

THE EURASIAN LAND-BRIDGE AND ITS IMPACT ON GLOBAL LOGISTICS

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ABSTRACT

Amid the escalating nuclear threats from North Korea and increasing tension in the region, the two Koreas, South and North, are diligently working to reconnect Trans-Korean Railway that has been severed since the Korean War. This rail connection would link the Trans-Korean Railway (TKR) with the Trans-Siberian Railway (TSR) and Trans-China Railway (TCR), creating the Eurasian Railroad or so called "Iron Silk Road" that links Northeast Asia to Europe for the first time in history by land. The creation of this Eurasian land-bridge will not only help reduce transit time and transportation costs but also mark the beginning of an era of region-wide cooperation and development.

INTRODUCTION

In the past two decades, the world has experienced tremendous changes in politics and international trade, especially in Northeast Asia and in Eastern Europe, where countries have been attempting to adopt market-oriented economic systems. When taking a close look back at the world economy's development and growth today, trade volume and goods flow have been increasing more rapidly in the triangular areas of North America, Europe, and Asia-Pacific than in other areas.

World intra- and inter-regional merchandise trade volume in 2004 reached almost 9 trillion dollars. However, three regions, Europe, North America and Northeast Asia accounted for more than 80 percent of this world merchandise trade with almost 7.5 trillion dollars (WTO 2006). Although these three regions are separated by oceans, Asia and Europe are actually connected and located in In June 2000, the presidents of the two Koreas had their historical summit in Pyongyang, the

one big continent called "Eurasia." Thus, trade between these two regions can be conducted by land across the railway networks in different countries. Actually, the merchandise trade value from Europe to Northeast Asia was over 300 billion dollars and the value from Asia to Europe was over 1.2 trillion dollars in 2004. This is almost four times of the volume from Europe to Northeast Asia. It is predicted that the volume of containers traded between Asia and Europe will reach 123 million TEU by the year 2011, up from 59 million in 1999. This represents an average growth rate of 6.3 percent per year (Na, 2004). Considering the trade volume between these two regions, securing an effective transportation network is significant and worthwhile. The United Nations Economic Commission for Europe has repeatedly recognized the importance of developing Euro-Asian land transportation links (UNECE 2004).

capital of North Korea, for the first time since the Korean War ended in 1953. Of the many

agreements reached by the two leaders, one of the most interesting has been the decision to reconnect the long-severed Trans-Korean Railway. The main goal of connecting the Trans-Korean Railway (TKR) was to link the TKR with the Trans-Siberian Railway (TSR) and the Trans-China Railway (TCR), creating the so called "Iron Silk Road," a term invented by South Korean President Dae-Jung Kim. This rail system would link Northeast Asia to Europe by land for the first time in history. This railroad will allow people and freight to move by train from Asia to European cities such as Moscow, Istanbul, Paris, Berlin, and London (*Asia Times*, 2002; Ahn, 2003).

The restoration of the Trans-Korean Railway is a highly symbolic step in the direction of the future re-unification of the two Koreas. With this step, the road will be cleared for South Korea, a major industrial power that had been turned into a kind of "island" by the division of the Korean peninsula half a century ago, to link up directly once more to the Eurasian mainland by land. South Korea expects the reconnection of the Trans-Korean Railway to bring a number of economic benefits, including reduction of transportation costs, the opening of North Korean society, and an increase in the exchange of materials between the South and North. Considering the possibility that the railway lines could reach Japan through an undersea tunnel once it is constructed, the Korean peninsula may be transformed into a logistics hub in Asia (Ahn, 2003; *Korea Now*, 2003).

THE EURASIAN LAND-BRIDGE PROJECT

United Nations Initiative

In 1992, ESCAP (the United Nations Economic and Social Commission for Asia and the Pacific) endorsed the Asian Land Transport Infrastructure Development (ALTID) project, including the Trans-Asian Railway (TAR) and Originally, there were two primary railway connections from the south of the Korean peninsula, across northern Korea, with

other transport and communications projects in Asia and the Pacific. Due to different railway standards and levels of technical development between Asian countries, ESCAP later divided the TAR network into four geographic components. One of these components is the "Northern Corridor," connecting the rail networks of China, Kazakhstan, Mongolia, Russia and the Korean Peninsula (UNECE 2004). The project intended to effectively link the rapidly increasing productivity of Northeast Asia with the abundant purchasing power of Europe through the restructuring of the region's transportation and telecommunications networks with the goal of promoting economic development and peace among the Northeast Asian nations. The inter-Korean railway was thus considered as one of the critical routes for this project. In its 52nd Congress held in 1996, ESCAP adopted a resolution that all participating nations would devote effort to restoring the inter-Korean railways. From then on, the idea gained momentum (Ahn, 2003; Tennenbaum, 2001).

