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Transportation Problems and Policies in Northeast Asia

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INTRODUCTION

After more than a half century's animosity among the neighboring countries in the Northeast Asian region covering Japan, Northeast China, the Russian Far East, South and North Korea, and Mongolia, the region is becoming one of the most dynamic in the world as ideological confrontation is fading away and mutual cooperation is strongly felt. Economic regionalization in the global economy, such as the EC and NAFTA, has given great impetus to economic cooperation among the countries in Northeast Asia. It has also brought a sort of crisis mentality of being left behind unless something is done for the survival of the region as a whole. In addition to the perceived need for a Northeast Asian economic bloc, potentials of regional complementarity in terms of natural resources and industrial structure have been driving forces for multilateral cooperation beyond the bilateral relationship which has been a dominant form of economic cooperation so far. Abundant natural resources in the Russian Far East and Northeast China, quality labor in North Korea and China, capital, technology, and developmental experience with a free-market economy in South Korea and Japan have been heralded to be mutually beneficial.

However, the countries in the region are not prepared to meet the needs of social overhead capital for increased mobility of goods and people which will naturally follow the internationalization of the Northeast Asian economy. During the 1980s the Asian countries led by Japan, South Korea, Taiwan, Hong Kong, and Singapore had achieved the most remarkable growth performance in the world economy. Although social overhead capital can be defined more rigorously, it is often used synonymously or exchangeably with a broad spectrum of physical facilities supportive for directly productive activities. It is facilitated by public or private investment but is usually within the domain of public and governmental investment because the magnitude of initial investment, as well as the low rate and prolonged period of return, tends to make it nearly impossible for the private sector to play a major role, especially in the countries where the private sector is not well-established, and a market economy is not firmly settled. This is the case in the Northeast Asian countries except for Japan. Social overhead capital is too broad to cover in this paper and is, therefore, confined to the transportation sector which includes road, railroad, maritime, and air transpor-

tation. The changing environment, which had already begun in the early 1980s, has raised many critical problems in transportation facilities for further integration and growth of the Northeast Asian economy.

This growth is apparent from the drastic increase in the volume of freight and passengers. Between 1970 and 1989 the world total for sea-borne dry cargo increased by an average of 3.7 percent per annum. Against this world average, the average growth rate for sea-borne cargo in the East Asia was more than twice as high at 7.6 percent per annum.¹ Passenger traffic volume by airway has been even more impressive. For example, the number of air passengers from Seoul to other capital cities of the East Asian countries more than doubled within 10 years beginning in 1980. Among the countries in Northeast Asia, a strong complementary relationship, as well as a competitive relationship, is steadily developing. This means that a country cannot be self-sufficient in almost all industrial sectors, which have to be complemented by other countries in the region. Eventually the result will be increased movement of intermediate goods as well as final goods and raw materials and final products.

REVIEW OF TRANSPORTATION PROBLEMS AND POLICIES IN NORTHEAST ASIA

Transportation infrastructure in Northeast Asia, with some exceptions of the Japanese archipelago and the Korean peninsula, is far behind that of other developed countries. The countries are in great need to overcome geographical friction arising from the sheer size of land mass and natural severity like the frozen sea and sub-zero climate. In particular, transportation facilities in Northeast Asia remain lowest in terms of length and density. The total length of road (in meters) as a ratio of the total area is as low as 128.1, as against a figure of over 1,000 in many developed countries although it varies from 1.5 for Yakut in Russia to 2,898.4 for Japan, as shown in Table 13.1. In the case of road length as a ratio of population, the figure is as low as 4.2 as against a figure of about 10 in some advanced countries.²

The underlying causes of underdeveloped and distorted transportation systems in Northeast Asia can be traced from many roots. First, the vastness of the region stretching from the Pacific to the Eurasian continent, the harsh climate, and the sparseness of population distribution have made demand-oriented transportation development less attractive. Secondly, to a large extent, transportation problems, which the region has to face now, emerge a general failure of understanding of the critical role of the transport sector as compared with other sectors in national development. As the emphasis of national development priority is given to the promotion of directly productive activities to get short-term economic performance, a due consideration of long-term investment in social overhead capital, especially in the transport sector, has been overlooked. The low priority given to fundamental infrastructural requirements has persisted during the past several decades. This sequence of developmental neglect has resulted in chronic and serious problems in the region. Thirdly, we cannot rule out that the transportation network and its concomitant spatial structure, which were deliberately introduced during the period of colonial and territorial expansionism before World War II, are still dictating the basic nature

