dae-jung and Roh Moo-hyun administrations, the inter-Korean and Russia railway connection project was actively pursued. However, as political and military approaches took priority over economic approaches due to North Korea's military provocations, inter-Korean relations were again deadlocked. Since the launch of the Moon Jae-in administration and the 4.27 Panmunjom Declaration following North Korea's sixth nuclear test, a New Northern Policy has been actively promoted. In this manner, the resumption of dialogue between the U.S. and North Korea and discussions about North Korea's denuclearization are the most urgent tasks to revitalize economic cooperation through inter-Korean and Russia railway connections, and to achieve the tangible results of the Moon Jae-in administration's New Northern Policy. In reality, various restrictions are expected as the Biden administration assumes power in the U.S. However, various efforts need to be made to achieve continued cooperation for the promotion of a connection project for the unconnected section in the South required for the inter-Korean and Russia railway connections, and to further promote railroad cooperation with Russia.

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