South Korea's "Iron Silk Road" Initiative

The historic breakthrough in the year 2000 between South and North Korea has opened a new perspective for Northeast Asia, including the Russian Far East. Significantly, the leaders of the Koreas and Russia have been talking about the creation of an "Iron Silk Road," which would result from joining the new Trans-Korea Railway (TKR) from South Korea to North Korea, with the Trans-Siberian Railroad (TSR), thereby creating a Eurasian land-bridge that connects Europe. On one side, progress toward joint railroad operation between South and North Korea has the potential to defuse one of the most dangerous focal points of conflict in Northeast Asia. On the other side, a decisive "missing corner," South Korea would be added to the Eurasian land-bridge network through railways (Ahn, 2003).

connections to the Trans-Siberian Railroad and to Europe. These two South Korean Railways are: the Kyongwon Line, which runs from Seoul

to Wonsan on the east coast, and northward from there; and the Kyongi Line, which runs along the west coast and connects Seoul to Sinuiju on the northern border of North Korea (Figure 1). However, both trans-Korean lines were completely cut by the 1950-53 Korean War.

Within the framework of the historic June 2000 reconciliation between the leaders of South and North Korea, both sides decided to finally rehabilitate the old Kyongi railway line. At the same time, Russia wanted to work together with North Korea to restore the long interrupted Kyongwon line which, via Vladivostok, makes the connection with the Trans-Siberian Railway. Unfortunately, although the South Koreans have completed their portion of the project, little seems to have been done on the North Korean side—a circumstance probably linked to the increased tension between North Korea and the United States induced by actions of the Bush Administration after nuclear testing was restarted in North Korea. The Russians, however, continue to push hard for the link-up, using their influence in North Korea. They appear confident that the project will finally go ahead.

The western route of the Korean Peninsula, the Kyongi railway line, is a main corridor running through populated areas such as Seoul in South Korea and Kaesong, Pyongyang, and Shinuiju in North Korea. Also, it is an international route leading to China's three Northeastern provinces. At the same time, it is an industrial route, passing the Shinuiju Special Administrative Region and Pyongyang Industrial Area, which have been selected as nodes of development by the North Korean government. The reconnection of the western route will provide the opportunity to establish a new model of local cooperation between the two Koreas. Further, it will be positioned as the main corridor in the transportation market to the Northeastern region of China and Mongolia.

**FIGURE 1
TRANS-KOREAN RAILROAD**



The eastern route, the Kyongwon line, will provide an economic boost in the long term, given the current shortage of railway transportation capacity between Seoul and Pusan, the cores of South Korea's economy and industry. This route may also become a corridor to transport agricultural products and steel between South and North Korea. It will probably be utilized as the main corridor for the economic region linking the Russian Far East, China's northeastern provinces, and Japan's western region. In the long term, it is expected that it will play the role of "right leg" of the Eurasian land-bridge, connecting Northeast Asia, Russian Siberia, and Europe (Na, 2004; Chin, 2003; Yang, 2002).