Table 13.1 Country profile and transportation in Northeast Asia

Country and region	Area (1000) sq.-km)	Population (1000)	Population density (persons/ sq.km)	Road length (km)	Rail length (km)	Road density (km/1000 sq.km)	Rail density (km/1000 sq.km)
Soviet Far East (1989)	6,216	7,941	1.3	21,158	7,727	3.4	1.3
Maritime Kray	166	2,260	13.6	2,058	2,475	3.4	3.0
Khabarovsk Kray	825	1,824	2.2	4,133	1,295	29.9	7.8
Amur Oblast	364	1,058	2.9	4,094	—	2.2	—
Kamchatka Oblast	472	466	0.9	1,038	—	2.2	—
Magadan Oblast	1,199	543	0.5	2,997	—	2.5	—
Sakhalin Oblast	87	709	8.1	2,183	817	25.1	10.2
Yakut ASSR	3,103	1,081	0.3	4,655	124	1.5	0.04
Northeast China	1,970	119,110	60.5	127,266	17,088	64.6	8.7
Heilongjiang	454	35,100	77.3	41,399	5,045	91.2	11.1
Jilin	187	24,030	128.2	16,785	3,488	89.6	18.6
Liaoning	146	36,760	266.0	36,152	3,558	248.1	24.4
Inner Mongolia	1,183	21,220	17.9	32,930	4,998	27.8	4.2
Mongolia (1989)	1,565	2,000	1.3	3,950	1,807	2.5	1.2
North Korea (1989)	125	21,370	170.6	23,000	5,024	184.0	40.2
South Korea (1990)	100	43,520	439.5	55,778	6,435	557.8	64.4
Japan (1990)	378	122,783	329.3	1,095,021	21,375	2,898.4	56.6
Total	10,354	316,724	30.6	1,326,173	59,456	128.1	5.7

Source: Allan Rodgers, ed. *The Soviet Far East*, p. 3 and p. 191. W.B. Kim and B.O. Campbell, eds., *Proceedings of Conference on Economic Development in the Coastal Area of Northeast Asia* (Europe Publications Ltd., Statistical Survey: The Far East & Australia, 1992).

of the transportation system in Northeast Asia, although minor improvements have been made to meet immediate local needs and to complete some missing links.

Railways were mainly developed to link between port cities as a colonial bridgehead in the coastal region and inland resource frontiers, and therefore very few railways run coast—to—coast. Transport networks were also characterized by the dominance of south—north lines in the case of Korea and Northeast China. Different systems of railroad track are more than usual, minimizing operational efficiency and, in many cases, making impossible an integrated railway network system. Railways and highways are radiating from a few local points which were historical and strategic centers for colonial development. In brief, the Northeast Asian countries were left behind by outmoded transport facilities and a disjointed network in 1945, since then, piecemeal improvements have been made with an overall lack of investment priority.

MARITIME TRANSPORTATION AND PORT DEVELOPMENT

Although maritime traffic has never stopped because of political and military confrontation in Northeast Asia, it has just begun to increase along with political changes that began in the late 1980s in the region. Economic linkages among the countries in the Yellow Sea and the Sea of Japan are growing as factor complementarity in terms of labor, materials, capital, and technology necessitates a borderless economic sphere to take competitive advantage. Accordingly, new containerized and scheduled shipping lines have just started operation in major ports in the region. There are more than 30 international trading ports in the region, and more than 1,300 scheduled vessels per month are operating among the ports within the region, as given in Table 13.2. Maps 13.1 and 13.2 show schematically the major shipping routes and the volume of frequency among the countries.