Eurasian Land-Bridge or Iron Silk Road Alternatives

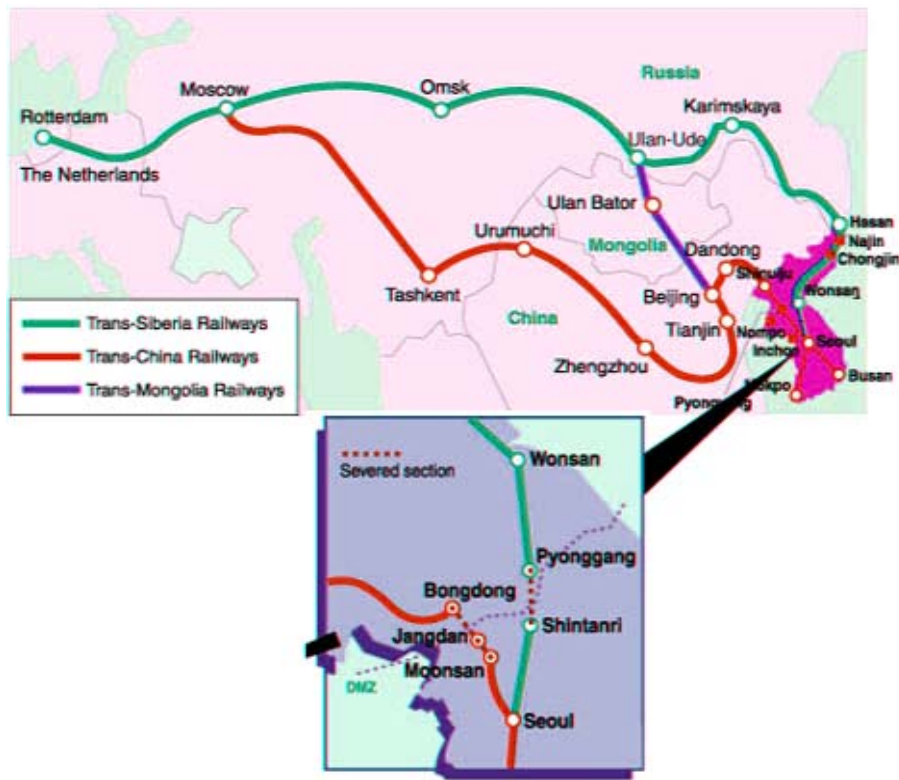
According to the full plans for this project, no fewer than three railway corridors from South Korea to Europe would be created (Figure 2):

1. The TKR-TSR (Trans-Korea/Trans-Siberian Railway) Corridor: Seoul-(along the Kyongwon line)-Wonsan-Chongjin-Vladivostok-(along the TSR)-Moscow-Berlin. This connection goes directly across the

North Korean-Russian border on the Pacific coast, without having to go through Chinese territory. An alternative branch runs from Chongjin northward over the Chinese border at Tumen and reaches the Trans-Siberian Railway through Manchuria (length, about 13,050 km overall).

2. The TKR-TCR-TMGR-TSR Corridor: Pusan line-(over the Kyongi line)-Pyongyang-Sinuiju-Shenyang-Datong-Erenhot-(over the Trans-Mongolian Railway, TMGR)

**FIGURE 2
EURASIAN RAILROAD: THREE ALTERNATIVES**



-Ulaanbaatar-Ulan-Ude (over
TSR)-Moscow-Berlin (length, about
11,230 km)

3. The TKR-TCR (Trans-Korea/Trans-China)
Corridor: Pusan line-(over the Kyongi
line)-Pyongyang-Sinuiju-Shenyang-Beijing-(
over the Second Eurasian
Land-Bridge)-Ürümqi-Aktogay-Moscow-Ber
lin (length, about 11,610 km).

Seen as simply transportation connections, Lines 1, 2, and 3 are in competition with one another. However, if they are thought of as development corridors, then each one contributes in its own fashion to the growth of the entire area. This is particularly true in Korea, since concentrated investment in the corridors along the railroad presents one of the most efficient means for modernizing the North Korean economy and laying the economic basis for future re-unification (Na, 2004; Tennenbaum, 2001).

At the present time, the construction of the first, TKR-TSR corridor is being driven ahead with great eagerness by Russia, including the direct support of President Putin. In the Summer of 2004, North Korean President Kim Jong-il, at the invitation of Putin, traveled on a special train the entire length of the Trans-Siberian Railway to Moscow and back again—a very special state visit. Also significant, was a visit by a delegation of over 50 Russians to South Korea in February 2001, headed up by the Deputy Minister of Railways Alexander Tselko. They took part in a conference with the theme, “The Trans-Siberian Land-Bridge in the 21st Century: Perspectives for the Development of Russian-Korean Relations in the Area of Railway Transport.” On this occasion, Tselko declared that North Korea had accepted the Russian offer to train 1,500 North Korean railway engineers in Russia (Seong 2005; Oh 2004).