Ambitious port development projects have been drafted, and some of them are actually under construction. Japan has established a nationwide network of ports, encompassing more than one thousand in total, of which 113 ports are ranked as major ports. While nearly all of these major ports are more or less capable of handling container traffic, about 90 percent of the international containers are handled at the ports of Kobe, Yokohama, Nagoya, Tokyo, and Osaka. As of 1991, the construction of 19 ports over 12 meters deep has been planned and is now in progress in the coastal cities along the Sea of Japan under the name of Japan Sea Movement.³ North Korea announced its plan to designate Rajin—Sonbong and Chongjin port as a free economic trade area and a free trade port with the necessary provision of infrastructure including port facilities, electrified railway, road and highways, and telecommunication facilities.

In addition to the existing ports of Vostochny and Nakhodka, Vladivostok, which had remained largely closed to foreigners as the home to Russia's Pacific fleet, is ready to open as an international trading port. Vladivostok is only 1,000 kilometers from Seoul and Tokyo, and it lies at the end of the Trans-Siberian railway, allowing freight to be shipped to the western part of the former Soviet Union and other countries in Europe. Vladivostok and Nakhodka are planned to become entry ports for exports to and from Asia. China is currently expanding port facilities and building container

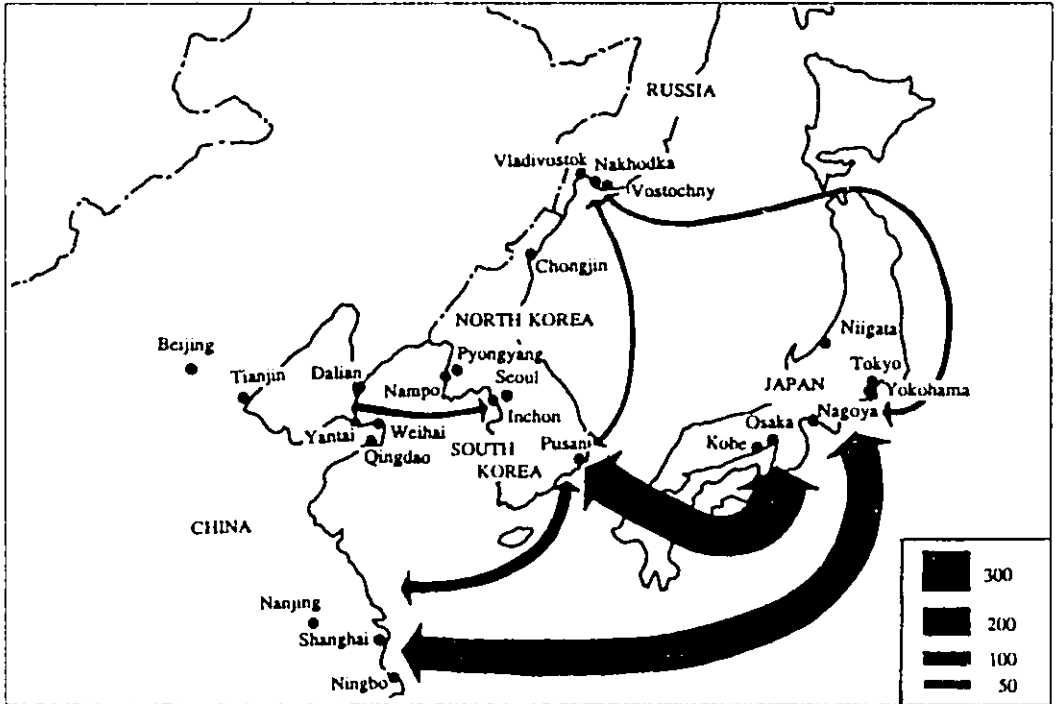
Table 13.2 (continued)

	Japan	China	S. Korea	N. Korea	Russia
Japan	—	250	328	na	15
China	250	—	71	na	na
S. Korea	328	71	—	na	8
N. Korea	na	na	na	—	na
Russia	15	na	8	na	—
Total	500	310	407	—	23

wharves at existing ports, including Dalian, Tianjin, Qingdao, Shanghai, and Ningbo. However, these ports are unable to accommodate large container vessels because of natural limitations of harbor sites handicapped by shallow water or by poor accessibility to the hinterlands. Urgent efforts are being made to upgrade, improve, and expand port facilities, particularly in the special economic zones, but ports are still unable to cope with rapidly increasing traffic demands. China, especially its three northeast provinces, is planning to develop a maritime link to the Sea of Japan by the reopening of Hunchun port located 15 km inland from the mouth of the Tumen River under the metaphor of the Golden Delta development. The Hunchun Development Plan includes the development of a free trade port on the Tumen River, the establishment of a free trade zone either in the Hunchun area or in the border area of the neighboring three countries, and the formation of a triangle area, connecting Hunchun and adjoining cities of Russia and North Korea for international cooperation. Because of the geographical features of this region, the involvement of both Russia and North Korea is indispensable to the realization of this grand scheme which is expected to play a pivotal role for the development of Northeast Asia.

South Korea's main container terminals are located at Pusan and Inchon. Inchon's proximity to the capital city of Seoul is an advantage. However, there are also a number of disadvantages including Inchon's remoteness from major sea routes and the large tidal range of 8—9 meters. These factors have hindered Inchon's growth as a port for liner services, so most of Korea's container traffic is handled in Pusan. Rapidly growing container traffic has already surpassed the capacity of the Pusan port. Therefore, the South Korean government plans the development of a new container port in Kwangyang which is expected to add an additional capacity of 1.8 million TEUs by the year 2000. Another new international trading port is under consideration at Pohang, which hopes to play a center for the area of the East Sea (the Sea of Japan) rim on the part of the Korean peninsula.

There is great potential for increased trade and maritime traffic in Northeast Asia. Cooperation between and among the countries can enhance the prospects for the increase through port expansion and modernization and the facilitation of navigation by the most direct routes. However, the development of a port involves more than providing an adequate depth and shelter from the open sea. Infrastructure must also be provided if the port is to be efficient and competitive. Loading and unloading



Map 13.1 Total volume among the nations

facilities, cargo handling equipment, adequate storage space, and transportation network that can draw up and feed into the port's hinterland must also be provided. However, we cannot deny that there are some undesirable phenomena: insufficient economies of scale, overlapping port development plans largely stimulated by local egoism in a country, and lack of supportive logistics for maritime transport.

AIRPORTS AND AIR TRANSPORTATION

As Northeast Asia lies over a great land mass and is separated by the seas and is, therefore, difficult for passenger traffic to rely on other means of transport than air transportation, it is quite natural that air transportation will become increasingly important. There are 27 international airports in the region, and 95 scheduled international direct air routes among the operating airports, as given in Table 13.3.

However, international air routes in operation are highly concentrated in the corner between 14 Japanese cities and 3 South Korean cities, as shown in Map 13.3. They are separated by only two hours of air flight time, which is not greatly different from domestic ones. Recently, many lines have started operation between Japan and Chinese cities like Beijing and Shanghai, and many more are waiting to be opened. Air route distances and the area to be served are rapidly expanding between Russian cities (Khabarovsk and Irkutsk) and South Korean and Japanese cities (Seoul, Niigata, and Nagoya). A big loophole of missing air link in Northeast Asia is between North Korea and northeast China, with no way to get there by air, although there must be great demand. There is also no direct air route between China and South Korea. When South Korea—North Korea relations and Japan—North Korea relations

the Kansai airport in Osaka in Japan, the new Seoul international airport in Youngjongdo in Korea, and the Chep Lap Kok airport in Hong Kong, which is located offshore and is trying to become an international hub airport accommodating supersonic, intercontinental air services. China is also continuing a massive airport construction and is upgrading facilities aimed at increasing foreign trade and tourism, but none of the ambitious programs include the northeastern part of China. However, airport improvement is crucial for the development of the almost landlocked three northeast provinces: Jilin, Heilongjiang, and Liaoning. However, primarily owing to the inadequacy of financial resources and necessary infrastructure, most countries have not yet been able to push ahead as expected. For the common benefit of the Northeast Asian countries, international air linkages among China, South Korea, the Russian Far East, and Japan have to be newly opened and intensified. In this context, a new international airport in the Golden Delta is urgently needed.