Considering the transportation revenue the China, on the other hand, is already working on its part of the rail network in order to meet

“Iron Silk Road” could bring to Russia, it is not surprising that Moscow is pushing for a direct link between the TKR and the TSR. Russia is pursuing the project more aggressively than any of the other countries involved. It has already expressed its intention to directly invest in North Korea's outdated railway system if the TSR is linked directly with the TKR. Russia argues that the TSR offers several advantages over the sea route including reduced transport costs and cutting transit times to a couple of weeks compared with more than a month by sea. Russian railway officials say that joining the TSR and TKR would create the world's longest railroad at 14,000 kilometers. At present only 5 percent of the shipments between Asia-Pacific and Europe move by the Trans-Siberian Railways. According to the Russian Transportation Ministry, annual volume on the extended line could reach 500,000 containers and bring Russia up to \$1 billion in transit fees each year. However, the TSR transported only 45,000 containers from east to west in 2001 (Kuzmichenko 2002).

However, the most important factor in realizing any of the possible benefits is the attitude of North Korea, which has so far been passive regarding the issue, citing security concerns. Unfortunately, recent nuclear testing and the resulting sanctions from the international community made North Korea even less interested in the project than before. If the TKR is linked with other international railways, the project would bring a great deal of profit to cash-strapped North Korea. It is estimated that the North would be able to make \$150 million in annual revenues just by allowing trains headed to Europe to pass through its borders. In the end, a time will come when the North will have no choice but to join in the Eurasian land-bridge project, a move that will surely bring peace and prosperity to the Korean peninsula and Northeast Asia (Na 2003).

the rapidly developing material flow demand of China-European trade. The Chinese Ministry

of Railways has recently partnered with the railways of Mongolia, Russia, Belarus, Poland, and Germany to open a 9,750-km-long transport passageway for special trains of containers that run through six countries (*People's Daily*, 2006). China is also vigorously developing transport services, including rail container trains, refrigerated trains, special freight trains, and a variety of through transport, in order to satisfy the demands for fast transportation.

IMPACTS ON GLOBAL LOGISTICS

Slashing Freight Rates and Delivery Times

Currently, about 100 million tons of cargo worth over \$1.5 trillion is transported between Northeast Asia and Europe annually. About one third of this cargo is containerized. The main cargo flow goes from Japan, South Korea, Taiwan, Singapore, and China to Europe. Today's exports by South Korea to Europe amount to over \$40 billion. Most of the cargo exchanged between South Korea and Europe is transported by sea. From the South Korean port of Pusan to the port of Hamburg (a sea route of 19,200 km) in Germany, the average delivery time is about 26 days, and costs about \$1,400 per 20-foot container (TEU). When the TKR is finally restored and linked with the TSR and TCR, freight rates and shipping times between Korea and Europe are expected to be reduced to three-fifths of those of marine transportation. Table 1 compares that with what might be the case once the planned Trans-Korea Railway is connected to the Trans-Siberian Railway: The transportation time could be shortened to only 18 days (about 6,000 km shorter than the sea route) and the cost reduced to \$1,200 per TEU (Kuzmichenko, 2002; Tennenbaum, 2001). The rail alternative will also increase reliability, dependability and safety of cargo deliveries.

The restoration of the Trans-Korean Railway is expected to provide a bonanza for the two Koreas

because of the railroad revenues generated. The re-connected Trans-Korean Railway is most likely to attract cargo bound for China, Russia and Europe from Korea and Japan, as well as cargo to be shipped between South and North Korea. As a result of all cargo shipped via the Trans-Korean Railway, South and North Korea are projected to annually collect some US\$100 million and US\$150 million in revenues, respectively. Projections on traffic volume and revenues are as shown in Table 2 (KISC, 2000).

The restoration of the Trans-Korean Railway will also lead to a drastic and much-needed reduction of logistical expenses in the future trade between South and North Korea, permitting and promoting further economic cooperation between the two Koreas. The volume of trade between South and North Korea in 1999 reached US\$330 million, most of it undertaken by sea. However, the shipping rate for containers between Incheon, South Korea, and Nampo, a port on the west coast of North Korea, was US\$1,000 to US\$1,100 per TEU, about the same as that between South Korea and Europe. Also, shipping between Incheon and Nampo is far from rapid. It can take up to 14 days to ship cargo the 220 miles between Incheon and Nampo because of waiting times for the three sailings per month, delays due to tides, poor unloading facilities and an unreliable power supply at Nampo, North Korea. Entrance fees at North Korean harbors were double those at competing harbors in China, while red tape and inefficient logistical equipment may extend arrival and departure by two to three days. When the Kyongui Line is restored, it is expected that the freight rate between Incheon and Nampo will fall to about US\$200 per TEU and the shipping time will be reduced to just one day (Han 1999).