RAILROAD AND EURASIA LANDBRIDGE

Railroads are the backbone of the transportation network and the primary means of transportation in China, Russia, Mongolia, and North Korea. In terms of railroad density, the three northeast provinces (Liaoning, Jilin and Heilongjiang) rank as the three highest in China. During the 8th Five-Year Plan (1991—1996), substantial effort will be made to complete many double-track railway lines in northeastern China, especially in Heilongjiang (Harbin—Suifenhe and Mudanjiang—Linkou). The railway system has also been North Korea's principal means of transport, handling most of the country's freight and passenger traffic. The North Korean government envisages an increase of 60 percent in rail freight traffic through further electrification, the development of centralized and container transport, and the modernization of railway operation.

Until recently, Russian rail links provided landlocked Mongolia with its only outlet to the sea, at Nakhodka, about 1,500 km away. However, Mongolia succeeded in securing access to the Chinese port of Tianjin through the railway of Zhangjiakou—Erenhot—Ulan Bator which was once considered as an alternative for an Eurasian landbridge. As the agreement allowing Mongolia to use port facilities in Tianjin was signed in 1991, it has made it possible to send Mongolian goods through China to overseas markets. The Russian Far East has a very simple transport system. Its backbone is the Trans-Siberian Railway (TSR), which hugs the southern border of the region, following the Amur and Ussuri valleys to the Pacific. The transport system largely determines a special structure which is characterized by nodal and linear patterns clustered around attractive natural resources and inland ports, and the low level of regional integration.⁵ The most general freight movements, except bulk fuel and raw material movements, are likely to involve two or three different modes of transportation and a number of trans-shipments. Accordingly, a second east—west railway, the Baikal—Amur Mainline (BAM), north of the TSR, has been proposed and is slowly in progress. The Greater Vladivostok Plan proposes to turn coastal districts from Posyet on the North Korean border to the port of Vostochny into a special economic zone incorporating the Nakhodka zone. One of the plan's key elements is the construction of a direct rail link from Posyet port across the border to

Table 13.3 International airports and no. of direct air routes in Northeast Asia

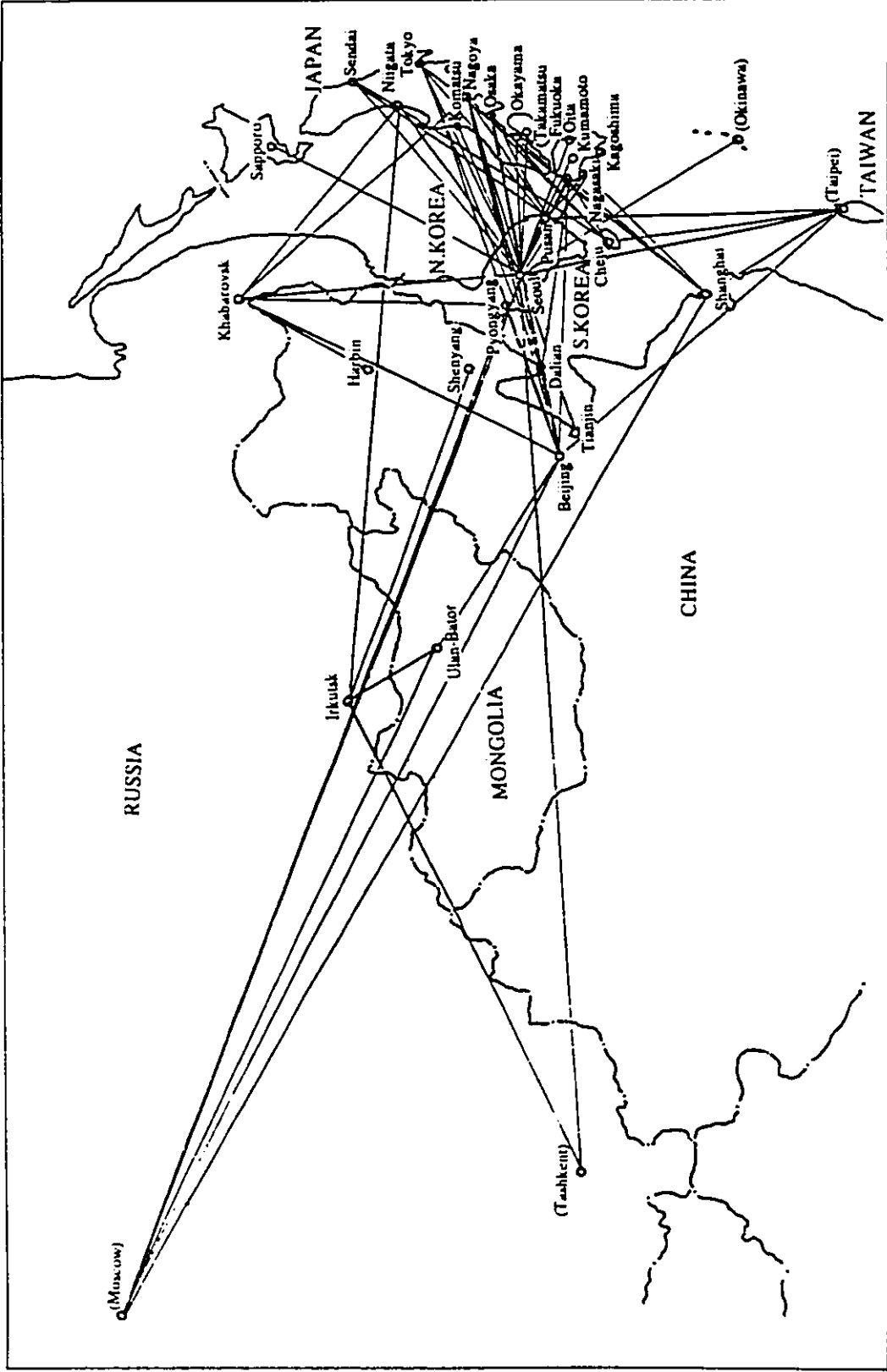
	Japan	China	South Korea	North Korea	Russia	Mongolia	Total
Fukuoka (6)	Oita (1)	Beijing (7)	Seoul (16)	Pyongyang (2)	Irkutsk (3)	Ulan Bator (2)	
Nagasaki (2)	Okayama (1)	Dalian (4)	Pusan (6)		Khabarovsk (6)		
Nagoya (6)	Osaka (6)	Harbin (1)	Cheju (4)				
Kagoshima (1)	Sapporo (1)	Shenyang (1)					
Komatsu (1)	Sendai (3)	Tienjin (1)					
Kumamoto (1)	Takamatsu (1)						
Niigata (3)	Tokyo (5)	Shanghai (4)					
	14 (38)	6 (18)	3 (26)	1 (2)	2 (9)	1 (2)	27 (95)

the Chinese city of Hunchun. This would cut out a lengthy rail loop through North Korea's Rajin; the action will have many implications for the development of the Tumen River region.

Beyond the minor improvements of railroad system in the respective countries, one of the critical issues involving more than one country is how to build an integrated multi-modal transportation system to be able to link sea-borne and inland transportation systems. Efforts for an intermodal transport system linking maritime and inland transportation system have been made after the opening of the TSR. From its first operation between Japan and Russia's Nakhodka in 1958 until the early 1980s, TSR has recorded the transportation volume of 70,000—100,000 TEU to become one of the world's major intermodal transportation networks. But, as shown in Table 13.4, the total container volume use by Japan and South Korea has dropped from 90,000 in 1985 to 74,000 TEU in 1990 mainly because of the Japanese customer's declining to use TSR because of management problems, such as bureaucratic rigidity and inefficiency, non-punctuality, and the failure of marketing, in spite of its merits of shorter distance and cheap cost compared with the sea-borne route via the Suez Canal. However, there is a contradictory sign. South Korea, which first began to use TSR in 1973, has rapidly increased its share.

The search for an alternative route for the Eurasian landbridge has never stopped. In the early 1980s, China began to introduce two alternative routes largely utilizing the existing railways, namely the Trans—Manchurian Railway (Dalian port—Manzhouli—Russia—Europe) and the Trans—Mongolian Railway (Tianjin—Erenhot—Mongolia—Russia—Europe). But they were not placed into actual operation. Recently China completed a new landbridge starting from Lianyungang port via Zhengzhou, Ulumchi, and Alashankou to Europe, namely the Trans—China Railway (TCR), which will provide South Korea, Japan, Taiwan, and Hong Kong with a shortened and convenient passage in their international container transportation, as shown in Map 13.4. It is now ready to compete with TSR as the trans-shipment station at Alashankou is completed.