TABLE 1
COMPARISON OF TRANSPORTATION WAY
BETWEEN KOREA AND WESTERN EUROPE
-AVERAGE BETWEEN PUSAN AND MAJOR CITIES IN WESTERN EUROPE-

Transportation	Distance	Transportation time	Freight rates (per TEU)
Marine (A)	19,200Km	26 days	\$1,400
Railway (B)	12,400Km	18 days	\$1,200
Difference (A-B)	6,800Km	8 days	\$200

TABLE 2
PROJECTED RAILWAY TRANSPORT REVENUES FOR SOUTH AND NORTH KOREA
 (Unit: US\$1,000)

Category	Total	Revenues for South Korea	Revenues for North Korea
Total	248,500	99,700	148,800
Between South and North Korea	62,180	22,340	39,840
Through Korea, Japan to China	73,960	37,000	36,960
Through Korea, Japan to Europe	112,360	40,360	72,000

Source: The Advisory Council on Democratic and Peaceful Unification in Korea

TABLE 3
COMPARISON OF TRANSPORTATION WAY BETWEEN INCHEON, SOUTH KOREA
AND NAMPO, NORTH KOREA (RETURN)

Transportation	Transportation time	Freight rates (per TEU)
Marine (A)	13 – 14 days	\$ 800 – 900
Railway (B)	1 – 3 days	\$ 200 – 250
Difference (A-B)	11 – 12 days	\$ 600 – 650

Igniting Development in Northeast Asia

The expansion of economic cooperation between South and North Korea, with continued emphasis on direct investment in North Korea, is expected to create a significant synergistic effect and accelerate the formation of an economic community between the Korean people. In other words, through a collaboration of South Korean capital and technology and North Korean cheap labor and abundant natural resources, the South can relocate to the north its declining industries that have lost their international competitive edge due to cost increases. South Korea would thus be able to recover its competitive edge in these areas. Through this transfer of technology, North Korea would be able to acquire the hard currency it needs to replace its deteriorating infrastructure and so address its economic crisis. The relatively high South Korean wage costs for final assembly/finishing of trade goods destined for European and Far East Asian markets can be offset by savings on logistics expenses through the linking of the Trans-Korean Railways. South Korea would then become more competitive in attracting foreign investment (KISC, 2000).

The Eurasian land-bridge and the restoration of the Trans-Korean Railway system are expected to greatly accelerate the economic opening of North Korea. At the same time, the country would become an attractive site for those foreigners seeking to make cost-efficient investments, since the nation is rich in good-quality labor and natural resources. However, it will be difficult, for the time being, for foreign capital to gain entry into the North Korean market. This is because North Korean investment policy has become more conservative. The Eurasian railways and restoration of the Tran-Korean Railway will further accelerate economic cooperation in Northeast Asia. Recent history has seen little economic cooperation in Northeast Asia. The Cold War divided the nations of the region into opposing capitalist and socialist camps, from which they maintained a state of mutual confrontation. Under such circumstances, any sort of

conservative due to the foreign currency crisis in Southeast Asia in 1997. This heightened North Korean concern that its economy will become overly dependent upon foreign capital. For this reason, North Korea has restricted foreign investment to the Ranjin-Sonbong Economic Trading Zone in the northeast of the country. Also, North Korea is now relying more upon assistance from the South Korean government and private sector rather than foreign capital in order to revive its economy. This is best exemplified by the development of the Mt. Kumgang tourism enterprise run by the Hyundai Group of South Korea (Wolfe 2002).

The restoration of the Trans-Korean Railway is also expected to provide a range of benefits to the nations of Northeast Asia on top of promoting economic development in South and North Korea. In the case of Russia, for example, its exports to Korea and Japan of petrochemicals, paper and pulp products will increase once a direct transportation route is secured via the restoration of the TKR. Also, when the TKR is linked with the TSR, Korea and Japan will be better positioned to participate financially and technologically in the development of Siberian gas and energy resources, accelerating the project to link the gas pipeline networks of Korea and Japan. The result would be a very positive impact on the economic development in the Russian Far East. From a political perspective, the linking of TSR with the TKR would be a medium for Russia to expand its influence on the Korean peninsula (Wolfe, 2002).