However, many things need to be done before the actual landbridge transport business can be fully operational. These include coordinating price systems, business procedures, and the alignment of railroad track gauge. There is still another alternative of the Trans-Korean Railway (TKR). If railway between North and South Korea is connected, TKR starting from the southern coastal port cities of Pusan or Kwangyang and passing through the South—North Korean railway and TCR or TSR, is expected to gain a competitive edge as a new intermodal transportation route to Europe.⁶ A further visionary idea is to connect the Korean peninsula and the Japanese archipelago across the Korean Strait by under-sea tunnel, which is becoming more than wishful thinking because the two sides have begun to talk seriously. If this visionary concept comes true, it may not be totally impossible to consider that one can go from Tokyo to London by railway. As far as the Eurasian landbridge is concerned, there will be a certain degree of competition in the short-run, but in the long-run the competition will evolve into a mutually compensating relationship which will help Northeast Asia become a fullfledged member in the world economy.



Map 13.3 International scheduled airlines in Northeast Asia

Map 13.4 Major railways in Northeast Asia

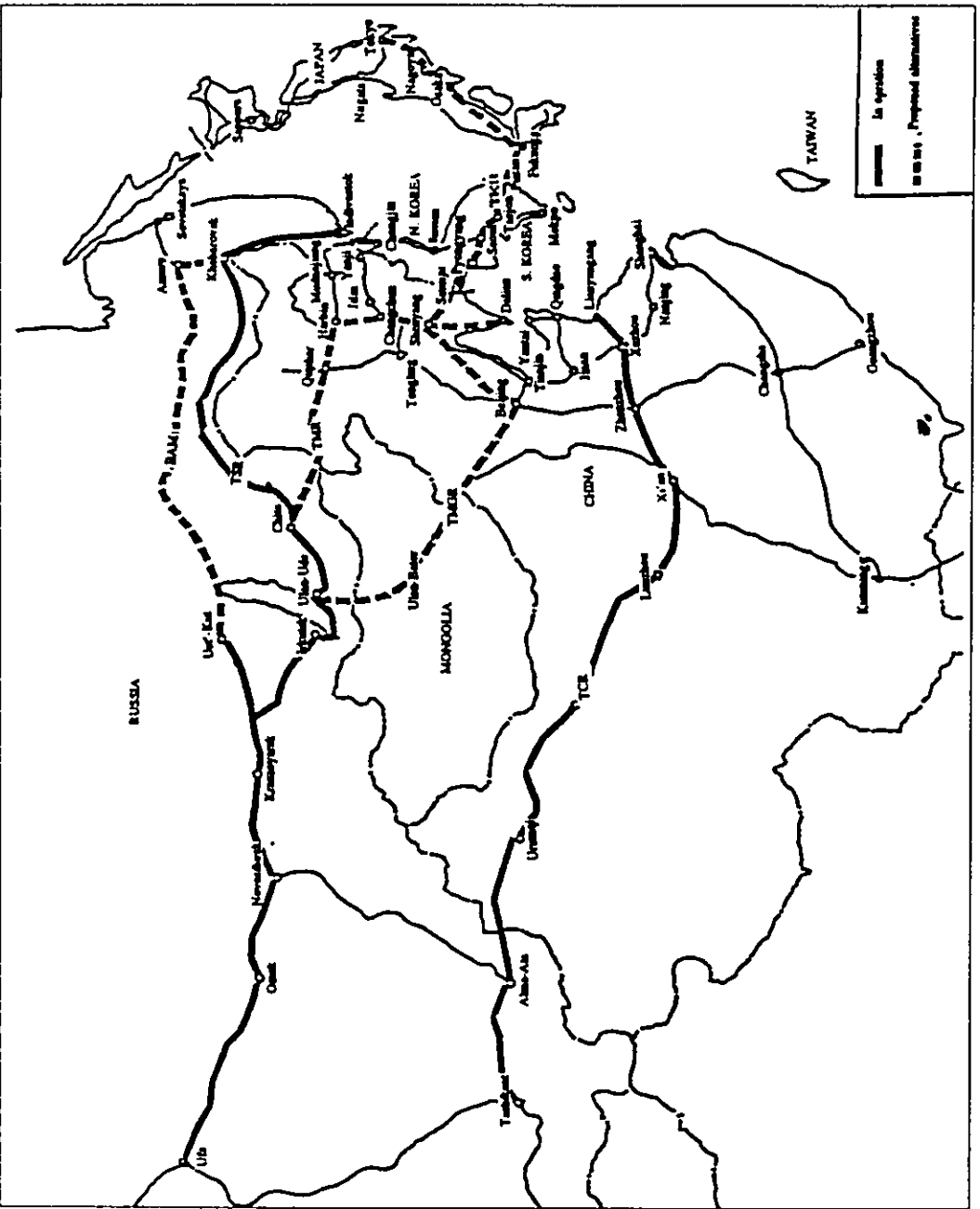


Table 13.4 Container volume of Korea and Japan by TSR

	1985	1986	1987	1988	1989	1990	Average annual rate of decrease & increase
Export volume	62,391	54,464	51,033	54,095	49,563	51,493	-3.8
Korea	3,509	3,464	7,488	11,408	12,397	14,919	33.6
Japan	58,882	51,000	43,547	42,687	37,166	36,574	-9.1
Import volume	27,814	22,688	25,936	28,964	24,133	22,118	-4.7
Korea	1,933	1,107	2,181	3,790	4,607	5,004	21.0
Japan	25,881	21,581	23,755	25,174	19,526	17,114	-7.9
Exp. & imp. vol.	90,205	77,152	76,969	83,059	73,696	73,611	-4.1
Korea	5,442	4,571	9,667	15,198	17,004	19,923	29.6
Japan	84,763	72,581	67,302	67,861	56,692	53,688	-8.7

DATA: Drawn up by KMI with data from KMPA & JAMRI

Unit: TEV,%

CONCLUSION

In the context of transnational and continental transportation systems, the road as a mode of transport is less important although there had been an idea of the Trans-Asian Highway. Instead, the pipeline has been recently highlighted as an important means of transportation for gas and oil. The South Korean and Russian governments have allegedly begun to talk about the construction of a pipeline from Yakut in Russia, through the Russian Far East and North Korea, to South Korea and further to Japan across the Korean Strait. The total length