Toward a Regional Economic Union

cooperation was unimaginable. Recently, however, there is growing interest in the formation of a regional cooperative system among the nations of northeast Asia in order to counter the regionalization of the world economy through such economic blocs as the EU and NAFTA. Japan and Korea already are planning the formation of an economic zone and a free trade agreement was discussed in

detail between these two governments. In the long term, a major economic cooperative community, along the lines of the European Union or the North American Free Trade Agreement (NAFTA) may be formed among the nations of the Asian Northeast. Given these circumstances, the Eurasian land-bridge will give new momentum to the formation of a regional economic cooperative community in Northeast Asia (Ahn 2003; Wolfe 2002).

The synergy to be derived from economic cooperation in Northeast Asia arises from the high level of complementarity between the productive resources of each country in the region. The technology and capital of Japan, the manufacturing technology and development expertise of South Korea, the labor forces of China and North Korea, and the natural resources of Russia and Mongolia would all provide the elements for well-balanced economic cooperation in the region. Considering the population, economic scale and growth of the Northeast Asian countries, the potential for regional cooperation is extremely high. Table 4 shows that the population of Northeast Asia totals 1.6 billion, or 21.5 percent of the entire world, and thus constitutes a potentially huge, single regional market. In addition, Northeast Asian GDP exceeded \$10 trillion in 2004. The volume of intra-regional trade in Northeast Asia is also huge, amounting to US\$1.49 trillion or 13.2 percent of the world total.

Economically, Northeast Asia is on the upswing. The Japanese economy is in recovery and growth is expected to reach 3 percent due both to higher exports to Asian markets and the economic stimulation policy of the government. China has been recording explosive economic growth of 8 percent annually. With accession to the World Trade Organization (WTO), Chinese exports are expected to surge, acting as the driving force behind regional economic growth. Following the foreign currency crisis of 1997, Korea has undergone a complete renovation of its economic practices through reforms in the private, financial, labor and governmental sectors. As a result of its policy to actively seek foreign investment and fuel the development of the IT industry, Korea achieved economic growth of 10.7 percent in 1999 and 4 to 7 percent growth ever since. Russia is overcoming its financial and foreign currency crisis of 1998 faster than expected. After attaining economic growth of 3.2 percent in 1999, the Russian economy is growing fast and will soon become the number eight economic power in the world (Wolfe, 2002; KISC, 2000).

The creation of the Eurasian land-bridge is, without doubt, a winning proposition for all the countries in Northeast Asia. In particular, the launch of the Eurasian land-bridge will position Korea as a link between the Eurasian continent and the Pacific Ocean, as well as a bridgehead

TABLE 4
MAJOR NORTHEAST ASIAN ECONOMIC INDICATORS, 2002

Country	Area(million km²)	Population(million)	GDP (World Rank)(US\$1 billion)	Trade Volume(US\$1 billion)
Japan	0.3	126.7	3,550 (3)	736
South Korea	0.1	46.9	941 (11)	320
China	9.6	1,250.0	5,600 (2)	498
Russia	17.0	146.0	1,200 (9)	157
North Korea	0.1	24.6	22	2.4
Mongolia	1.6	2.4	5	1.2
Total	28.7	1,596.6	11,318	1,714.6

for penetrating Northeast Asian and European markets. Once an atmosphere of reconciliation prevails on the peninsula, political risks will diminish and the potential for national and regional growth will increase, as will that for the establishment of a regional economic community in the long term (Chin, 2003).

Opportunities for U.S. Companies

Development of the Eurasian land-bridge, or “Iron Silk Road,” may offer various opportunities for U.S. companies, including but not limited to the following: investment, consulting, heavy machinery and equipment, up-to-date railroad technologies, telecommunication technologies, logistics technologies, supply and repair of rail equipment, bridge construction technologies, electric supplies for railroad construction, railroad safety and security equipment, terminal facilities in Europe and Korea, the delivery of goods from terminals in Eastern Europe to other European countries, freight-forwarding, and tourism (Kuzmichenko, 2002).

Obstacles and Skeptics

It is too early to precisely measure the impact of the Eurasian land-bridge. Russian railway officials maintain that the project will boost the shorter but underused Trans-Siberian Railroad route. Russia and South Korea also believe that the project may fuel progress in the unification of the two Koreas. But some experts have questioned the advantages of the project, saying it may fail both to bring economic benefits and help Korean unification. Critics argue that the planned rail link may not be cost-effective due both to increasingly lower cost of ocean transportation and the high probability that South Korean manufacturers will move their businesses to China or Southeast Asia, giving shipment by sea an even greater advantage (Medetsky, 2002).

As a direct connection between Northeast Asia and Europe can be achieved through rail, the

The current cost of sending cargo from Pusan to Finland by ship is \$2,100 per 40-foot container, much lower than the \$2,800 for the route involving Trans-Siberian transit. Further, the cost of the sea route is showing a downward trend. The lower cost may decimate the advantage of the shorter train journey of 20 days compared with 35 days by sea. It also remains far from certain whether the new route would be faster. First, cargo has to travel the 500 kilometers distance within South Korea, and the country’s railroad rates are more expensive than sea rates. Second, it is unclear what fee North Korea would charge for another 500 kilometers. Third, cargo would have to be transferred onto a different type of train car in Russia because Russia’s tracks are wider than Korea’s. Moreover, it is still unclear how the project would be viewed by freight firms and insurers since South Korea is still technically at war with North Korea.

The other scheme to link the Russian and Korean railway systems involves using China’s rail system. Cargo could travel across northeastern China to Russia, providing an even more direct route to Europe than the Trans-Siberian Railway. However, the critics point out that the congested Chinese railway system wouldn’t have the capacity to handle the transit flow. China’s port at Shanghai has even opened a sea route to the Russian Far Eastern port of Vostochny to secure easier access to the TSR. Additionally, Chinese tracks, like Korean ones, are narrower than Russian tracks and transshipment would cause delays. Last but not least, critics say that South Korean cargo potential might decrease sharply in the coming years because many Korean businesses are looking to move to China and Southeast Asia to lower production costs. If they do so, sea routes will be more competitive than the TSR or TCR to ship cargo to Europe (Medetsky, 2002).

Problems to Be Overcome

mode of rail transportation clearly shows extraordinary potential advantages over

maritime and air transportation. The disadvantages are also obvious with the complexity of cross-border procedures such as customs clearance, quarantine, security, transfers, etc. Furthermore, technical obstacles exist when connecting one country's railway network to the another and various problems can be encountered. Consequently, the connecting solution will be costly and time-consuming. In order to provide fast, safe and accurate transportation by rail, modern rail facilities are needed throughout all participating countries (Na, 2004).

There are also other barriers and problems to resolve. For example, the documents of the different countries have different codes, different requirements, and different customs clearance restrictions. Even the languages are different. As yet, no common language has been decided upon. For the transportation to be effective, trains also should run regularly. It should be just like shipping vessels, often called liner vessels, because those ships operate on published schedules. If railroads provide regular train operations, this will allow railway transport to be linked economically with ocean liner vessels' time schedules in the major regional ports.

Another issue is rate related. A single "through rate" should be available for cargo all the way from Pusan or Seoul to Moscow, Belarus, or Berlin, so that the freight forwarder can charge a uniform through rate to the shipper, and he/she can pay that cost to the railroad. This is very important, but very difficult to reach agreement on when many countries are involved. So, various nations will have to make concessions and compromises to achieve unified operations that are profitable for all.

The other important matter is the reliability of the service and safety of the cargo. Ensuring

cargo safety is a very important factor in building demand for the Eurasian railways. Also, the safe reverse flow of empty containers must be ensured. This factor is especially important to reenforce Eurasian land-bridge marketing. The difficulty of securing the safe back-haul transport of empty containers can be a major obstacle. Developing an effective information system could reduce this problem (Na, 2004).

CONCLUSION

Many aspects of the Eurasian land-bridge are being worked on, or are in different phases of realization—both along the Trans-Siberian Railroad and Trans-Korean Railways. What is still lacking is creation of the image of the Eurasian land-bridge as a great vision for the future as a tool for constructing a global economy. For this purpose, one country or a group of countries could, for example, promote this perspective in the United Nations. It is true that the United Nations, Russia, and South Korea are all actively moving forward to realize this project. However, the situation in North Korea is really unpredictable. North Korea must participate and open its borders to complete this project. The recent decision by North Korea to freeze all its nuclear reactors and to accept United Nations inspection clearly signals that North Korea is ready to join international society. Once there is an agreement among the participating countries and strong support from the international community, the construction of the Eurasian land-bridge will completely change the trade dynamics of the world. The Eurasian land-bridge will not only create the world's longest railroad, it will also increase the exchange of diverse ideas and cultures similar to that caused by the old Silk Road in the fifteenth century.

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