would be about 5,300 km, which will make it the longest manmade artifact. However, the future of transport system development in Northeast Asia greatly depends on many uncertain factors which can be both promising and discouraging. They are the reunification issue of two Koreas, which have the pivotal location for the design of a transportation system in the region, the demand for natural resources and their pricing relative in the world market, the degree of coerciveness in the formation of a regional economic bloc, and technical innovation which may bring a new mode of transportation.

Above all, transport investment in Northeast Asia will play a more prominent role in the economy than in any other region in the world. More investment in transport is required to achieve a given development goal than elsewhere. However, colonial imprints still remain in many places. Railroads and a port system first built by Russia and taken over by Japan later were initially introduced to serve colonial interests rather than endogenous needs. Although partial improvements have been made since the 1950s, lack of financial resources and misplaced priority during the cold war period have left the transportation infrastructure nearly untouched. To be an integrated and viable economic region comparable to EC, the completion of missing links across national boundaries, as well as concerted efforts not to overlap investment but to maximize investment impacts for mutual benefit, is necessary.

More attention needs to be given to the role of transportation within the context of the emerging East Asia Development Corridor beyond the Northeast Asian region. In the closing years of the 20th century and the dawn of a new one, a new regional integration appears to be in the making in Pacific Asia, which is taken to refer to the western Pacific rim inclusive of East and Southeast Asia or countries stretching from Vladivostok to Hong Kong with a possible extension to Hanoi.⁷

NOTES

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3. Zenkichi Wada, "Summary of Regional Infrastructure: Ports and Harbors," in W.B. Kim and B.O. Campbell, eds., *Proceedings of the Conference on Economic Development in the Coastal Area of Northeast Asia, 29—31 August 1990, Changchun, China* (East—West Center, 1992), p. 115.
4. *Aviation Week and Space Technology*, 1 June 1992, p. 20.
5. Robert N. North, "The Far Eastern Transport System," in *The Soviet Far East: Geographical Perspectives on Development*, ed. Allan Rodgers (London: Routledge, 1990), pp. 185—190.

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